



**el paso
WATER**

**JOHN T. HICKERSON WRF
HEADWORKS BARSCREEN
REPLACEMENT**

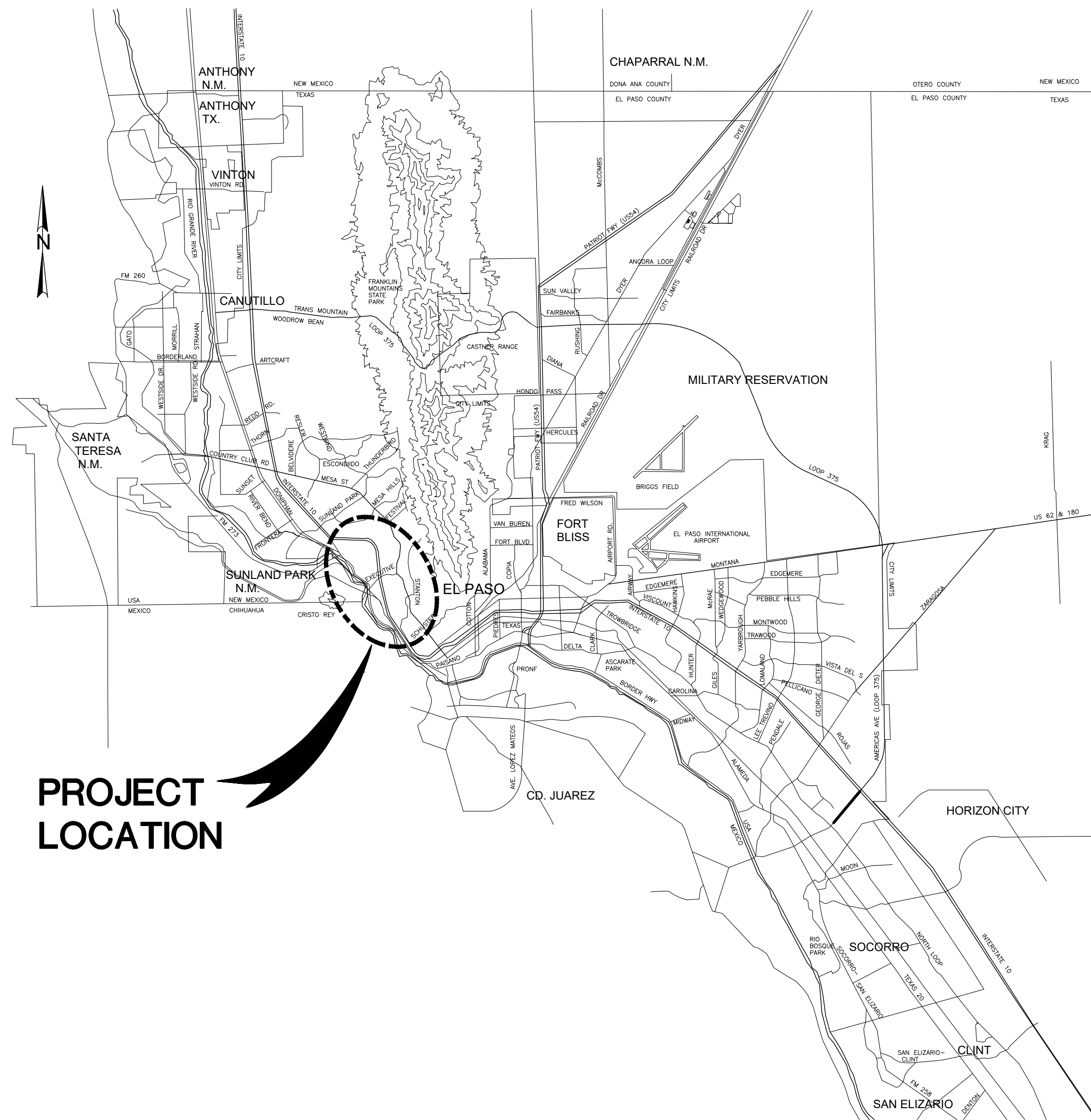
BID 40-23

APRIL, 2023

PUBLIC SERVICE BOARD MEMBERS

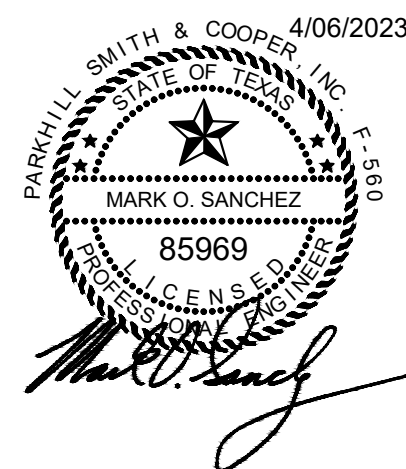
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|--------------------------------|----------------------------|
| IVONNE SANTIAGO P.E. | CHAIR |
| BRYAN MORRIS, P.E. | VICE CHAIR |
| CHARLIE INTEBI | SECRETARY-TREASURER |
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| LISA SAENZ | MEMBER |
| STEFANIE BLOCK URIBARRI | MEMBER |
| MAYOR OSCAR LEESER | EX-OFFICIO MEMBER |

- | | |
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| IRAZEMA SOLIS ROJAS, P.E. | CHIEF TECHNICAL OFFICER |



**PROJECT
LOCATION**

VICINITY MAP



1154 Hawkins El Paso, Tx. 79925 (915)904-5500

Parkhill

501 W. San Antonio - El Paso, Texas 79901 - 915.533.6811
TBPE Registration F-560

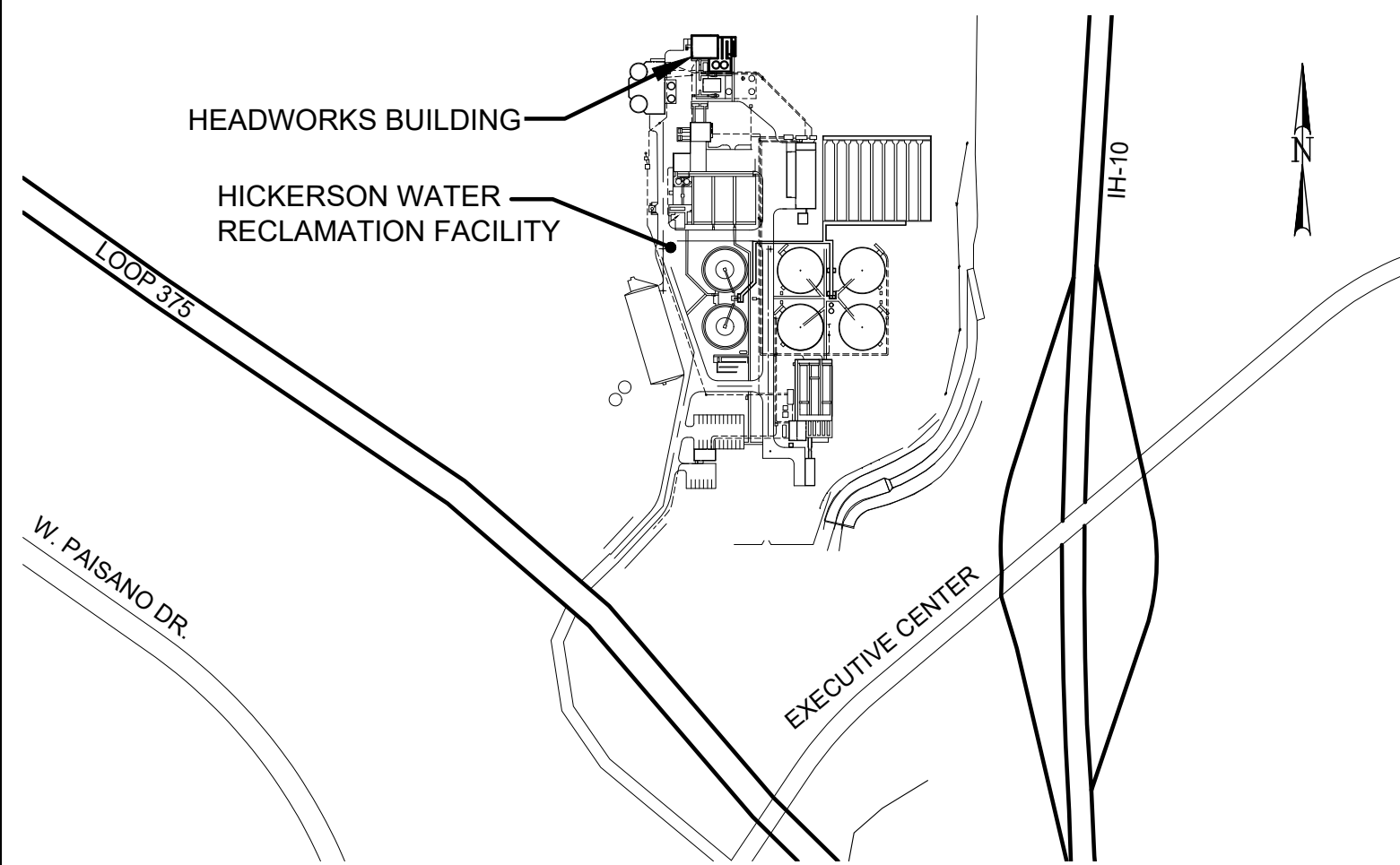
Parkhill.com

**CIP# S090012
ENG/PROJECT I.D. 21-9001**

GENERAL NOTES

- ALL EXISTING UTILITIES CURRENTLY IN SERVICE MUST REMAIN IN SERVICE THROUGHOUT CONSTRUCTION OF THE PROJECT AS NOTED IN THE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES FROM DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES.
- ALTHOUGH ALL EFFORTS HAVE BEEN MADE TO INDICATE ALL MAJOR EXISTING UTILITIES ON PLANS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ALL SAID UTILITIES AS WELL AS SERVICE CONNECTIONS (WHETHER OR NOT INDICATED ON PLANS) PRIOR TO AND DURING CONSTRUCTION. SERVICE CONNECTIONS ARE NOT SHOWN ON THE PLANS.
- PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE WITH EPWU PLANT STAFF TO VERIFY LOCATION OF EXISTING UTILITIES.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH EPWU FOR ELECTRIC, NATURAL GAS, COMMUNICATION, SEWER AND WATER UTILITIES. FOR ANY RELOCATION AND/OR PROTECTION OF EXISTING LINES OR CABLES AS REQUIRED, DUE TO CONSTRUCTION ACTIVITIES.
- UNLESS OTHERWISE INDICATED, ALL EXISTING ROADWAYS, SIDEWALKS, & SURFACE GRADING AFFECTED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL CONDITION AND ELEVATION BY CONTRACTOR.
- CONTRACTOR SHALL KEEP ALL EQUIPMENT, MATERIAL, DEBRIS & SPOIL OUT OF THE WAY OF PLANT OPERATIONS.
- THE INFORMATION PROVIDED IS FOR THE CONTRACTOR TO PLAN HIS CONSTRUCTION ACTIVITIES, SO AS NOT TO INTERFERE WITH PLANT OPERATIONS.
- IN SOME CASES ACCESS MAY BE LIMITED TO THE AVAILABLE SPACE AS DETERMINED BY THE ENGINEER AND THE EPWU PLANT SUPERINTENDENT.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR WORK SITE SAFETY AND FOR COMPLYING WITH ALL APPLICABLE SAFETY REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH OTHER WORK BEING PERFORMED AT THE PLANT. IT IS NOT EXPECTED THAT ANY OTHER WORK WILL BE OCCURRING IN THE HEADWORKS BUILDING AREA.
- THE DRAWINGS ARE BASED ON RECORD INFORMATION FROM PAST CONSTRUCTION PROJECTS AT THE PLANT. FOR CONTRACTOR'S INFORMATION EXCERPTED RECORD DRAWINGS FROM THESE PAST CONSTRUCTION PROJECTS HAVE BEEN INCLUDED AT THE END OF THIS DRAWING SET. THE EXCERPTED DRAWINGS ARE INTENDED TO PROVIDE ADDITIONAL BACKGROUND INFORMATION IN THE AREAS WHERE WORK IS TO OCCUR.
- THIS IS AN EQUIPMENT REPLACEMENT AND RETROFIT PROJECT. INFORMATION USED FOR DRAWINGS IS BASED ON RECORD INFORMATION FROM THE ORIGINAL PLANT CONSTRUCTION AND INFORMATION AVAILABLE FROM CURRENT IMPROVEMENT PROJECTS IN CONSTRUCTION AS OF THE DATE THESE PLANS WERE ISSUED. BEFORE BEGINNING ANY CONSTRUCTION CONTRACTOR SHALL INVESTIGATE, VERIFY, AND CONFIRM DIMENSIONS AND ELEVATIONS SHOWN FOR INSTALLATION OF ALL NEW WORK INCLUDING WHERE NEW WORK IS TO CONNECT TO EXISTING STRUCTURES, GRADES, PIPING, AND EQUIPMENT. ANY DISCREPANCIES BETWEEN CONTRACTOR'S FIELD VERIFIED INFORMATION FROM WHAT IS SHOWN ON THE DRAWINGS AND/OR CALLED OUT IN THE SPECIFICATIONS SHALL BE PROVIDED TO THE ENGINEER IN WRITING. ANY RE-WORK REQUIRED DUE TO LACK OF VERIFICATION AND NOTIFICATION WILL BE AT CONTRACTOR'S COST.

LOCATION MAP



DRAWING NUMBERING SYSTEM

THE DRAWINGS ARE SUBDIVIDED BY GENERAL TYPE AS FOLLOWS:

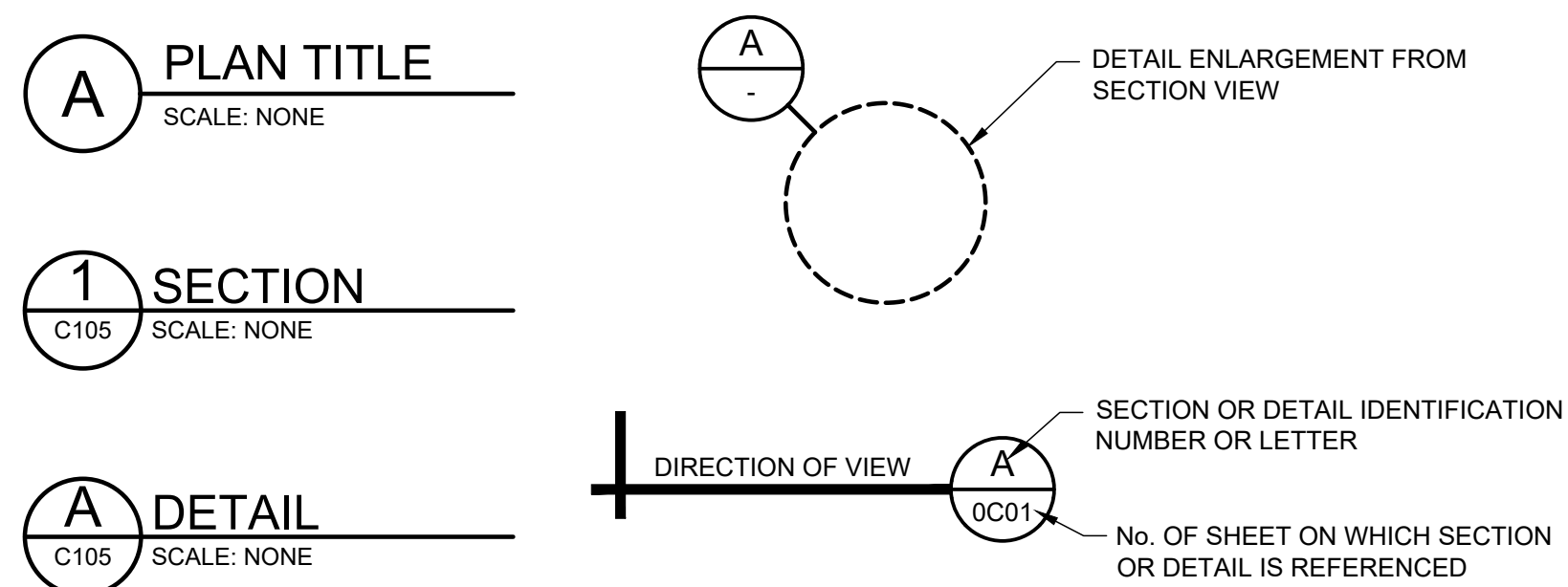
- G GENERAL
- C CIVIL
- M MECHANICAL
- S STRUCTURAL
- P PROCESS AND INSTRUMENTATION DIAGRAMS
- E ELECTRICAL

SHEET INDEX

SHEET NO.	DRAWING NO.	DESCRIPTION
1	G001	COVER AND VICINITY MAP
2	G002	LOCATION MAP, GENERAL NOTES AND SHEET INDEX
3	G003	GENERAL SYMBOLS AND DESIGNATIONS
4	G004	PLANT AERIAL MAP
5	G005	SURVEY CONTROL
6	G006	EXISTING AND PROPOSED PLANT FLOW SCHEMATIC
7	G007	HYDRAULIC PROFILE - 1
8	G008	HYDRAULIC PROFILE - 2
9	C101	HEADWORKS IMPROVEMENTS SCOPE OF WORK
10	C102	HEADWORKS IMPROVEMENTS SEQUENCE OF CONSTRUCTION
11	C103	EXISTING SITE PIPING
12	C104	PAVING, GRADING AND DRAINAGE PLAN
13	C105	RETAINING WALL A PLAN AND PROFILE STA. 0+00 TO 1+24
14	C106	RETAINING WALL B PLAN AND PROFILE STA. 0+00 TO 1+05
15	C107	MONTECILLO 8" RS LINE RELOCATION TIE-IN
16	C108	TRENCH BOX, DRAIN LINE PLAN VIEW SECTIONS AND DETAILS
17	C109	BARSCREEN, CONVEYOR, LEVEL LODOR AND RETAINING WALL SECTION
18	C110	TROUGH AND EXHAUST PLAN VIEW AND SECTIONS
19	C111	TROUGH AND EXHAUST DETAILS
20	C112	PRECAST BOX CULVERT PLAN AND SECTIONS
21	C113	MISCELLANEOUS CIVIL DETAILS
22	M101	HEADWORKS EQUIPMENT REPLACEMENT AND REMOVAL PLAN
23	M102	BARSCREEN AREA PARTIAL PLAN EQUIPMENT REPLACEMENT AND REMOVAL
24	M102-P	BARSCREEN ROOM PHOTOS
25	M103	MEZZANINE PARTIAL PLAN EQUIPMENT REPLACEMENT AND REMOVAL
26	M104	GRIT PARTIAL PLAN EQUIPMENT REPLACEMENT
27	M105	GRIT PUMPING ROOM, PUMP AND PIPE REPLACEMENT
28	M105-P	GRIT PUMP ROOM PHOTOS
29	M107	GRIT PUMP ROOM EQUIPMENT REPLACEMENT SECTIONS
30	M108	HEADWORKS DISTRIBUTION AREA PARTIAL PLAN CHANNEL RELINING
31	M109	BARSCREENS SECTION EQUIPMENT REPLACEMENT AND REMOVAL
32	M110	BARSCREENS SECTION EQUIPMENT REPLACEMENT AND REMOVAL
33	M111	BARSCREENS SECTION EQUIPMENT REMOVAL
34	M112	HEADWORKS HVAC SECTION
35	M113	MEZZANINE EQUIPMENT REPLACEMENT AND REMOVAL
36	M114	GRIT CHAMBERS EQUIPMENT REPLACEMENT SECTION
37	M115	GRIT PUMP ROOM EXISTING HVAC PLAN AND SECTIONS
38	M116	GRIT CHANNEL RELINING SECTION
39	M117	BARSCREEN NEW SCREENINGS EQUIPMENT PLAN
40	M118	BARSCREEN NEW SCREENINGS EQUIPMENT SECTION
41	M119	LEVEL LODOR PLAN AND ELEVATIONS
42	M120	MISCELLANEOUS DETAILS
43	S101	HEADWORKS STRUCTURAL MODIFICATIONS FLOOR LEVEL PLAN
44	S102	HEADWORKS STRUCTURAL BARSCREEN ROOM ROOF PLAN
45	S103	BARSCREEN EXISTING STRUCTURAL SECTIONS
46	S104	BARSCREEN CHANNELS EXISTING STRUCTURAL
47	S105	BARSCREEN CHANNELS MODIFICATION DETAILS
48	S106	RETAINING WALL STRUCTURAL DETAILS
49	S107	RETAINING WALL CONCRETE RAMP SECTIONS AND DETAILS
50	S108	LEVEL LODOR CONCRETE SLAB PLAN & SECTIONS
51	S109	LEVEL LODOR CONCRETE SLAB RAMP PLAN & SECTIONS
52	P001	P&ID GENERAL NOTES
53	P002	P&ID LEGEND AND SYMBOLS
54	P101-D	HEADWORKS SCREENING DEMOLITION
55	P101-P	HEADWORKS SCREENING PROPOSED
56	P102-D	HEADWORKS SCREENING DEMOLITION
57	P102-P	HEADWORKS SCREENING PROPOSED
58	P103	HEADWORKS GRIT REMOVAL AND PUMPING EQUIPMENT REPLACEMENT
59	P104	HEADWORKS GRIT REMOVAL AND PUMPING EQUIPMENT REPLACEMENT
60	P105	HEADWORKS GRIT SEPARATION AND WASHING EQUIPMENT REMOVAL AND REPLACEMENT
61	P106	HEADWORKS GRIT HOPPER EQUIPMENT
62	P107	HEADWORKS AIRFLOW
63	E001	ELECTRICAL LEGEND, ABBREVIATIONS, AND SYMBOLS
64	E002	ELECTRICAL LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES
65	E003	ELECTRICAL HAZARDOUS AREA CLASSIFICATION
66	E004	ELECTRICAL DEMOLITION PLAN
67	E005	ELECTRICAL MCC-10A ONE-LINE DIAGRAM DEMO-SHEET
68	E006	ELECTRICAL MCC-10B ONE-LINE DIAGRAM DEMO-SHEET
69	E007	ELECTRICAL FIRST FLOOR POWER PLAN
70	E008	ELECTRICAL MEZZANINE POWER PLAN
71	E009	ELECTRICAL GRIT PUMPING ROOM POWER PLAN
72	E010	ELECTRICAL DETAILS
73	E011	ELECTRICAL CONTROL SCHEMATIC DIAGRAMS-1
74	E012	ELECTRICAL CONTROL SCHEMATIC DIAGRAMS-2
75	E013	ELECTRICAL MCC-10A ONE-LINE DIAGRAM
76	E014	ELECTRICAL MCC-10B ONE-LINE DIAGRAM
77	E015	ELECTRICAL LOAD TABLE MCC-10A
78	E016	ELECTRICAL LOAD TABLE MCC-10B
79	E017	ELECTRICAL OVERALL PLANT ONE-LINE DIAGRAM
80	RD001	COVER SHEET RECORD DRAWINGS

* RECORD DRAWINGS 1992 NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION HEADWORKS 122 SHEETS

SECTION & DETAIL CROSS REFERENCING



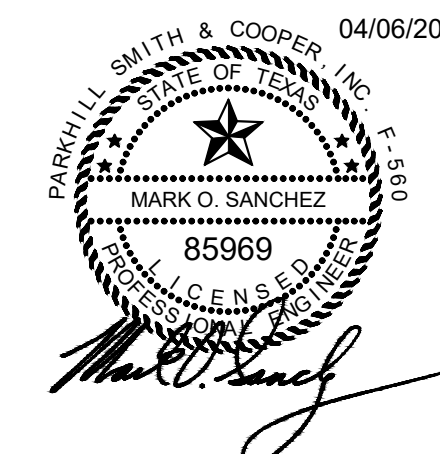
WARNING

CONFINED SPACE - CONTRACTOR SHALL ABIDE BY REGULATIONS IN OSHA STANDARDS: 29 CFR-1910.146 APPENDIX A, B, C, D, E & F.

FALL PROTECTION - CONTRACTOR SHALL ABIDE BY ALL RULES & REGULATIONS IN OSHA STANDARDS: 29 CFR - 1926.500 THROUGH 1926.505

LIST OF UTILITIES AND AGENCIES

<p>EPWU PROJECT MANAGER: EL PASO WATER UTILITIES 1154 HAWKINS EL PASO, TX 79925 MR. CARLOS DOMINGUEZ P.E. (915) 594-5697</p>	<p>EPWU PLANT SUPERINTENDENT: 701 EXECUTIVE CENTER BLVD, EL PASO, TX 79922 MR. FRED MURILLO MR. CARLOS DOMINGUEZ P.E. (915) 594-5791</p>	<p>ENGINEER: PARKHILL 501 W. SAN ANTONIO EL PASO, TX 79901 (915) 533-6811 MR. MARK SANCHEZ, P.E.</p>
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**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION
ISSUING OFFICE:	EL PASO	PROJECT NO: 3065.21

**LOCATION MAP,
GENERAL NOTES
AND SHEET INDEX**

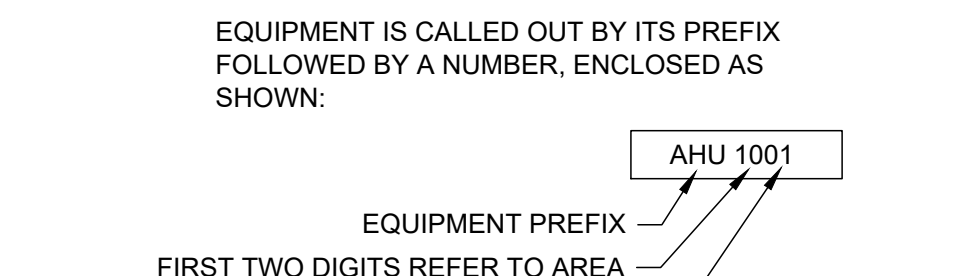
GENERAL SYMBOLS

NATURAL GROUND OR GRADE, ROCK, CONCRETE, EXISTING HMAC, NEW HMAC, PRECAST CONCRETE, MORTAR, GROUT OR PLASTER, CONCRETE BLOCK, BRICK OR CAST IRON, TILE, GRATING COVER, CHECKER PLATE, STEEL OR STAINLESS STEEL, ALUMINUM, WOOD, RIGID INSULATION, NEOPRENE RUBBER OR GASKET, OPENING OR DEPRESSION IN SLAB OR WALL, OPENING WITH GRATING COVER, OPENING WITH CHECKER PLATE COVER, EXISTING EQUIPMENT OR MATERIALS TO BE REMOVED, TO BE BUILT FOR FUTURE REMOVAL, REINFORCEMENT IN SECTION, LIMITS OF EXCAVATION AND/OR PAVEMENT REPLACEMENT, REINFORCEMENT PLAN OR ELEVATION, BATT INSULATION, METAL STUD WITH LATH AND PLASTER PARTITION, JOINT FILLER, PVC WATER STOP, SLIDE GATE OPENING AND DESIGNATION, HOSE RACK, DOOR NUMBER, ROOM NUMBER, UTILITY STATION, HOISTING HOOK, FIRE EXTINGUISHER, HYDRANT, FREEZELESS YARD HYDRANT, BIURED VALVE, WATER METER, MANHOLE, SOIL BORING AND DESIGNATION, PERMANENT BENCH MARK, SURVEY TRIANGULATION POINT, SECTION CORNER, QUARTER CORNER, SURVEY MONUMENT, STREET LIGHT, TRAFFIC LIGHT, UTILITY POLE, UTILITY POLE W/ANCHOR, CATCH BASIN OR INLET, CATCH BASIN, MAILBOX, MANUFACTURER SUPPLIED PACKAGE, RAILROAD, GUARD RAIL, TREE, BUSH OR HEDGE, EXISTING, MATCH LINE OR PROPERTY LINE, CENTER LINE, HIDDEN LINE OR FUTURE, FENCE, HANDRAIL, CONCRETE CURB AND GUTTER, CONCRETE VALLEY GUTTER, RETAINING WALL, EDGE OF AC PAVEMENT (PLAN), EXISTING GRADE CONTOURS, FINISH GRADE CONTOURS, CONTOUR (HIDDEN), EDGE OF GRAVEL AREA (PLAN), SWALE, DITCH OR DEPRESSION, EDGE OF WATER OR FLOWLINE, EMBANKMENT, AC PAVEMENT (SECTION) EXIST, AC PAVEMENT (SECTION) NEW, GRANULAR SURFACING (SECTION), SLOPE (3 HORIZ. TO 1 VERT.), EXISTING SPOT ELEVATION, FINISH GRADE SPOT ELEVATION, TOP OF CURB ELEVATION GUTTER ELEVATION, COORDINATES, ELEVATION MARKER (SECTION) WITH DESCRIPTION, SANITARY SEWER, STORM DRAIN, COMBINED SEWER, COMBINED SEWER OUTFALL, TELEPHONE, ELECTRIC, GAS, WATER, PAVEMENT MARKING, EASEMENT BOUNDARY, CULVERT, BALL VALVE (NORMALLY OPEN), BALL VALVE (NORMALLY CLOSED), BUTTERFLY VALVE, SWING CHECK VALVE, PINCH VALVE

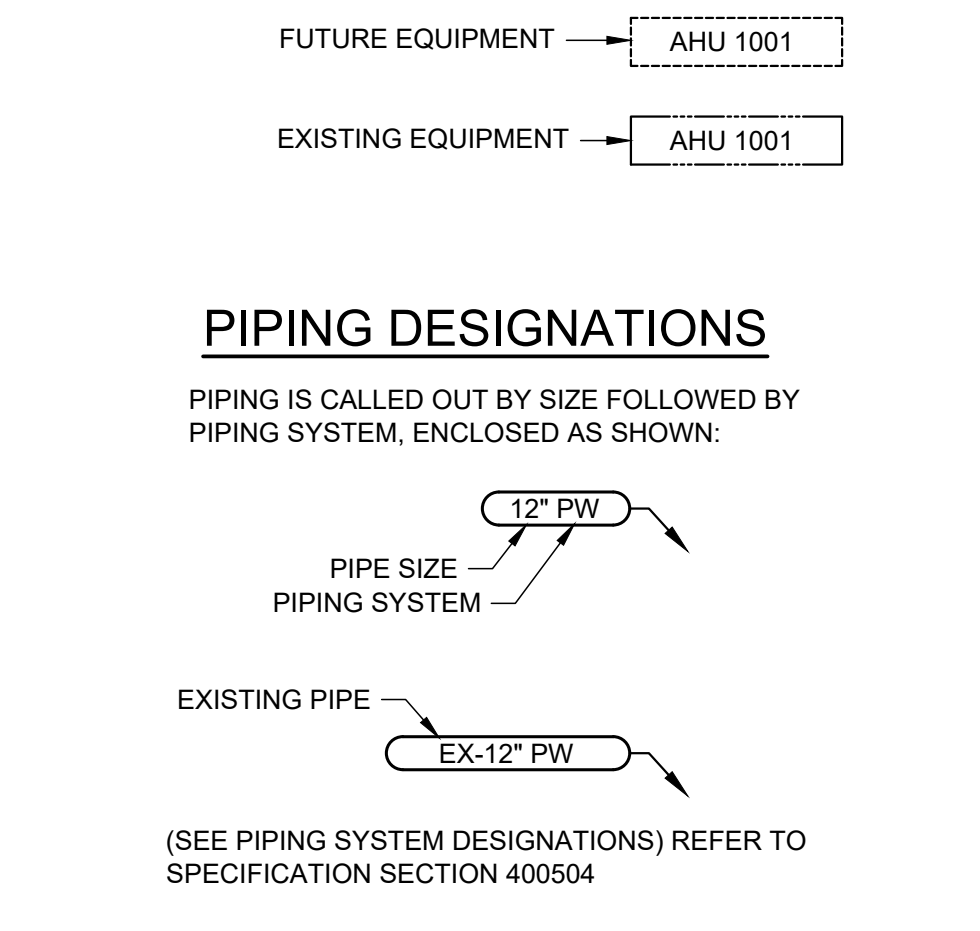
EQUIPMENT DESIGNATION PREFIXES

A	AERATOR	MIE	MISCELLANEOUS INSTRUMENTATION EQUIPMENT
ACC	AIR CONDITIONING COIL	MME	MISCELLANEOUS MECHANICAL EQUIPMENT
ACU	AIR CONDITIONING UNIT	MOP	MOTOR OPERATOR
AD	AIR DRYER	MP	MARKER POST
AF	AIR FILTER	MSP	MOTOR STARTER PANEL
AHC	AIR HANDLING UNIT, WITH COIL	MX	MIXER
AHU	AIR HANDLING UNIT	NG	NATURAL GAS
ALUM	ALUMINUM	OAL	OVER ALL LENGTH
ASC	ADJUSTABLE SPEED CONTROL	O.C.	ON CENTERS
ASD	ADJUSTABLE SPEED DRIVE	O.C.E.W.	ON CENTERS EACH WAY
ATS	AUTOMATIC TRANSFER SWITCH	ORT	ODOR REDUCTION TOWER
B	BLOWER	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
BA	BIN ACTIVATOR	P	PUMP
BD	BALANCING DAMPER	PBD	PANEL BOARD
BF	BLIND FLANGE	PC	PROCESS OR PERSONAL COMPUTER
BFP	BELT FILTER PRESS	PCU	PURGE CONTROL UNIT
BKWH	BACKWASH WATER	PDC	POWER DISTRIBUTION CENTER
BOP	BOTTOM OF PIPE	PE	PRIMARY EFFLUENT
BP	BACKFLOW PREVENTER	PEJ	PNEUMATIC EJECTOR
BSN	BAR SCREEN	PI	PRIMARY INFLEUNT
C	COIL	PLC	PROGRAMMABLE LOGIC CONTROLLER
CD	CHEMICAL DRAIN	PLTW	PLANT WATER
CDR	CONDENSER	PNL	PANEL
CFR	CHEMICAL FEEDER	POTW	POTABLE WATER
CHR	CHILLER	POP	PNEUMATIC OPERATOR
CLS	CHLORINE SOLUTION	PP	POWER POLE
COL	COLLECTOR	PROP	PROPOSED
CON	CONVEYOR	PRV	PRESSURE REGULATING VALVE
CONC	CONCRETE	PS	PRIMARY SLUDGE
CP	COMPRESSOR	PSC	PRIMARY SCUM
CRN	CRANE	PSL	PRIMARY SLUDGE LINE
CV	CONTROL VALVE	PVL	PRESSURE VESSEL
CYL	CYLINDER	PW	PRODUCT WATER
DAFT	DISSOLVED AIR FLOTATION THICKENER	PYS	POLYMER SOLUTION
DFT	DRY FILM THICKNESS	R, RAD	RADIUS
DIA	DIAMETER	RCE	RECARBONATION EFFLUENT
DIP	DUCTILE IRON PIPE	RCP	REINFORCED CONCRETE PIPE
DIS	DISTRIBUTOR	REC	RECEIVER
DOM	DOME	RHW	RIGHT WATER
DPSL	DIGESTED PRIMARY SLUDGE	ROW	RIGHT OF WAY
DR	DRAIN	RVT	RECEIVING VESSEL
DS	DISCONNECT SWITCH	SCC	SYSTEM CONTROL CENTER
DU	DRIVE UNIT	S.C.	STAINLESS STEEL
ECP	ELECTRICAL CONTROL PANEL	SCR	SCRUBBER
EG	ENGINE-GENERATOR MODULE	SEP	SEPARATOR
EPR	EVAPORATOR	SH	SLUDGE HOPPER
EPWU	EL PASO WATER UTILITIES	SLR	SILENCER
EXIST	EXISTING	SMP	SAMPLER
F	FAN	ST	SOUND TRAP
FLG	FLANGE	STP	STOP PLATE
FB	FLAT STEEL BAR	SUB	SUBSTATION
FBE	FUSION BOND EPOXY	SV	SOLINOID VALVE
F.G.	FINISHED GRADE	SWBD	SWITCHBOARD
FRP	FIBER REINFORCED POLYMER	SWGR	SWITCHGEAR TANK
FLT	FILTER	TBN	TURBINE
GAC	GRANULAR ACTIVATED CARBON	TCV	TEMPERATURE CONTROL VALVE
GDR	GRINDER	TFR	TRANSFORMER
GEN	GENERATOR	T.L.	TRUE LENGTH
GT	GATE	TM	TIMER
H	HOIST	T.O.G.	TOP OF GRATING
HD	HOT DIPPED GALVANIZED	T.O.C.	TOP OF CONCRETE
HDG	HOT DIPPED GALVANIZED	TRS	TRANSFER SWITCH
HEX	HEAT EXCHANGER	TV	THROTTLE VALVE
HP	HEAT PUMP	UH	UNIT HEATER
HPR	HOPPER	UV	ULTRAVIOLET
HSC	HYDRAULIC SYSTEM CONTROL	VEN	VENTILATOR
HTR	HEATER	WH	WATER HEATER
HTT	HEAT TRACER TAPE	WHR	WASHER
HT	HAND-OPERATED VALVE	WSU	WATER SOFTENER UNIT
HW	HOT WATER	1W	CITY WATER
HW	HOT WATER	2W	NON POTABLE (CITY WATER)
ICRI	INTERNATIONAL CONCRETE REPAIR INSTITUTE	3W	NO. 3 WATER
INJ	INJECTOR		(TERTIARY EFFLUENT)
LF	LINEAR FEET	WF	WASTE FLOW
LS	LIME SLUDGE		
LTE	LIME THICKENER EFFLUENT		
LVR	LOUVER		
M	MOTOR		
MAU	MAKE-UP AIR UNIT		
MCC	MOTOR CONTROL CENTER		
MEE	MISCELLANEOUS ELECTRICAL EQUIPMENT		
MH	MANHOLE		

EQUIPMENT DESIGNATIONS PREFIXES



PIPING DESIGNATIONS



PIPING SYSTEM DESIGNATION

A	AERATION AIR	OF	OVERFLOW
AA	AGITATION AIR	PD	PUMPED DRAINAGE
AFE	AIR FLOTATION EFFLUENT	POL	POLYELECTROLYTE
AR	AIR RELEASE	RAS	RETURN ACTIVATED SLUDGE
BW	BACKWASH WATER	RCE	RECARBONATED EFFLUENT
CD	CHEMICAL DRAIN	RS	RAW SEWAGE
CHS	CHEMICAL SOLUTION	RWP	RAINWATER PIPE
CLG	CHLORINE GAS	RWR	RECLAIMED WATER
CLL	CHLORINE LIQUID	SA	SERVICE AIR
CLS	CHLORINE SOLUTION	SCN	SCREENINGS
CLV	CHLORINE VACUUM	SD	SANITARY DRAIN
CSO	CAUSTIC SODA	SE	SECONDARY EFFLUENT
D	DRAIN	SSC	SECONDARY SCUM
EE	ENGINE EXHAUST	STA	STARTING AIR
FA	FOUL AIR	STD	STORM DRAIN
FE	FINAL EFFLUENT	TD	TANK DRAIN
FLT	FILTRATE	THS	THICKENED SLUDGE
FOR	FUEL OIL RETURN	TWAS	THICKENED WATER ACTIVATED SLUDGE
FOS	FUEL OIL SUPPLY	V	VENT
GR	GRIT	VC	CHEMICAL VENT
HOCL	SODIUM HYDROCHLORIDE	WAS	WASTE ACTIVATED SLUDGE
HW	POTABLE HOT WATER	1W	POTABLE WATER
IA	INSTRUMENT AIR	2W	NON POTABLE WATER
LF	LIME FEED	2WL	LANDSCAPE IRRIGATION
LOR	LUBE OIL RETURN	2WS	SOFTENED NON POTABLE WATER
LOS	LUBE OIL SUPPLY	3W	NO. 3 WATER (FINAL EFFLUENT)
LOW	LUBE OIL WASTE	3WS	NO. 3 SPRAY WATER
ML	MIXED LIQUOR	3WR	NO. 3 WATER RETURN
MS	MIXED SLUDGE		
NG	NATURAL GAS		



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BARSCREEN REPLACEMENT

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701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

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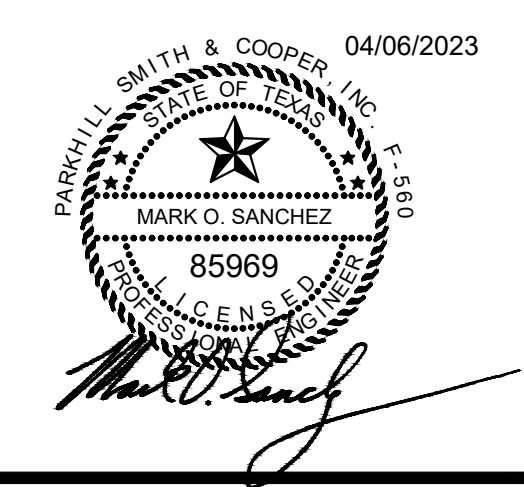
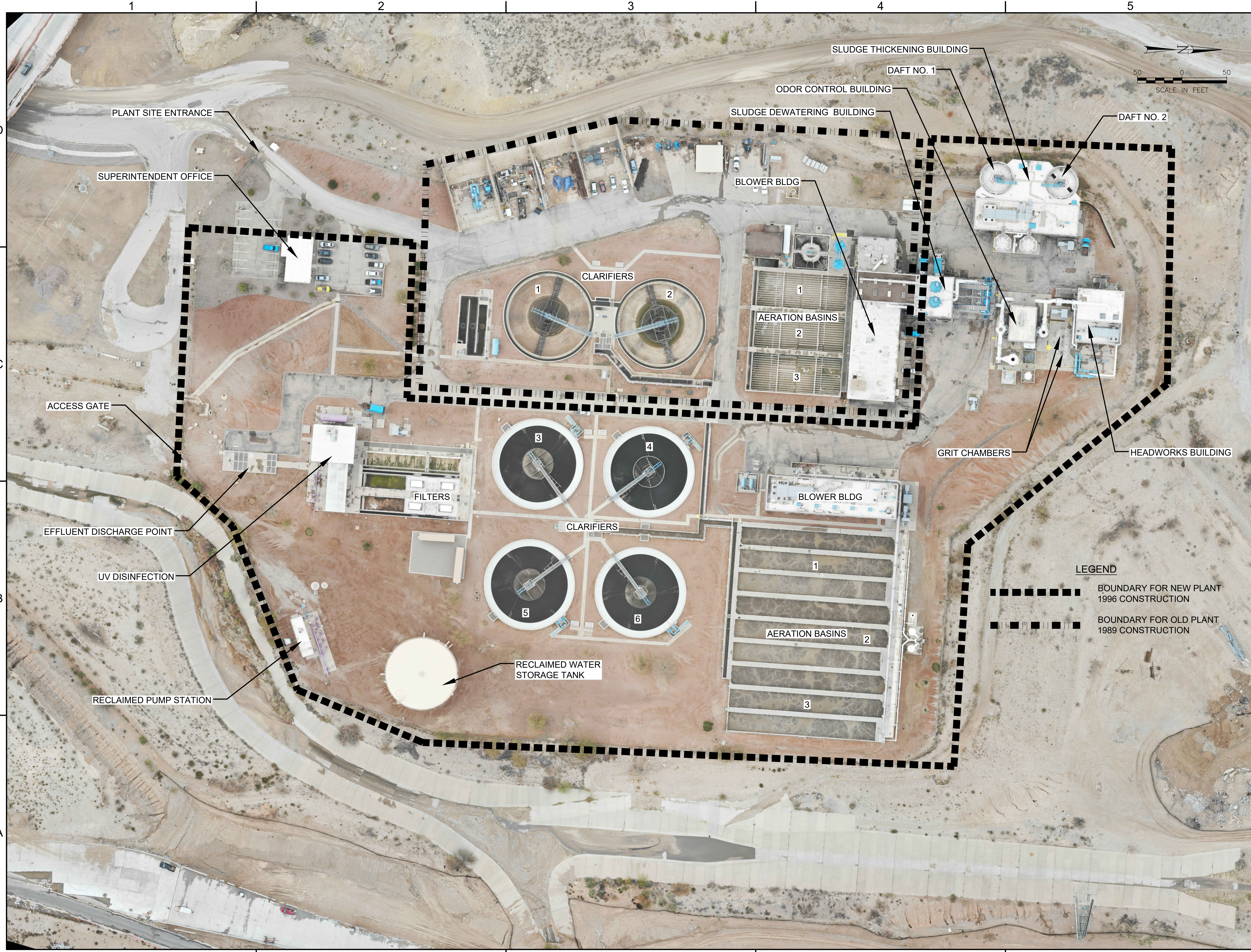
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

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FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\G004-3065.dwg LAYOUT NAME: G004 PRINTED: Thursday, April 06, 2023 - 7:20pm USER: osanchez



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

LEGEND

--- BOUNDARY FOR NEW PLANT 1996 CONSTRUCTION

- - - BOUNDARY FOR OLD PLANT 1989 CONSTRUCTION

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

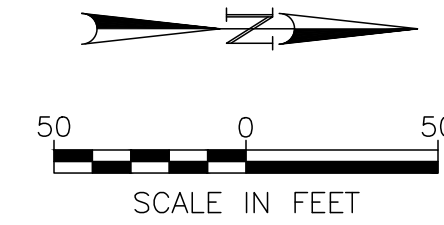
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

PLANT
AERIAL MAP



SURVEY NOTES:

- ELEVATIONS SHOWN ON PLANS ARE BASED UPON EPW "NORTHWEST WASTE WATER TREATMENT PLANT EXPANSION" RECORD DRAWINGS AND ARE REFERRED TO AS "EPW DATUM". CONVERSION TO NAVD 88 FROM EPW DATUM IS +9.81'.
- EXISTING STRUCTURES AND ROADWAYS WERE OBTAINED FROM SURVEYS AND OWNER'S AS BUILT INFORMATION. CONTRACTOR SHALL FIELD VERIFY UNDERGROUND UTILITIES AND STRUCTURE LOCATIONS PRIOR TO CONSTRUCTION.
- SURVEY INFORMATION SHOWN ON THIS SHEET WAS PROVIDED BY H2O TERRA AS PART OF THE JOHN T. HICKERSON WRF PROJECT.

SURVEY CONTROL PROVIDED BY H2O TERRA UNDER DESIGN BUILD PROJECT SEPTEMBER 2021



**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

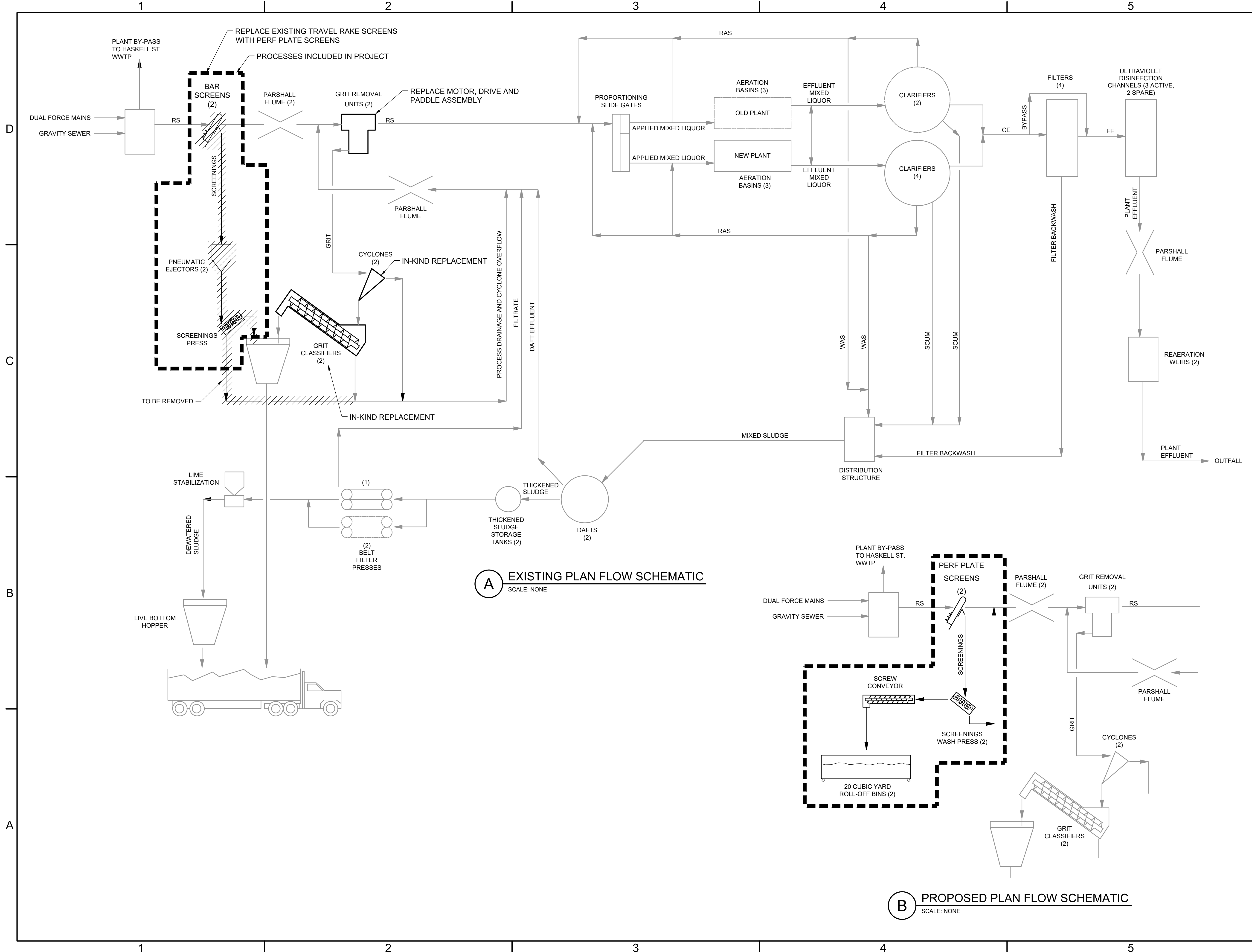
BAR IS 1 INCH ON ORIGINAL DRAWING
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IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION	PROJECT NO.
ISSUING OFFICE:	EL PASO		3065.21

SURVEY CONTROL

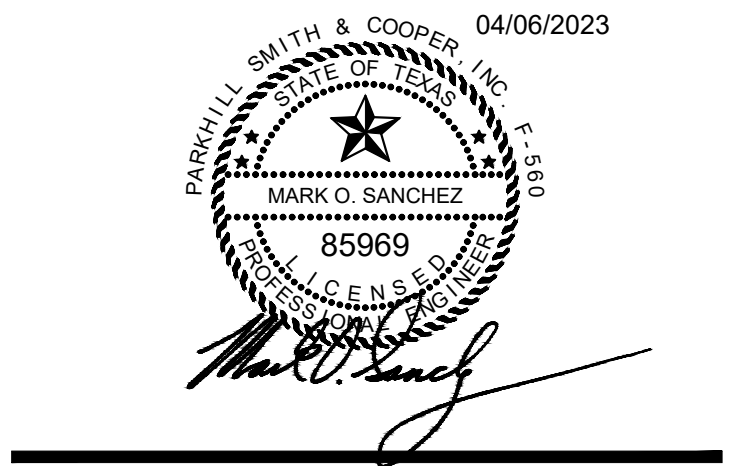
CONTROL POINT	POINT DESCRIPTION	NAD 83		PLANT COORDINATES		ELEVATION	
		NORTHING	EASTING	NORTH STA.	EAST STA.	NAVD 88	EPW DATUM
1	SET CHISELED X	10669582.26'	374435.45'	S 0+61.50	1+74.94	3785.79	3775.98
2	SET CHISELED X	10669635.28'	374626.96'	N 0+04.73	3+61.89	3788.88	3779.07
3	SET CHISELED X	10670007.73'	374504.52'	N 3+67.86	2+13.47	3791.85	3782.04
4	SET CHISELED X	10669966.34'	374927.53'	N 3+57.61	6+38.33	3791.59	3781.78
5	SET CHISELED X	10670345.27'	374707.76'	N 7+19.06	3+92.03	3795.34	3785.53
6	SET CHISELED X	10670551.54'	374633.38'	N 9+19.48	3+03.11	3801.31	3791.50

FILE NAME: A:\2021\3065.21103_DSGN01_DWG050_CIVIL\G006-3065.dwg LAYOUT NAME: G006 PRINTED: Thursday, April 06, 2023 - 7:21pm USER: osanchez



(A) EXISTING PLAN FLOW SCHEMATIC
SCALE: NONE

(B) PROPOSED PLAN FLOW SCHEMATIC
SCALE: NONE



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**EXISTING AND PROPOSED
PLANT FLOW
SCHEMATIC**

1

2

3

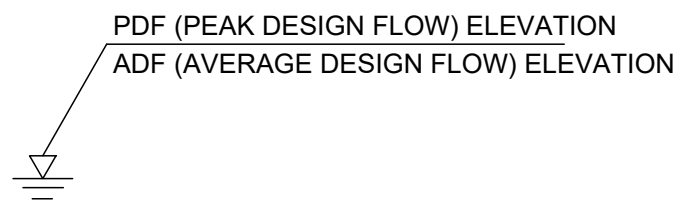
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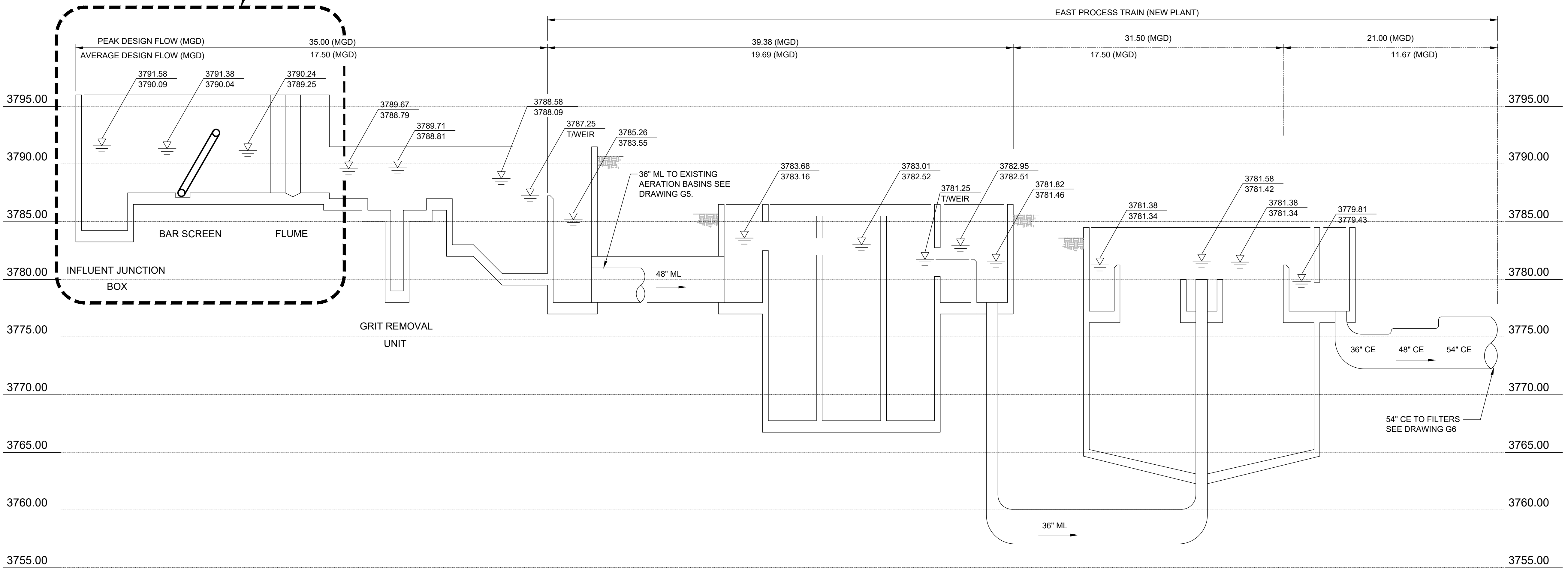
NOTES:

1. PEAK DESIGN FLOW VALUES ARE BASED ON PEAK FLOW OF 35 MGD WITH ONE SECONDARY CLARIFIER AND ONE DISINFECTION CHANNEL OFF LINE. RAS FLOW IS ASSUMED TO BE 17.5 MGD.
2. AVERAGE DESIGN FLOW VALUES ARE BASED ON DESIGN FLOW OF 17.5 MGD WITH ALL AERATION BASINS, ALL SECONDARY CLARIFIERS AND 3 DISINFECTION CHANNELS ON LINE. RAS FLOW IS ASSUMED TO BE 8.75 MGD.
3. FLOW AND ELEVATIONS INFORMATION PROVIDED ON THIS SHEET ARE FROM RECORD DRAWINGS AND HAVE NOT BEEN VERIFIED.

LEGEND:



BAR SCREEN REPLACEMENT, ALL WATER SURFACE ELEVATION FOR NEW EQUIPMENT MATCH ORIGINAL DESIGN RECORD DRAWINGS. ELEVATIONS BASED ON BOTH SCREENS CHANNELS BEING IN SERVICE.

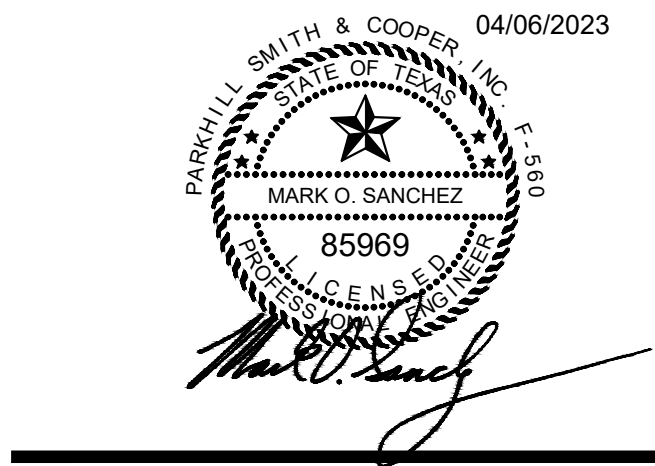


HEADWORKS

AERATION

SECONDARY CLARIFIERS

HYDRAULIC PROFILE 1
SCALE: NONE



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

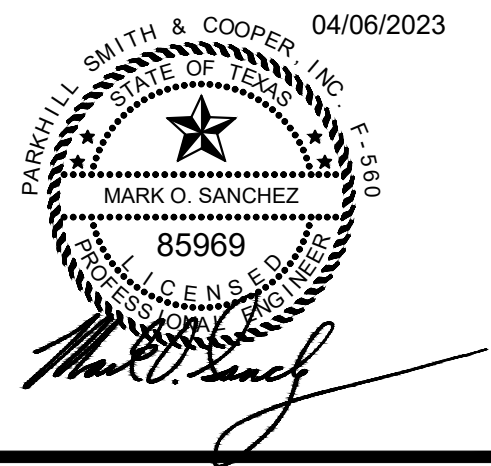
NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

HYDRAULIC PROFILE - 1

G007

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\G007-3065.dwg LAYOUT NAME: G007 PRINTED: Thursday, April 06, 2023 - 7:21pm USER: osanchez

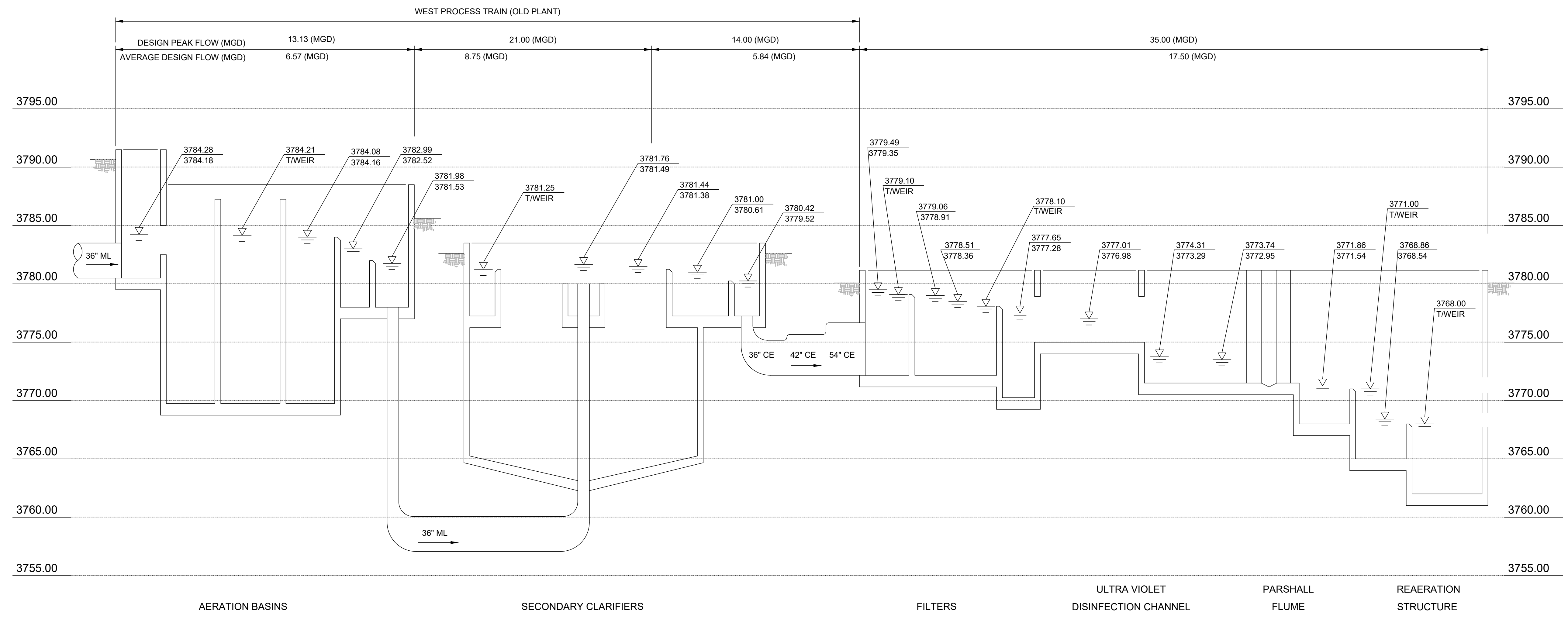
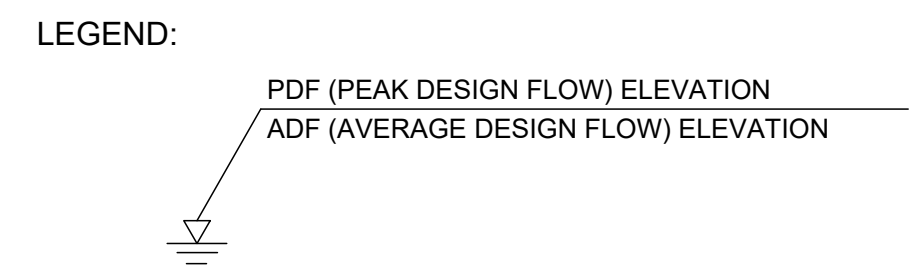


**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

- NOTES:
1. PEAK DESIGN FLOW VALUES ARE BASED ON PEAK FLOW OF 35 MGD WITH ONE SECONDARY CLARIFIER AND ONE DISINFECTION CHANNEL OFF LINE. RAS FLOW IS ASSUMED TO BE 17.5 MGD.
 2. AVERAGE DESIGN FLOW VALUES ARE BASED ON DESIGN FLOW OF 17.5 MGD WITH ALL AERATION BASINS, ALL SECONDARY CLARIFIERS AND 3 DISINFECTION CHANNELS ON LINE. RAS FLOW IS ASSUMED TO BE 8.75 MGD.
 3. FLOW AND ELEVATIONS INFORMATION PROVIDED ON THIS SHEET ARE FROM RECORD DRAWINGS AND HAVE NOT BEEN VERIFIED.



D HYDRAULIC PROFILE 2
SCALE: NONE

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

HYDRAULIC PROFILE - 2

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\G008-3065.dwg LAYOUT NAME: G008 PRINTED: Thursday, April 06, 2023 - 7:21pm USER: osanchez

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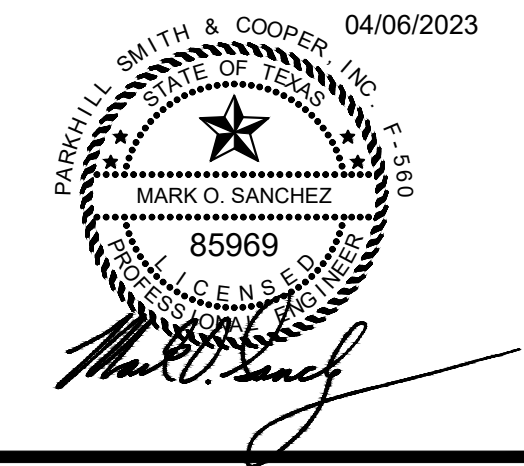
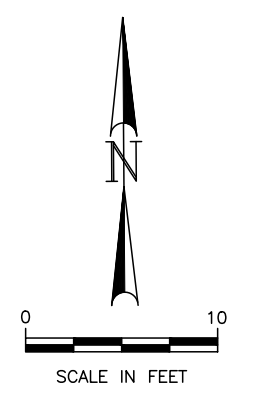
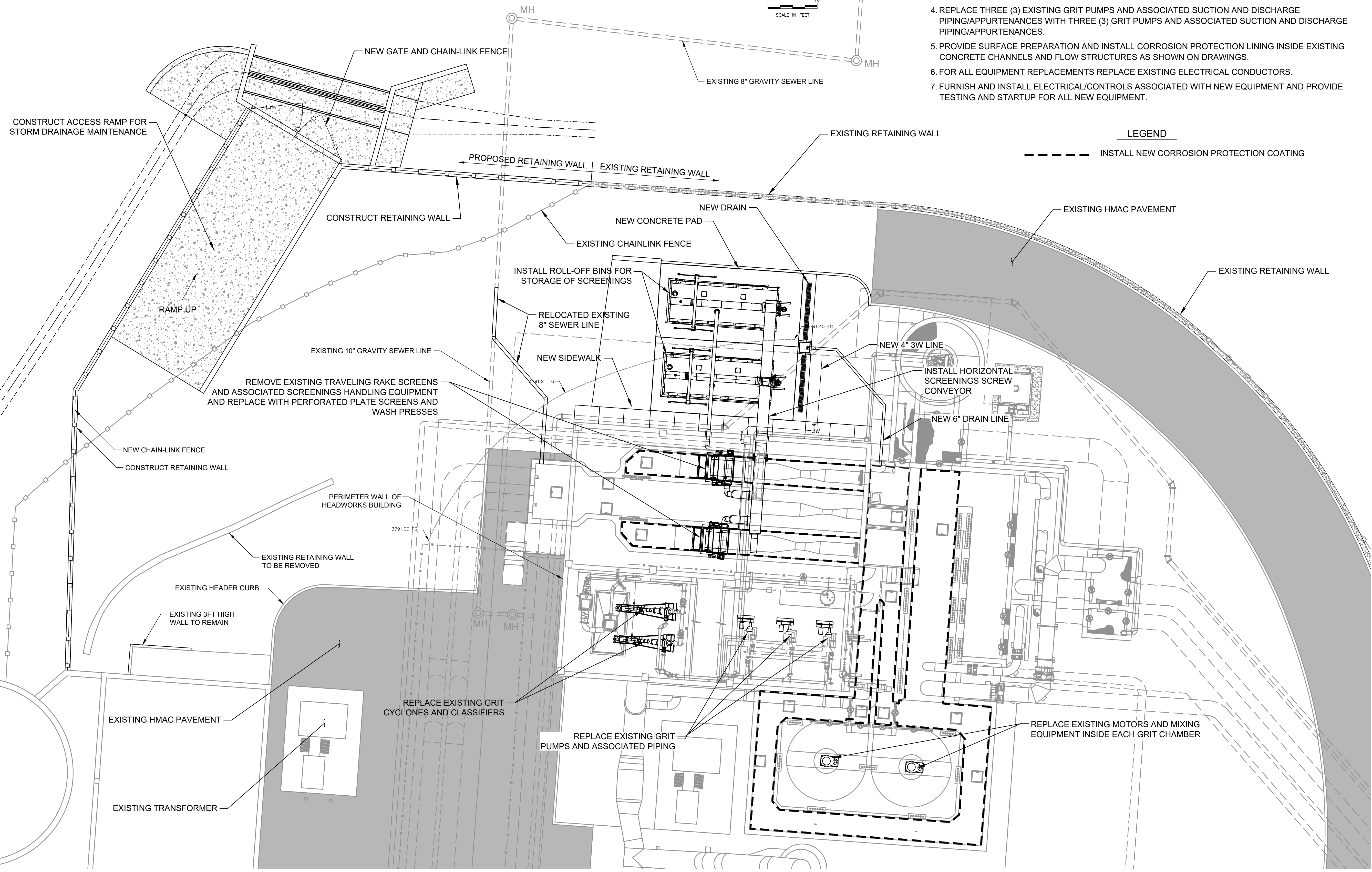
A

SCOPE OF WORK:

1. CONSTRUCT RETAINING WALL, SITE PIPING MODIFICATIONS, AND ASSOCIATED GRADING AND PAVEMENT.
2. REPLACE TWO (2) EXISTING TRAVELING RAKE SCREENS AND ASSOCIATED SCREENINGS CAPTURE/CONVEYANCE EQUIPMENT WITH TWO (2) PERFORATED PLATE SCREENS, TWO (2) WASH PRESSES, ONE (1) HORIZONTAL SCREW CONVEYOR, AND TWO (2) OUTSIDE COVERED ROLL-OFF BIN FOR STORAGE OF SCREENINGS.
3. REPLACE TWO (2) EXISTING GRIT CYCLONES/CLASSIFIERS AND ASSOCIATED PIPING/APPURTENANCES WITH TWO (2) GRIT CYCLONES/CLASSIFIERS AND ASSOCIATED PIPING/APPURTENANCES.
4. REPLACE THREE (3) EXISTING GRIT PUMPS AND ASSOCIATED SUCTION AND DISCHARGE PIPING/APPURTENANCES WITH THREE (3) GRIT PUMPS AND ASSOCIATED SUCTION AND DISCHARGE PIPING/APPURTENANCES.
5. PROVIDE SURFACE PREPARATION AND INSTALL CORROSION PROTECTION LINING INSIDE EXISTING CONCRETE CHANNELS AND FLOW STRUCTURES AS SHOWN ON DRAWINGS.
6. FOR ALL EQUIPMENT REPLACEMENTS REPLACE EXISTING ELECTRICAL CONDUCTORS.
7. FURNISH AND INSTALL ELECTRICAL/CONTROLS ASSOCIATED WITH NEW EQUIPMENT AND PROVIDE TESTING AND STARTUP FOR ALL NEW EQUIPMENT.

LEGEND

--- INSTALL NEW CORROSION PROTECTION COATING



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

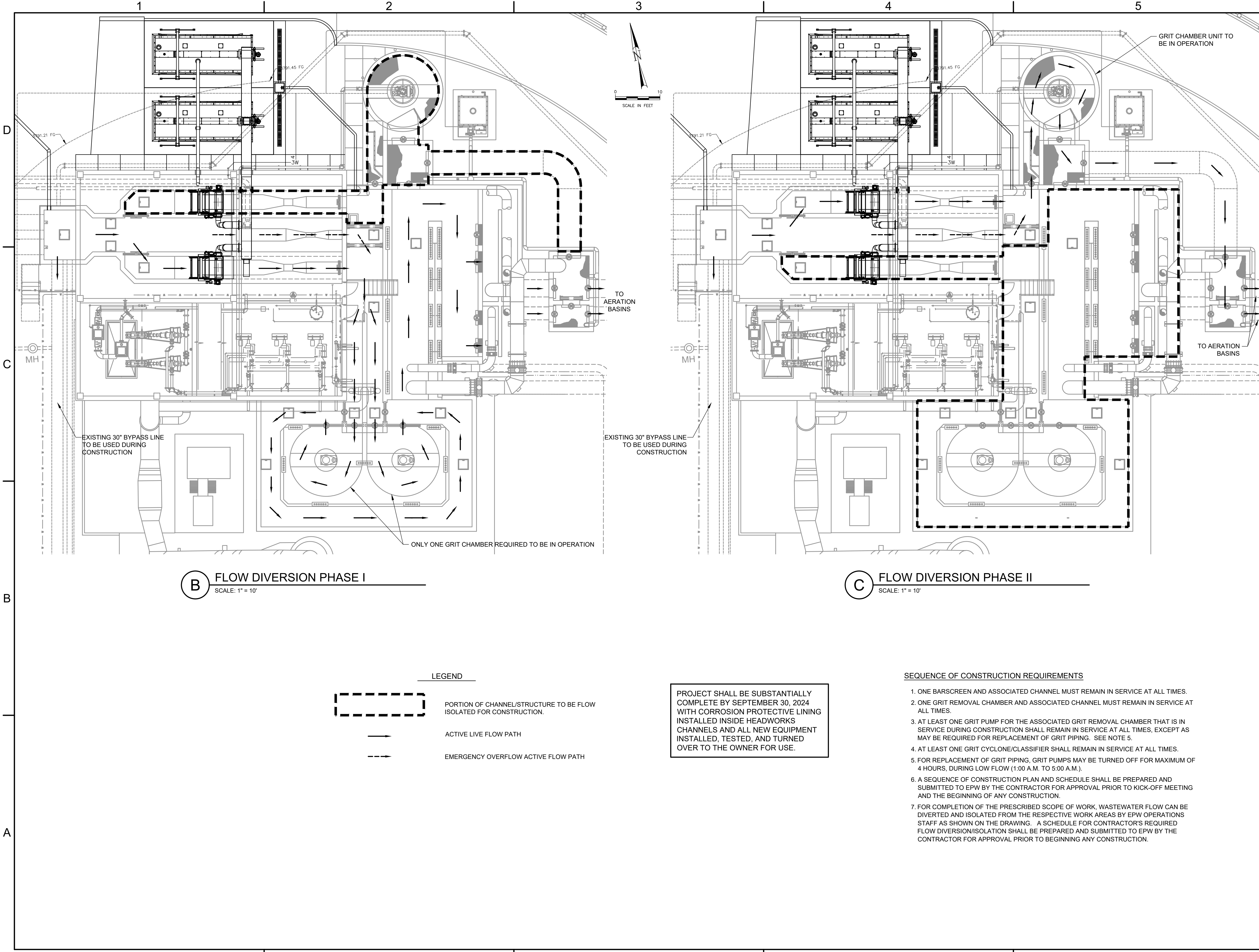
HEADWORKS
IMPROVEMENTS
SCOPE OF WORK

C101

A HEADWORKS AREA IMPROVEMENTS PLAN VIEW
SCALE: 1" = 20'

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\01-3065.dwg LAYOUT NAME: C101 PRINTED: Thursday, April 06, 2023 - 7:22pm USER: csanchez

FILE NAME: A:\2021\3065.21103_DSGN01_DWG050_CIVIL\02-3065.dwg LAYOUT NAME: C102 PRINTED: Thursday, April 06, 2023 - 7:23pm USER: csanchez



B FLOW DIVERSION PHASE I
SCALE: 1" = 10'

C FLOW DIVERSION PHASE II
SCALE: 1" = 10'

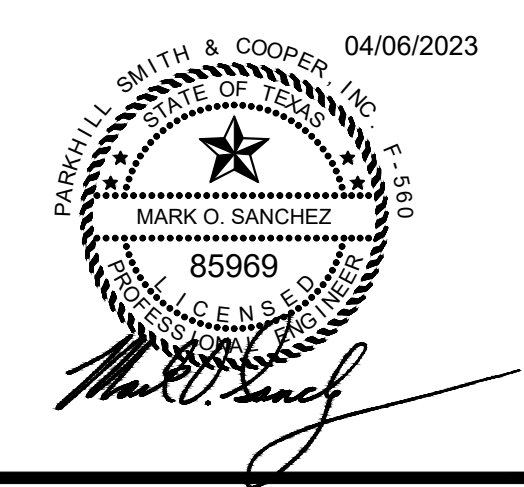
LEGEND

- PORTION OF CHANNEL/STRUCTURE TO BE FLOW ISOLATED FOR CONSTRUCTION.
- ACTIVE LIVE FLOW PATH
- EMERGENCY OVERFLOW ACTIVE FLOW PATH

PROJECT SHALL BE SUBSTANTIALLY COMPLETE BY SEPTEMBER 30, 2024 WITH CORROSION PROTECTIVE LINING INSTALLED INSIDE HEADWORKS CHANNELS AND ALL NEW EQUIPMENT INSTALLED, TESTED, AND TURNED OVER TO THE OWNER FOR USE.

SEQUENCE OF CONSTRUCTION REQUIREMENTS

1. ONE BARSCREEN AND ASSOCIATED CHANNEL MUST REMAIN IN SERVICE AT ALL TIMES.
2. ONE GRIT REMOVAL CHAMBER AND ASSOCIATED CHANNEL MUST REMAIN IN SERVICE AT ALL TIMES.
3. AT LEAST ONE GRIT PUMP FOR THE ASSOCIATED GRIT REMOVAL CHAMBER THAT IS IN SERVICE DURING CONSTRUCTION SHALL REMAIN IN SERVICE AT ALL TIMES, EXCEPT AS MAY BE REQUIRED FOR REPLACEMENT OF GRIT PIPING. SEE NOTE 5.
4. AT LEAST ONE GRIT CYCLONE/CLASSIFIER SHALL REMAIN IN SERVICE AT ALL TIMES.
5. FOR REPLACEMENT OF GRIT PIPING, GRIT PUMPS MAY BE TURNED OFF FOR MAXIMUM OF 4 HOURS, DURING LOW FLOW (1:00 A.M. TO 5:00 A.M.).
6. A SEQUENCE OF CONSTRUCTION PLAN AND SCHEDULE SHALL BE PREPARED AND SUBMITTED TO EPW BY THE CONTRACTOR FOR APPROVAL PRIOR TO KICK-OFF MEETING AND THE BEGINNING OF ANY CONSTRUCTION.
7. FOR COMPLETION OF THE PRESCRIBED SCOPE OF WORK, WASTEWATER FLOW CAN BE DIVERTED AND ISOLATED FROM THE RESPECTIVE WORK AREAS BY EPW OPERATIONS STAFF AS SHOWN ON THE DRAWING. A SCHEDULE FOR CONTRACTOR'S REQUIRED FLOW DIVERSION/ISOLATION SHALL BE PREPARED AND SUBMITTED TO EPW BY THE CONTRACTOR FOR APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION.



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

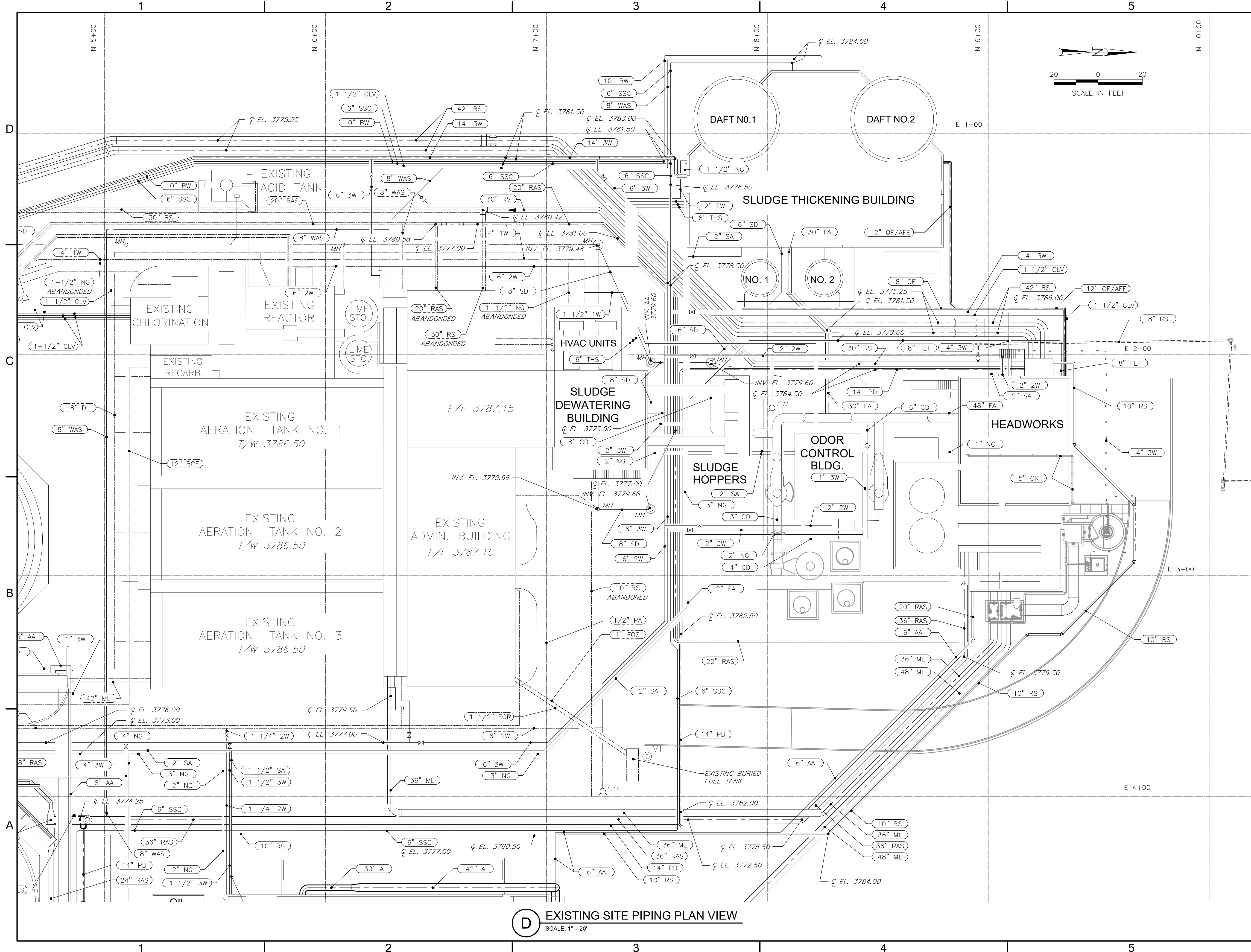
VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

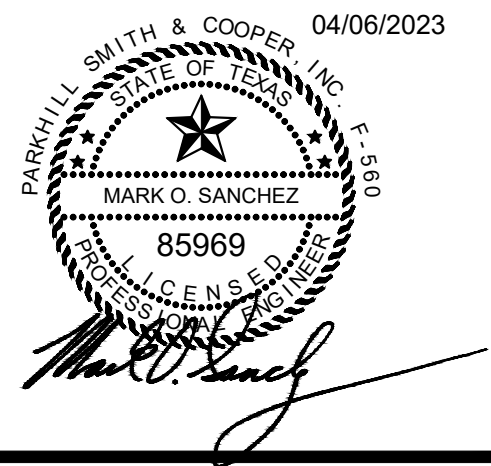
ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

HEADWORKS
IMPROVEMENTS
SEQUENCE OF
CONSTRUCTION

FILE NAME: A:\20213065.21103_DSGN01_DWG050_CIVIL\03-3065.dwg LAYOUT NAME: C103 PRINTED: Thursday, April 06, 2023 - 7:23pm USER: csanchez



D EXISTING SITE PIPING PLAN VIEW
SCALE: 1" = 20'



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

0 1"

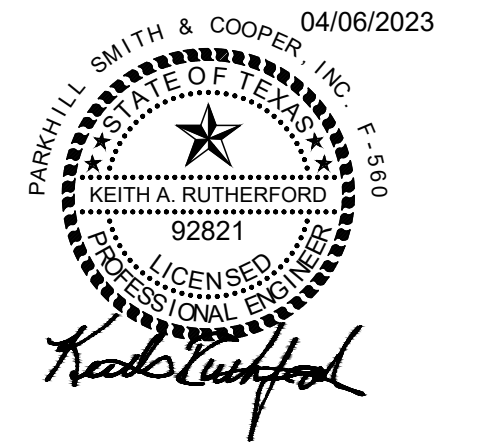
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

EXISTING SITE PIPING

C103



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER
 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

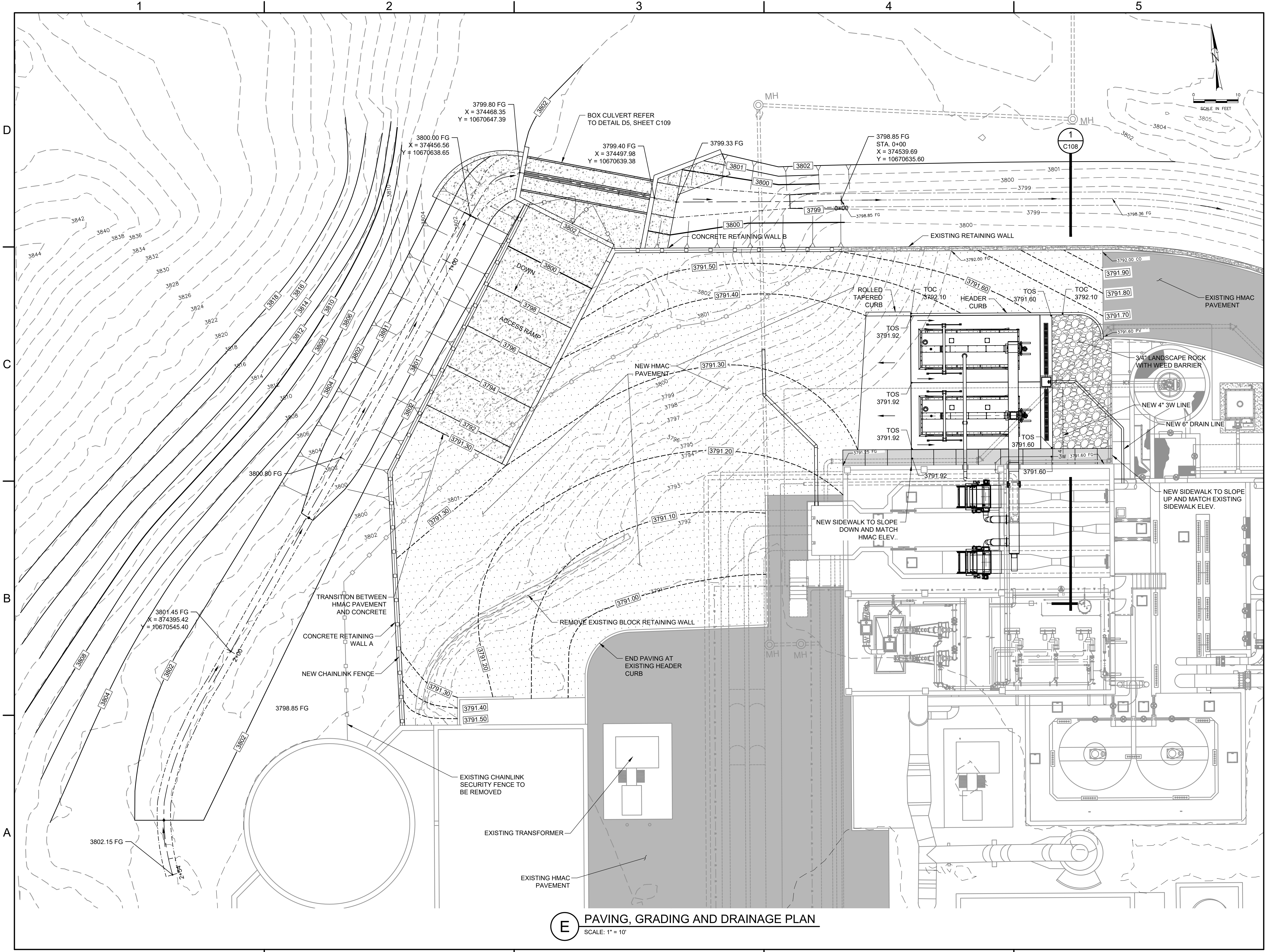
VERIFY SCALES
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 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

PAVING, GRADING AND DRAINAGE PLAN

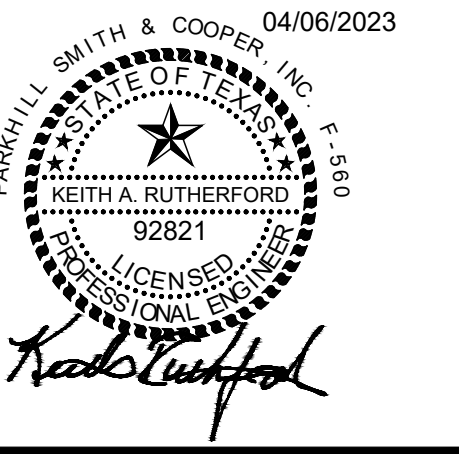
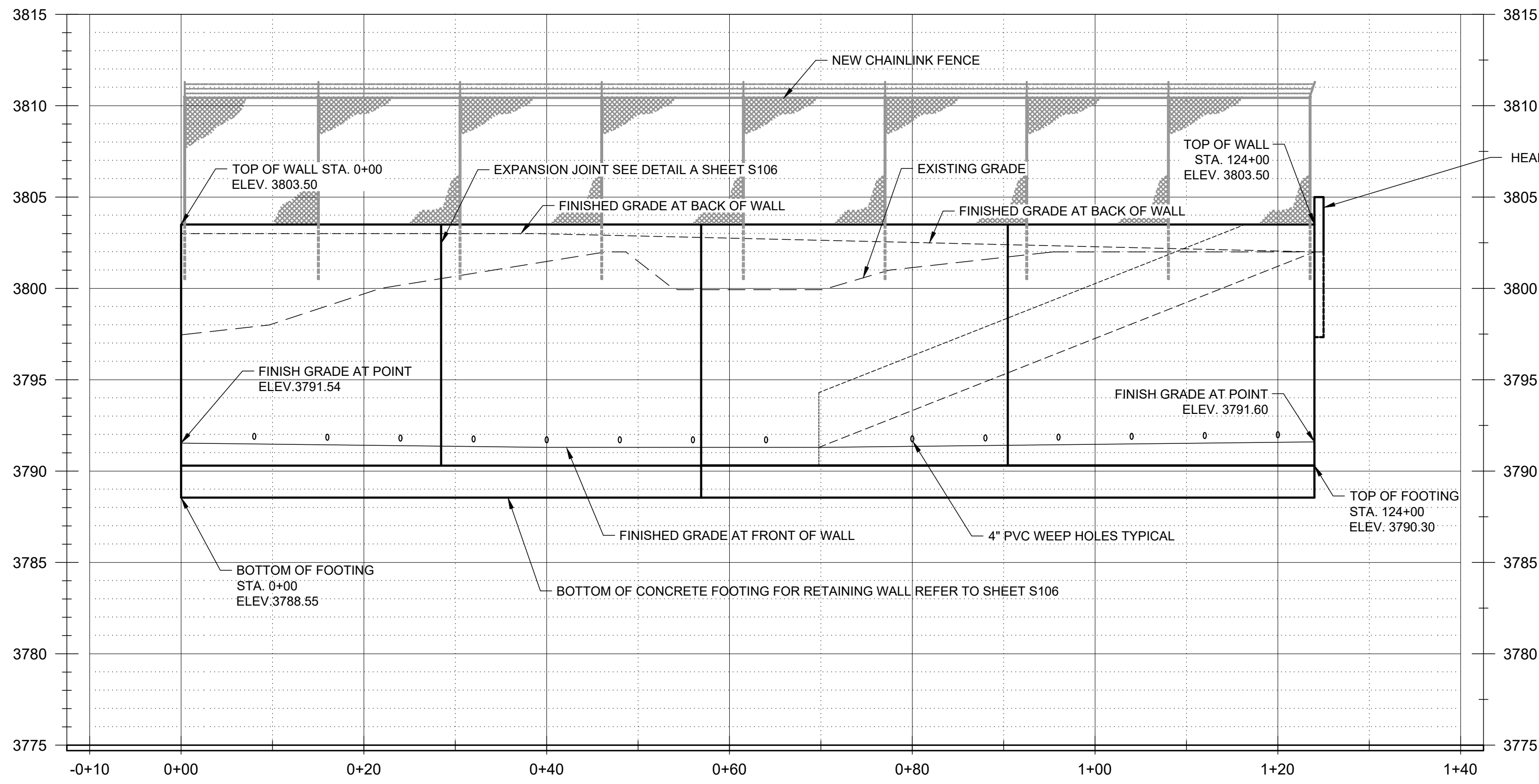
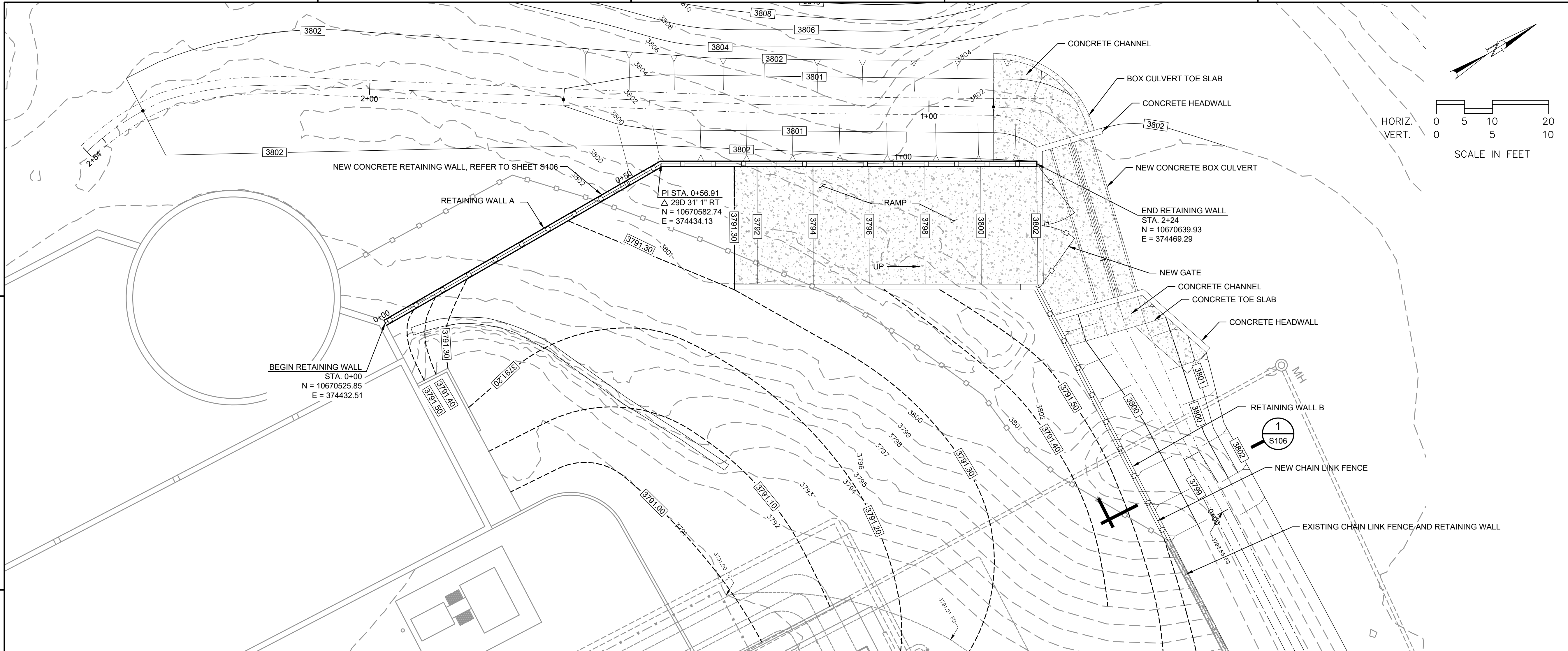
C104

FILE NAME: A:\2021\3065.21103_DSGND1_DWG050_CIVIL\04-3065.dwg LAYOUT NAME: C104 PRINTED: Thursday, April 06, 2023 - 7:24pm USER: osanchez



E PAVING, GRADING AND DRAINAGE PLAN
 SCALE: 1" = 10'

1 2 3 4 5



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

RETAINING WALL A
PLAN AND PROFILE
STA. 0+00 TO 1+24

1 2 3 4 5

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\05-3065.dwg LAYOUT NAME: C105 PRINTED: Thursday, April 06, 2023 - 7:25pm USER: cesanchez



**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

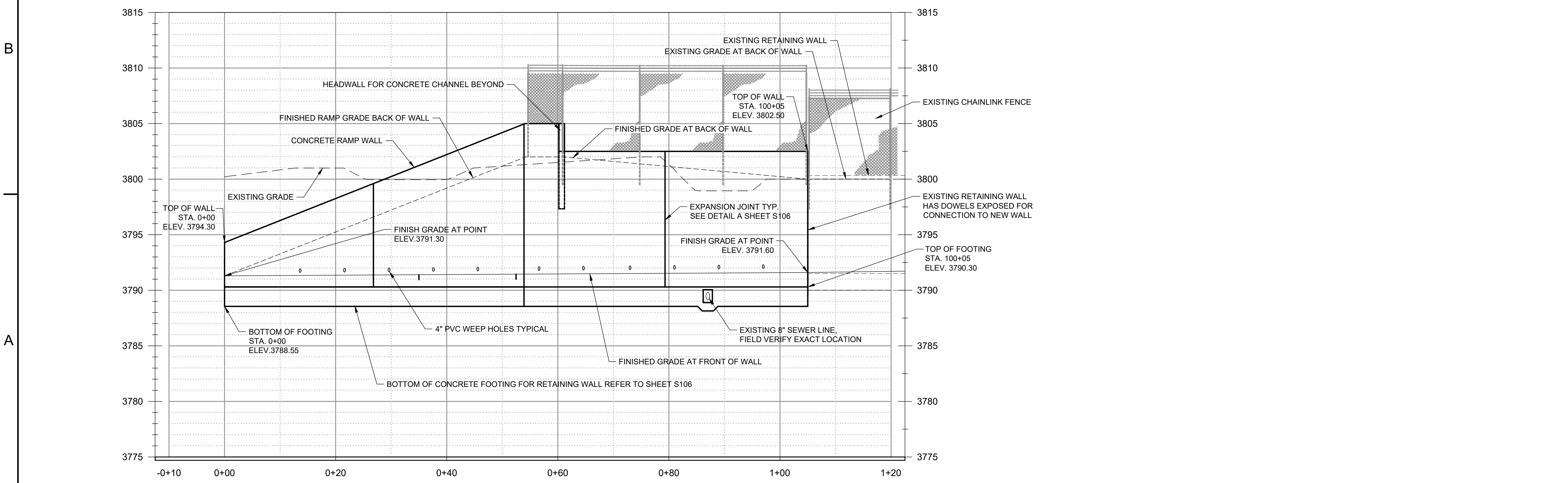
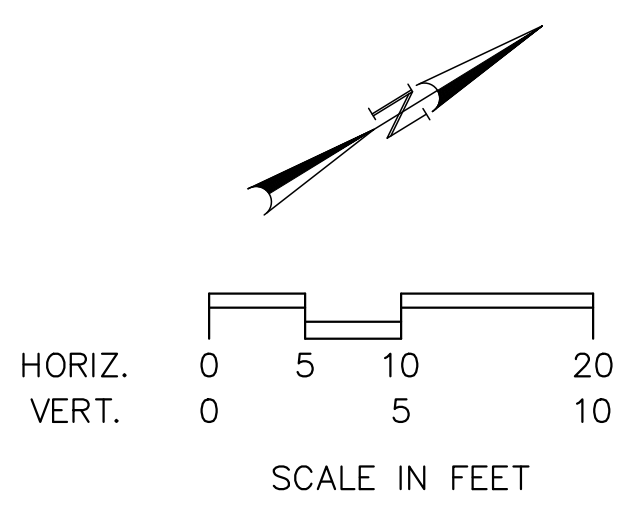
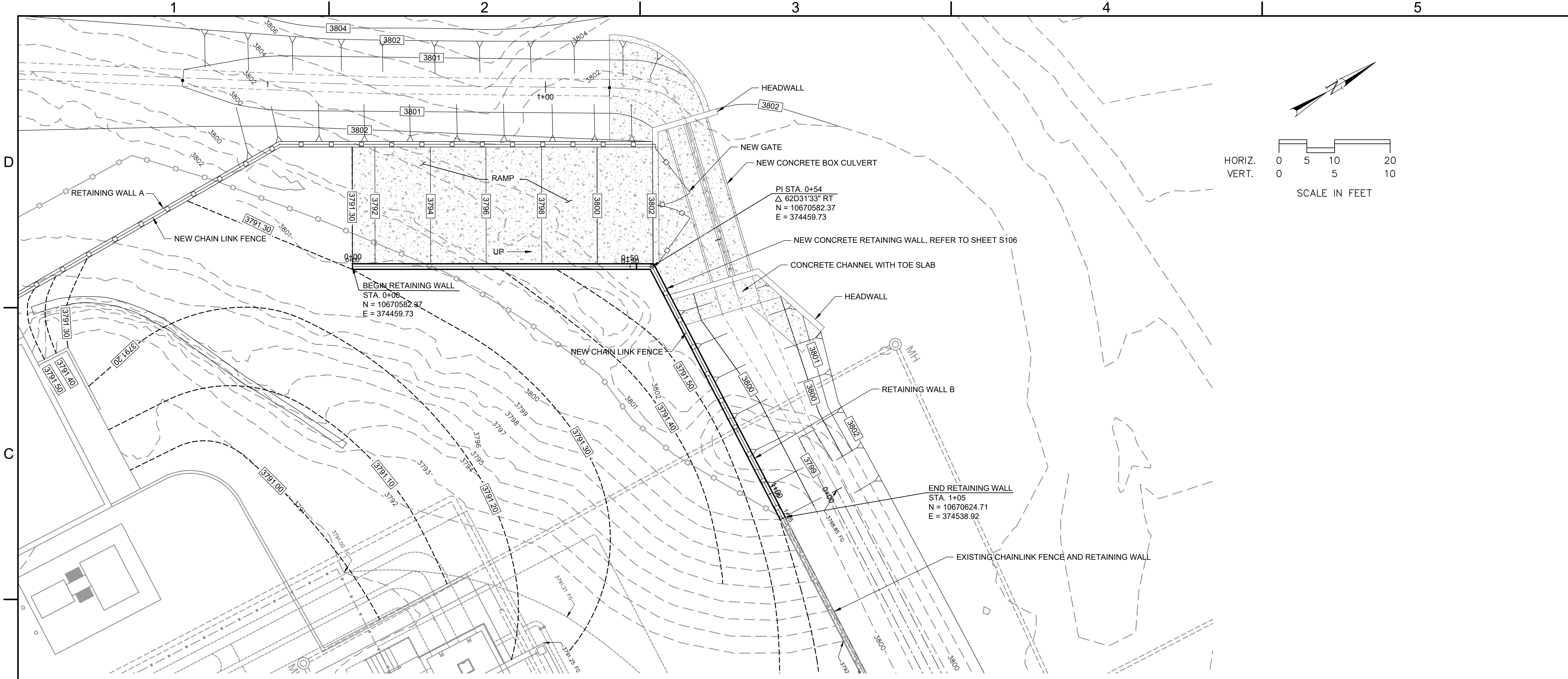
VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**RETAINING WALL B
PLAN AND PROFILE
STA. 0+00 TO 1+05**

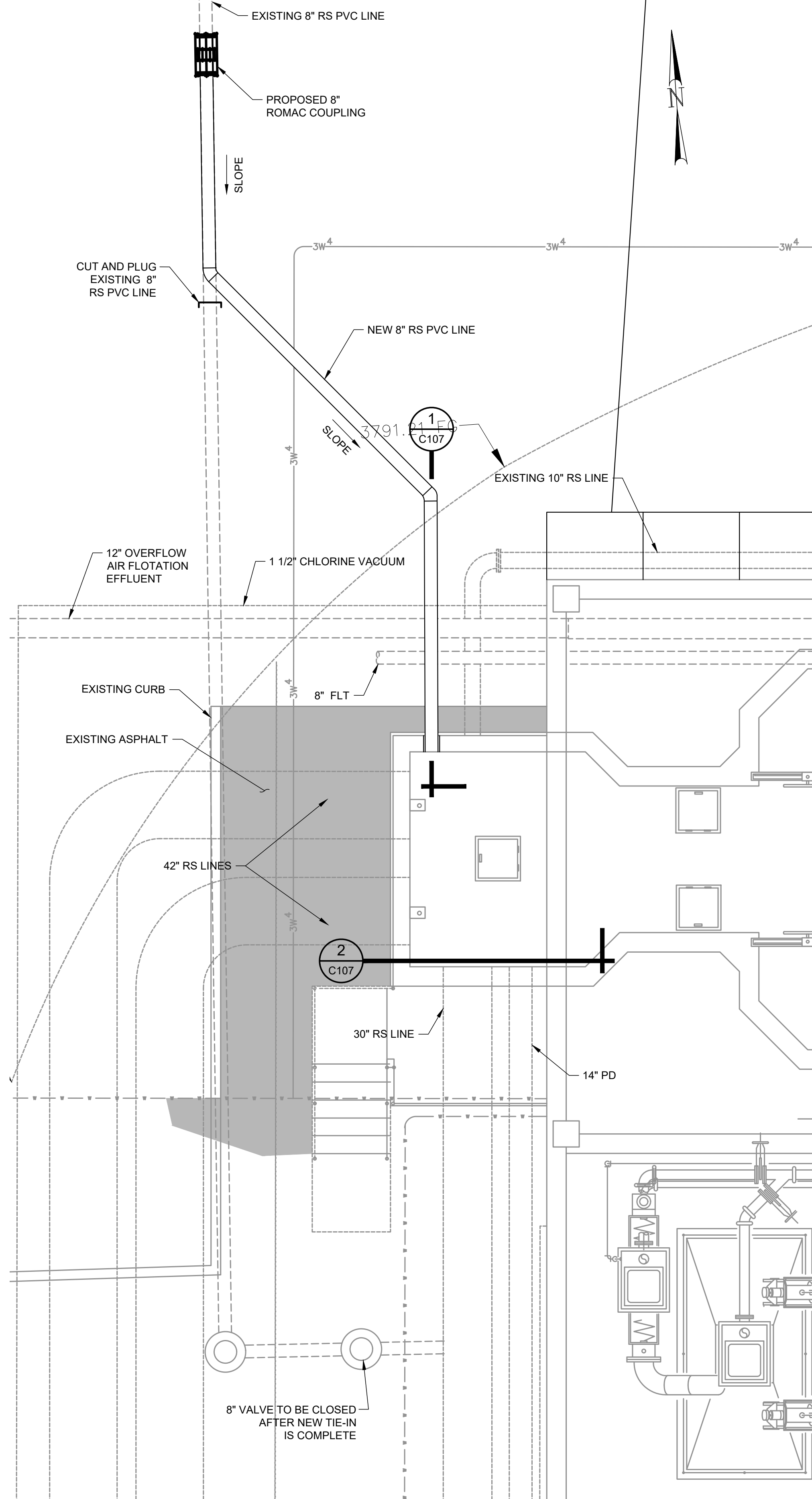
C106



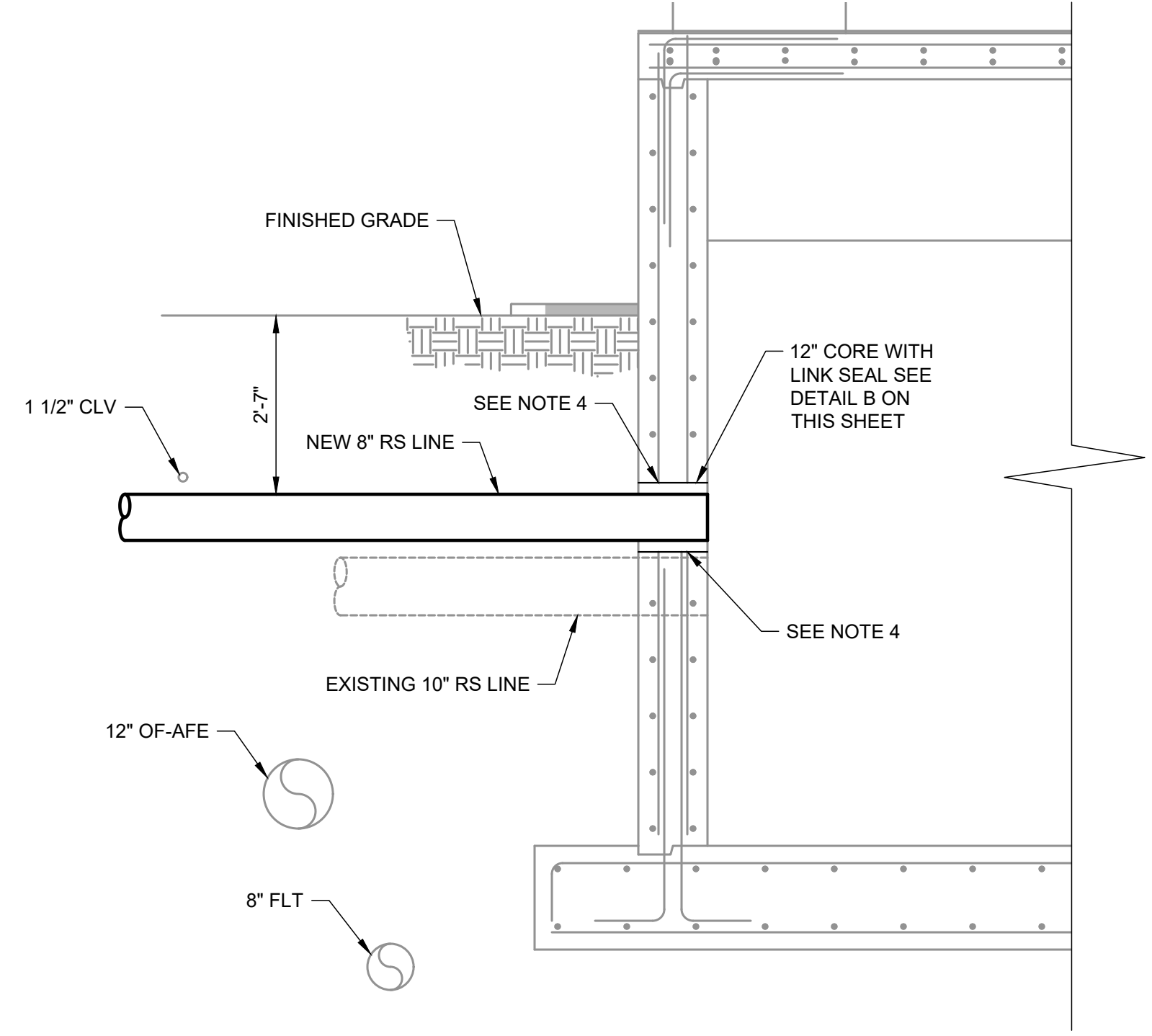
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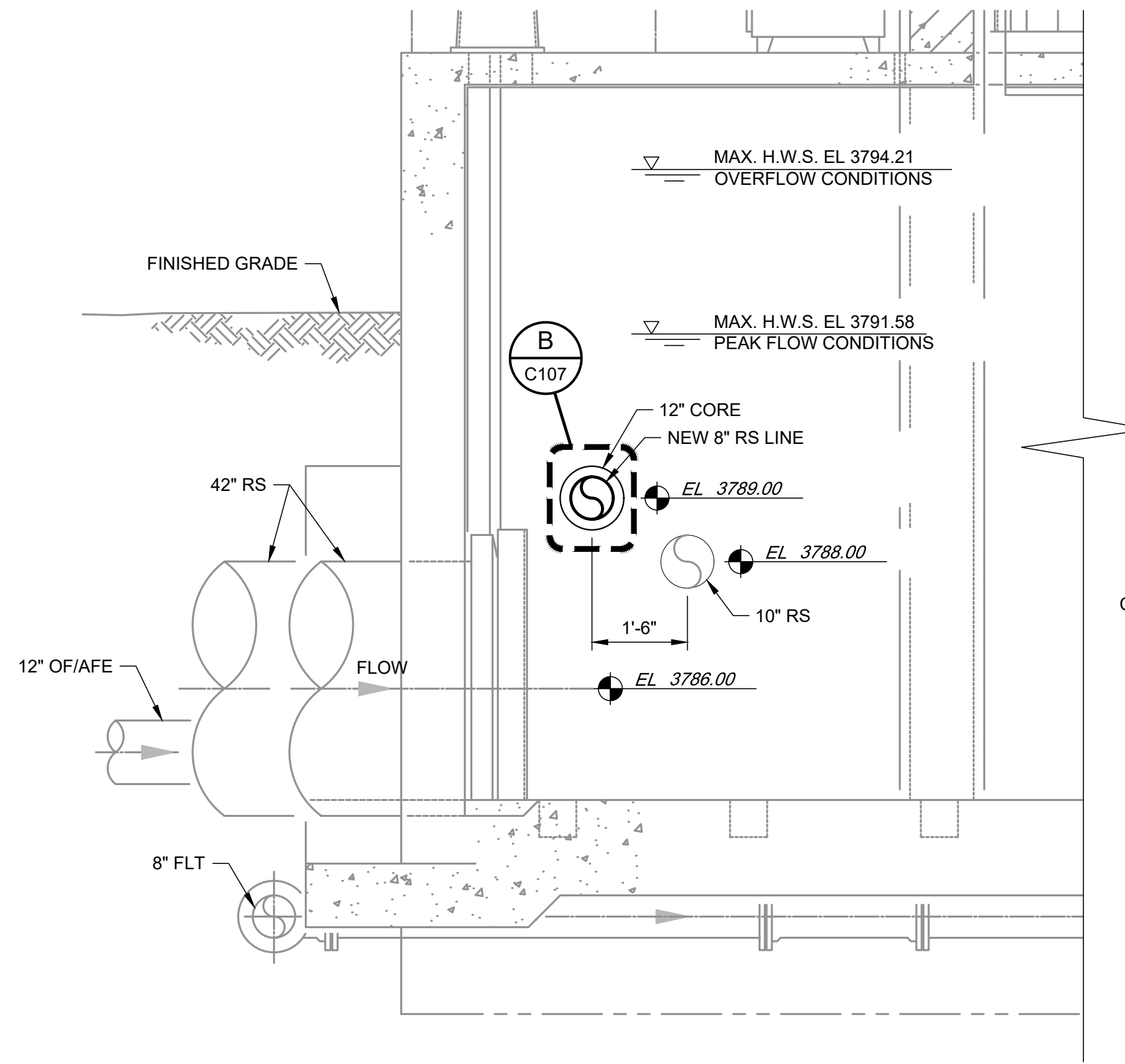
D
C
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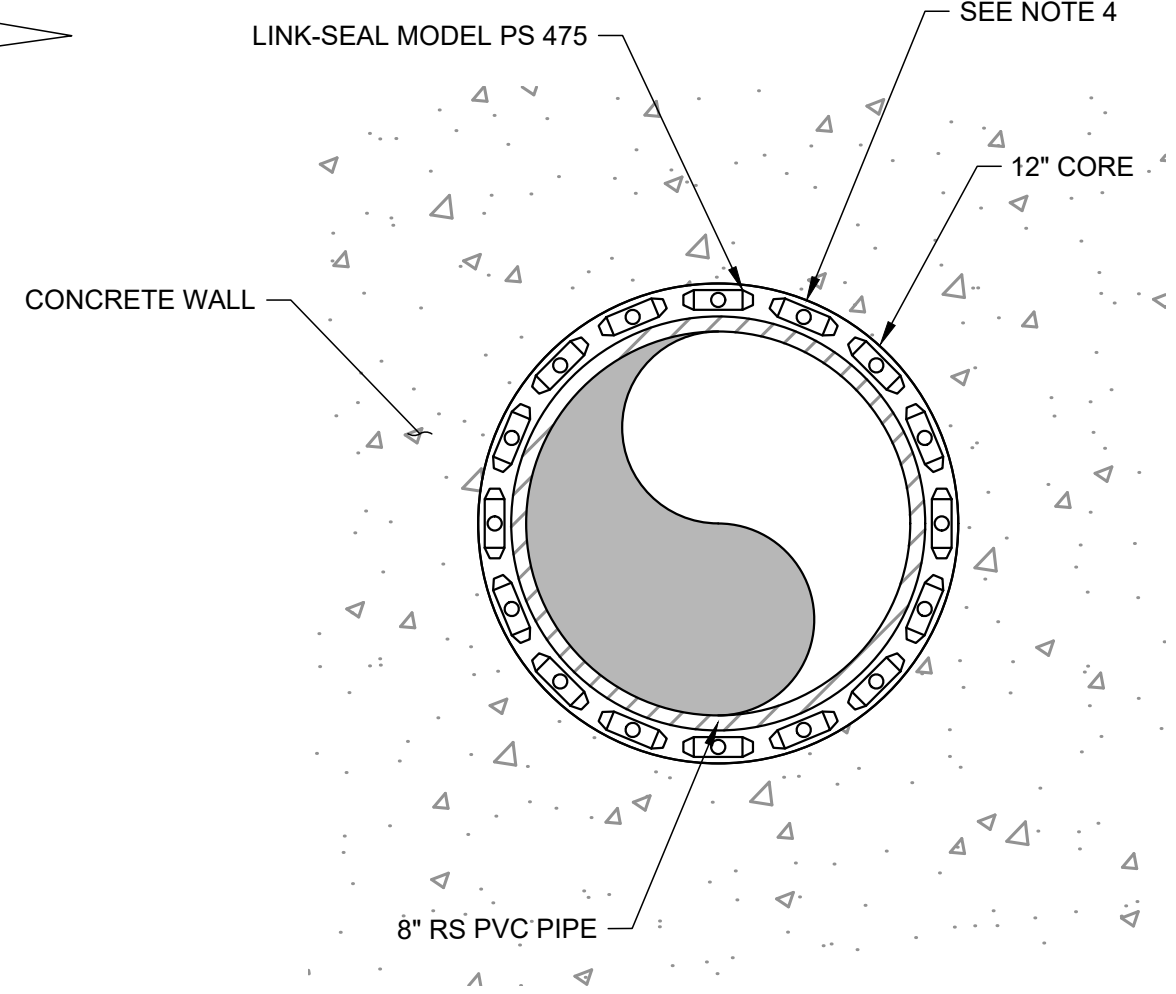
G 8 INCH RS MONTECILLO TIE-IN
SCALE: 1/4"=1'-0"



1 SECTION
C107 SCALE: 1/2" = 1"



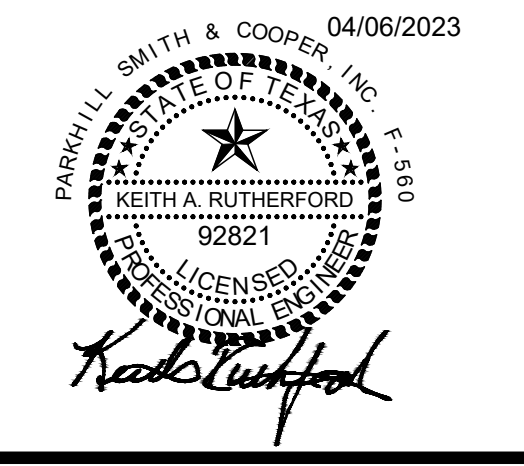
2 SECTION
C107 SCALE: 1/2" = 1"



B LINKSEAL DETAIL
C107 SCALE: NONE

NOTES

1. CONTRACTOR SHALL CONFIRM LOCATION OF EXISTING 8-INCH SEWER LINE AND VERIFY PIPE SIZE AND MATERIAL PRIOR TO ORDERING COUPLINGS AND OTHER APPURTENANCES.
2. CONTRACTOR SHALL COORDINATE WITH PLANT STAFF AND RPR PRIOR TO CORING INFLUENT BOX.
3. CORING OF CONCRETE BOX SHALL BE DONE DURING LOW FLOW PERIODS AND MAY REQUIRE COORDINATION WITH EP WATER LIFT STATIONS TO LOWER THE WATER LEVEL IN THE INLET BOX.
4. AFTER CORING AND PRIOR TO PLACING PIPE AND SEAL IN OPENING, COAT CONCRETE AND EXPOSED REBAR WITH EPOXY SEALANT.



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0" = 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

MONTECILLO
8" RS LINE
RELOCATION TIE-IN

C107



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER
 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

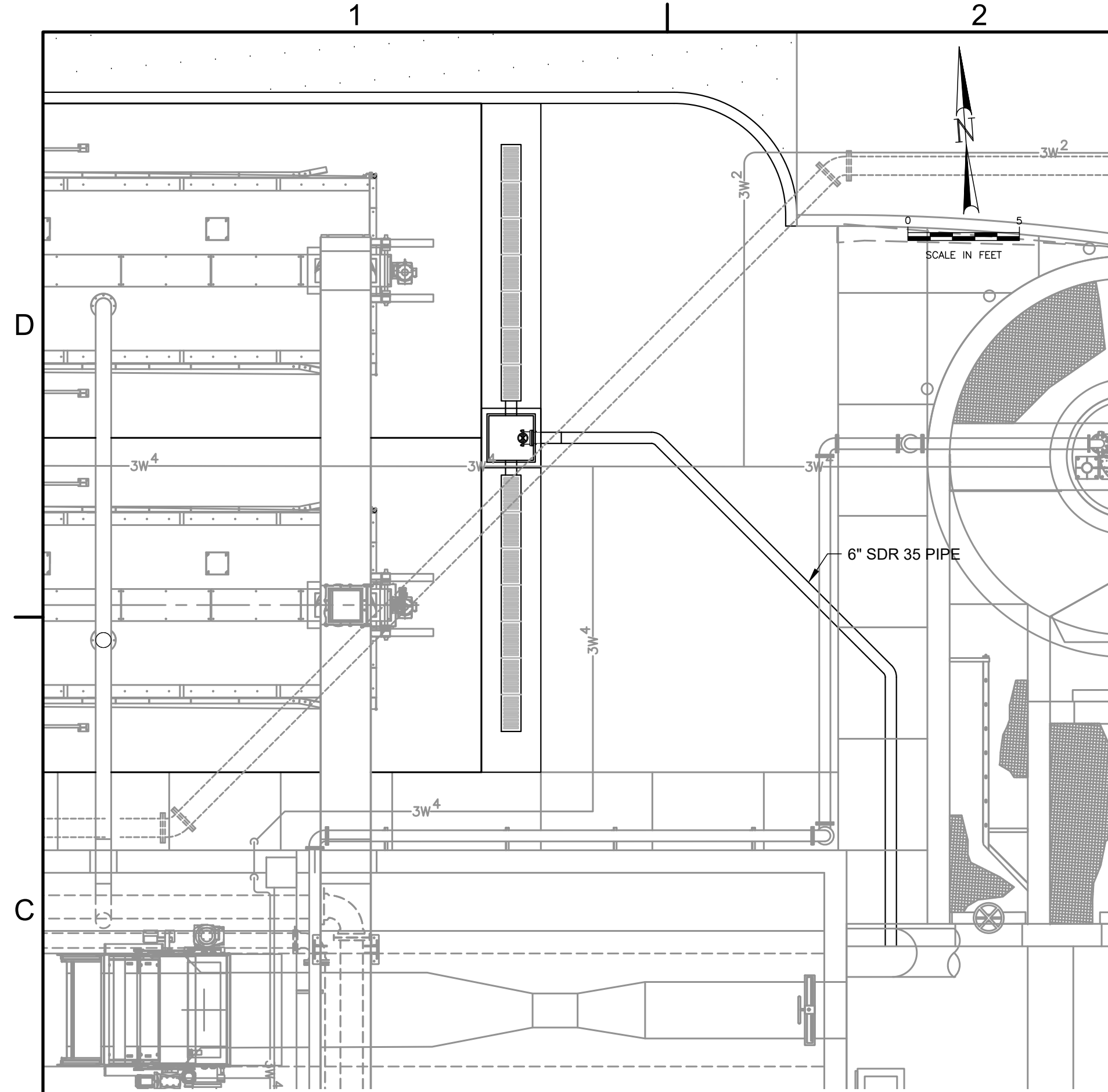
VERIFY SCALES
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 0 1"
 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

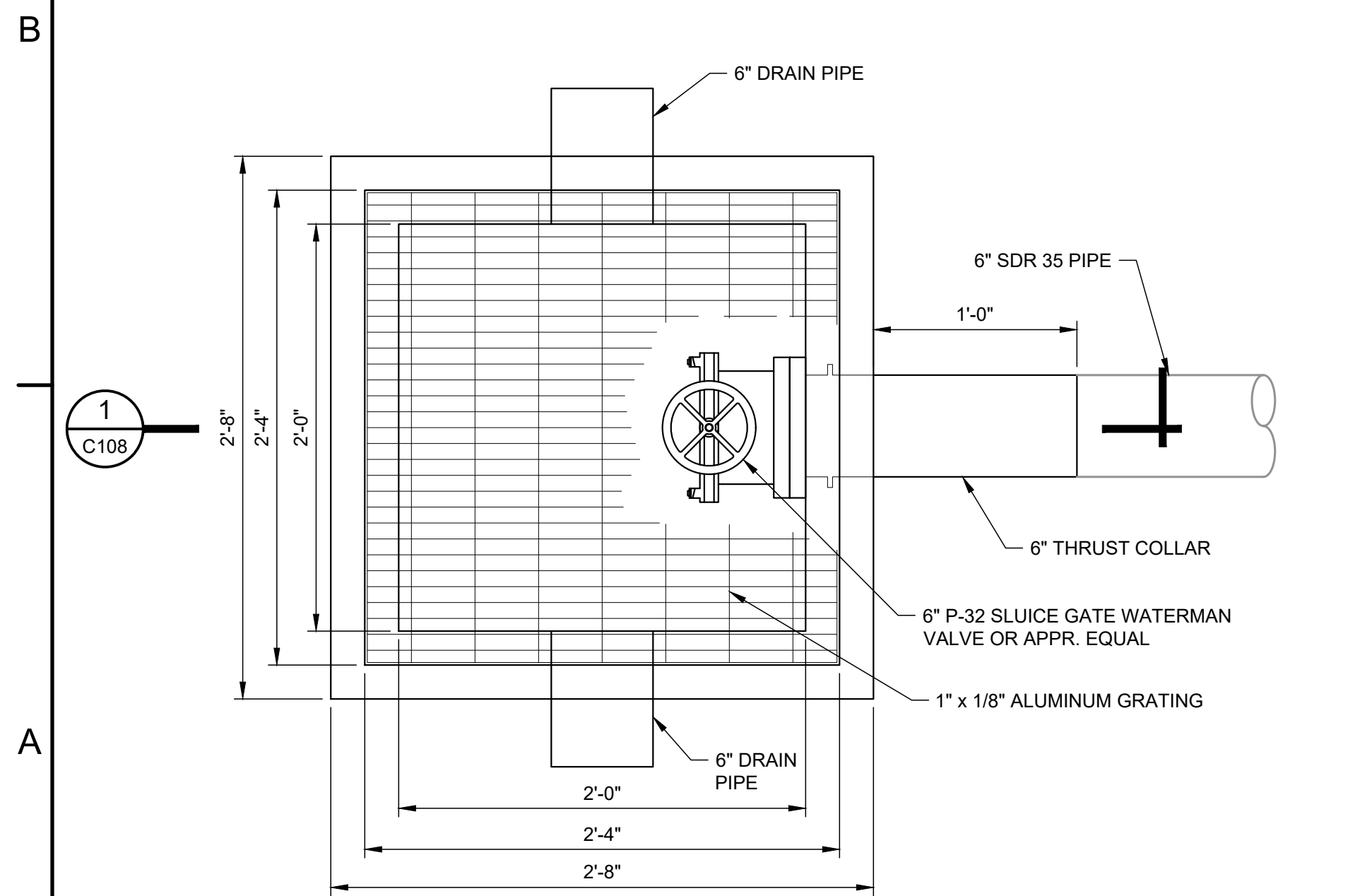
ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

TRENCH BOX, DRAIN LINE
PLAN VIEW
SECTIONS AND DETAILS

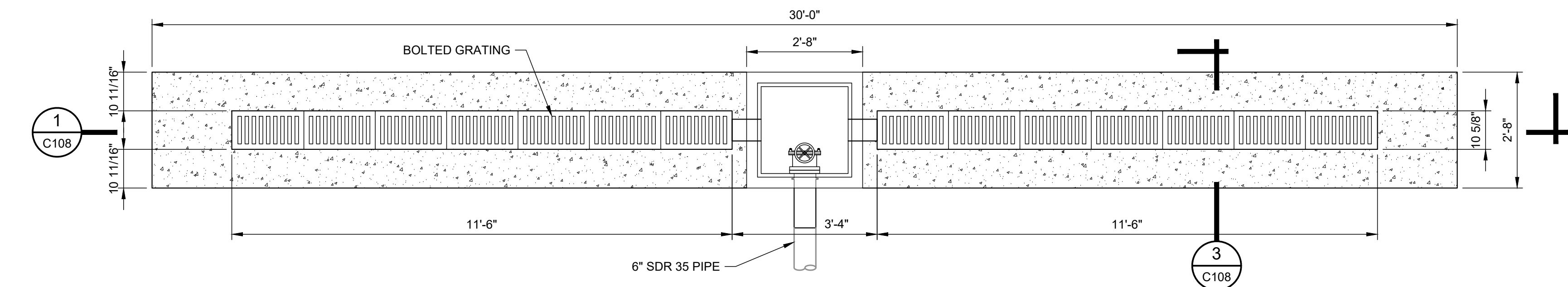
C108



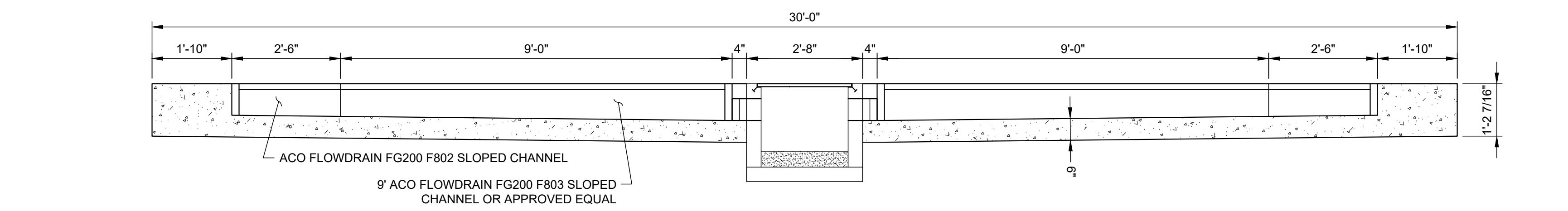
A TRENCH DRAIN AND 6" DRAIN LINE PLAN VIEW
 SCALE: 1" = 5'



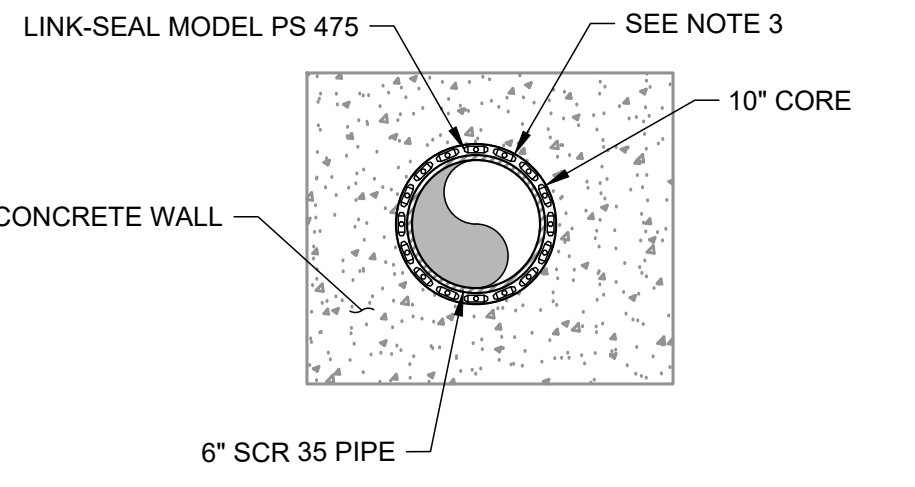
D CATCH BASIN PLAN VIEW DETAIL
 SCALE: 1-1/2" = 1'



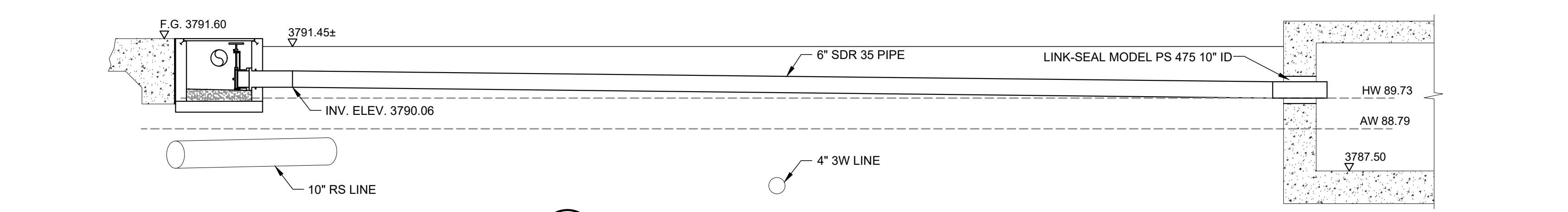
B TRENCH BOX AND 6" DRAIN PLAN
 SCALE: 1/2" = 1'



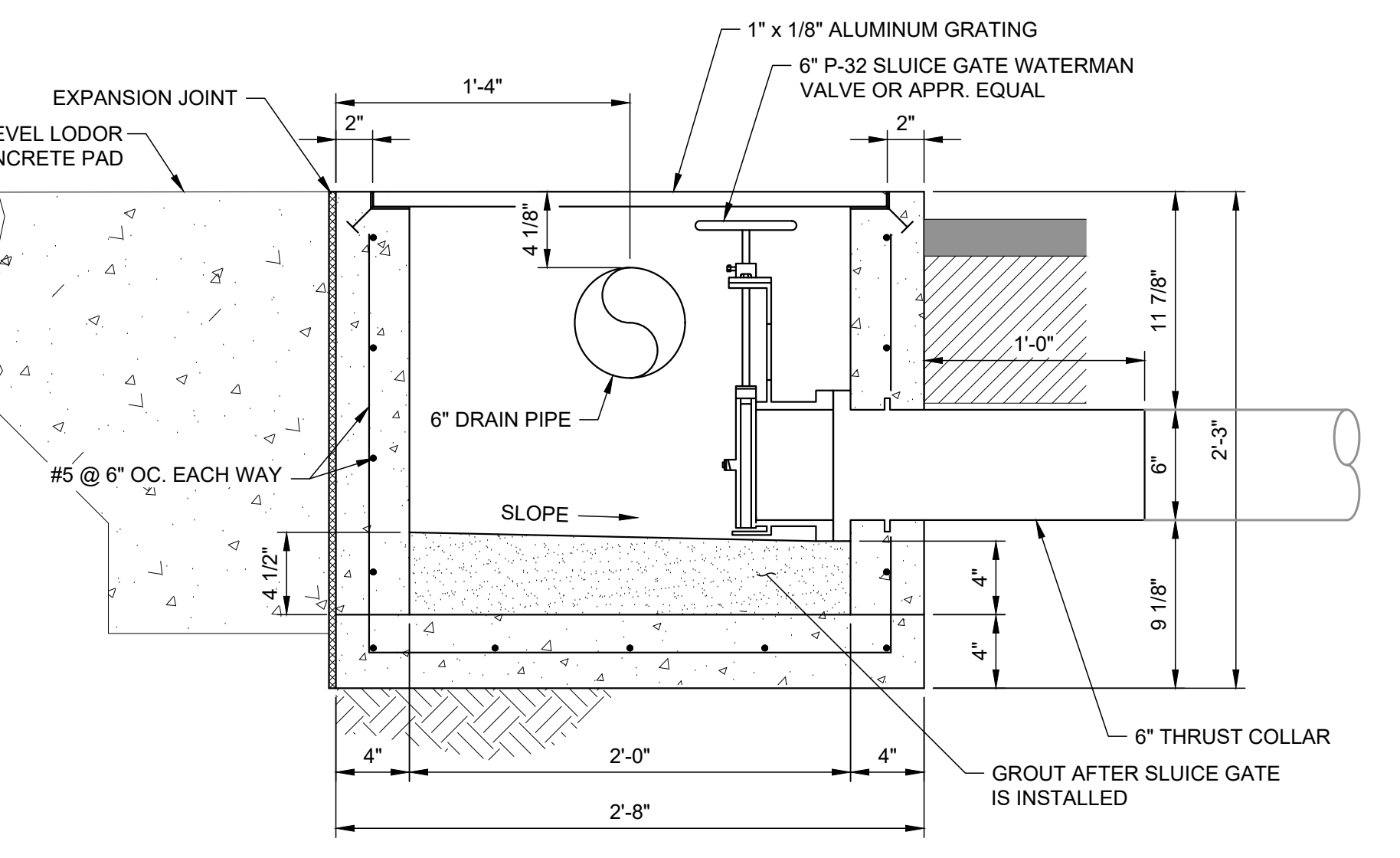
1 SECTION
 C108 SCALE: 1/2" = 1'



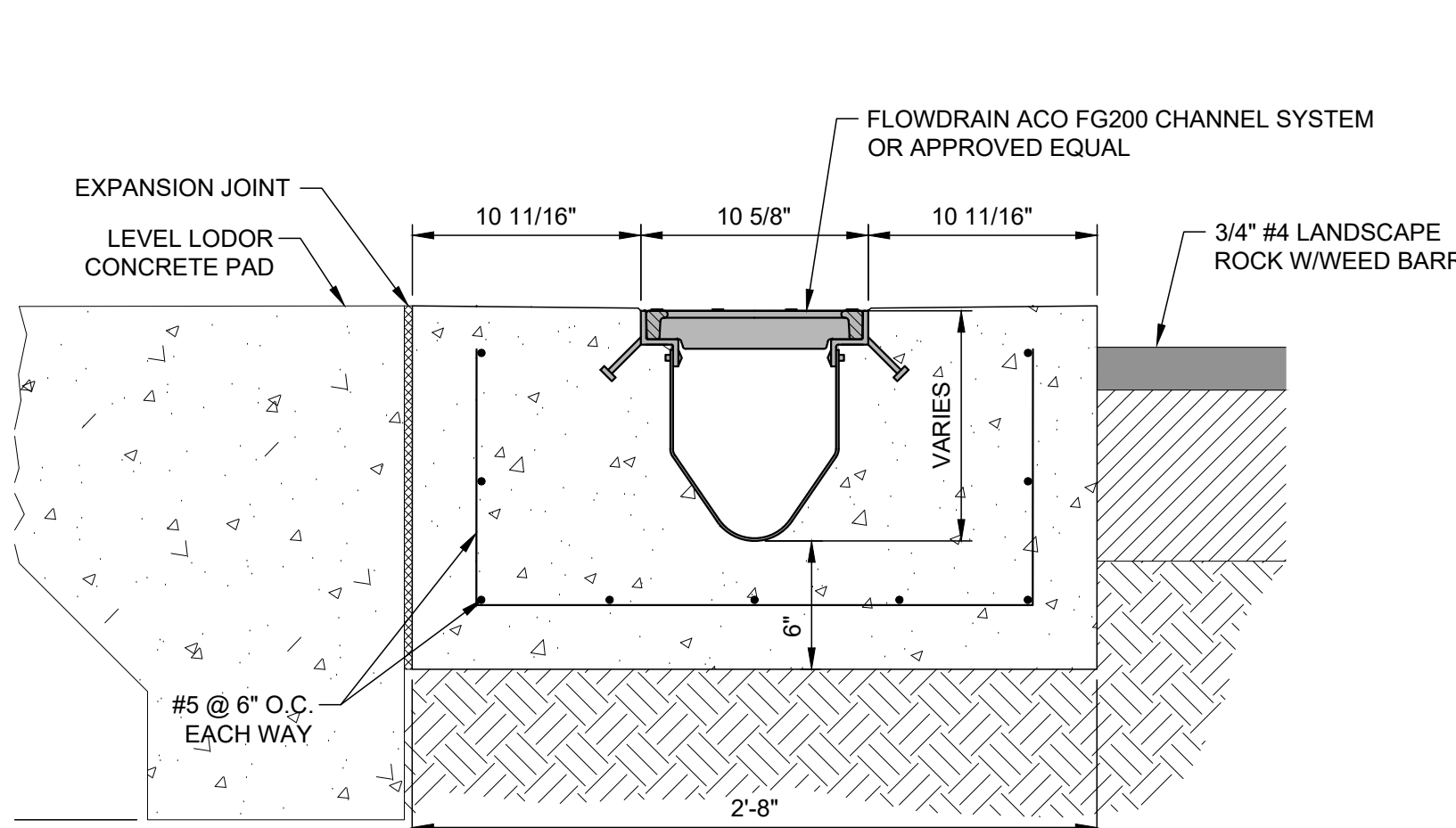
E LINK-SEAL DETAIL
 SCALE: NONE



C TRENCH BOX AND 6" DRAIN PROFILE
 SCALE: 3/8" = 1'



2 SECTION
 C108 SCALE: 1-1/2" = 1'



3 SECTION
 C108 SCALE: 1-1/2" = 1'

- NOTES**
- CONTRACTOR SHALL COORDINATE WITH PLANT STAFF AND RPR PRIOR TO CORING INFLUENT BOX.
 - CORING OF CONCRETE BOX SHALL BE DONE DURING LOW FLOW PERIODS AND MAY REQUIRE COORDINATION WITH EP WATER LIFT STATIONS TO LOWER THE WATER LEVEL IN THE INLET BOX.
 - AFTER CORING AND PRIOR T PLACING PIPE AND SEAL IN OPENING, COAT CONCRETE AND EXPOSED REBAR WITH EPOXY SEALANT.

FILE NAME: A:\20213065.21103_DSGN01_DWG050_CIVIL\08-3065.dwg LAYOUT NAME: C108 PRINTED: Thursday, April 06, 2023 - 7:31pm USER: csanchez

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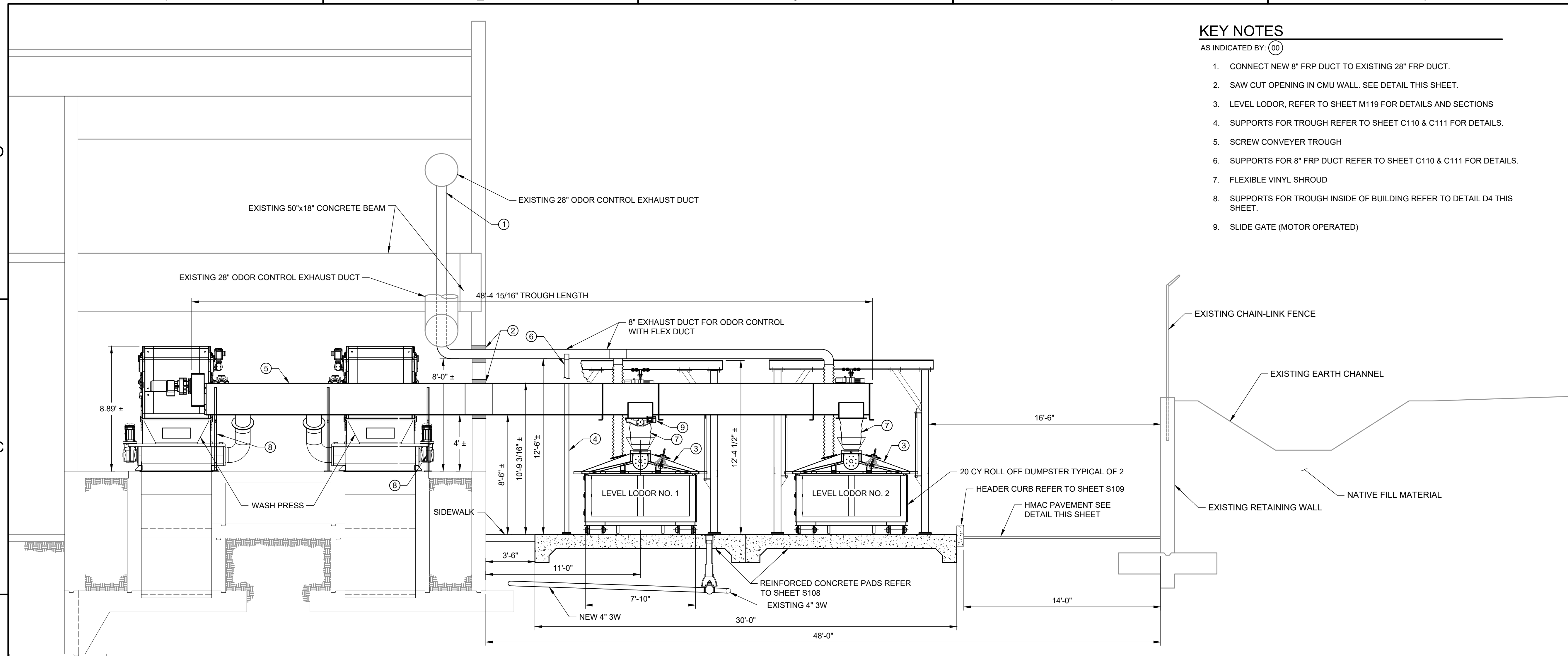
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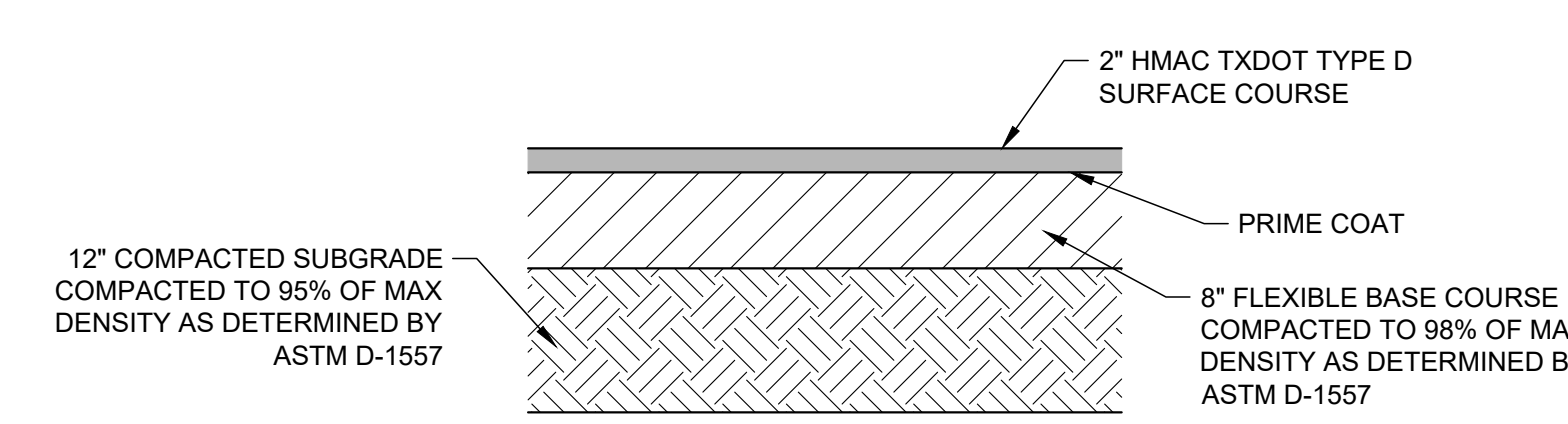
KEY NOTES

AS INDICATED BY: (00)

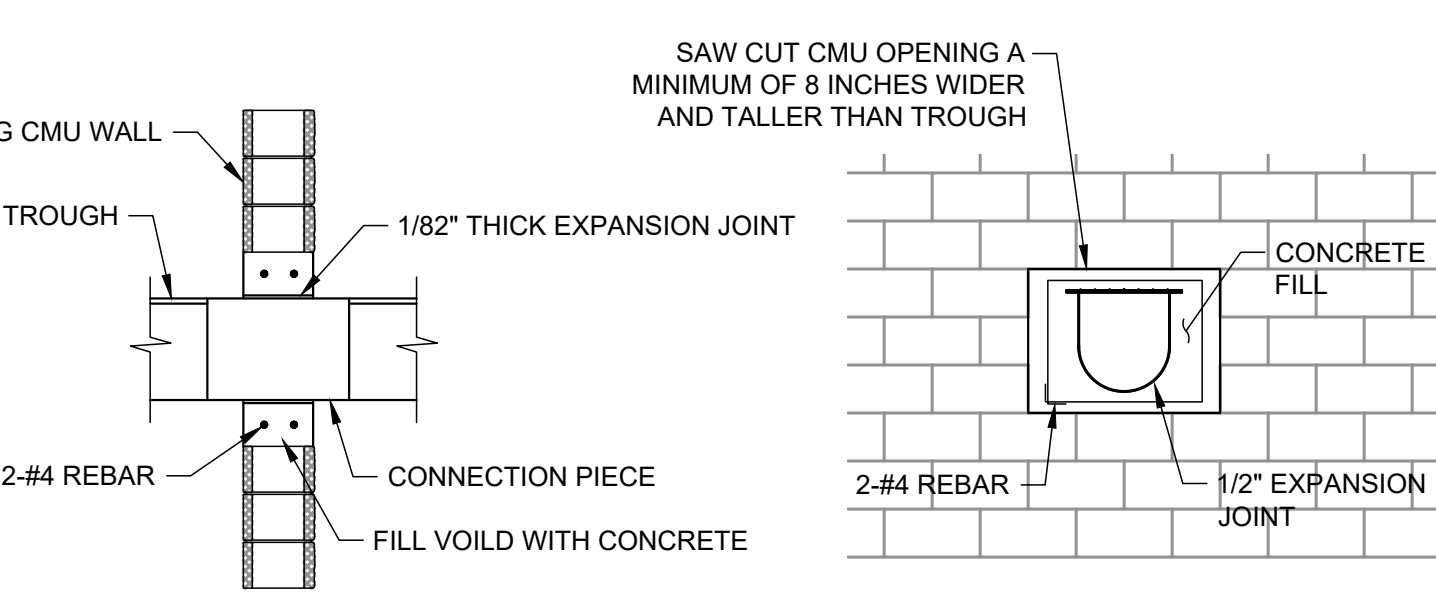
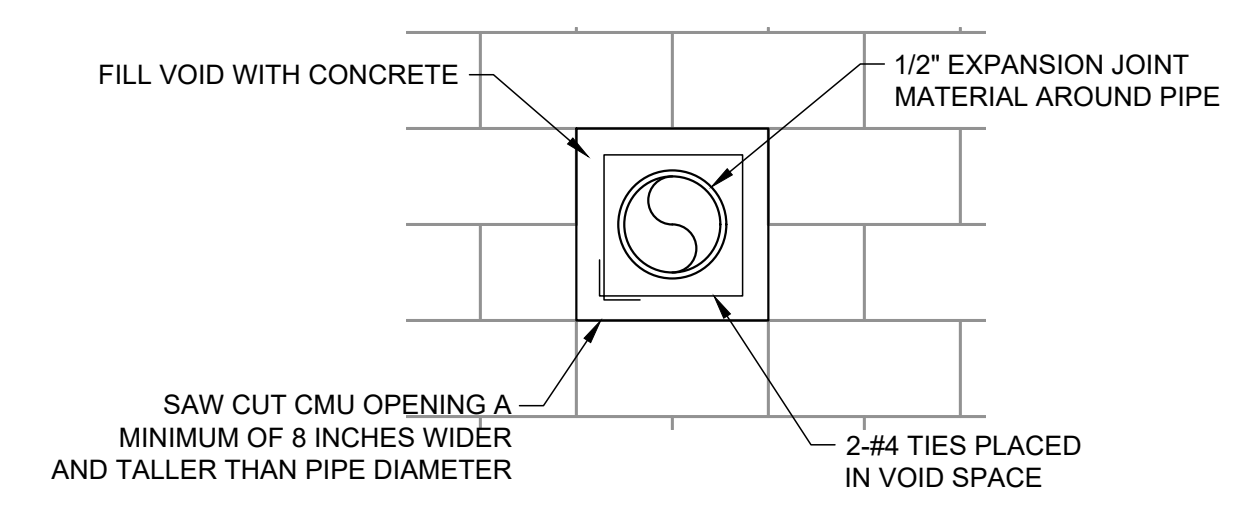
- CONNECT NEW 8" FRP DUCT TO EXISTING 28" FRP DUCT.
- SAW CUT OPENING IN CMU WALL. SEE DETAIL THIS SHEET.
- LEVEL LODOR, REFER TO SHEET M119 FOR DETAILS AND SECTIONS
- SUPPORTS FOR TROUGH REFER TO SHEET C110 & C111 FOR DETAILS.
- SCREW CONVEYER TROUGH
- SUPPORTS FOR 8" FRP DUCT REFER TO SHEET C110 & C111 FOR DETAILS.
- FLEXIBLE VINYL SHROUD
- SUPPORTS FOR TROUGH INSIDE OF BUILDING REFER TO DETAIL D4 THIS SHEET.
- SLIDE GATE (MOTOR OPERATED)



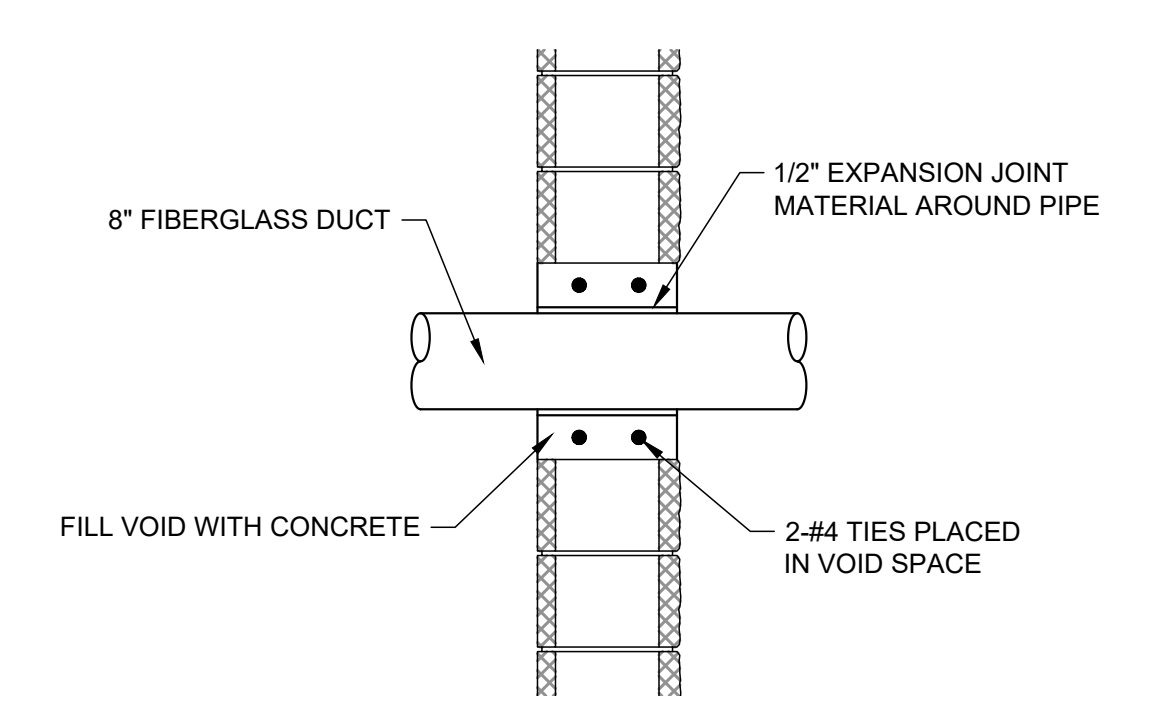
1 SECTION
 M117 C104 SCALE: 1/4" = 1'



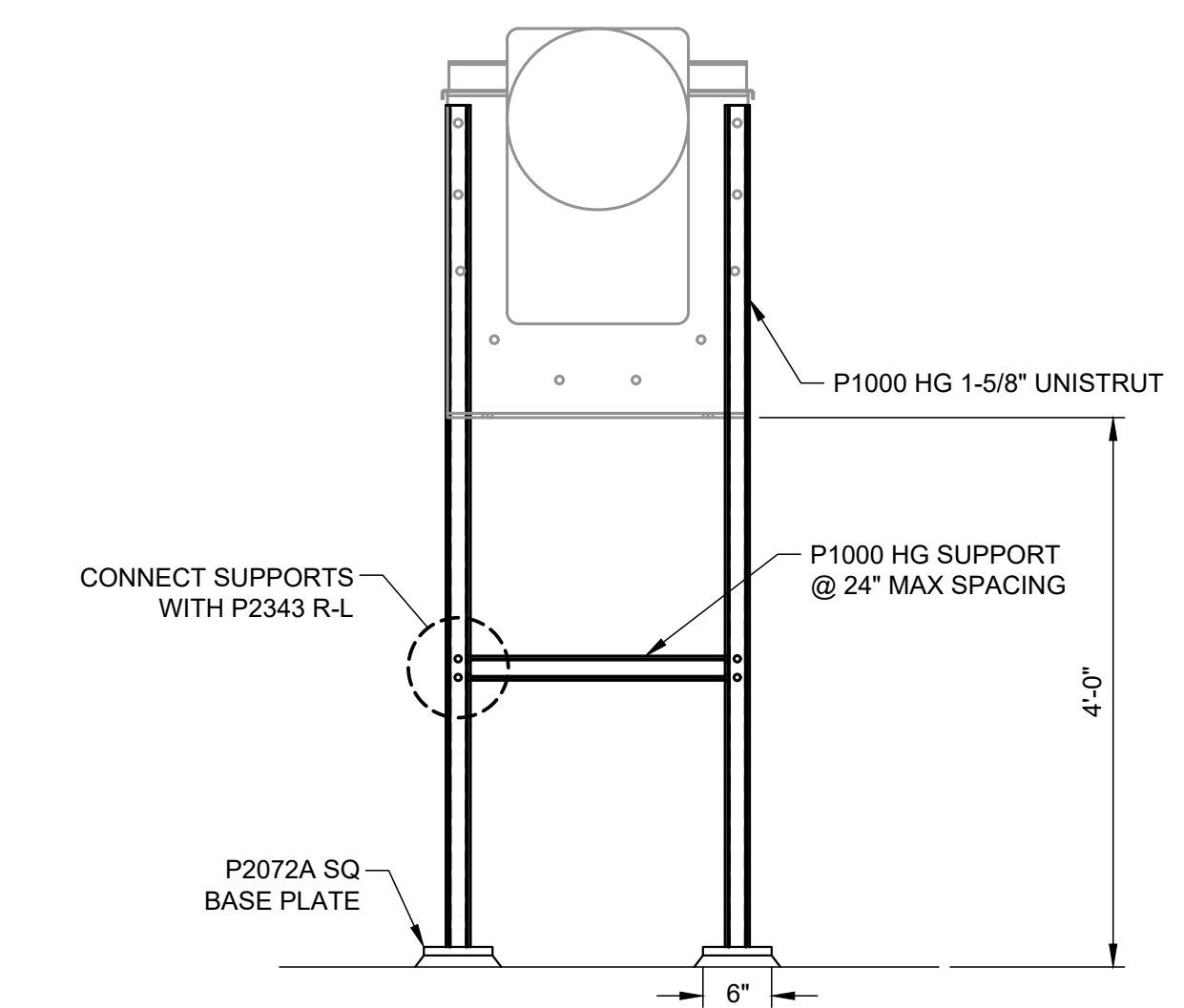
D1 HMAc PAVEMENT STRUCTURE TYP. ALL AREAS
 SCALE: NONE



D2 TROUGH - WALL SECTION DETAIL
 SCALE: NONE



D3 EXHAUST - WALL SECTION DETAIL
 SCALE: NONE



D4 SUPPORTS FOR TROUGH INSIDE HEADWORKS
 SCALE: 3/4" = 1'



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
 BAR IS 1 INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

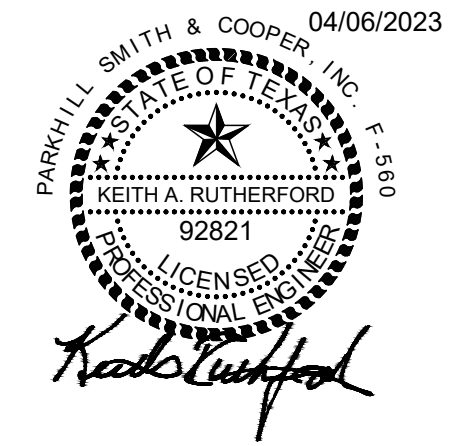
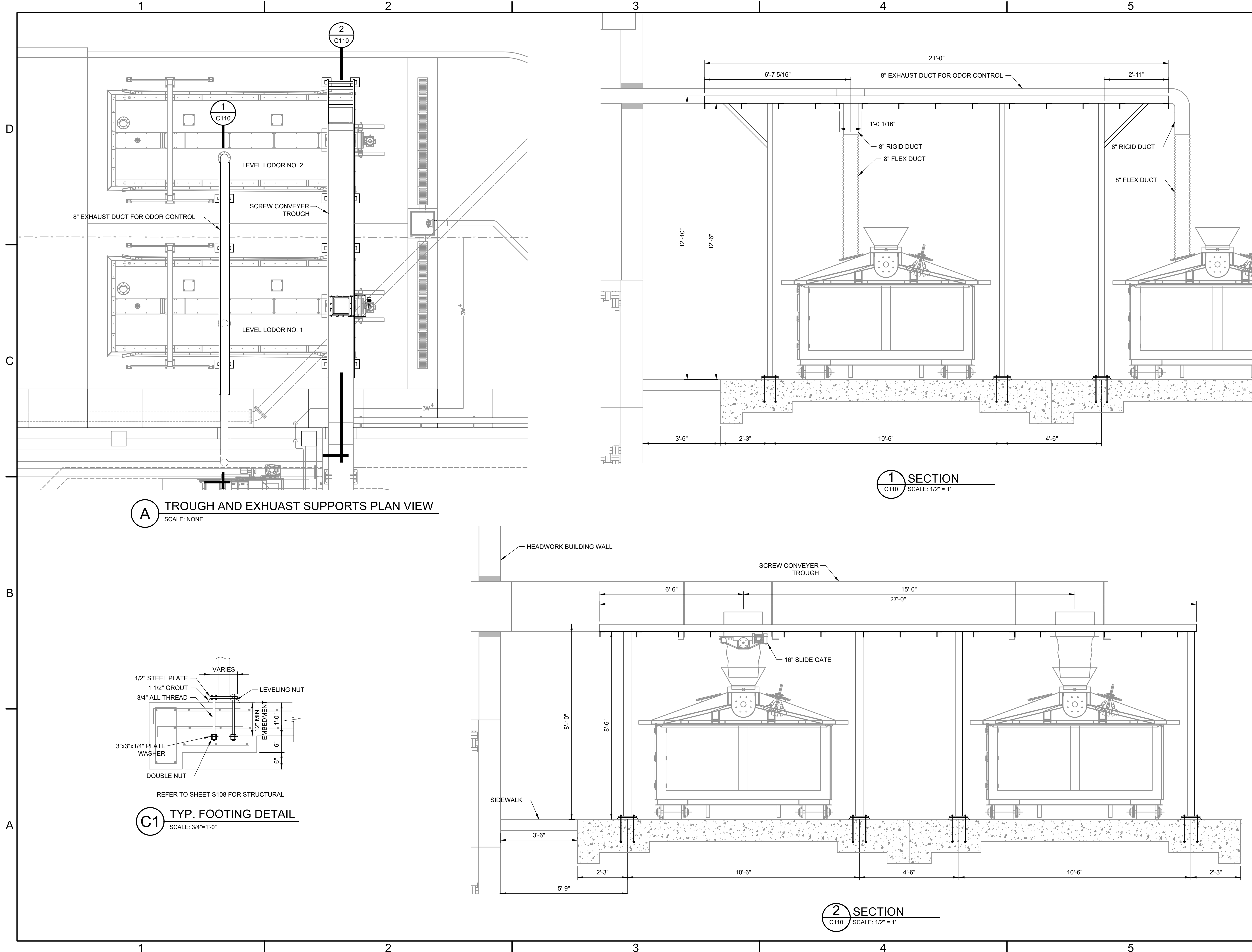
NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

BARSCREEN, CONVEYOR, LEVEL LODOR AND RETAINING WALL SECTION

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\09-3065.dwg LAYOUT NAME: C109 PRINTED: Thursday, April 06, 2023 - 7:31pm USER: csanchez

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\C110-3065.dwg LAYOUT NAME: C110 PRINTED: Thursday, April 06, 2023 - 7:32pm USER: csanchez



JOHN T. HICKERSON HEADWORKS BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

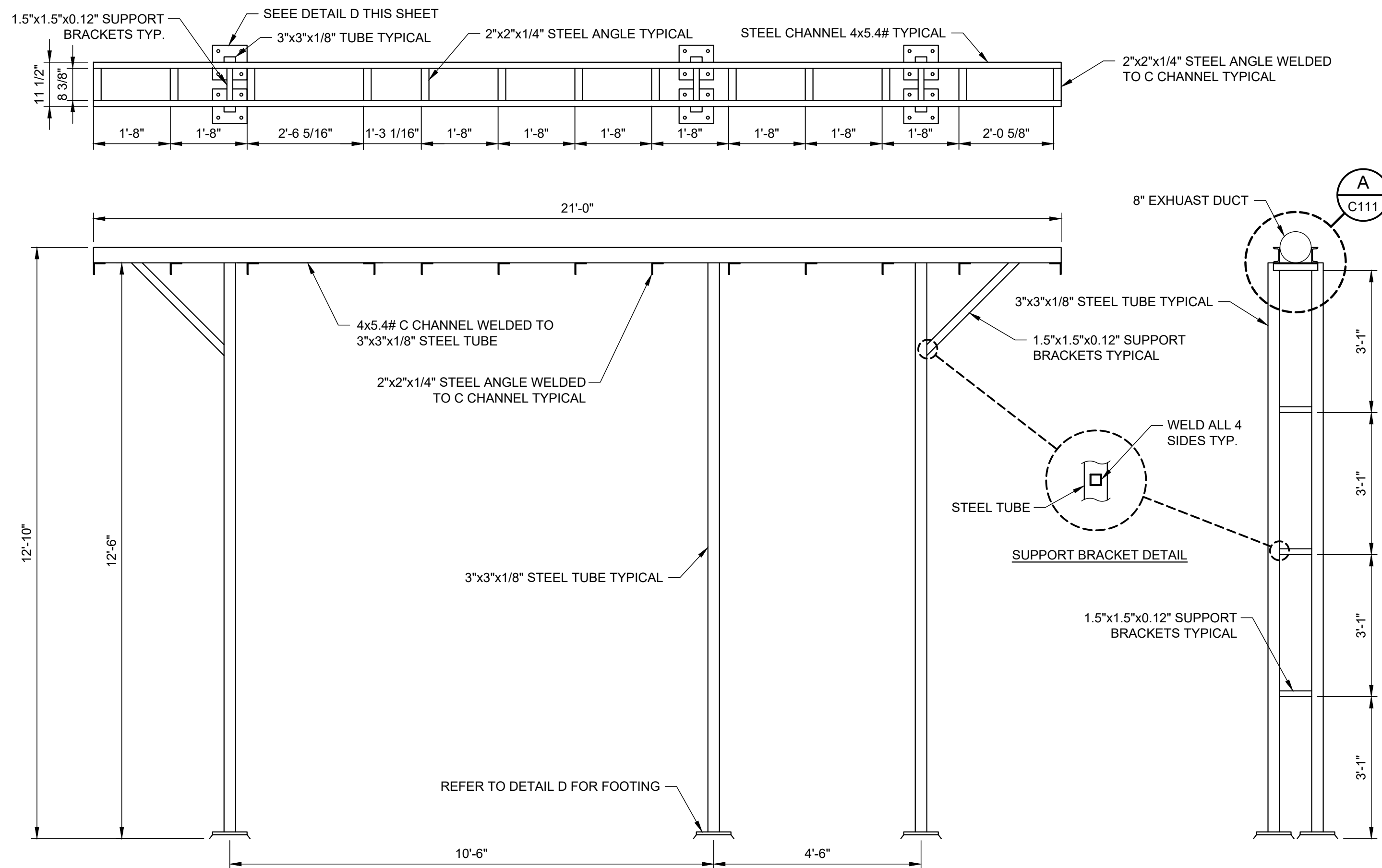
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0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

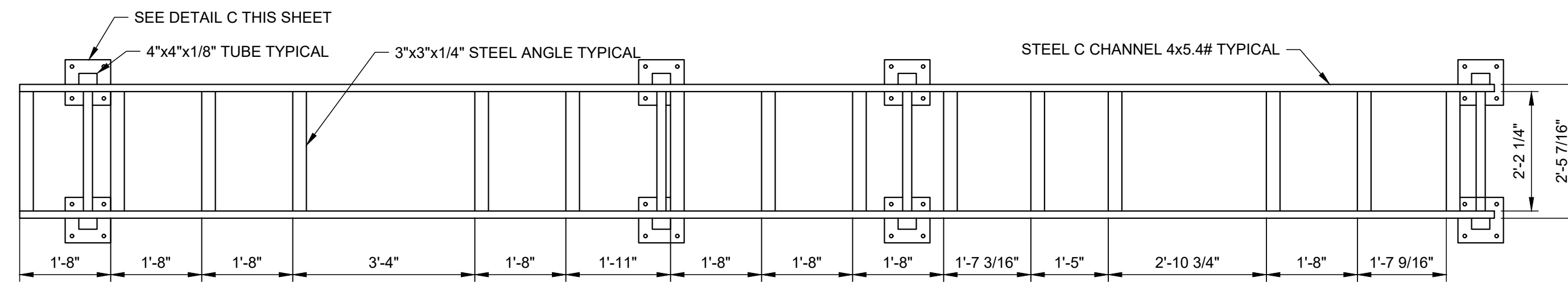
TROUGH AND EXHAUST PLAN VIEW AND SECTIONS

C110

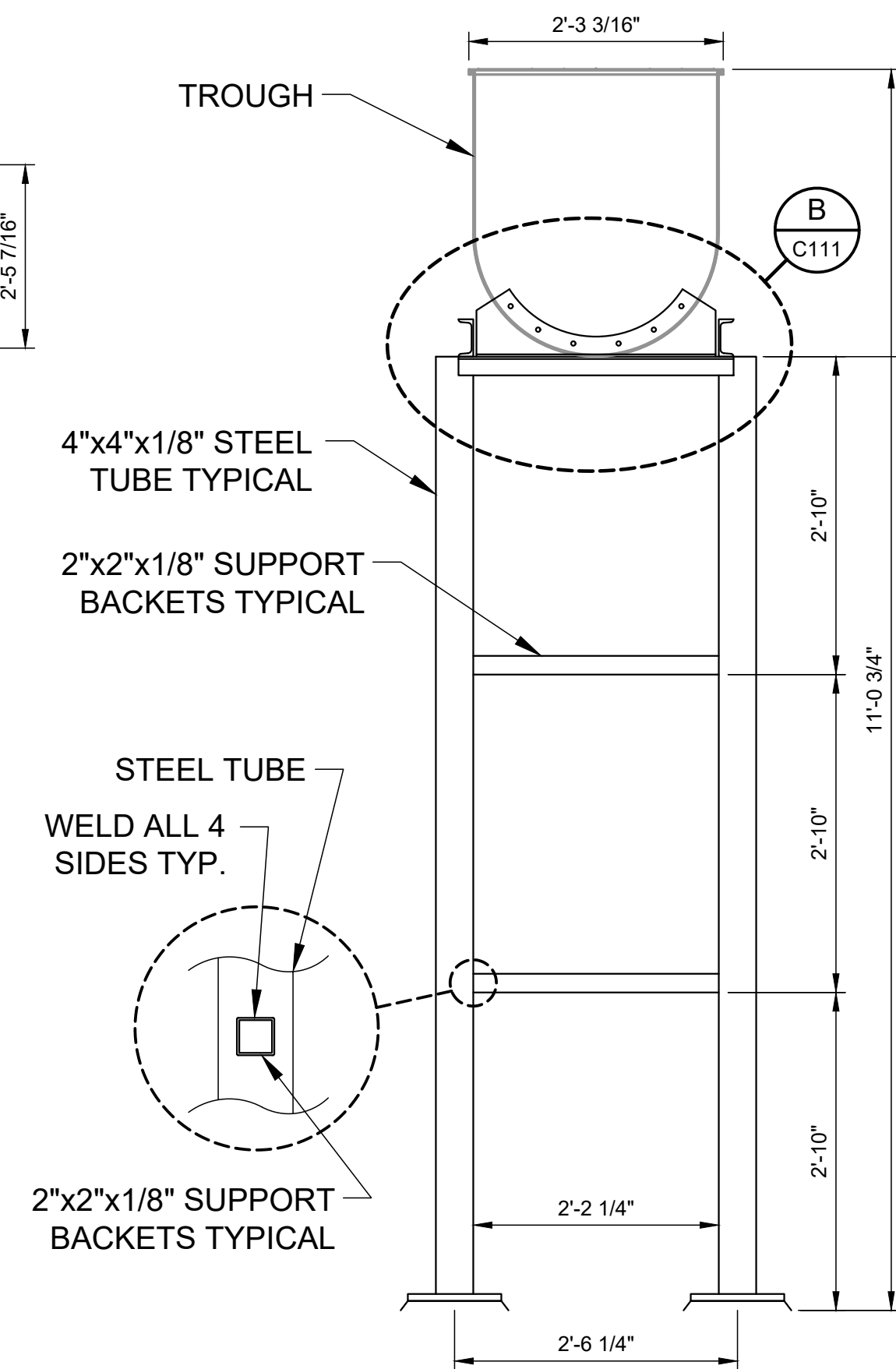
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D1 EXHAUST - SECTION VIEWS
SCALE: 1/2" = 1'



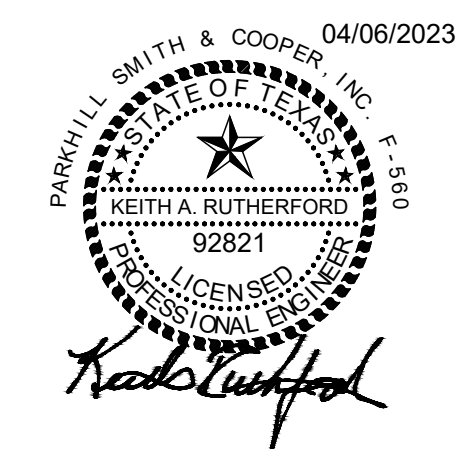
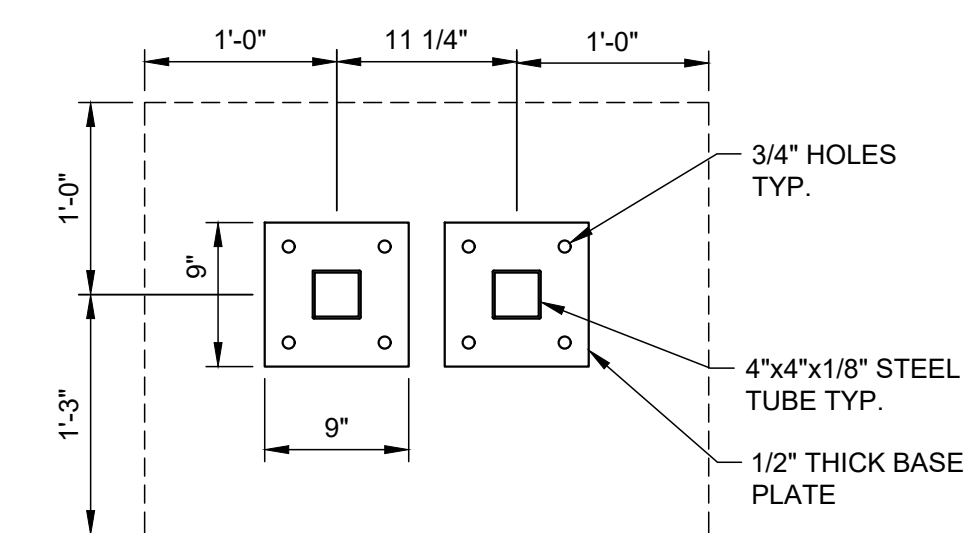
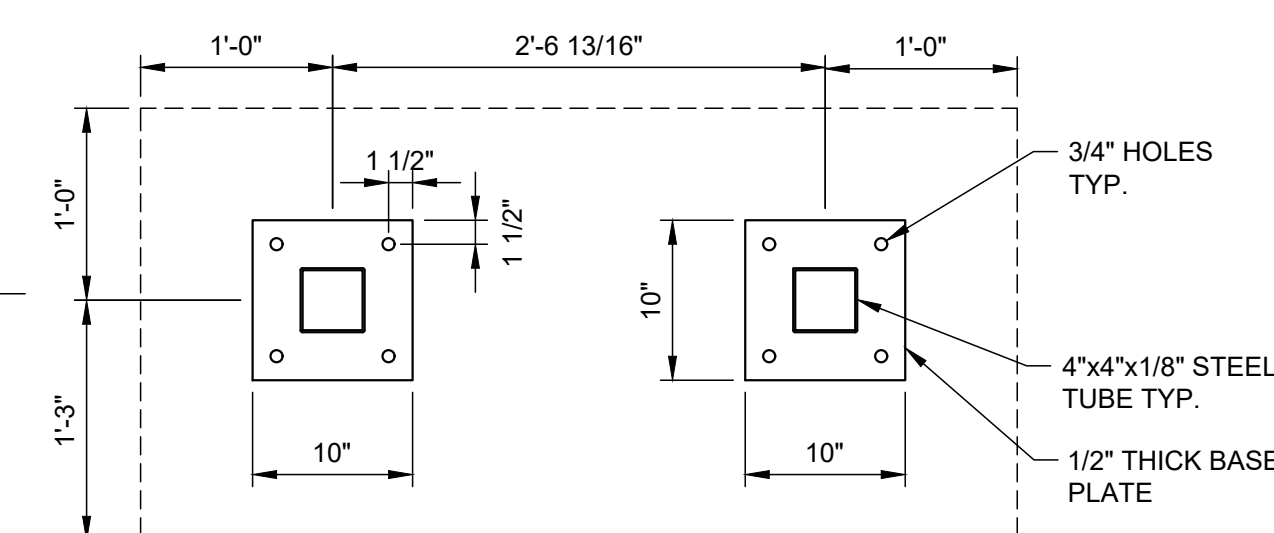
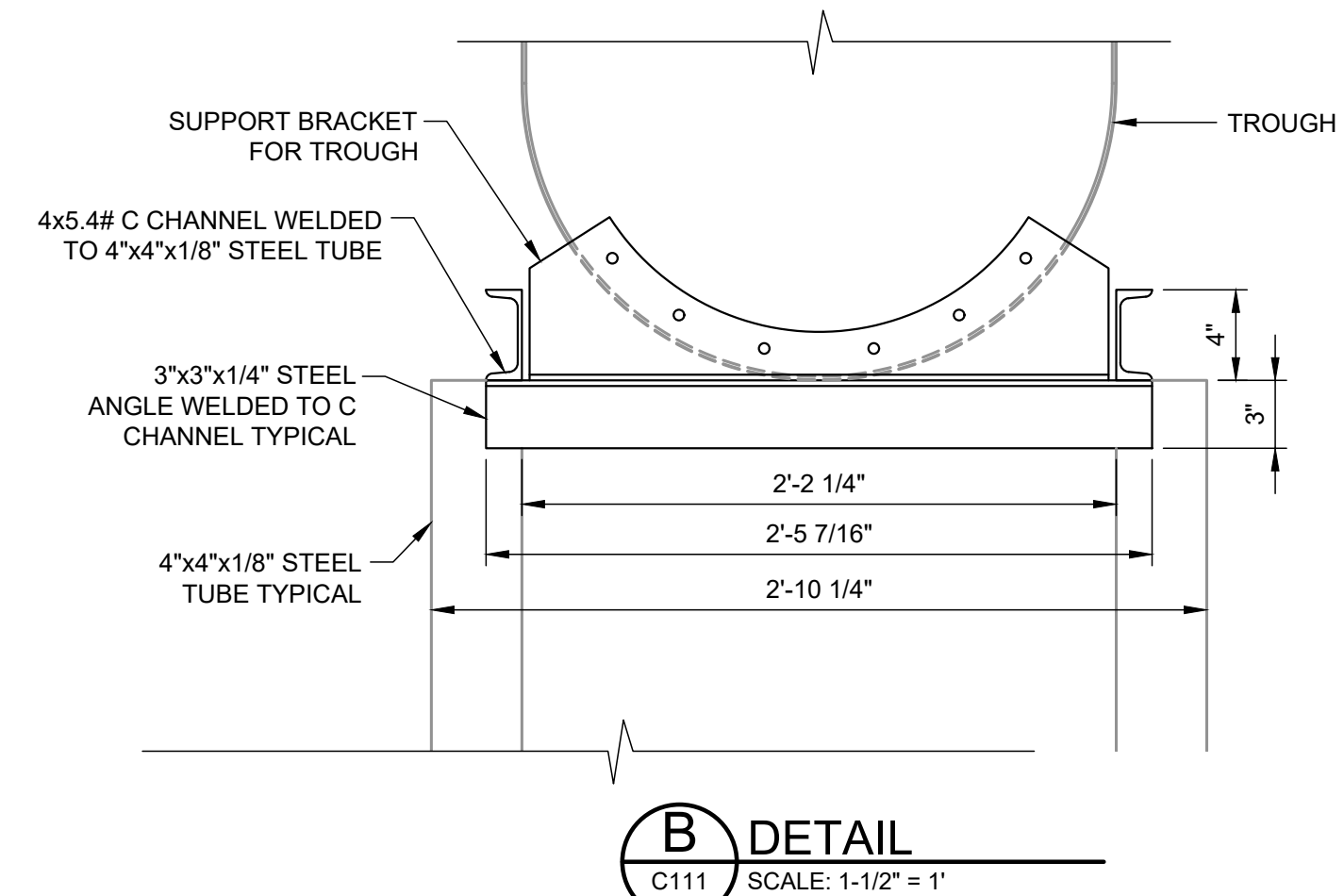
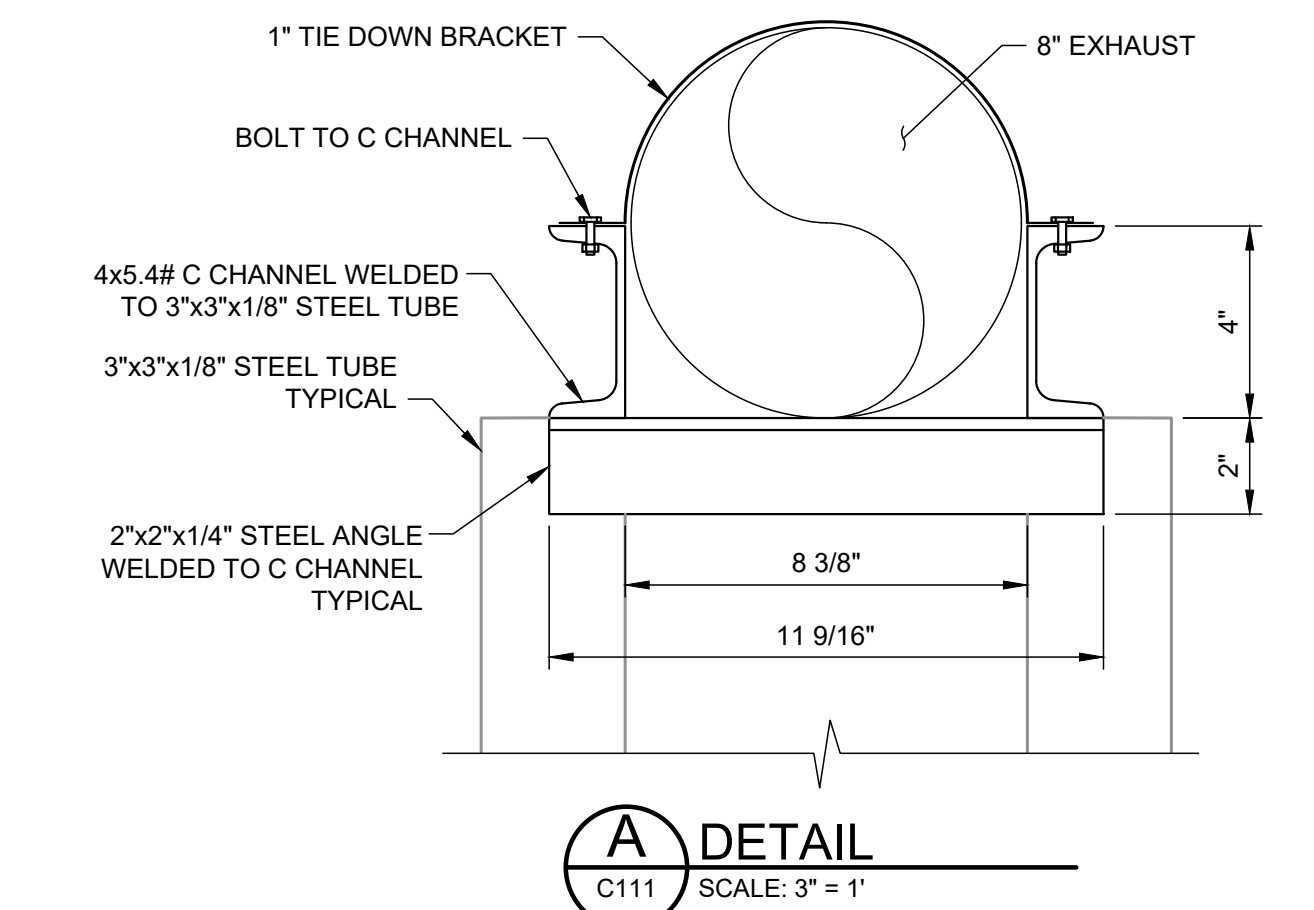
D2 TROUGH - SECTION VIEWS
SCALE: 1/2" = 1'



D3 TROUGH - SIDE VIEW
SCALE: 3/4" = 1'

NOTES

- ALL JOINTS BETWEEN MEMBERS SHALL BE FULL CIRCUMFERENCE 3/16 FILLET WELDS UNLESS OTHERWISE SHOWN ON THE DRAWINGS. WELDS SHALL BE COATED WITH ZRC COLD GALVANIZING TREATMENT OR EQUAL.
- 3/16" END PLATES ON EXPOSED ENDS OF ALL PIPE SECTIONS (WELD ALL AROUND).



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

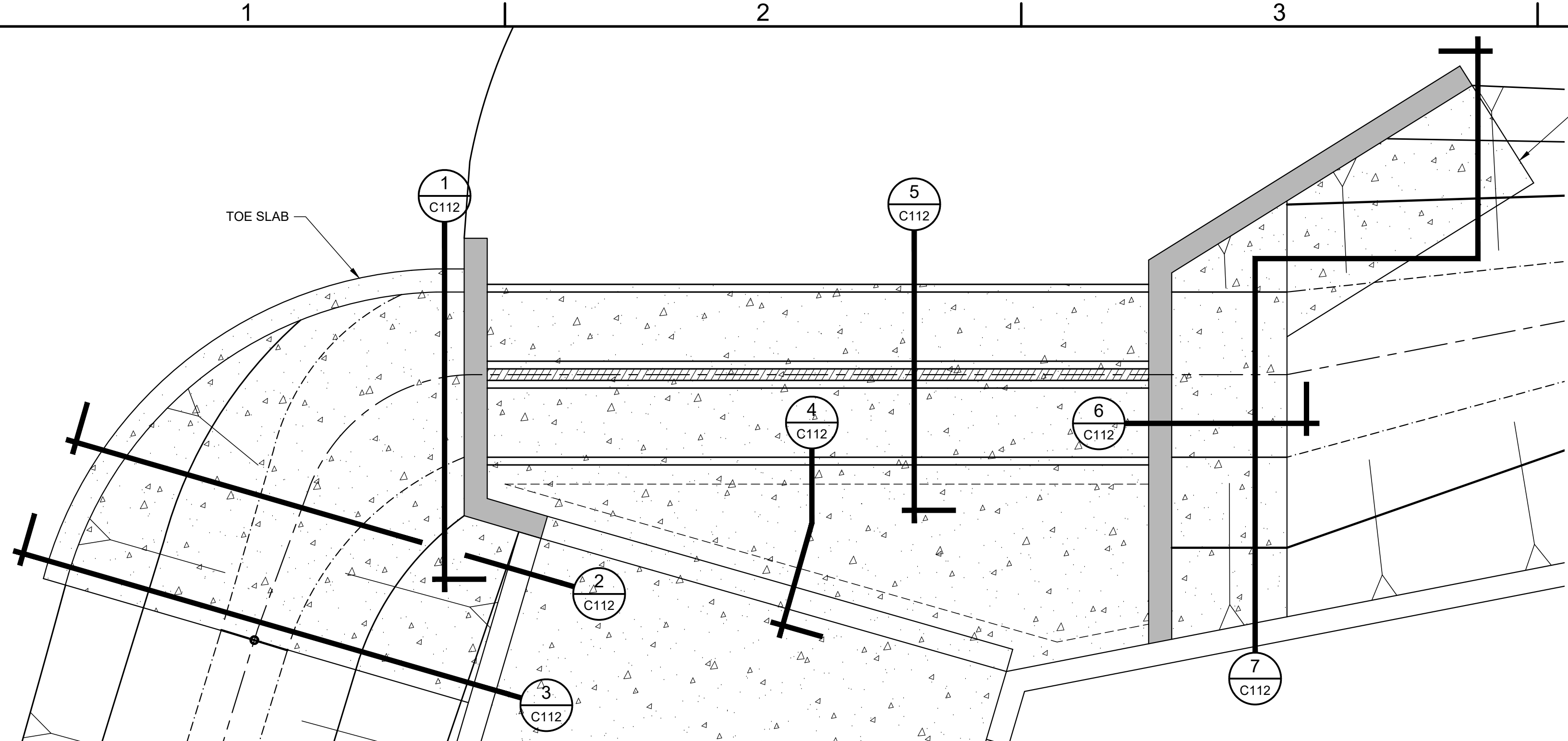
VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

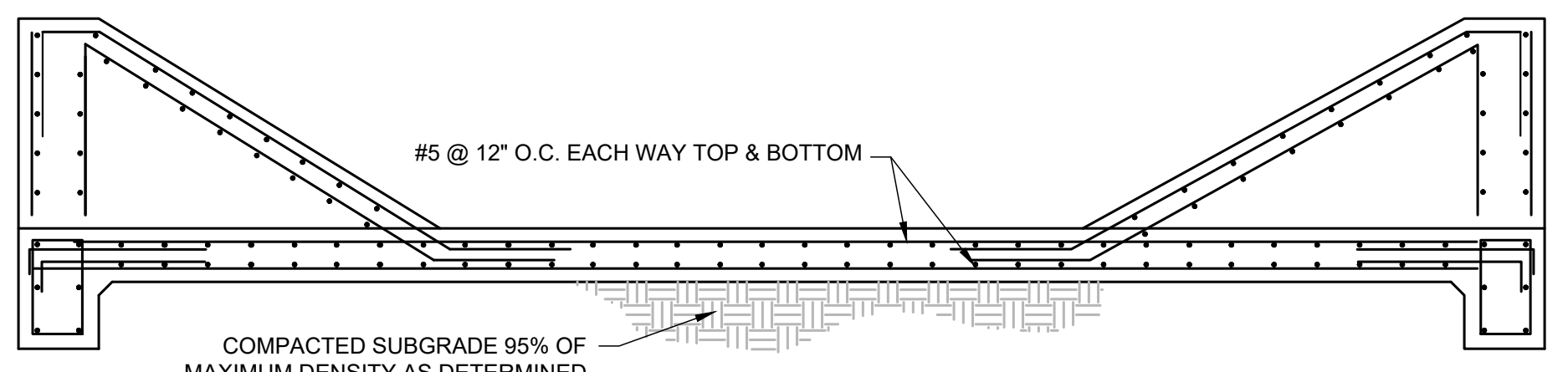
NO.	DATE	DESCRIPTION	PROJECT NO.

TROUGH AND EXHAUST DETAILS

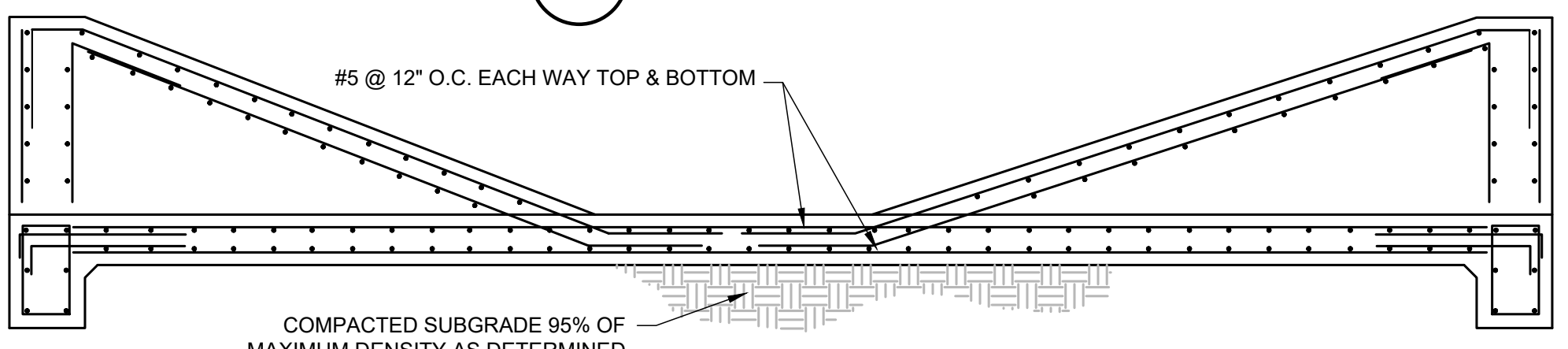
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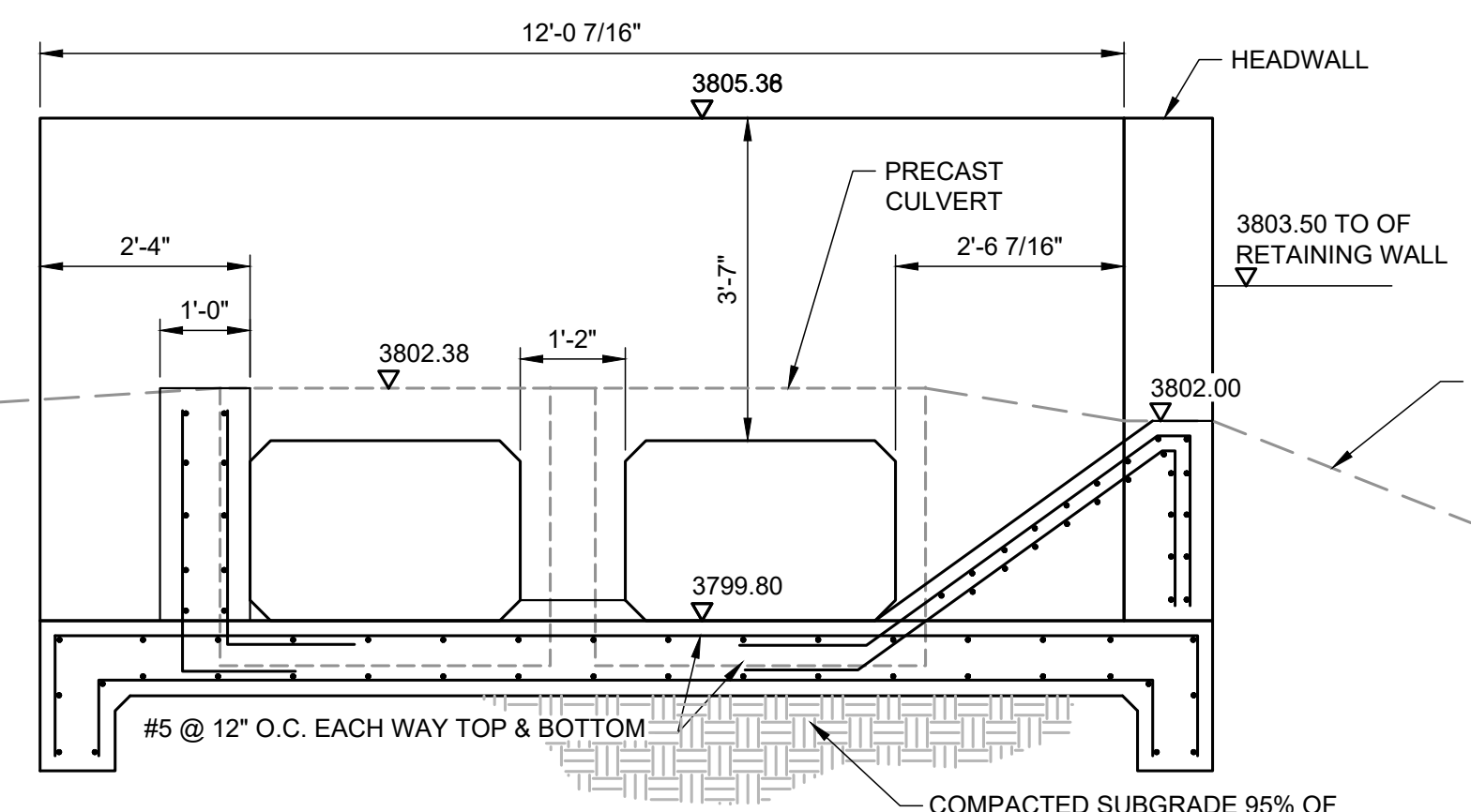
F CULVERT PLAN VIEW
SCALE: 1/4" = 1'



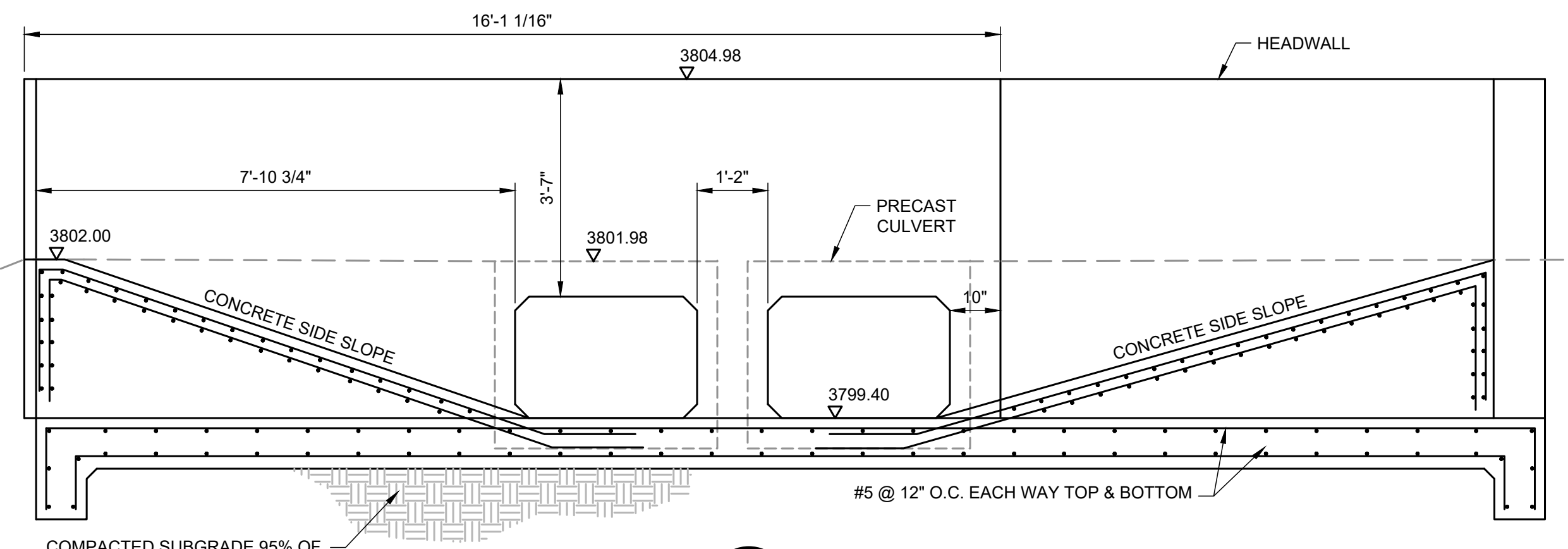
2 SECTION
C112 SCALE: 1/2" = 1'



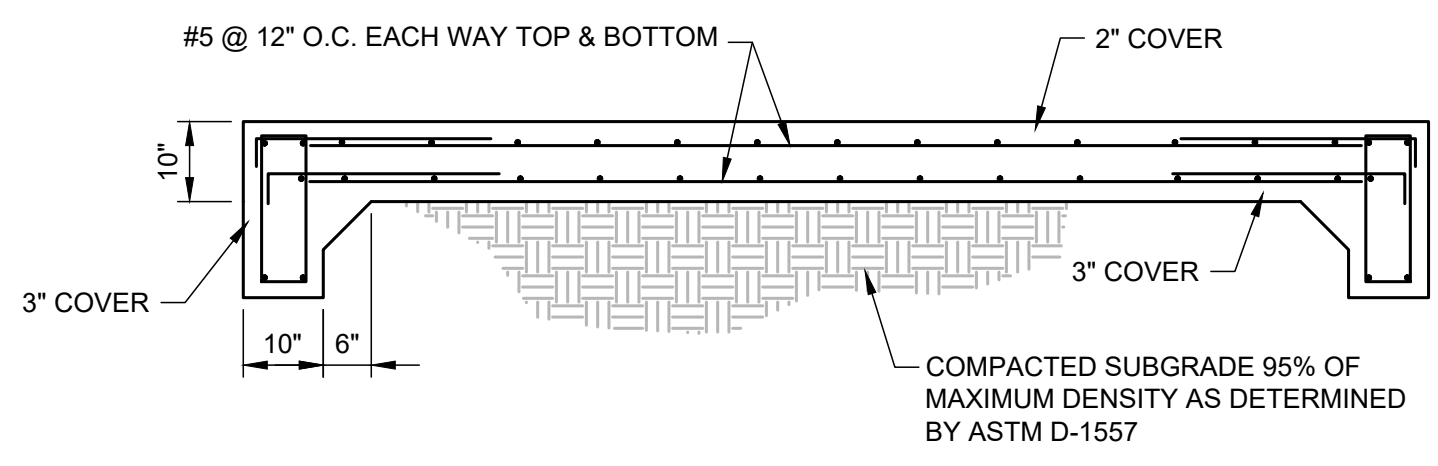
3 SECTION
C112 SCALE: 1/2" = 1'



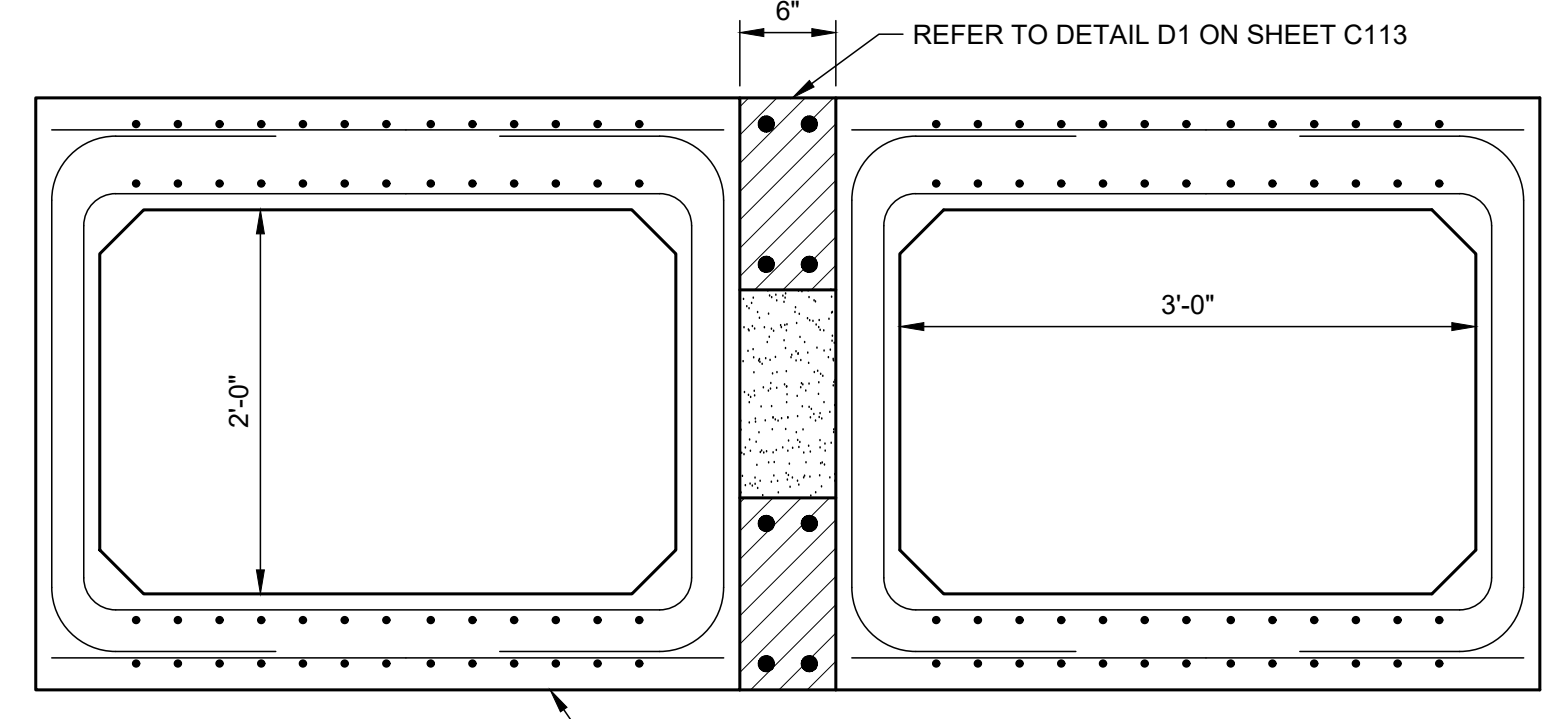
1 SECTION
C112 SCALE: 1/2" = 1'



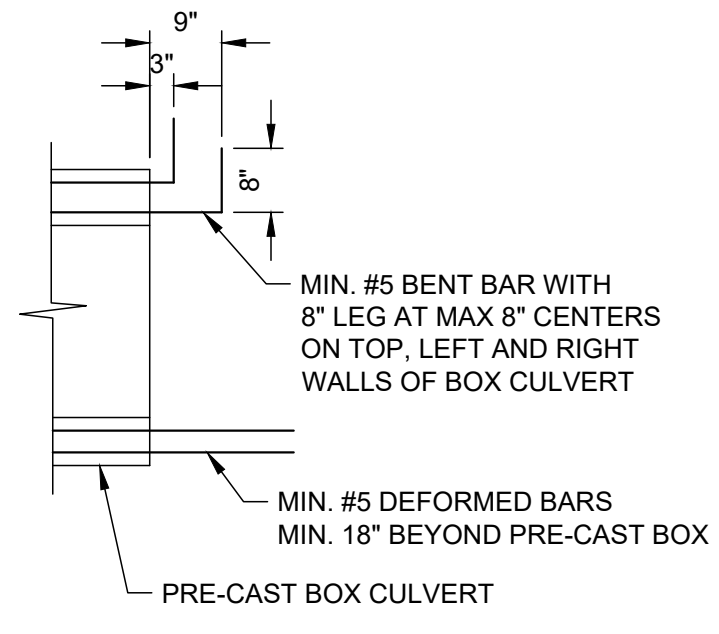
7 SECTION
C112 SCALE: 1/2" = 1'



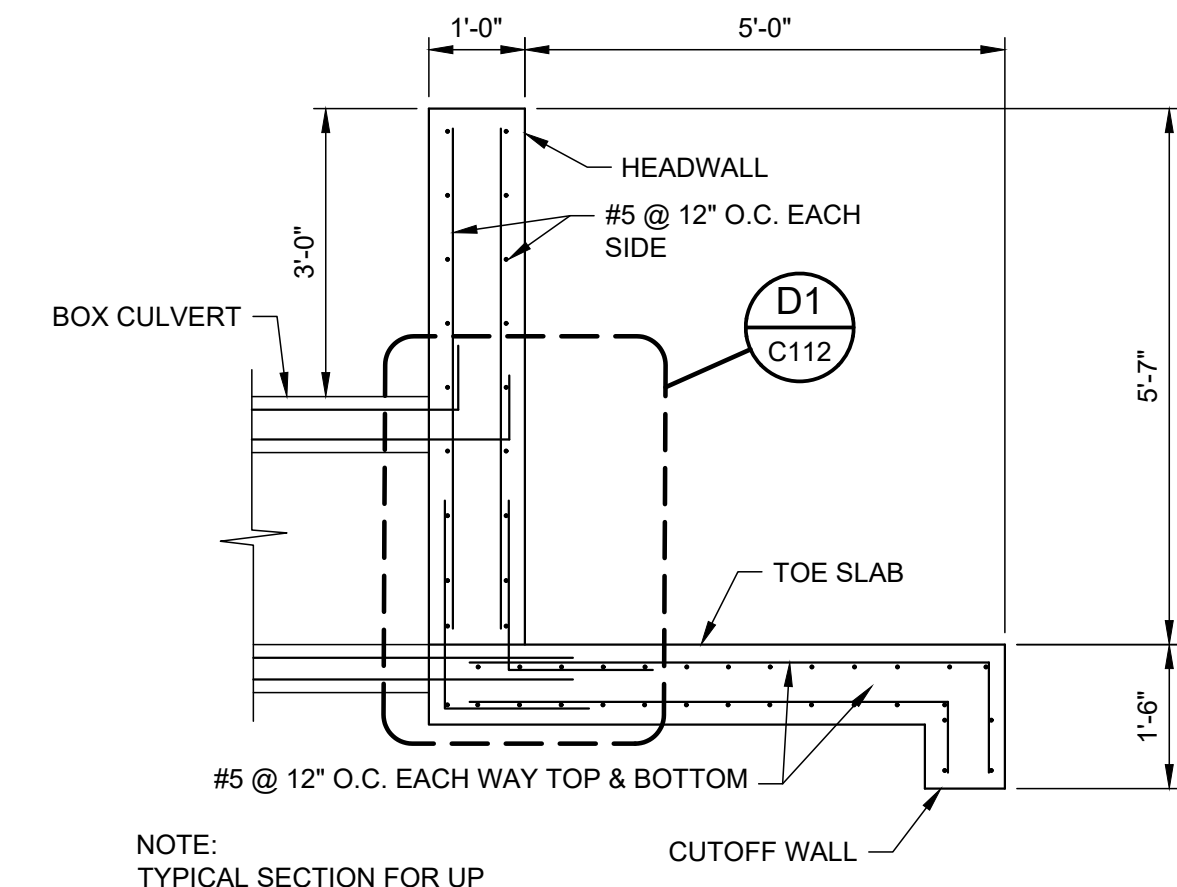
4 SECTION
C112 SCALE: 1/2" = 1'



5 SECTION - PRECAST CONCRETE CULVERT BOXES
C112 SCALE: 1" = 1'

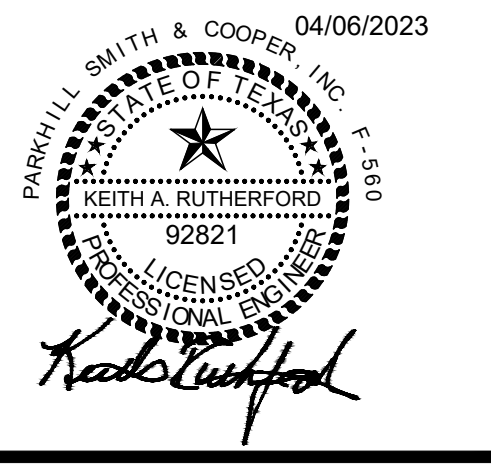


D1 BOX CULVERT END DETAIL
SCALE: 1/2" = 1'



6 SECTION
C112 SCALE: 1/2" = 1'

NOTE:
TYPICAL SECTION FOR UP
STREAM AND DOWN STREAM



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

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IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

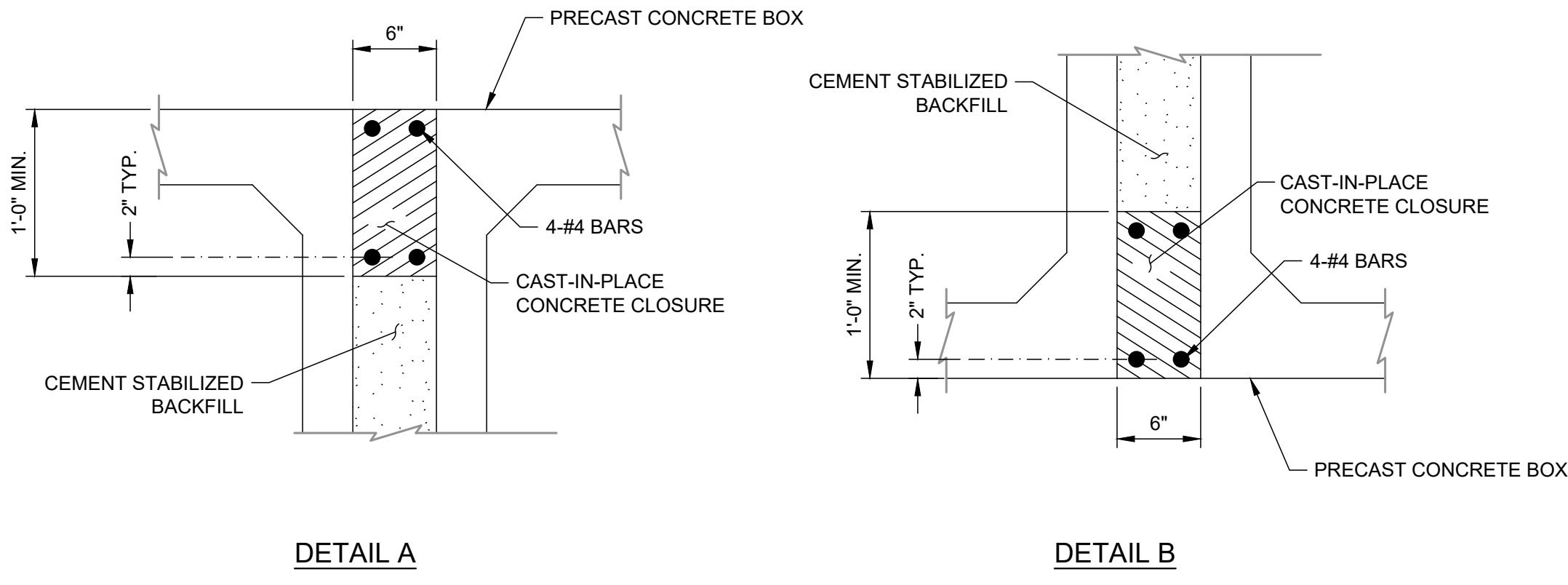
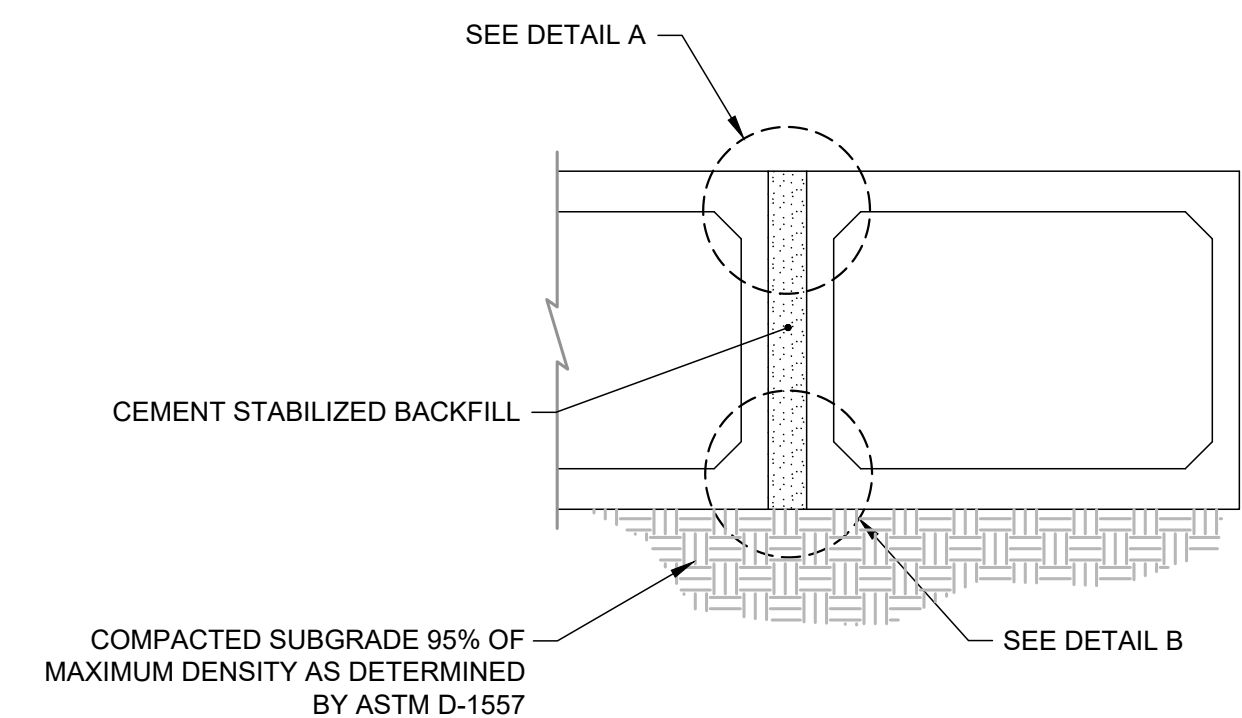
PRECAST BOX CULVERT PLAN AND SECTIONS



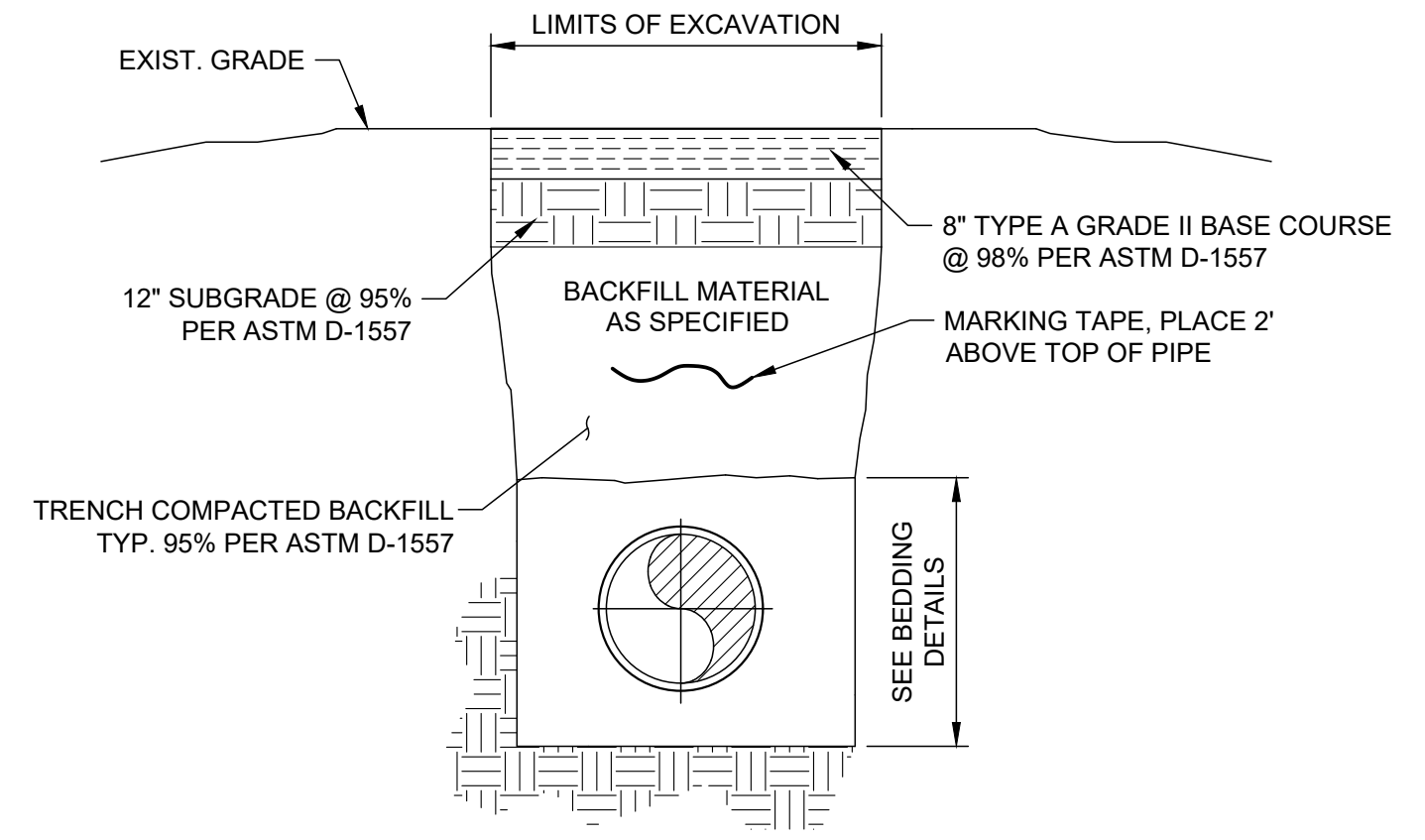
**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

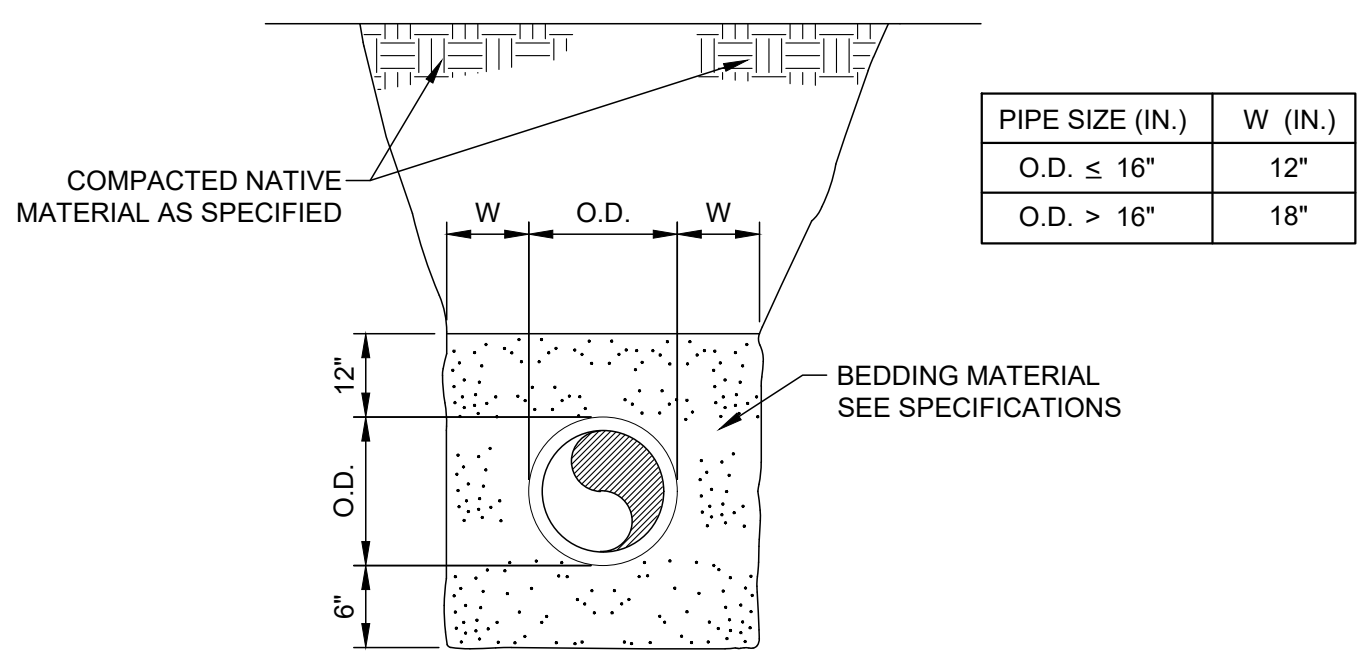
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936



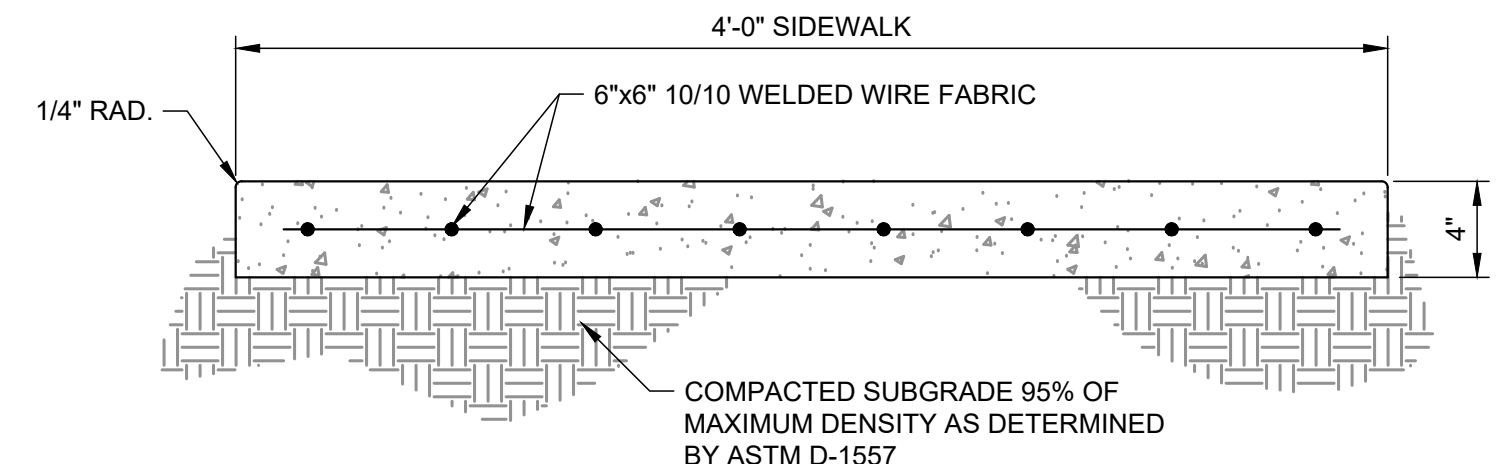
D1 PRE-CAST CULVERT DETAILS
SCALE: NONE



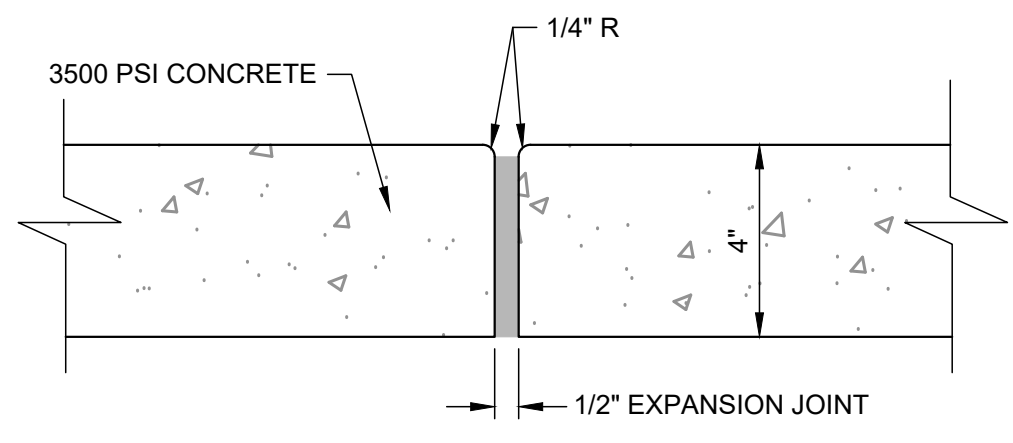
D2 PIPE BACKFILL
SCALE: NONE



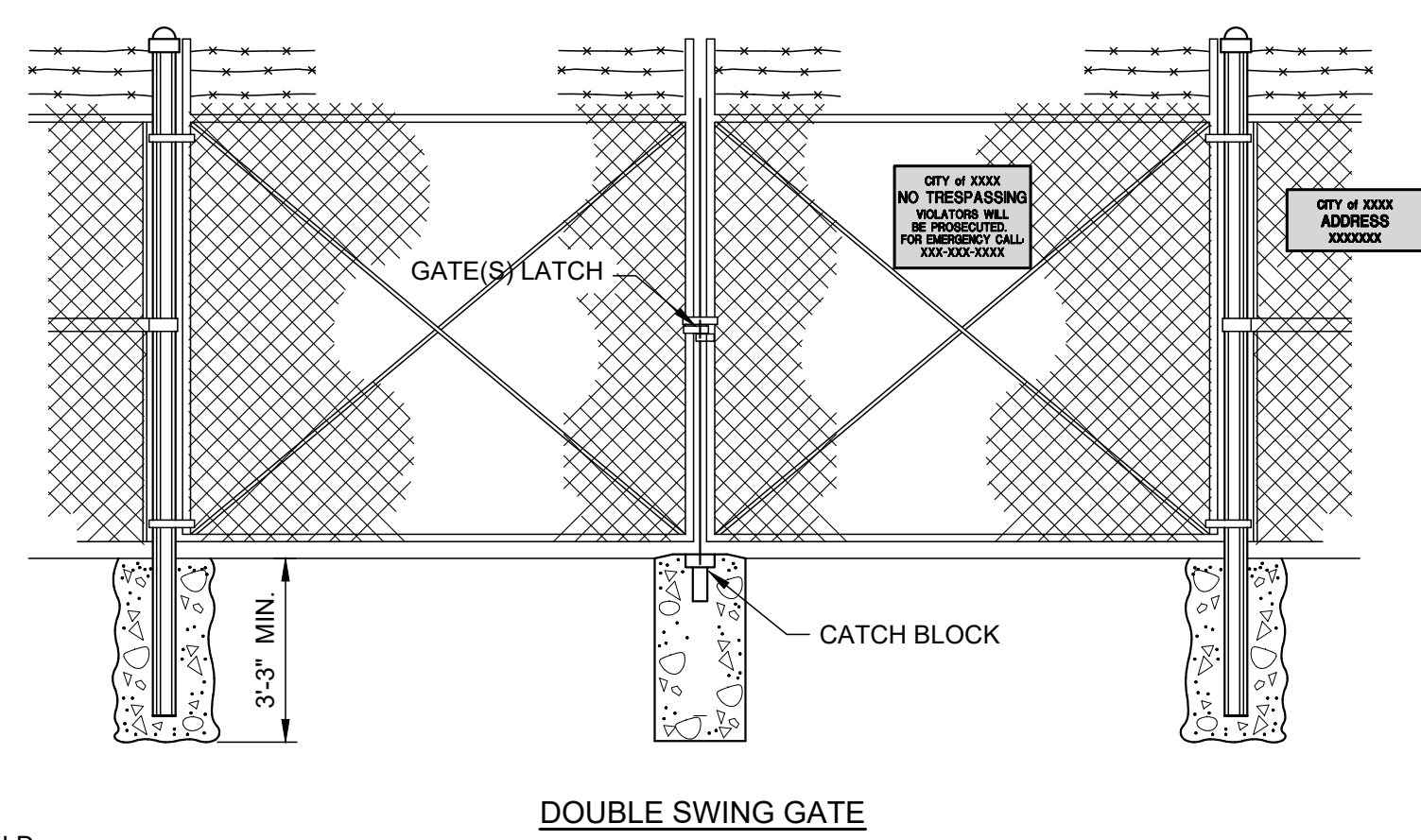
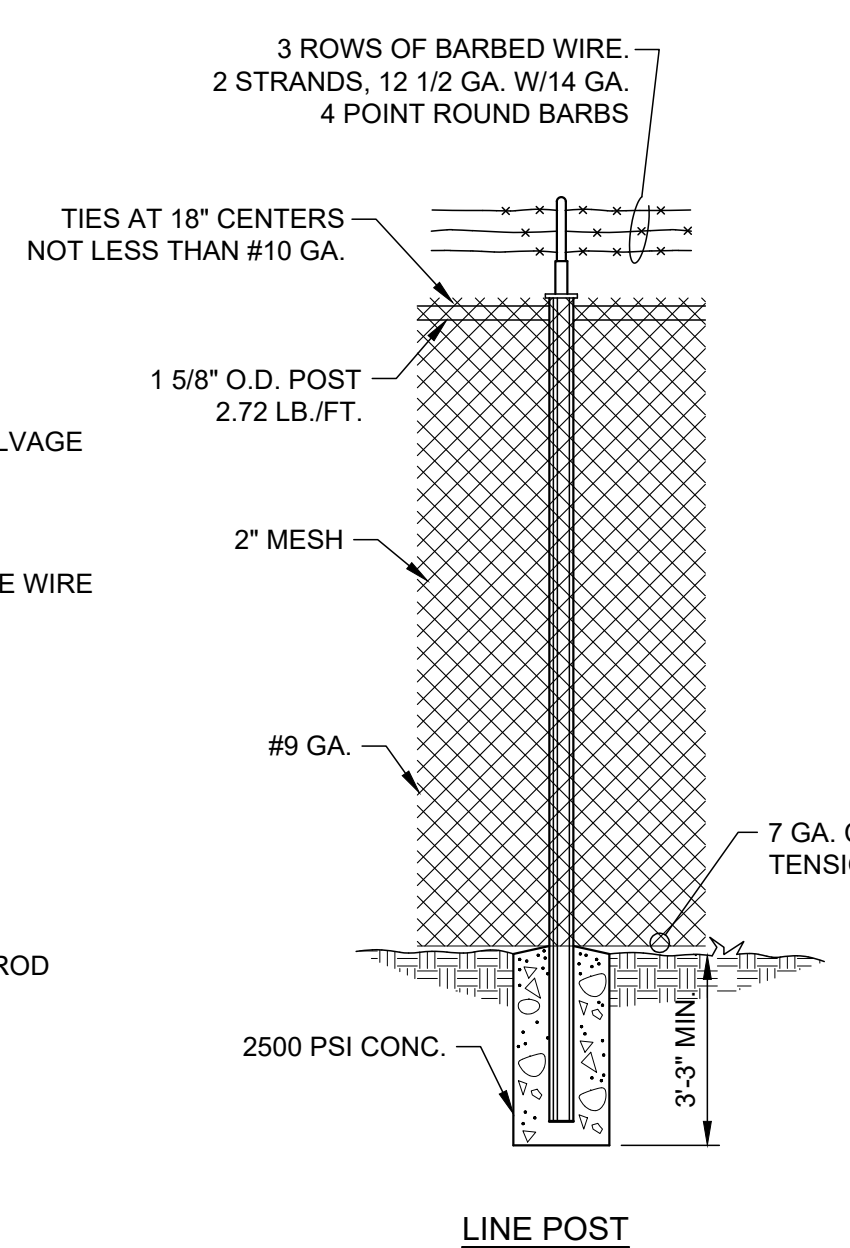
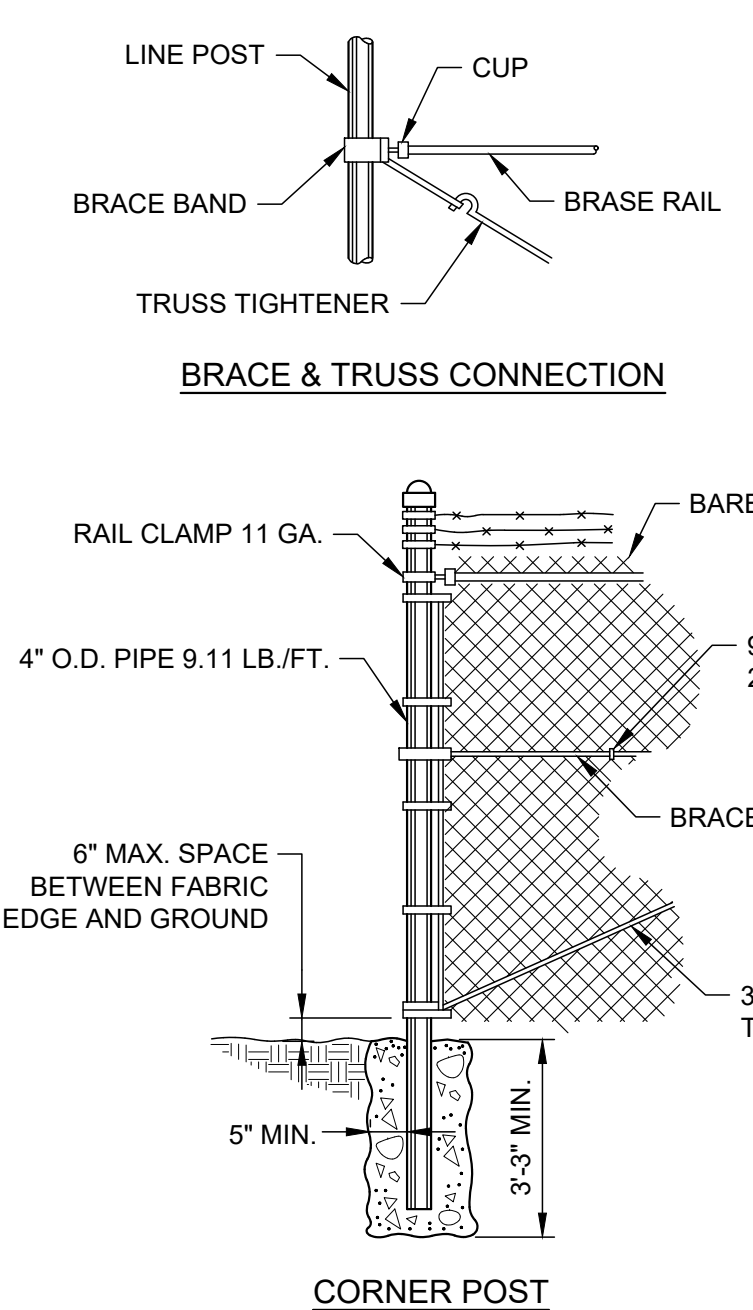
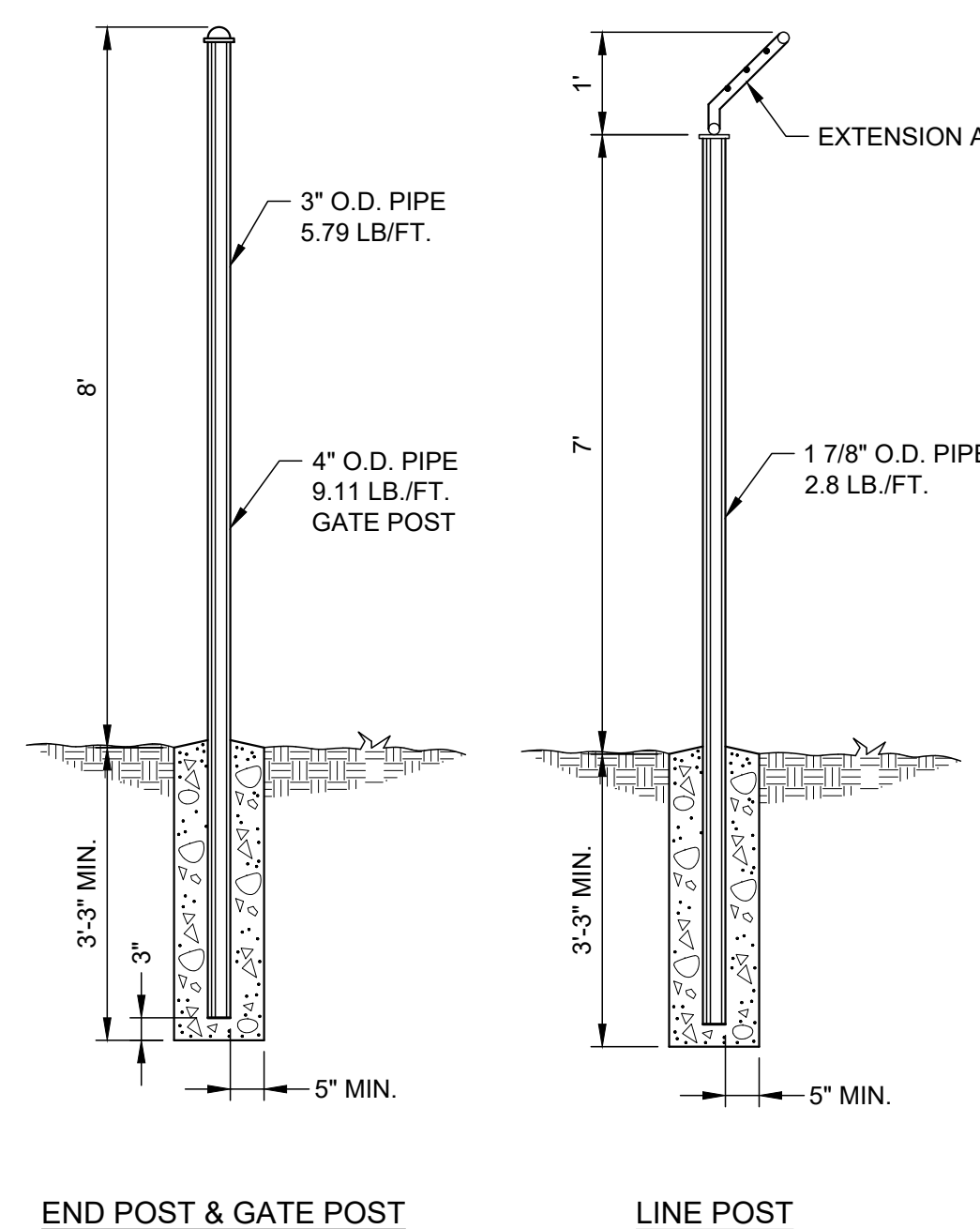
D3 PIPE BEDDING DETAIL
SCALE: NONE



- NOTES:
1. PROVIDE LONGITUDINAL AND TRANSVERSAL DUMMY GROVE JOINTS AT INTERVALS NOT EXCEEDING 5 FEET ON CENTER.
 2. PROVIDE 1/2" EXPANSION JOINTS AT INTERSECTIONS OF WALKS AND STRUCTURES AT 50 FEET MAX INTERVALS.



D4 SIDEWALK DETAIL
SCALE: NONE



D5 CHAIN LINE FENCE
SCALE: NONE

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

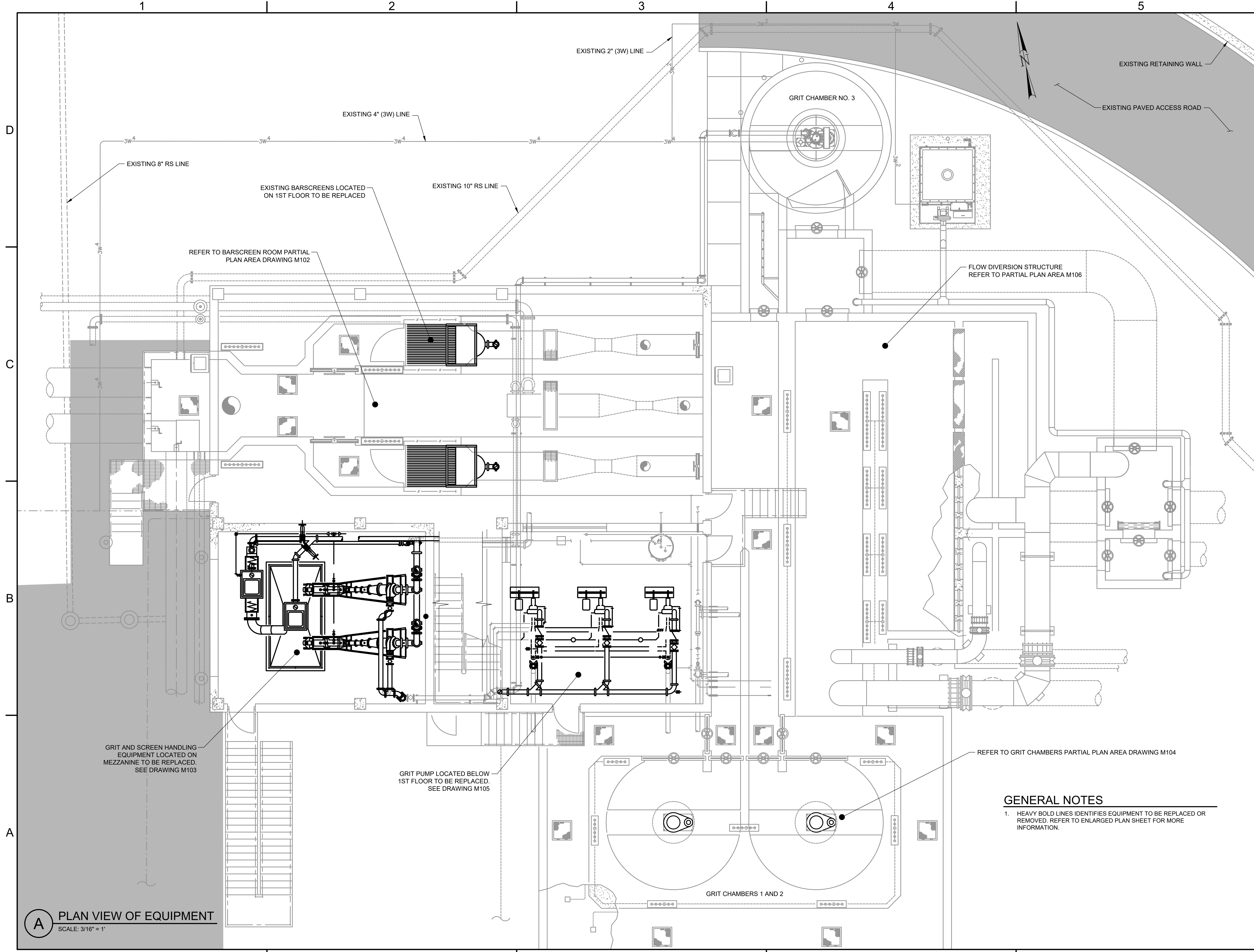
NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

MISCELLANEOUS CIVIL DETAILS

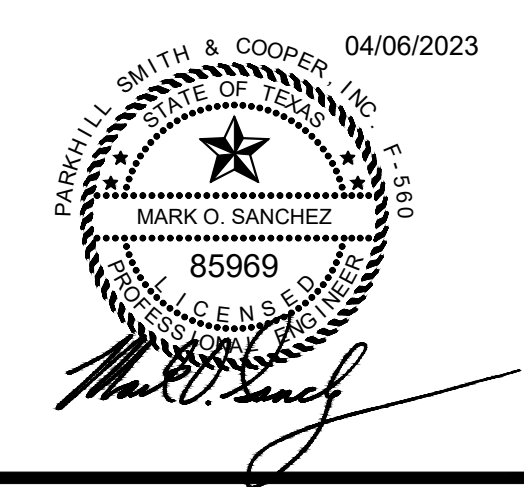
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FILE NAME: A:\2021\3065.21103_DSGND01_DWG050_CIVIL\M101-3065.dwg LAYOUT NAME: M101 PRINTED: Thursday, April 06, 2023 - 7:35pm USER: osanchez



A PLAN VIEW OF EQUIPMENT
SCALE: 3/16" = 1'

GENERAL NOTES
1. HEAVY BOLD LINES IDENTIFIES EQUIPMENT TO BE REPLACED OR REMOVED. REFER TO ENLARGED PLAN SHEET FOR MORE INFORMATION.



JOHN T. HICKERSON HEADWORKS BARSREEN REPLACEMENT

EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

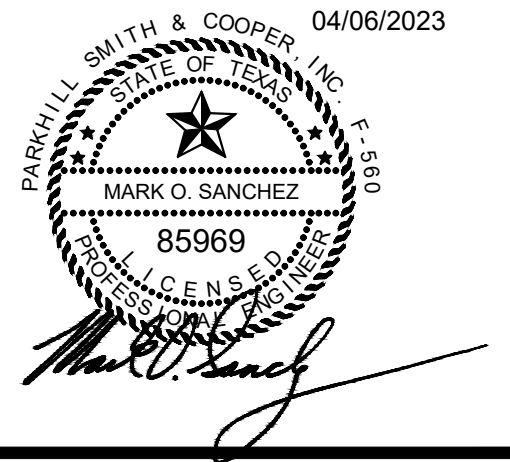
VERIFY SCALES
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

HEADWORKS EQUIPMENT REPLACEMENT AND REMOVAL PLAN

M101



**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

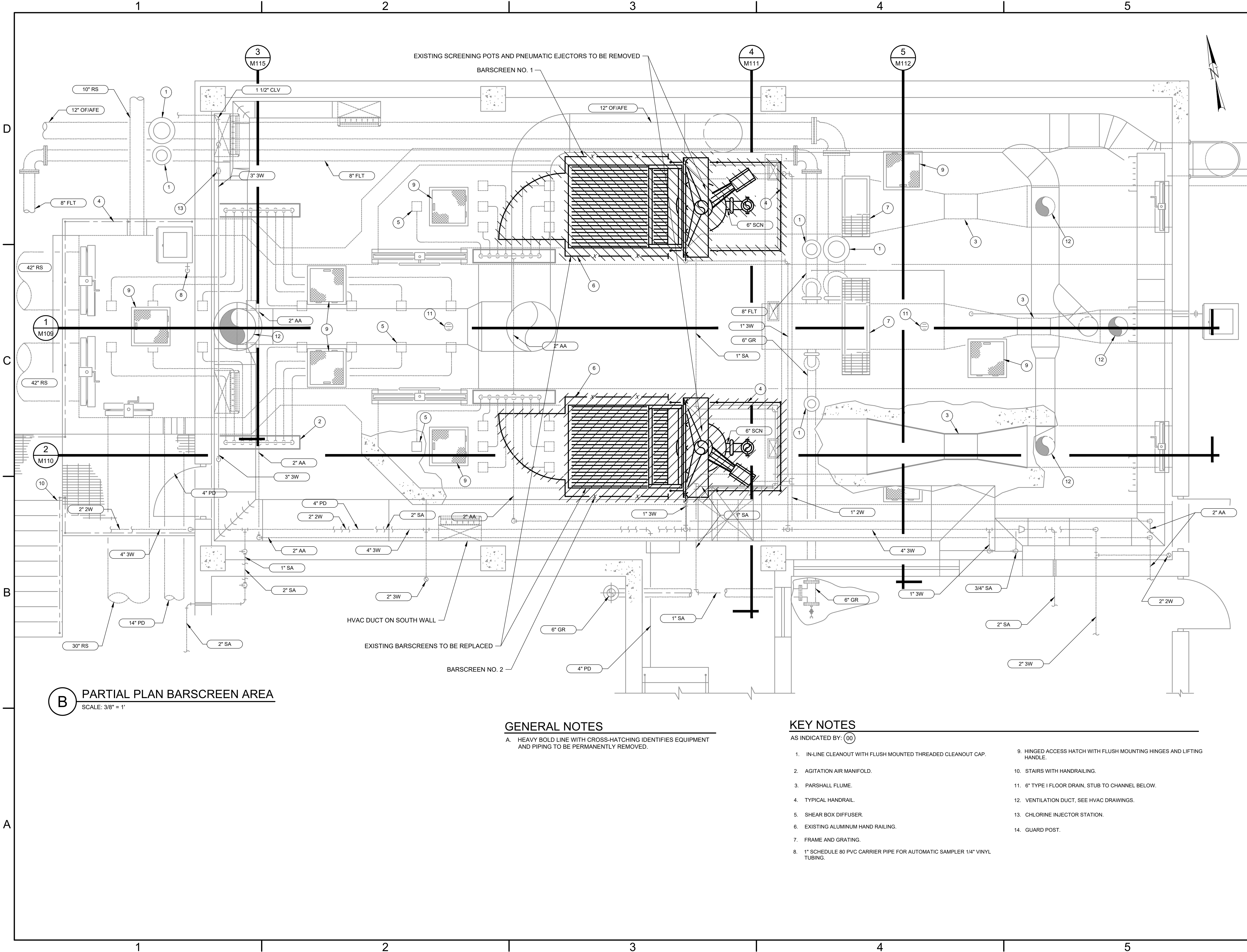
VERIFY SCALES

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0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

**BARSCREEN AREA
PARTIAL PLAN
EQUIPMENT REPLACEMENT
AND REMOVAL**

M102



B PARTIAL PLAN BARSCREEN AREA
SCALE: 3/8" = 1'

GENERAL NOTES

A. HEAVY BOLD LINE WITH CROSS-HATCHING IDENTIFIES EQUIPMENT AND PIPING TO BE PERMANENTLY REMOVED.

KEY NOTES

AS INDICATED BY: (00)

- | | |
|---|---|
| 1. IN-LINE CLEANOUT WITH FLUSH MOUNTED THREADED CLEANOUT CAP. | 9. HINGED ACCESS HATCH WITH FLUSH MOUNTING HINGES AND LIFTING HANDLE. |
| 2. AGITATION AIR MANIFOLD. | 10. STAIRS WITH HANDRAILING. |
| 3. PARSHALL FLUME. | 11. 6" TYPE I FLOOR DRAIN, STUB TO CHANNEL BELOW. |
| 4. TYPICAL HANDRAIL. | 12. VENTILATION DUCT, SEE HVAC DRAWINGS. |
| 5. SHEAR BOX DIFFUSER. | 13. CHLORINE INJECTOR STATION. |
| 6. EXISTING ALUMINUM HAND RAILING. | 14. GUARD POST. |
| 7. FRAME AND GRATING. | |
| 8. 1" SCHEDULE 80 PVC CARRIER PIPE FOR AUTOMATIC SAMPLER 1/4" VINYL TUBING. | |

FILE NAME: A:\2021\3065.21103_DSGND1_DWG050_CIVIL\M102-3065.dwg LAYOUT NAME: M102 PRINTED: Thursday, April 06, 2023 - 7:35pm USER: osanchez

FILE NAME: A:\2021\3065.21103_DSGN01_DWG050_CIVIL\M102P-3065.dwg LAYOUT NAME: M102-P PRINTED: Thursday, April 06, 2023 - 7:35pm USER: osanchez



P1 PHOTO
BARSCREEN ROOM



P2 PHOTO
BARSCREEN ROOM



P3 PHOTO
BARSCREEN ROOM

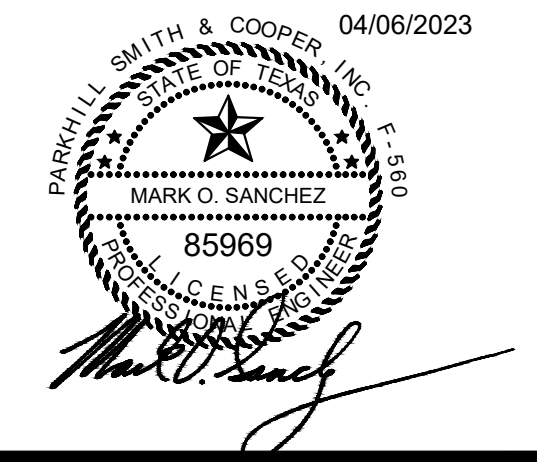


P4 PHOTO
BARSCREEN ROOM

KEY NOTES

AS INDICATED BY: (00)

1. EXISTING BARSCREEN TO BE REPLACED.
2. EXISTING SCREENING POTS AND PNEUMATIC EJECTORS TO BE PERMANENTLY REMOVED.
3. EXISTING PIPING TO BE PERMANENTLY REMOVED.
4. AIR PIPING HEADER, TYPICAL



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**BARSREEN ROOM
PHOTOS**

1

2

3

4

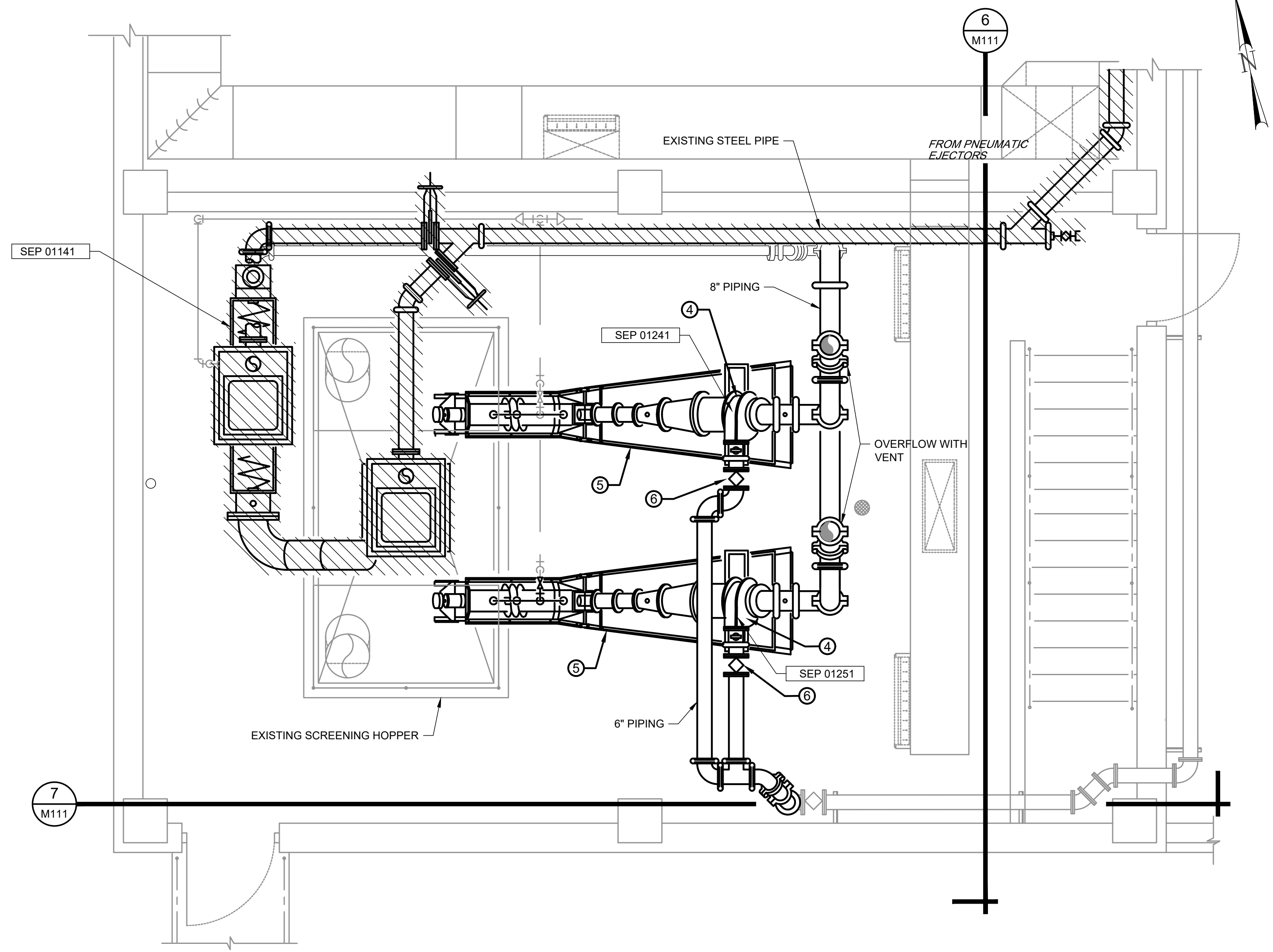
5

D

C

B

A



C PARTIAL PLAN
SCALE: 3/8"=1'-0"

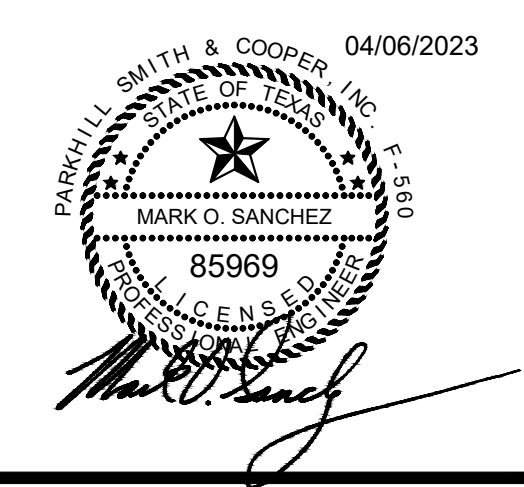
KEY NOTES

AS INDICATED BY: (00)

1. HANDRAIL
2. ENERGY DISSIPATION STRUCTURE
3. KNIFE GATE VALVE WITH CHAIN OPERATOR
4. GRIT CYCLONE INTEGRAL WITH CLASSIFIER. REFER TO SPECIFICATIONS.
5. GRIT CLASSIFIER AND DEWATERING EQUIPMENT. REFER TO SPECIFICATIONS.
6. PLUG VALVE WITH CHAIN OPERATOR.

GENERAL NOTES

- A. HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- B. HEAVY BOLD LINE WITH CROSS-HATCHING IDENTIFIES EQUIPMENT AND PIPING TO BE PERMANENTLY REMOVED.
- C. ALL PIPING SHOWN TO BE REPLACED SHALL BE STAINLESS STEEL 304L, SCHEDULE 40S WITH GROOVED JOINTS AND RESTRAINED MECHANICAL COUPLINGS. PIPING CONNECTED TO VALVES SHALL BE FLANGED AT VALVE.
- D. ALL VALVES SHOWN TO BE REPLACED SHALL BE FLANGED.
- E. ALL DRAIN PIPING CONNECTED TO BOTTOM OF CLASSIFIER SHALL BE REPLACED AND MEET SAME REQUIREMENTS AS NOTE C.
- F. CONTRACTOR TO VERIFY DIMENSIONS OF EQUIPMENT AND PIPING AND INCORPORATE INTO MATERIAL AND EQUIPMENT SUBMITTALS FOR APPROVAL BY ENGINEER.
- G. EXISTING EQUIPMENT IS OVER 20 YEARS OLD AND REPLACEMENT EQUIPMENT WILL NOT BE EXACT DIMENSIONS AND CONFIGURATION AS EXISTING. SLIGHT MODIFICATIONS AND ADJUSTMENTS TO PIPING AND SUPPORTS WILL BE REQUIRED AND SHALL BE INCLUDED IN THE BID PRICE.
- H. CONTRACTOR SHALL COORDINATE WITH PLANT SUPERINTENDENT FOR ISOLATION AND DE-ENERGIZATION OF EQUIPMENT, PRIOR TO REMOVAL.
- I. CONTRACTOR SHALL COORDINATE PIPING LAYOUT AND CONFIGURATION OF NEW FITTINGS, VALVES, AND APPURTENANCES WITH PLANT SUPERINTENDENT AND ENGINEER.



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

MEZZANINE
PARTIAL PLAN
EQUIPMENT
REPLACEMENT AND
REMOVAL

M103

1

2

3

4

5



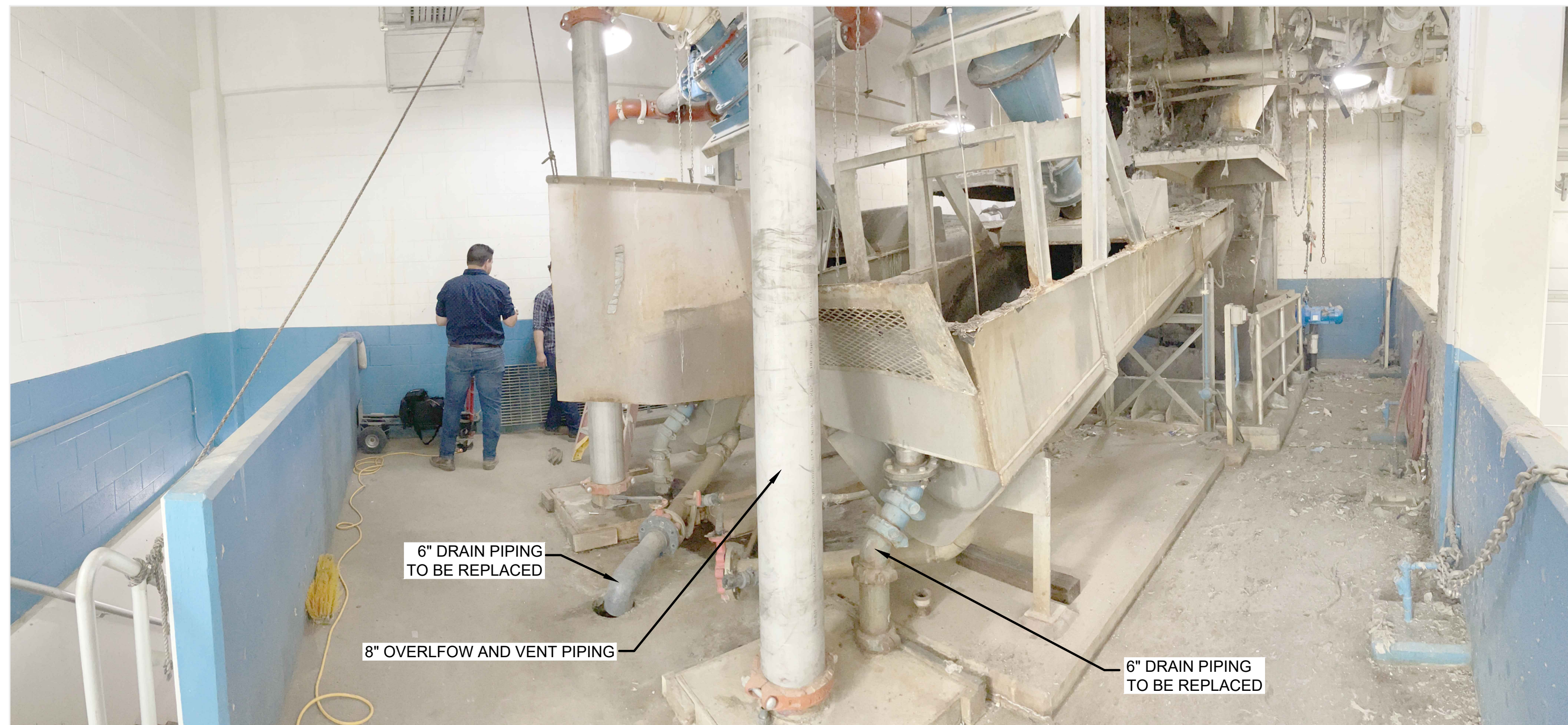
CLASSIFIER TROUGH

P1 PHOTO
MEZZANINE



CYCLONE

P3 PHOTO
MEZZANINE



6" DRAIN PIPING
TO BE REPLACED

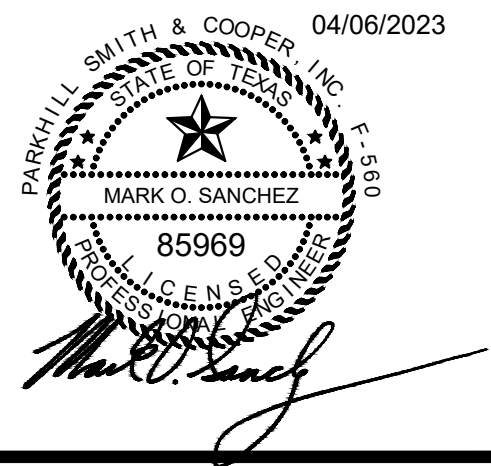
8" OVERFLOW AND VENT PIPING

6" DRAIN PIPING
TO BE REPLACED

P2 PHOTO
MEZZANINE



P3 PHOTO
MEZZANINE



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

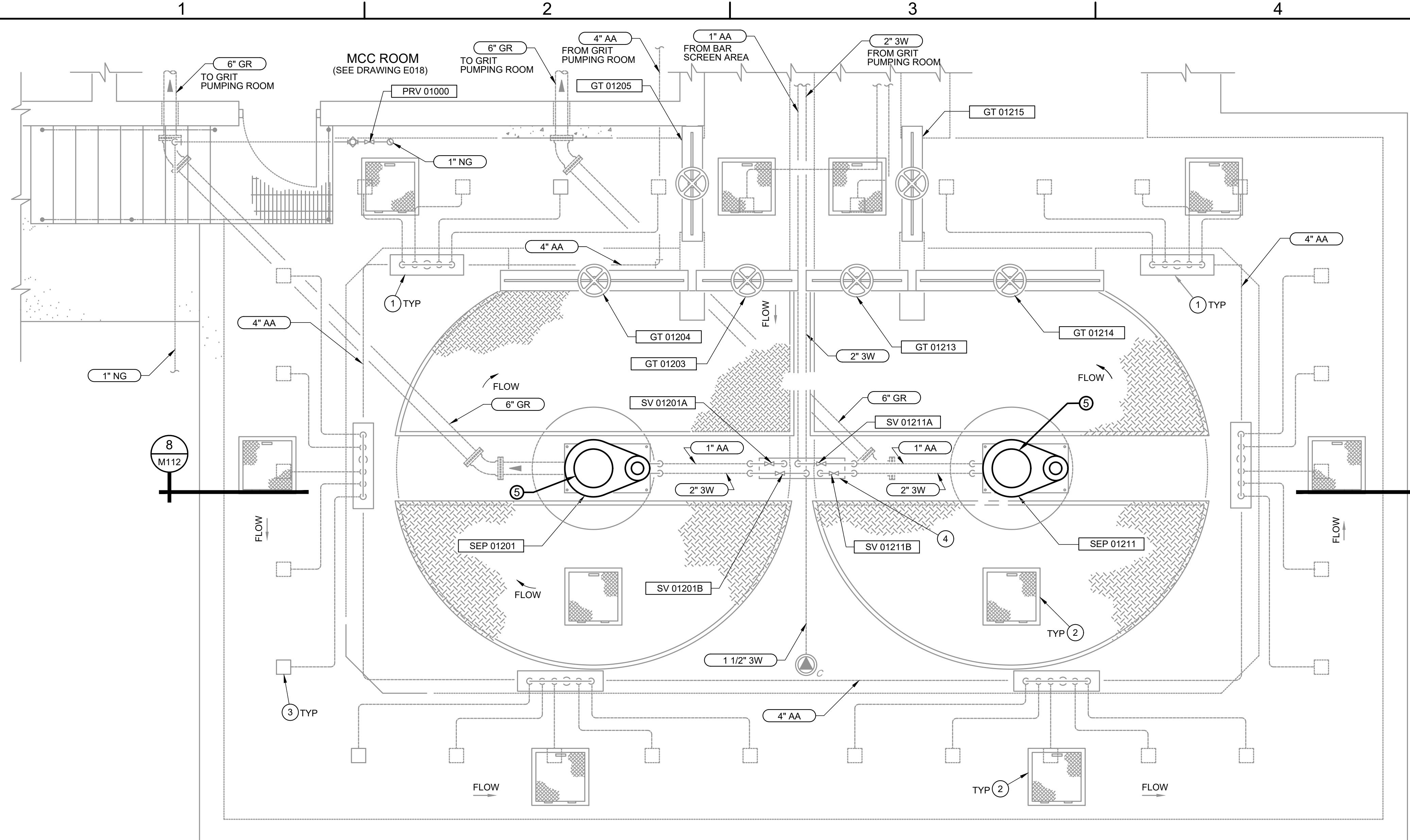
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
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NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

**MEZZANINE
PHOTOS**

FILE NAME: A:\2021\3065.21\103_DSGN01_DWG050_CIVIL\M103P-3065.dwg LAYOUT NAME: M103-P PRINTED: Thursday, April 06, 2023 - 7:36pm USER: osanchez

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\104-3065.dwg LAYOUT NAME: M104 PRINTED: Thursday, April 06, 2023 - 7:36pm USER: osanchez



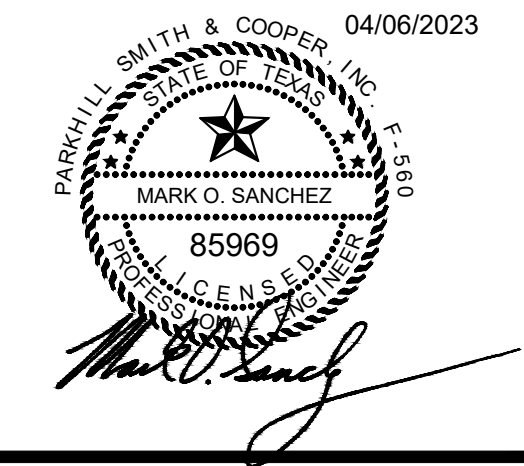
D GRIT PART PLAN
SCALE: 3/8"=1'-0"

KEY NOTES

- AS INDICATED BY: (00)
- AGITATION AIR MANIFOLD.
 - 24"x24" HINGED ACCESS HATCH WITH FLUSH MOUNTED LIFTING HANDLE, AND HINGES.
 - SHEAR BOX DIFFUSER (TYP.)
 - SUPPORT RACK AND PIPING. EACH LINE SHALL HAVE A GLOBE VALVE MOUNTED IN THE VERTICAL FOR ISOLATION AND THROTTLING.
 - EXISTING MOTOR, DRIVE, AND ASSOCIATED ELECTRICAL TO BE REPLACED.

GENERAL NOTES

- HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- CONTRACTOR SHALL COORDINATE WITH PLANT SUPERINTENDENT FOR ISOLATION AND DE-ENERGIZATION OF EQUIPMENT, PRIOR TO REMOVAL.



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936



P1 PHOTO
GRIT

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**GRIT
PARTIAL PLAN
EQUIPMENT
REPLACEMENT**

M104

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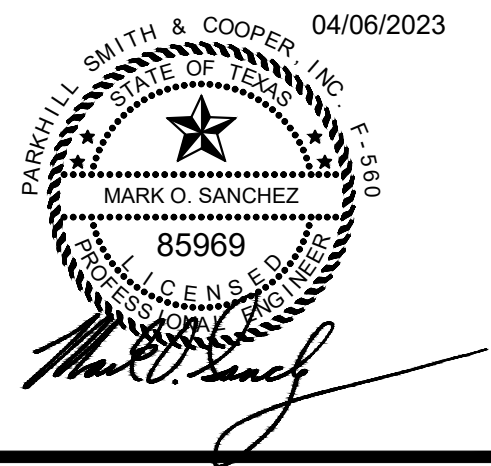
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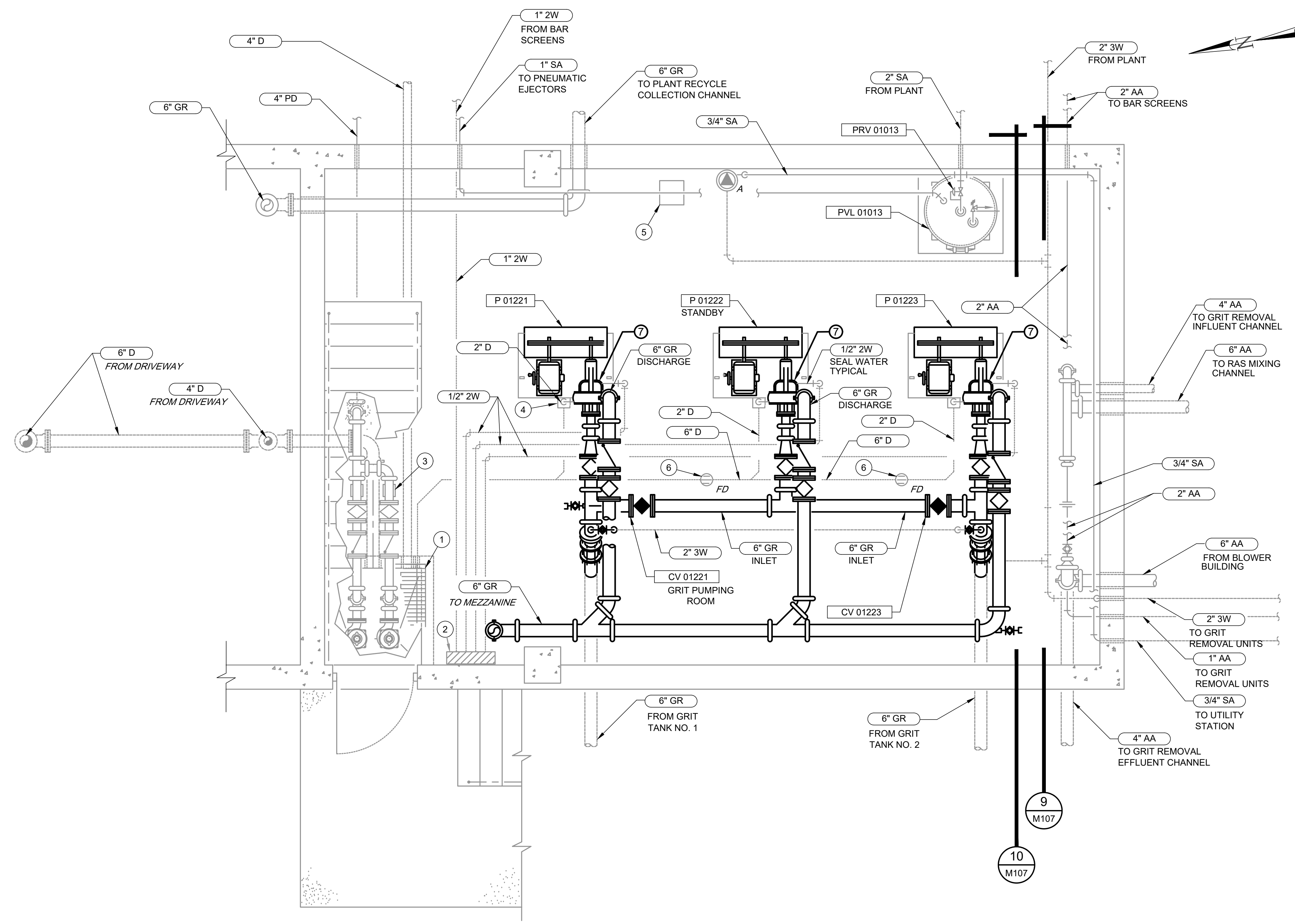
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JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936



KEY NOTES

- AS INDICATED BY: (00)
- 4'-0" X 4'-0" X 4'-0" DEEP SUMP WITH ALUMINUM FRAME AND GRATING. REFER TO SHEET M106 FOR PUMP REPLACEMENT.
 - SEAL WATER PURGE CONTROL UNIT.
 - PIPE SADDLE.
 - 2" EQUIPMENT DRAIN, TYPICAL EACH PUMP.
 - AIR DRYER.
 - FLOOR DRAIN.
 - REPLACE GRIT PUMPS AND ASSOCIATED SUCTION AND DISCHARGE PIPING/VALVES. REFER TO SPECIFICATIONS.

GENERAL NOTES

- HVAC DUCTWORK NOT SHOWN FOR CLARITY - FOR HVAC INFORMATION REFER TO SHEET M115.
- HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- ALL PIPING SHOWN TO BE REPLACED SHALL BE STAINLESS STEEL 304L, SCHEDULE 40S, WITH GROOVED JOINTS AND RESTRAINED MECHANICAL COUPLINGS. PIPING CONNECTED TO VALVES SHALL BE FLANGED AT VALVE.
- ALL VALVES SHOWN TO BE REPLACED SHALL BE FLANGED.
- CONTRACTOR TO VERIFY DIMENSIONS OF EQUIPMENT AND PIPING AND INCORPORATE INTO MATERIAL AND EQUIPMENT SUBMITTALS FOR APPROVAL BY ENGINEER.
- REPLACEMENT EQUIPMENT WILL NOT BE EXACT DIMENSIONS AND CONFIGURATION AS EXISTING. SLIGHT MODIFICATIONS AND ADJUSTMENTS TO PIPING AND SUPPORTS WILL BE REQUIRED AND SHALL BE INCLUDED IN THE BID PRICE.
- CONTRACTOR SHALL COORDINATE SHUT-DOWN AND ISOLATION OF EQUIPMENT WITH PLANT SUPERINTENDENT.
- CONTRACTOR SHALL COORDINATE PIPING LAYOUT AND CONFIGURATION OF NEW FITTINGS, VALVES, AND APPURTENANCES WITH PLANT SUPERINTENDENT AND ENGINEER.

E GRIT PUMPING ROOM PARTIAL PLAN
SCALE: 3/8" = 1'

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

GRIT PUMPING ROOM
PUMP AND PIPE
REPLACEMENT

M105

FILE NAME: A:\2021\3065.21\103_DSGND1_DWG050_CIVIL\105-3065.dwg LAYOUT NAME: M105 PRINTED: Thursday, April 06, 2023 - 7:36pm USER: osanchez

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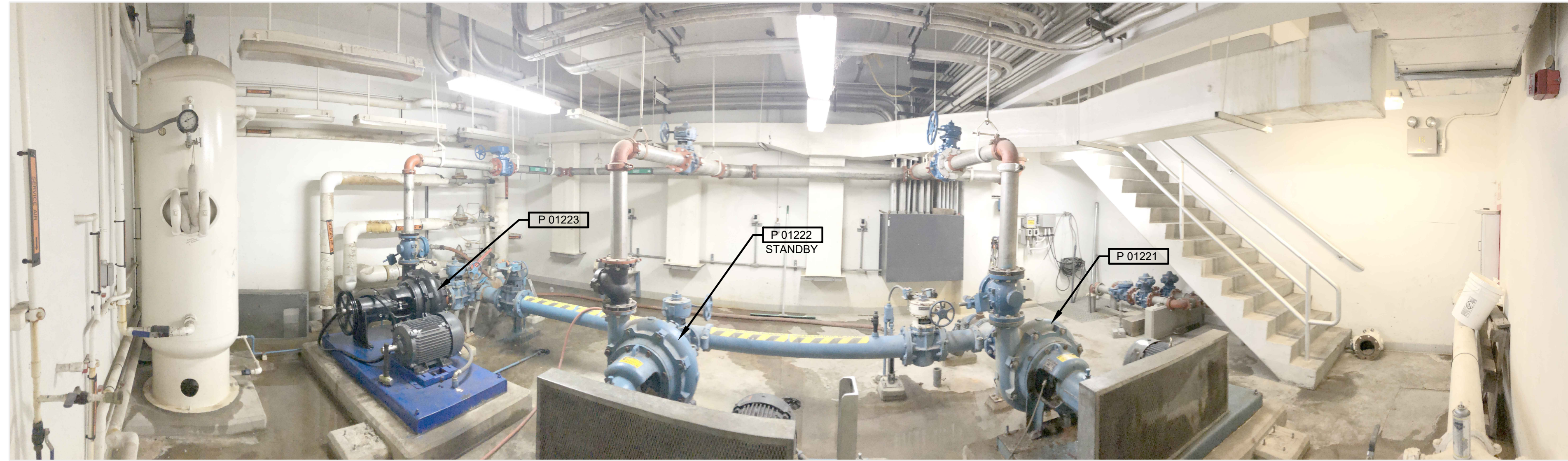
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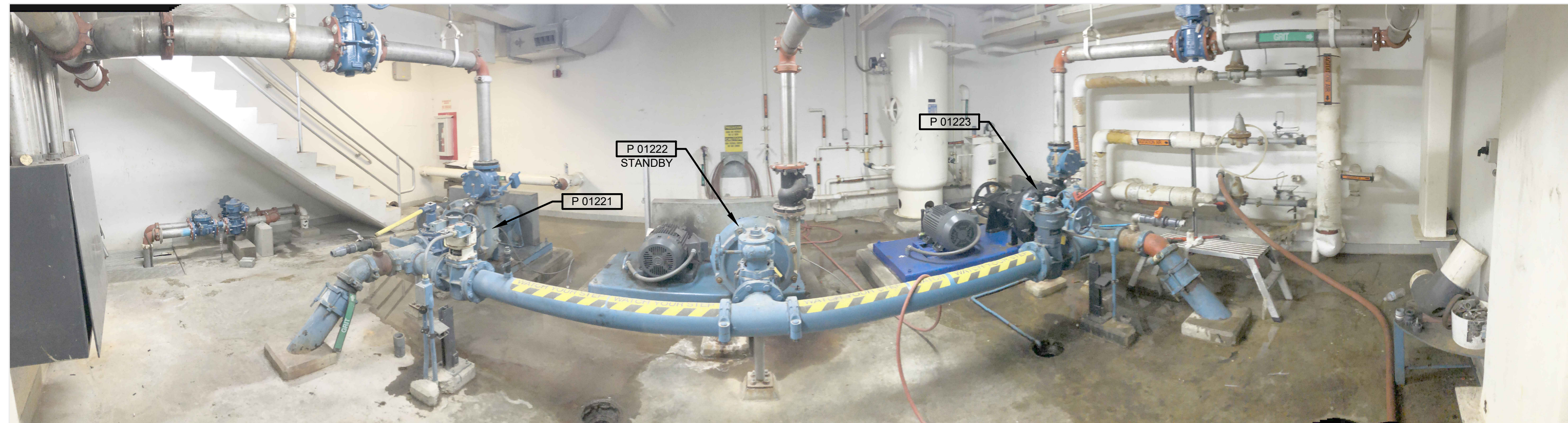
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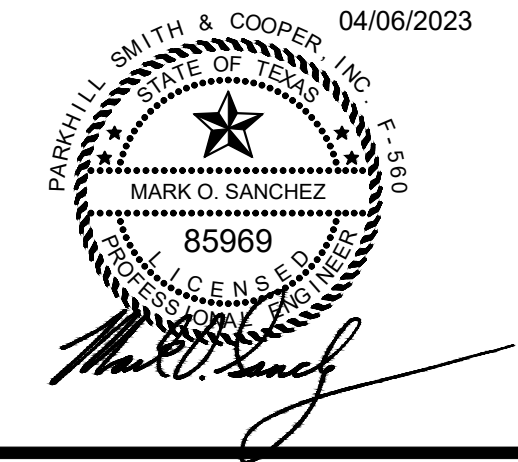
P1 PHOTO
GRIT PUMP ROOM



P2 PHOTO
GRIT PUMP ROOM



P3 PHOTO
GRIT PUMP ROOM



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

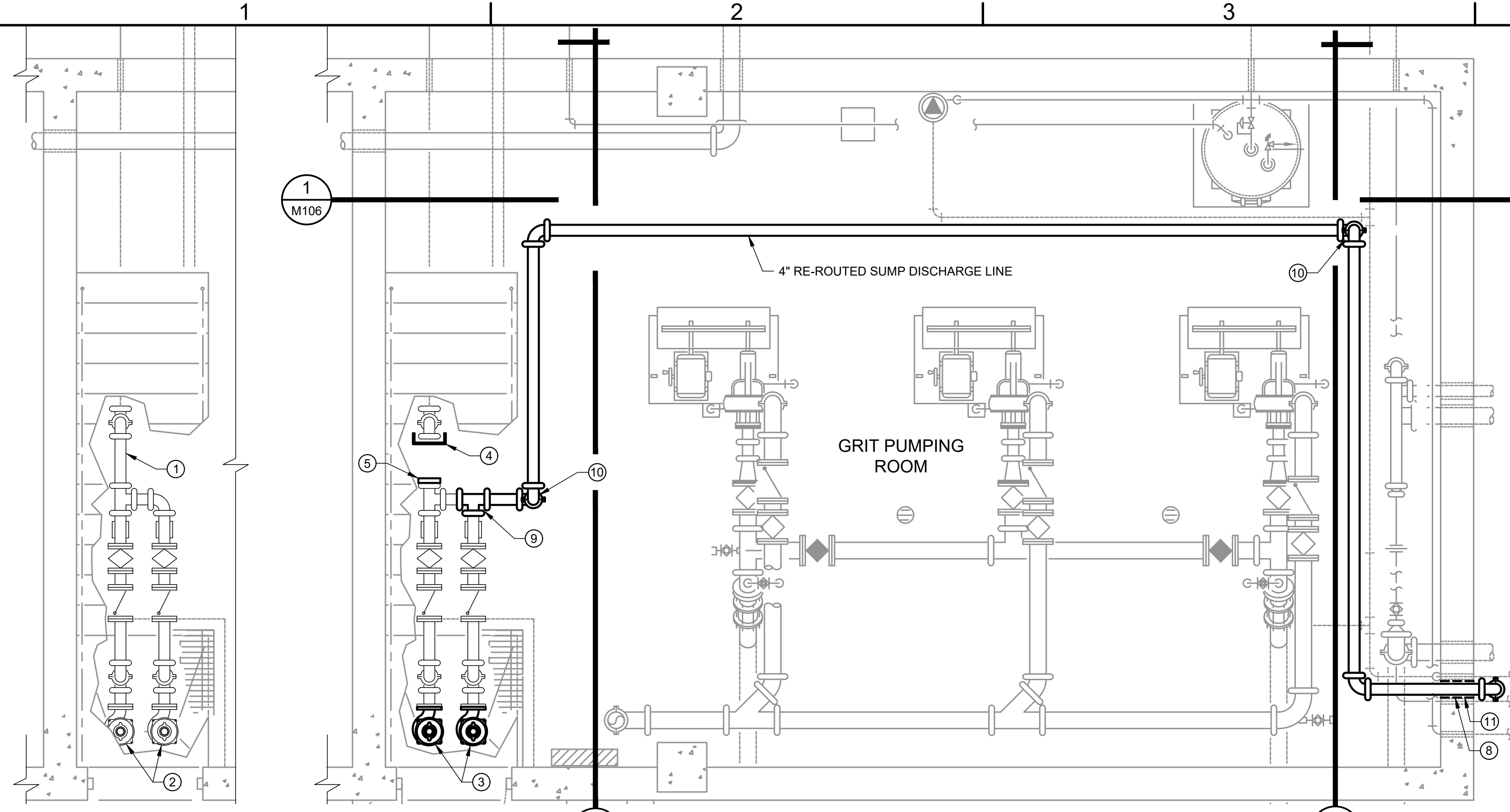
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ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

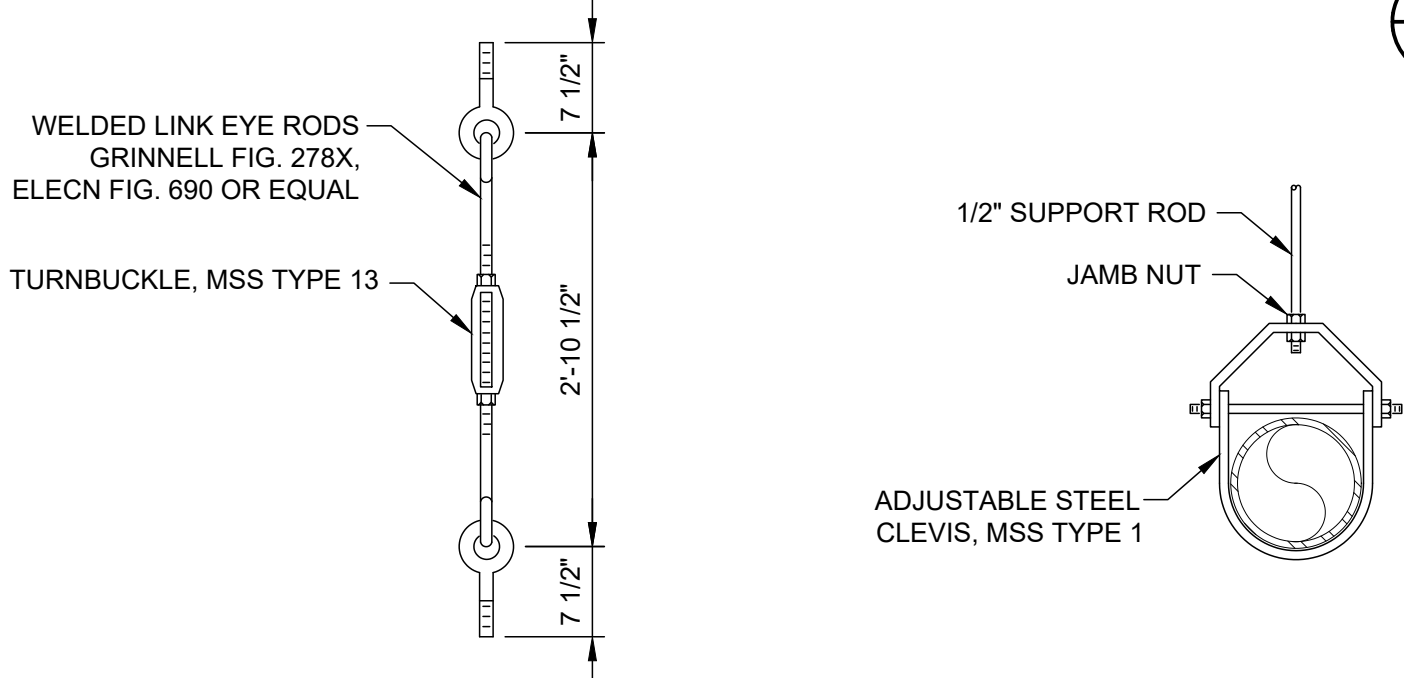
**GRIT PUMP ROOM
PHOTOS**

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\M105P-3065.dwg LAYOUT NAME: M105-P PRINTED: Thursday, April 06, 2023 - 7:36pm USER: osanchez

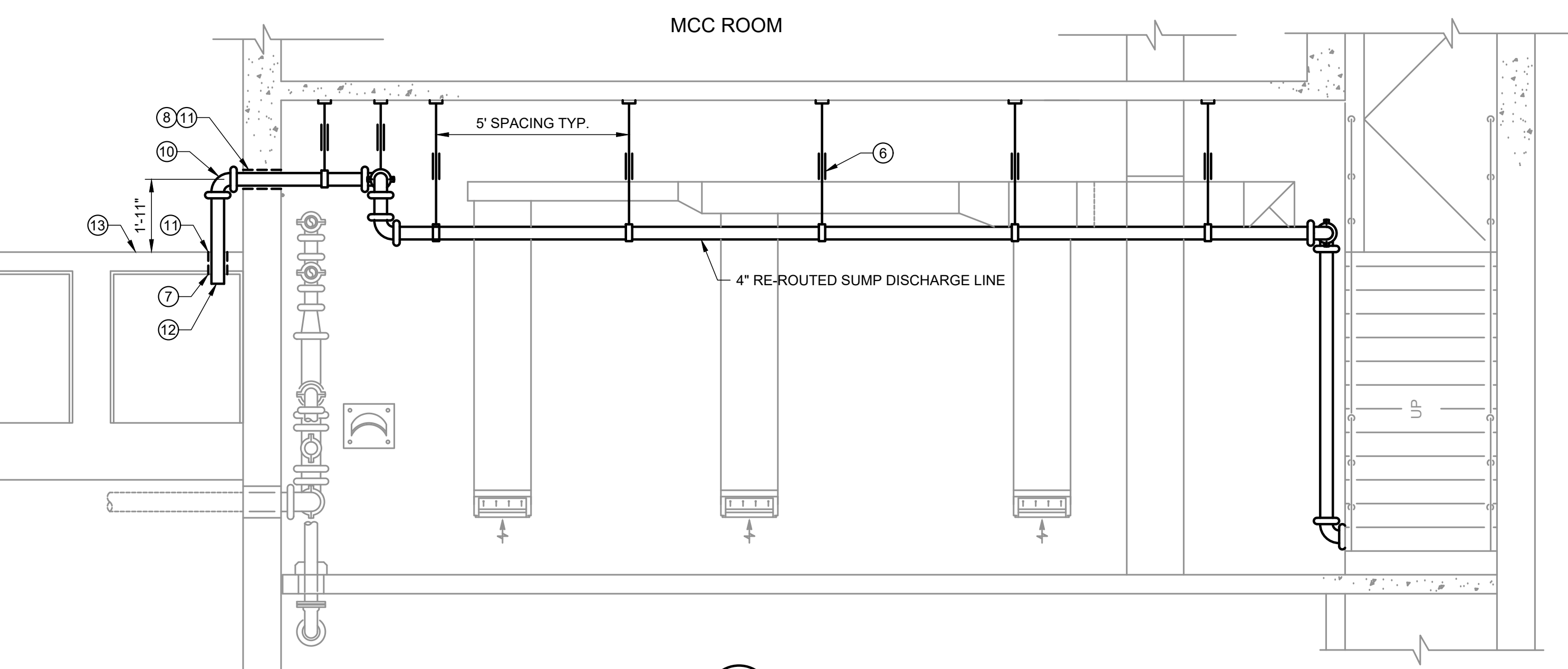
FILE NAME: A:\202\3065.21103_DSGND1_DWG050_CIVIL\M106-3065.dwg LAYOUT NAME: M106 PRINTED: Thursday, April 06, 2023 - 7:37pm USER: osanchez



E GRIT PUMPING ROOM PARTIAL PLAN
SCALE: 3/8" = 1"



D1 SUPPORT PIPE HANGER DETAILS
SCALE: NONE



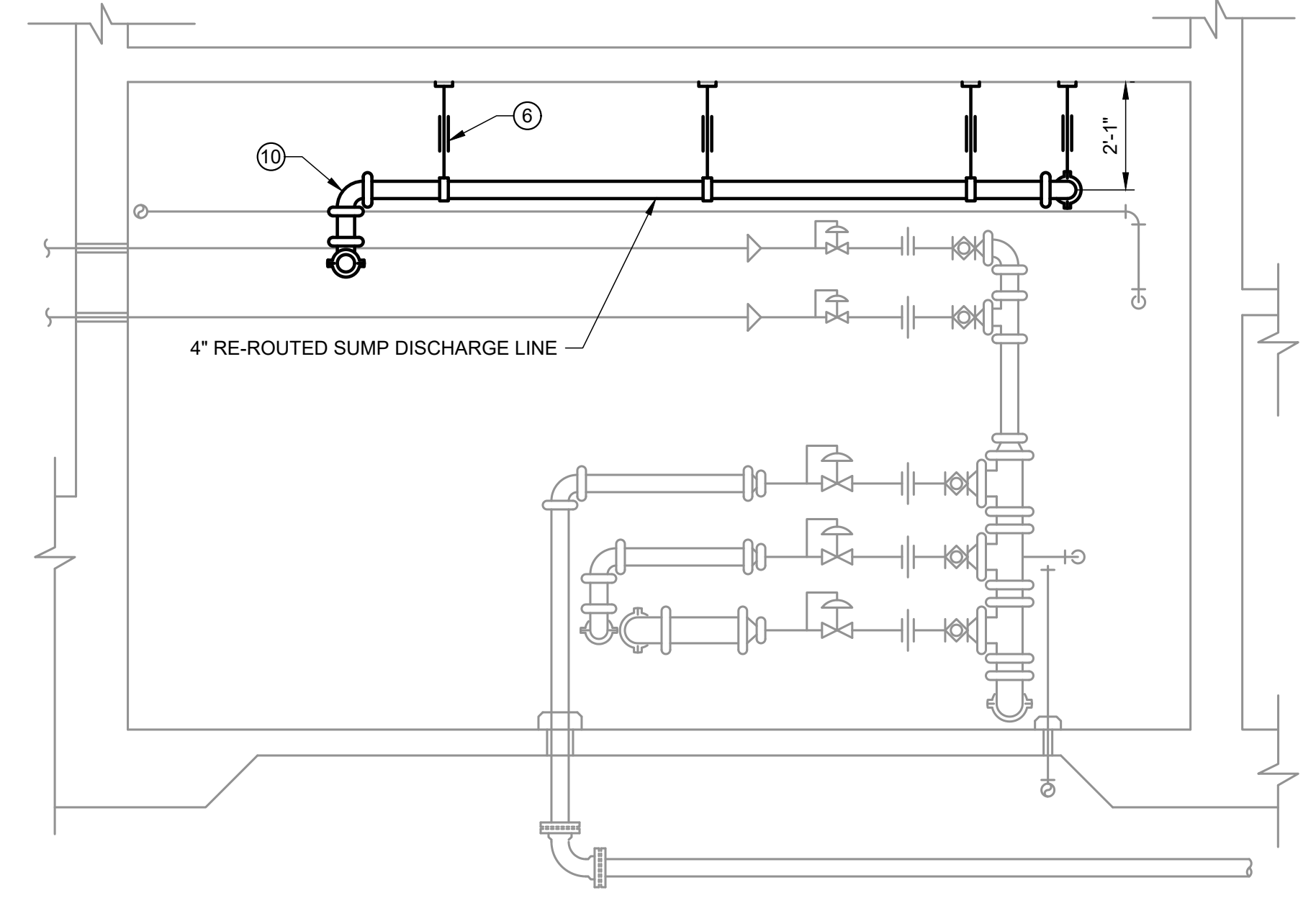
1 SECTION
SCALE: 3/8" = 1"

KEY NOTES

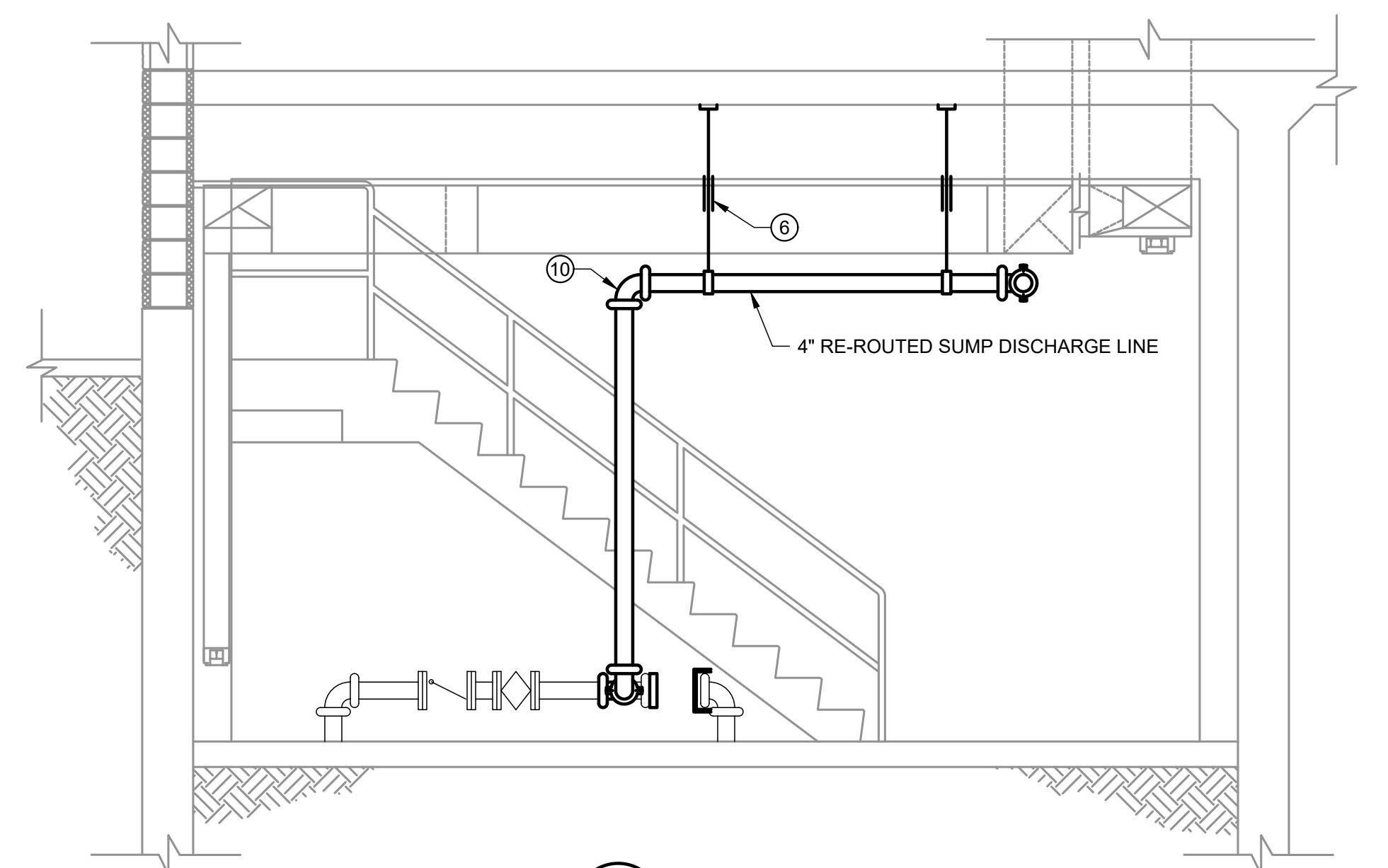
- AS INDICATED BY: (00)
- REMOVE SPOOL
 - REPLACE EXISTING PUMPS. COSTS FOR REPLACEMENT OF SUMP PUMPS TO BE INCLUDED WITH THE BID ITEMS ASSOCIATED WITH GRIT PIPING.
 - NEW PUMPS FLYGT MODEL NS 3085 MT-463, 176 GPM @ 20.3 FEET TDH, 207 HP MOTOR, 1800 RPM, 3 PHASE, 460 VOLT, OR APPROVED EQUAL.
 - INSTALL MECHANICALLY RESTRAINED CAP/PLUG
 - REMOVED EXISTING SPOOL AND INSTALL BLIND FLANGE ON TEE
 - INSTALL PIPE SUPPORT HANGERS. SEE DETAILS ON THIS SHEET
 - CORE 6" HOLE IN CHANNEL SLAB FOR 4" SUMP DISCHARGE LINE
 - CORE HOLE IN WALL FOR 4" SUMP DISCHARGE LINE
 - NEW 4" TEE
 - NEW 4" 90° ELBOW TYPICAL
 - 4" LINK-SEAL MODEL PS 300
 - EXTEND 4" SUMP DISCHARGE LINE INTO CHANNEL
 - SLAB OVER GRIT CHAMBER INLET CHANNEL

GENERAL NOTES

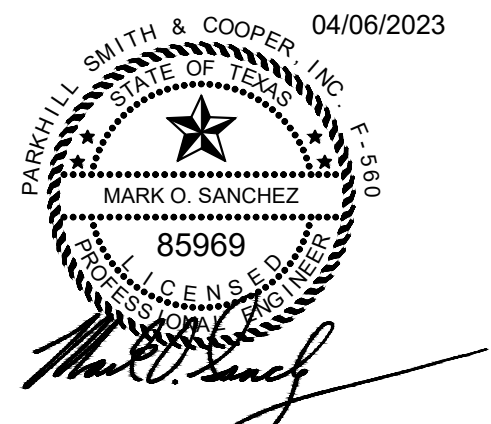
- HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- ALL PIPING SHOWN TO BE REPLACED SHALL BE STAINLESS STEEL 304L, SCHEDULE 40S, WITH GROOVED JOINTS AND RESTRAINED MECHANICAL COUPLINGS. PIPING CONNECTED TO VALVES SHALL BE FLANGED AT VALVE.
- ALL VALVES SHOWN TO BE REPLACED SHALL BE FLANGED.
- CONTRACTOR TO VERIFY DIMENSIONS OF EQUIPMENT AND PIPING AND INCORPORATE INTO MATERIAL AND EQUIPMENT SUBMITTALS FOR APPROVAL BY ENGINEER.
- REPLACEMENT EQUIPMENT WILL NOT BE EXACT DIMENSIONS AND CONFIGURATION AS EXISTING. SLIGHT MODIFICATIONS AND ADJUSTMENTS TO PIPING AND SUPPORTS WILL BE REQUIRED AND SHALL BE INCLUDED IN THE BID PRICE.
- CONTRACTOR SHALL COORDINATE SHUT-DOWN AND ISOLATION OF EQUIPMENT WITH PLANT SUPERINTENDENT.
- CONTRACTOR SHALL COORDINATE PIPING LAYOUT AND CONFIGURATION OF NEW FITTINGS, VALVES, AND APPURTENANCES WITH PLANT SUPERINTENDENT AND ENGINEER.
- UNLESS OTHERWISE SPECIFIED, HANGERS AND SUPPORTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. NUTS, BOLTS AND WASHERS MAY BE ZINC PLATED, EXCEPT THOSE SUBJECT TO MOISTURE OR CORROSIVE ATMOSPHERE SHALL BE TYPE 304 STAINLESS STEEL.
- MSS REFERS TO THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, STANDARD PRACTICE SP58 AND SP69.



3 SECTION
SCALE: 3/8" = 1"



2 SECTION
SCALE: 3/8" = 1"



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

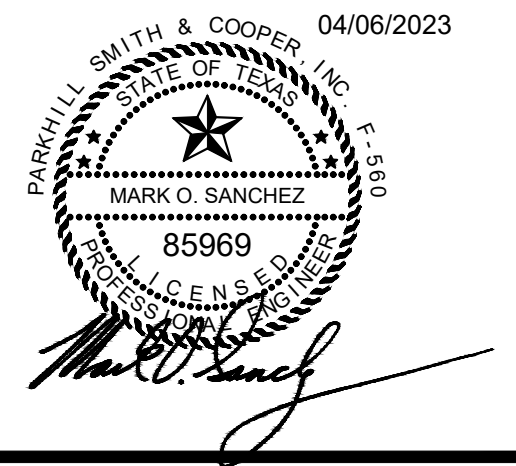
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

GRIT PUMP ROOM
NEW SUMP PUMP PIPING



**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

GENERAL NOTES

- A. HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- B. HEAVY BOLD LINE WITH CROSS-HATCHING IDENTIFIES EQUIPMENT AND PIPING TO BE PERMANENTLY REMOVED.

KEY NOTES

AS INDICATED BY: (00)

- 1. CONCRETE ENCASUREMENT.
- 2. PARSHALL FLUME.
- 3. PIPE SUPPORT.
- 4. FIBERGLASS GRATING WITH FRAME.
- 5. CONCRETE EQUIPMENT BASE
- 6. PIPE HANGER
- 7. NOT USED
- 8. 2" TAP FOR RETRACTABLE FLOW ELEMENT, TYP OF 3.
- 9. VERIFY OPENING WITH EQUIPMENT MANUFACTURER.
- 10. 4" DIAMETER PIPE CONDUIT FOR 1" AA AND 2" 3W.
- 11. REPLACE GRIT PUMPS AND ASSOCIATED SUCTION AND DISCHARGE PIPING/VALVES. REFER TO SPECIFICATIONS

9 SECTION
M105 SCALE: NONE

10 SECTION
M105 SCALE: NONE

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

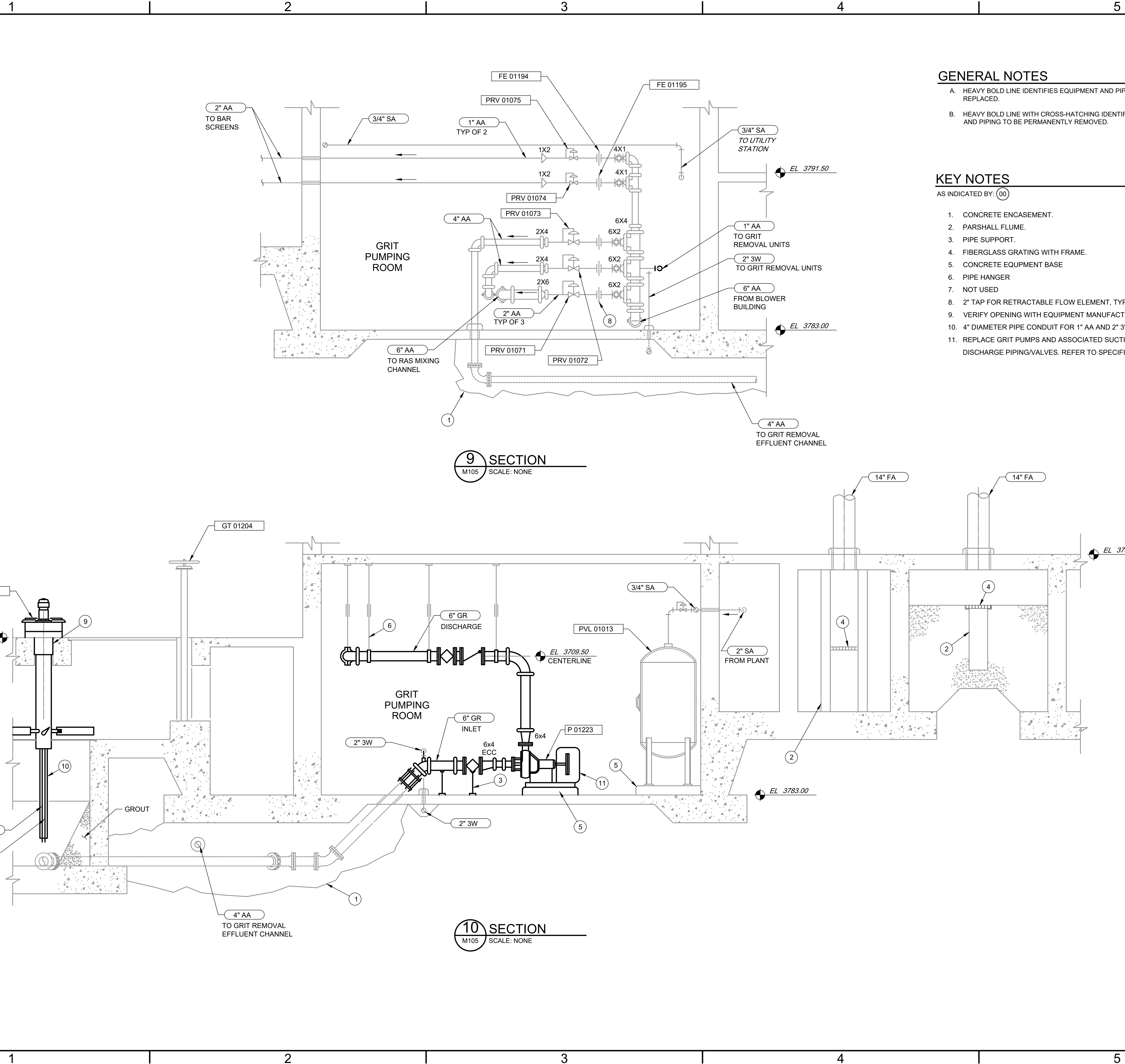
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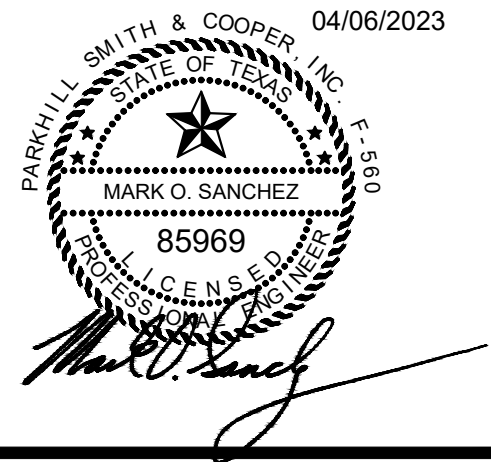
**GRIT PUMP ROOM
EQUIPMENT
REPLACEMENT SECTIONS**

M107

FILE NAME: A:\2021\3065.21103_DSGND1_DWG050_CIVIL\M107-3065.dwg LAYOUT NAME: M107 PRINTED: Thursday, April 06, 2023 - 7:37pm USER: osanchez

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**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

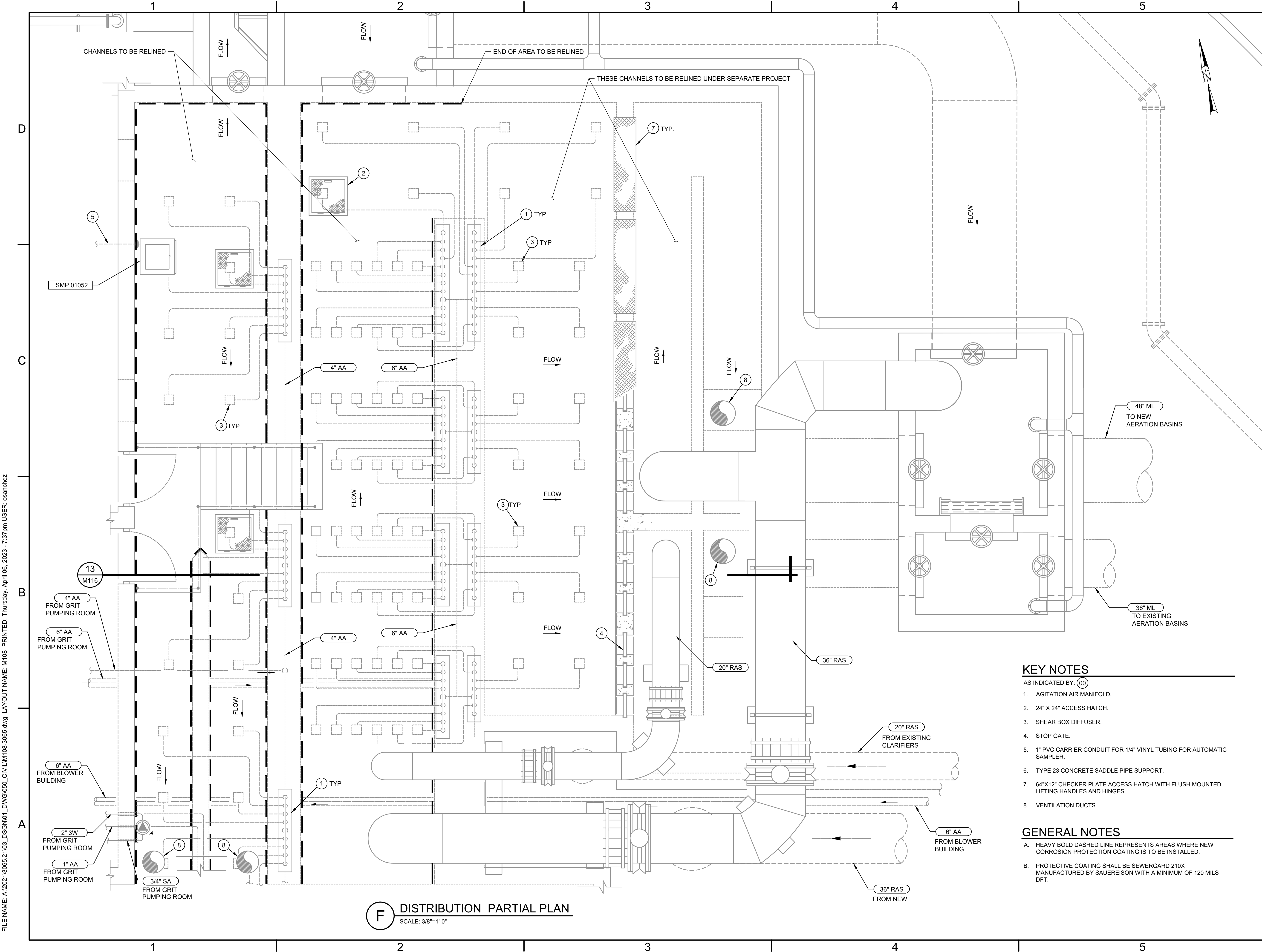
KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

**HEADWORKS
DISTRIBUTION AREA
PARTIAL PLAN
CHANNEL RELINING**

M108



F DISTRIBUTION PARTIAL PLAN
SCALE: 3/8"=1'-0"

KEY NOTES

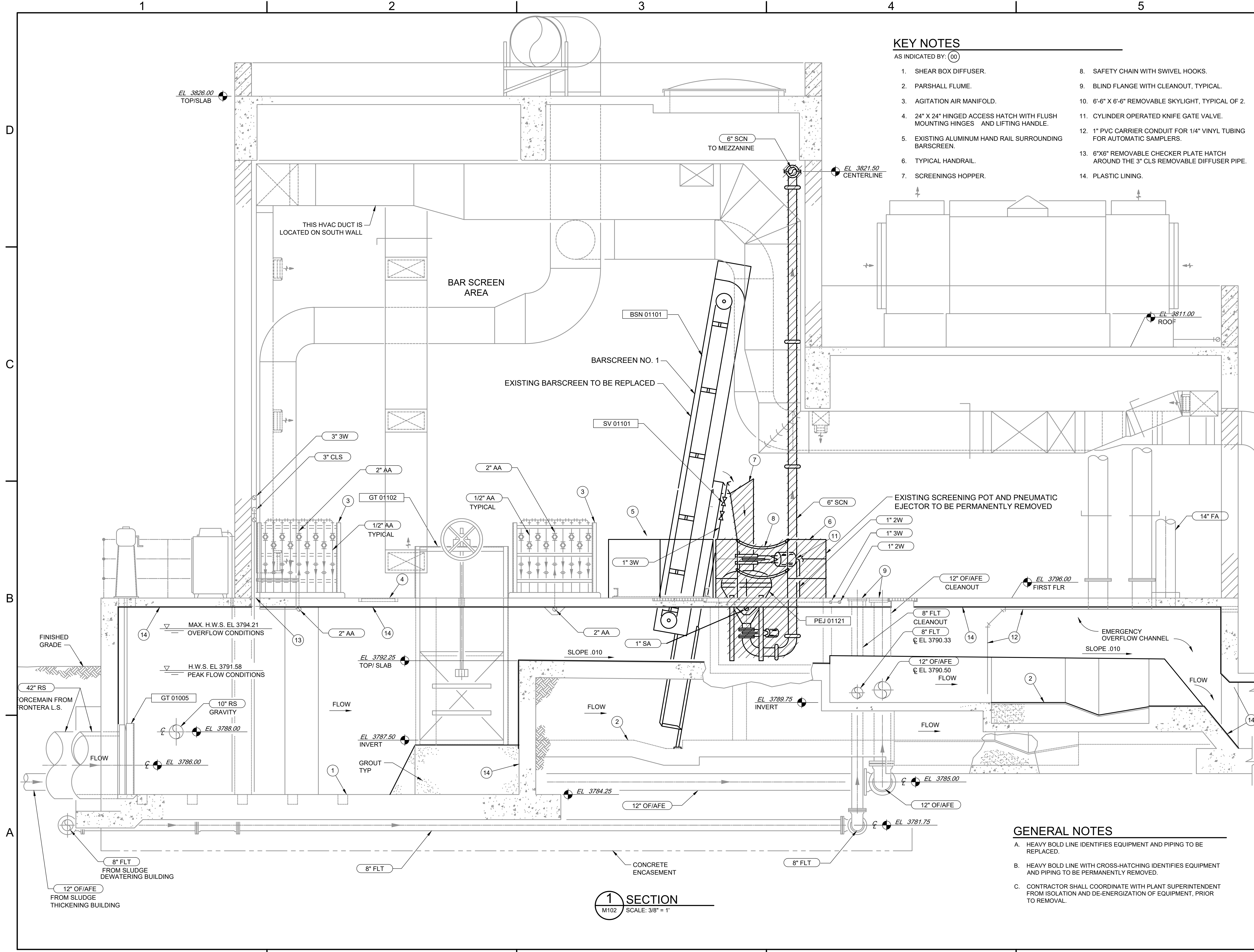
- AS INDICATED BY: (00)
- AGITATION AIR MANIFOLD.
 - 24" X 24" ACCESS HATCH.
 - SHEAR BOX DIFFUSER.
 - STOP GATE.
 - 1" PVC CARRIER CONDUIT FOR 1/4" VINYL TUBING FOR AUTOMATIC SAMPLER.
 - TYPE 23 CONCRETE SADDLE PIPE SUPPORT.
 - 64"X12" CHECKER PLATE ACCESS HATCH WITH FLUSH MOUNTED LIFTING HANDLES AND HINGES.
 - VENTILATION DUCTS.

GENERAL NOTES

- HEAVY BOLD DASHED LINE REPRESENTS AREAS WHERE NEW CORROSION PROTECTION COATING IS TO BE INSTALLED.
- PROTECTIVE COATING SHALL BE SEWERGARD 210X MANUFACTURED BY SAUERREISEN WITH A MINIMUM OF 120 MILS DFT.

FILE NAME: A:\2021\3065.21103_DSGN01_DWG050_CIVIL\M108-3065.dwg LAYOUT NAME: M108 PRINTED: Thursday, April 06, 2023 - 7:37pm USER: osanchez

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\109-3065.dwg LAYOUT NAME: M109 PRINTED: Thursday, April 06, 2023 - 7:37pm USER: osanchez



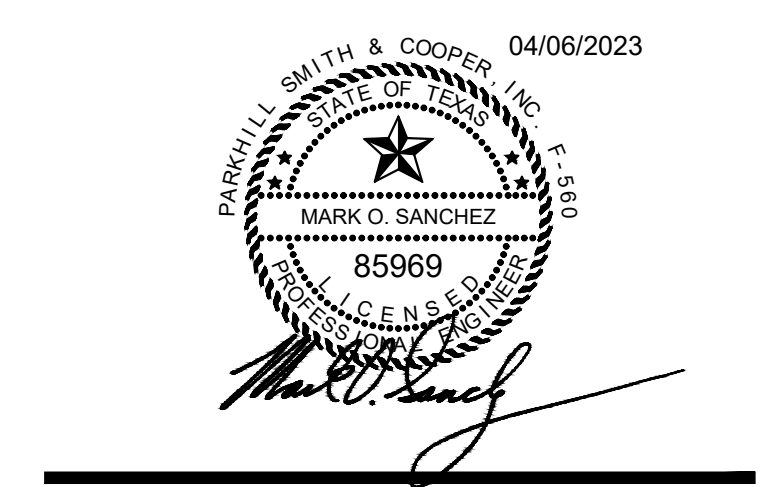
KEY NOTES

- AS INDICATED BY: (00)
- | | |
|---|--|
| 1. SHEAR BOX DIFFUSER. | 8. SAFETY CHAIN WITH SWIVEL HOOKS. |
| 2. PARSHALL FLUME. | 9. BLIND FLANGE WITH CLEANOUT, TYPICAL. |
| 3. AGITATION AIR MANIFOLD. | 10. 6'-6" X 6'-6" REMOVABLE SKYLIGHT, TYPICAL OF 2. |
| 4. 24" X 24" HINGED ACCESS HATCH WITH FLUSH MOUNTING HINGES AND LIFTING HANDLE. | 11. CYLINDER OPERATED KNIFE GATE VALVE. |
| 5. EXISTING ALUMINUM HAND RAIL SURROUNDING BARSCREEN. | 12. 1" PVC CARRIER CONDUIT FOR 1/4" VINYL TUBING FOR AUTOMATIC SAMPLERS. |
| 6. TYPICAL HANDRAIL. | 13. 6"X6" REMOVABLE CHECKER PLATE HATCH AROUND THE 3" CLS REMOVABLE DIFFUSER PIPE. |
| 7. SCREENINGS HOPPER. | 14. PLASTIC LINING. |

1 SECTION
M102 SCALE: 3/8" = 1"

GENERAL NOTES

- A. HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- B. HEAVY BOLD LINE WITH CROSS-HATCHING IDENTIFIES EQUIPMENT AND PIPING TO BE PERMANENTLY REMOVED.
- C. CONTRACTOR SHALL COORDINATE WITH PLANT SUPERINTENDENT FROM ISOLATION AND DE-ENERGIZATION OF EQUIPMENT, PRIOR TO REMOVAL.



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**BARSREEN SECTION
EQUIPMENT
REPLACEMENT AND
REMOVAL**

M109

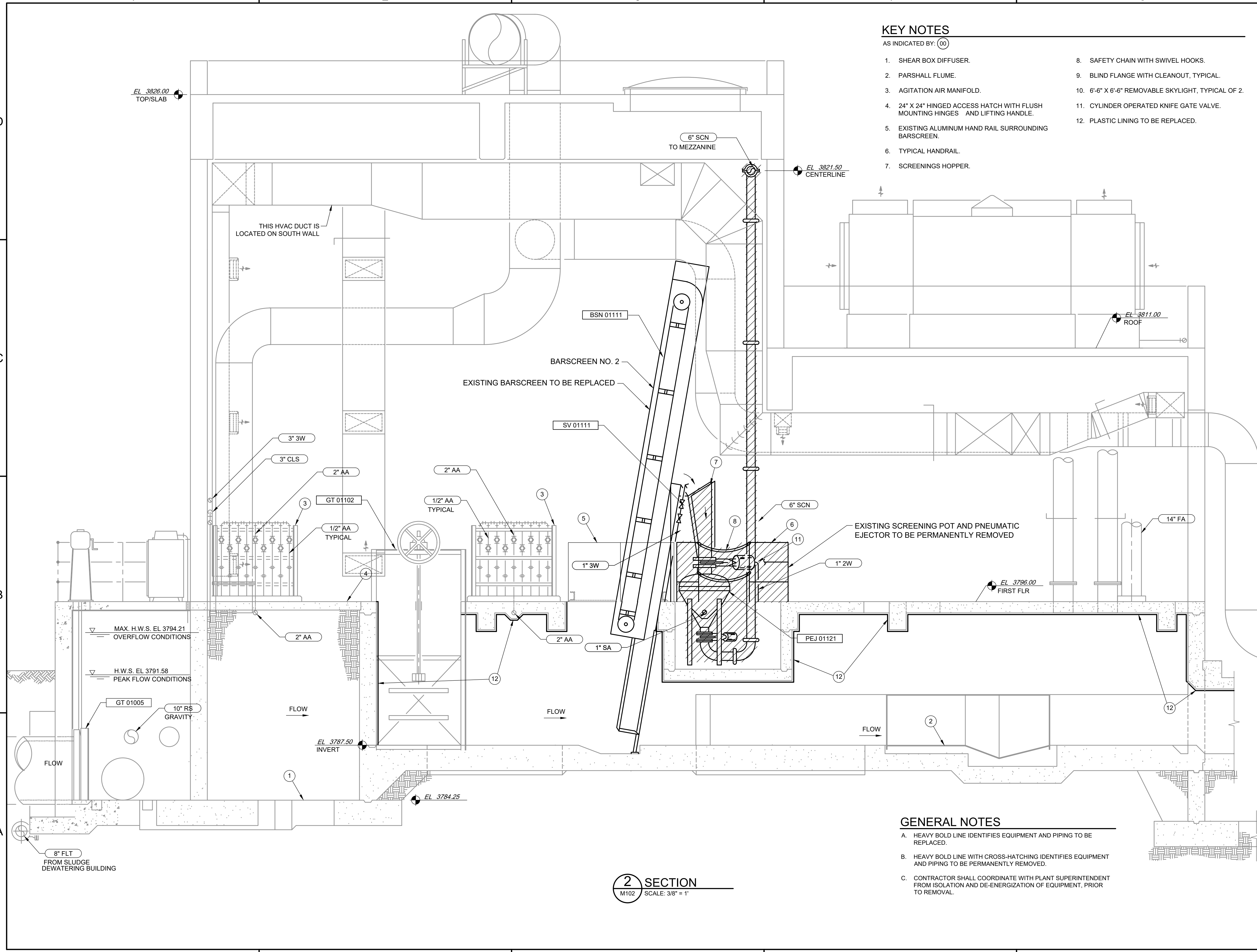
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KEY NOTES

AS INDICATED BY: (00)

- 1. SHEAR BOX DIFFUSER.
- 2. PARSHALL FLUME.
- 3. AGITATION AIR MANIFOLD.
- 4. 24" X 24" HINGED ACCESS HATCH WITH FLUSH MOUNTING HINGES AND LIFTING HANDLE.
- 5. EXISTING ALUMINUM HAND RAIL SURROUNDING BARSCREEN.
- 6. TYPICAL HANDRAIL.
- 7. SCREENINGS HOPPER.
- 8. SAFETY CHAIN WITH SWIVEL HOOKS.
- 9. BLIND FLANGE WITH CLEANOUT, TYPICAL.
- 10. 6'-6" X 6'-6" REMOVABLE SKYLIGHT, TYPICAL OF 2.
- 11. CYLINDER OPERATED KNIFE GATE VALVE.
- 12. PLASTIC LINING TO BE REPLACED.



EL 3826.00 TOP/SLAB

EL 3821.50 CENTERLINE

EL 3811.00 ROOF

EL 3796.00 FIRST FLR

EL 3787.50 INVERT

EL 3784.25

MAX. H.W.S. EL 3794.21 OVERFLOW CONDITIONS

H.W.S. EL 3791.58 PEAK FLOW CONDITIONS

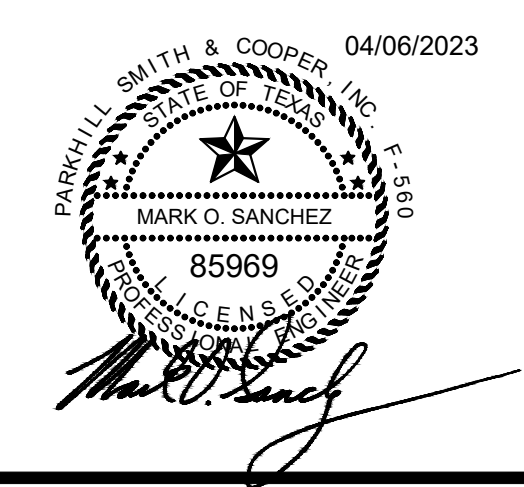
10" RS GRAVITY

8" FLT FROM SLUDGE DEWATERING BUILDING

2 SECTION
M102 SCALE: 3/8" = 1"

GENERAL NOTES

- A. HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- B. HEAVY BOLD LINE WITH CROSS-HATCHING IDENTIFIES EQUIPMENT AND PIPING TO BE PERMANENTLY REMOVED.
- C. CONTRACTOR SHALL COORDINATE WITH PLANT SUPERINTENDENT FROM ISOLATION AND DE-ENERGIZATION OF EQUIPMENT, PRIOR TO REMOVAL.



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
 0 1"
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

BARSCREEN SECTION
EQUIPMENT
REPLACEMENT AND
REMOVAL

M110

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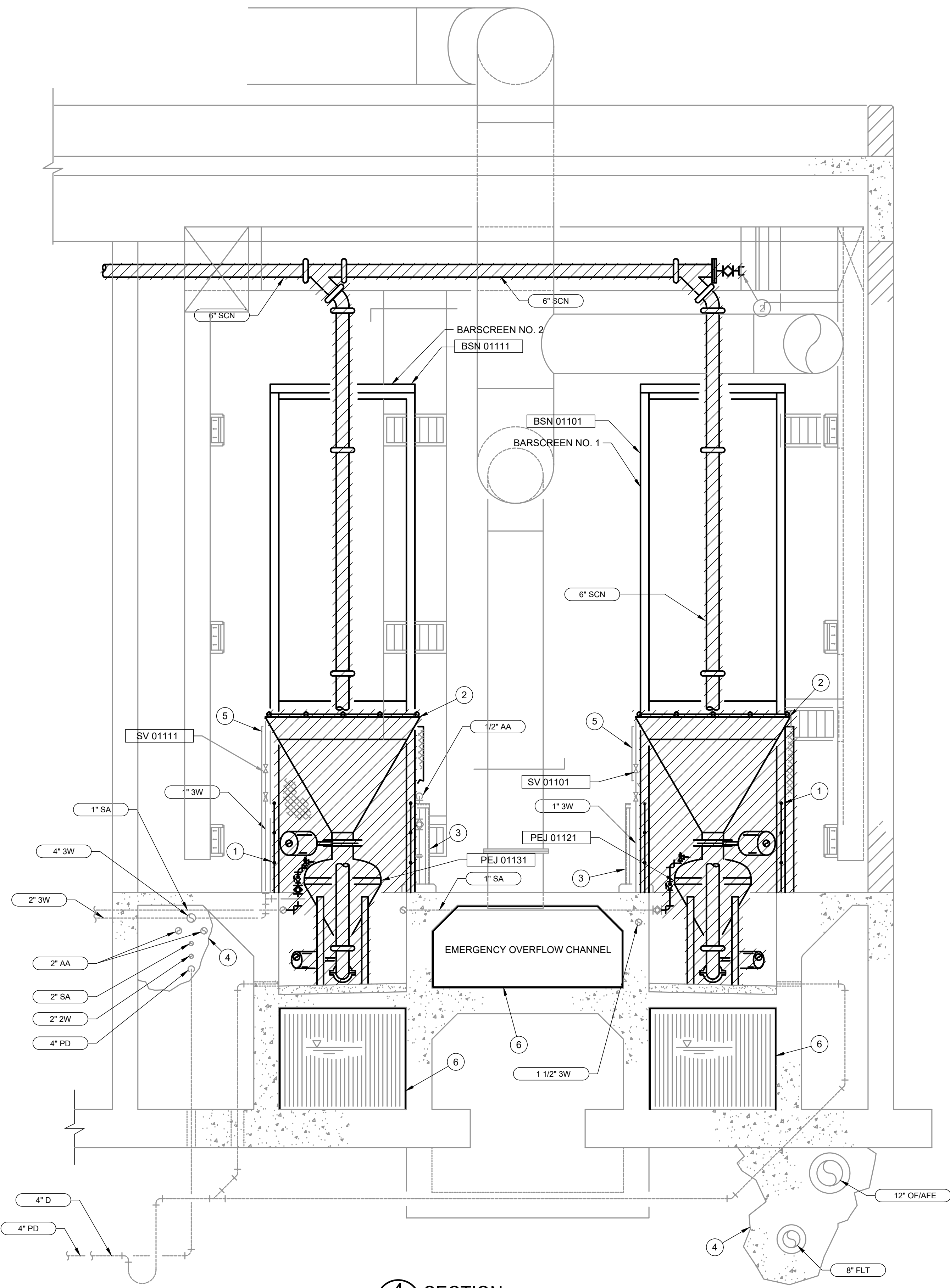
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4 SECTION
M102 SCALE: 3/8" = 1'

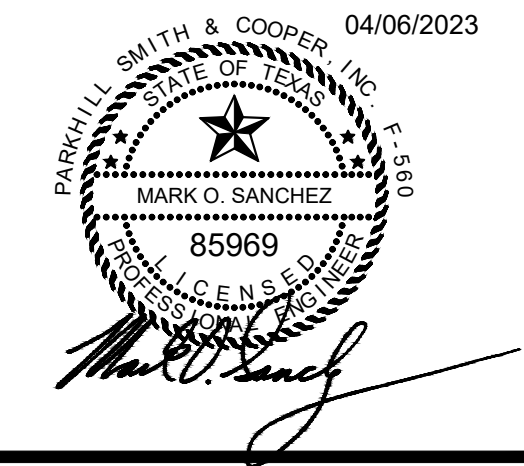
KEY NOTES

AS INDICATED BY: (00)

1. TYPICAL HANDRAIL.
2. SCREENINGS HOPPER.
3. AGITATION AIR MANIFOLD.
4. CONCRETE ENCASEMENT.
5. EXISTING ALUMINUM HAND RAIL SURROUNDING BARSCREEN.
6. EXISTING PLASTIC LINING TO BE REMOVED AND SAUEREISON SEWERGARD 210X, MINIMUM 120 MILS PROTECTIVE COATING TO BE APPLIED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.

GENERAL NOTES

- A. HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- B. HEAVY BOLD LINE WITH CROSS-HATCHING IDENTIFIES EQUIPMENT AND PIPING TO BE PERMANENTLY REMOVED.
- C. CONTRACTOR SHALL COORDINATE WITH PLANT SUPERINTENDENT FROM ISOLATION AND DE-ENERGIZATION OF EQUIPMENT, PRIOR TO REMOVAL.



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT
EL PASO WATER
 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

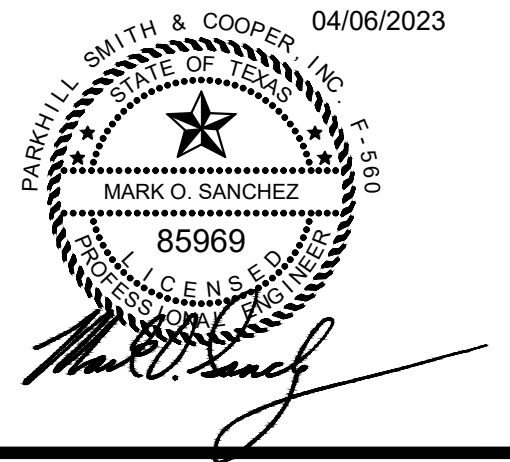
NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

BARSREENS SECTION
EQUIPMENT REMOVAL

M111

FILE NAME: A:\2021\3065.21\03_DSGND01_DWG050_CIVIL\M111-3065.dwg LAYOUT NAME: M111 PRINTED: Thursday, April 06, 2023 - 7:37pm USER: osanchez



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

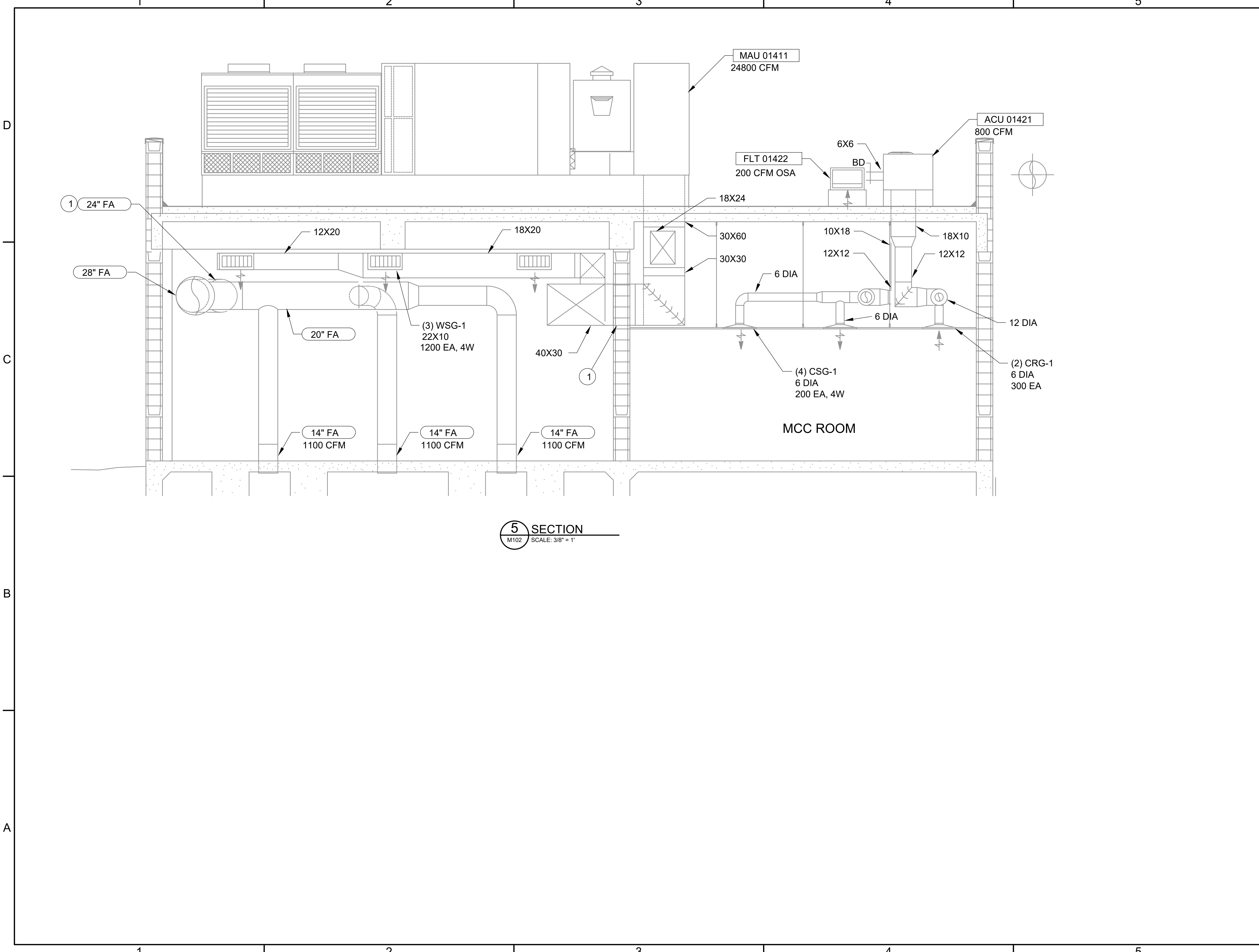
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

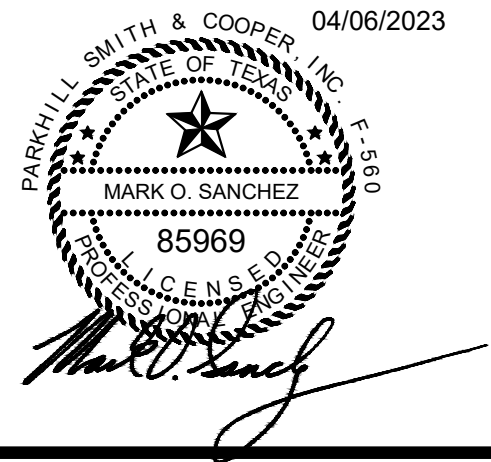
NO.	DATE	DESCRIPTION	PROJECT NO.

**HEADWORKS
HVAC SECTION**

M112

FILE NAME: A:\2021\3065.21103_DSGND1_DWG050_CIVILM112-3065.dwg LAYOUT NAME: M112 PRINTED: Thursday, April 06, 2023 - 7:38pm USER: osanchez





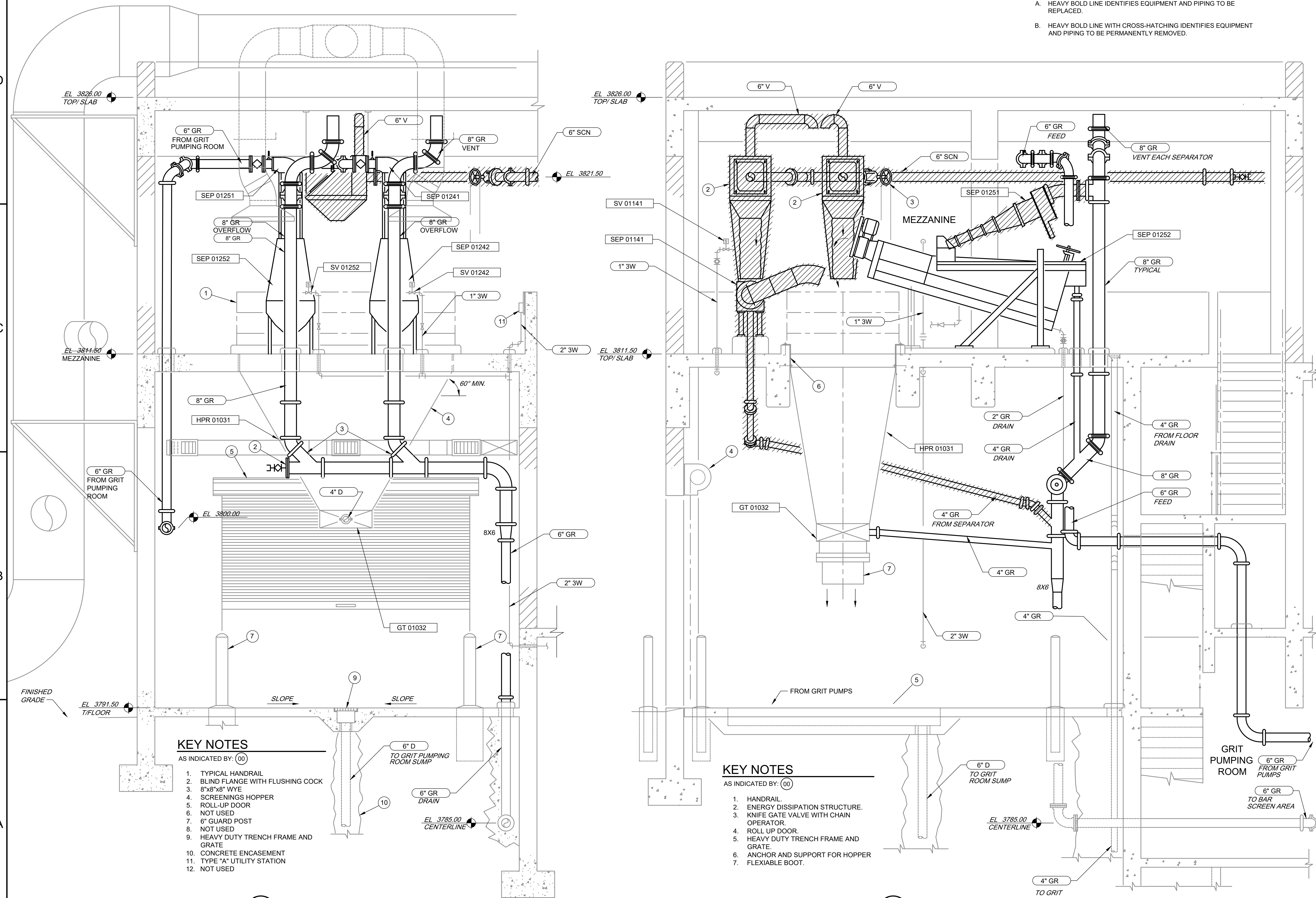
**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

GENERAL NOTES

- A. HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- B. HEAVY BOLD LINE WITH CROSS-HATCHING IDENTIFIES EQUIPMENT AND PIPING TO BE PERMANENTLY REMOVED.



KEY NOTES

- AS INDICATED BY: (00)
1. TYPICAL HANDRAIL
 2. BLIND FLANGE WITH FLUSHING COCK
 3. 8"x8"x8" WYE
 4. SCREENINGS HOPPER
 5. ROLL-UP DOOR
 6. NOT USED
 7. 6" GUARD POST
 8. NOT USED
 9. HEAVY DUTY TRENCH FRAME AND GRATE
 10. CONCRETE ENCASEMENT
 11. TYPE "A" UTILITY STATION
 12. NOT USED

6 SECTION
M103 SCALE: 3/8"=1'-0"

KEY NOTES

- AS INDICATED BY: (00)
1. HANDRAIL
 2. ENERGY DISSIPATION STRUCTURE.
 3. KNIFE GATE VALVE WITH CHAIN OPERATOR.
 4. ROLL UP DOOR.
 5. HEAVY DUTY TRENCH FRAME AND GRATE.
 6. ANCHOR AND SUPPORT FOR HOPPER FLEXIBLE BOOT.
 7. FLEXIBLE BOOT.

7 SECTION
M103 SCALE: 3/8"=1'-0"

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION	PROJECT NO.

MEZZANINE EQUIPMENT REPLACEMENT AND REMOVAL

M113

FILE NAME: A:\2021\3065.21103_DSGN01_DWG050_CIVILM113-3065.dwg LAYOUT NAME: M113 PRINTED: Thursday, April 06, 2023 - 7:38pm USER: osanchez

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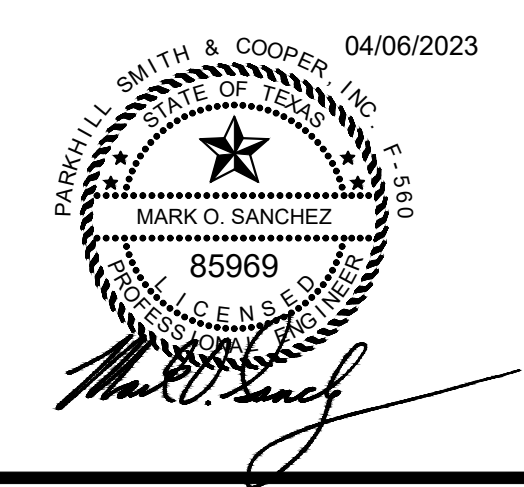
KEY NOTES

AS INDICATED BY: (00)

1. SHEAR BOX DIFFUSE
2. AGITATION AIR MANIFOLD
3. 24" x 24" HINGED ACCESS HATCH WITH LIFTING HANDLE
4. PLASTIC LINING
5. SUPPORT RACK AND PIPING EACH LINE SHALL HAVE A GLOBE VALVE MOUNTED IN THE VERTICAL.
6. 4" DIAMETER CONDUIT ENCASEMENT PIPE FOR 1" AA AND 2" 3W LINES. ANCHOR LINES TO CONDUIT CASING.
7. REPLACE SHAFT AND PADDLES. REFER TO SPECIFICATIONS.

GENERAL NOTES

- A. HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.
- B. EXISTING PLASTIC LINING SHOWN ON THESE SHEETS IS TO BE REMOVED AND SURFACE PREPARED FOR NEW PROTECTIVE COATING.
- C. NEW PROTECTIVE COATING SHALL BE SEWERGARD 210X MANUFACTURED BY SAUERISEN WITH A MINIMUM 120 MILS DFT.
- D. NEW PROTECTIVE COATING SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, THE DRAWINGS AND SPECIFICATIONS.



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT
EL PASO WATER
 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

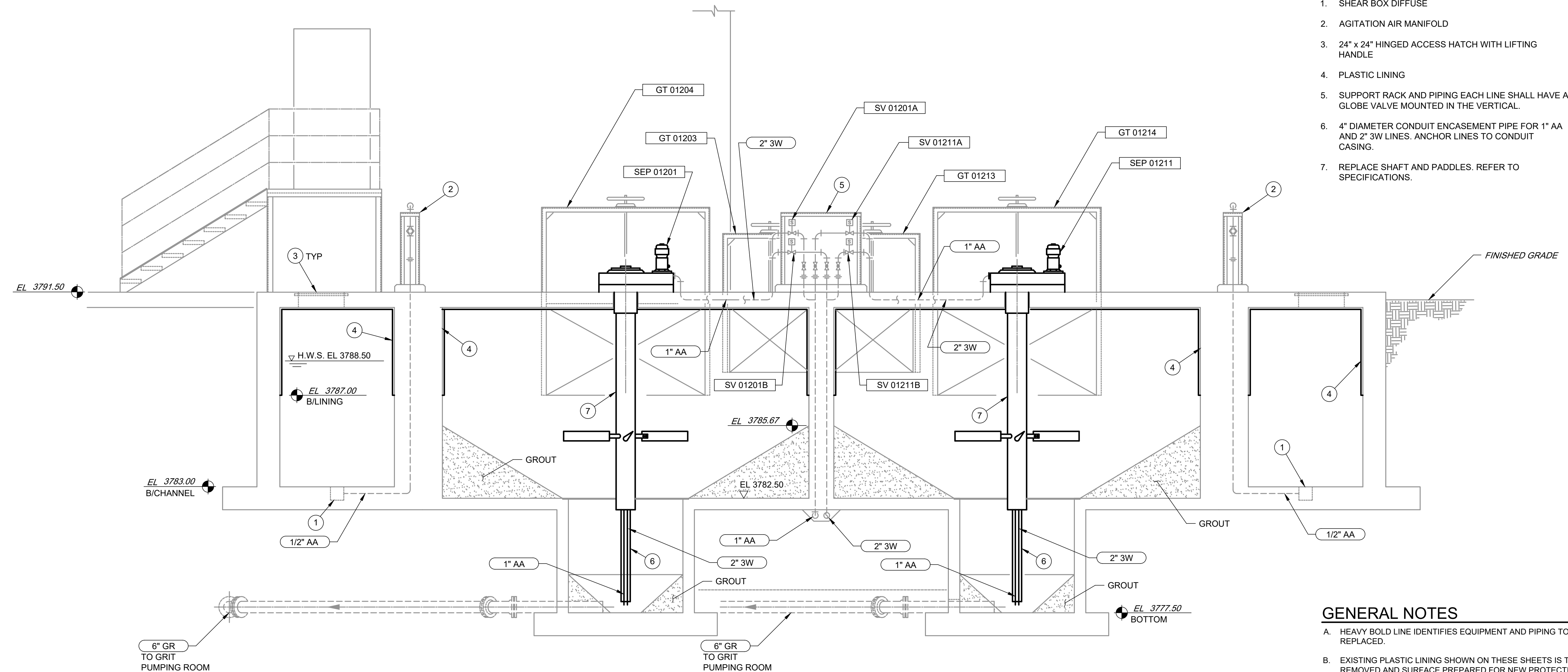
BAR IS 1 INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

GRIT CHAMBERS EQUIPMENT REPLACEMENT SECTION

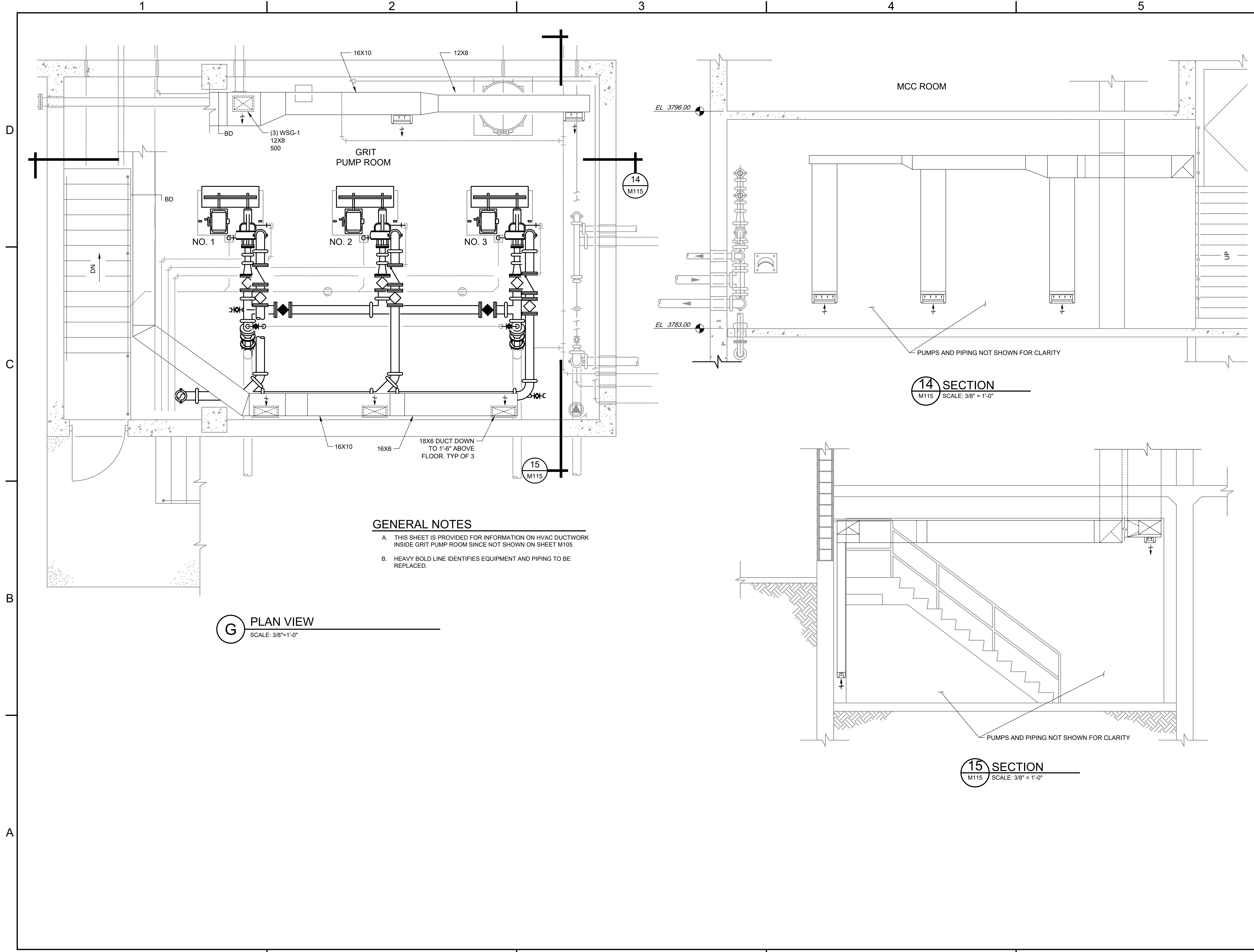
M114



8 SECTION
 M104 SCALE: 3/8"=1'-0"

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG050_CIVILM114-3065.dwg LAYOUT NAME: M114 PRINTED: Thursday, April 06, 2023 - 7:38pm USER: osanchez

FILE NAME: A:\202\13065.21\03_DSGN01_DWG050_CIVIL\M115-3065.dwg LAYOUT NAME: M115 PRINTED: Thursday, April 06, 2023 - 7:38pm USER: osanchez

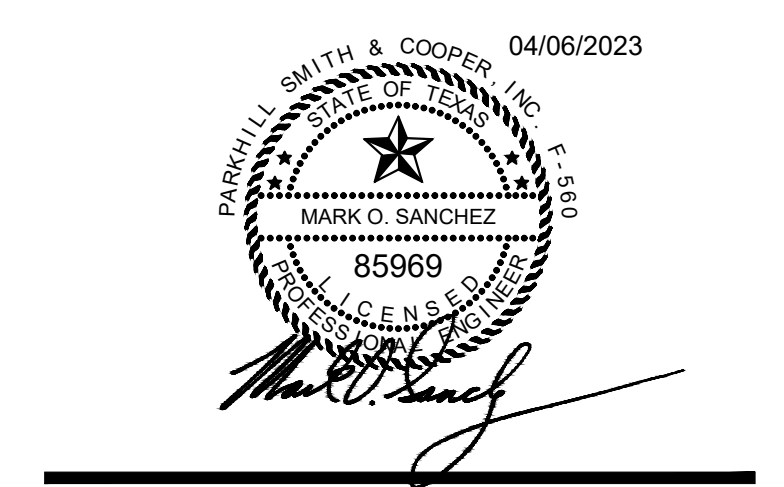


- GENERAL NOTES**
- A. THIS SHEET IS PROVIDED FOR INFORMATION ON HVAC DUCTWORK INSIDE GRIT PUMP ROOM SINCE NOT SHOWN ON SHEET M105.
 - B. HEAVY BOLD LINE IDENTIFIES EQUIPMENT AND PIPING TO BE REPLACED.

G PLAN VIEW
SCALE: 3/8" = 1'-0"

14 SECTION
M115 SCALE: 3/8" = 1'-0"

15 SECTION
M115 SCALE: 3/8" = 1'-0"



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

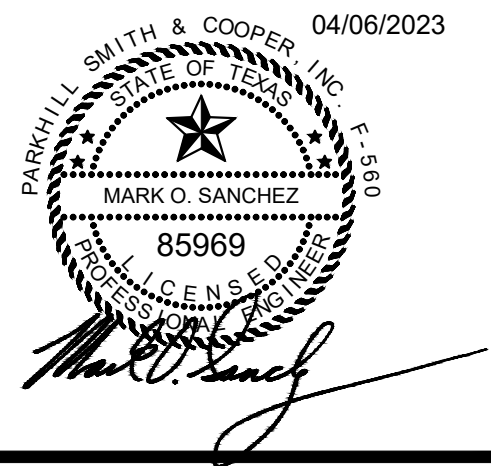
KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

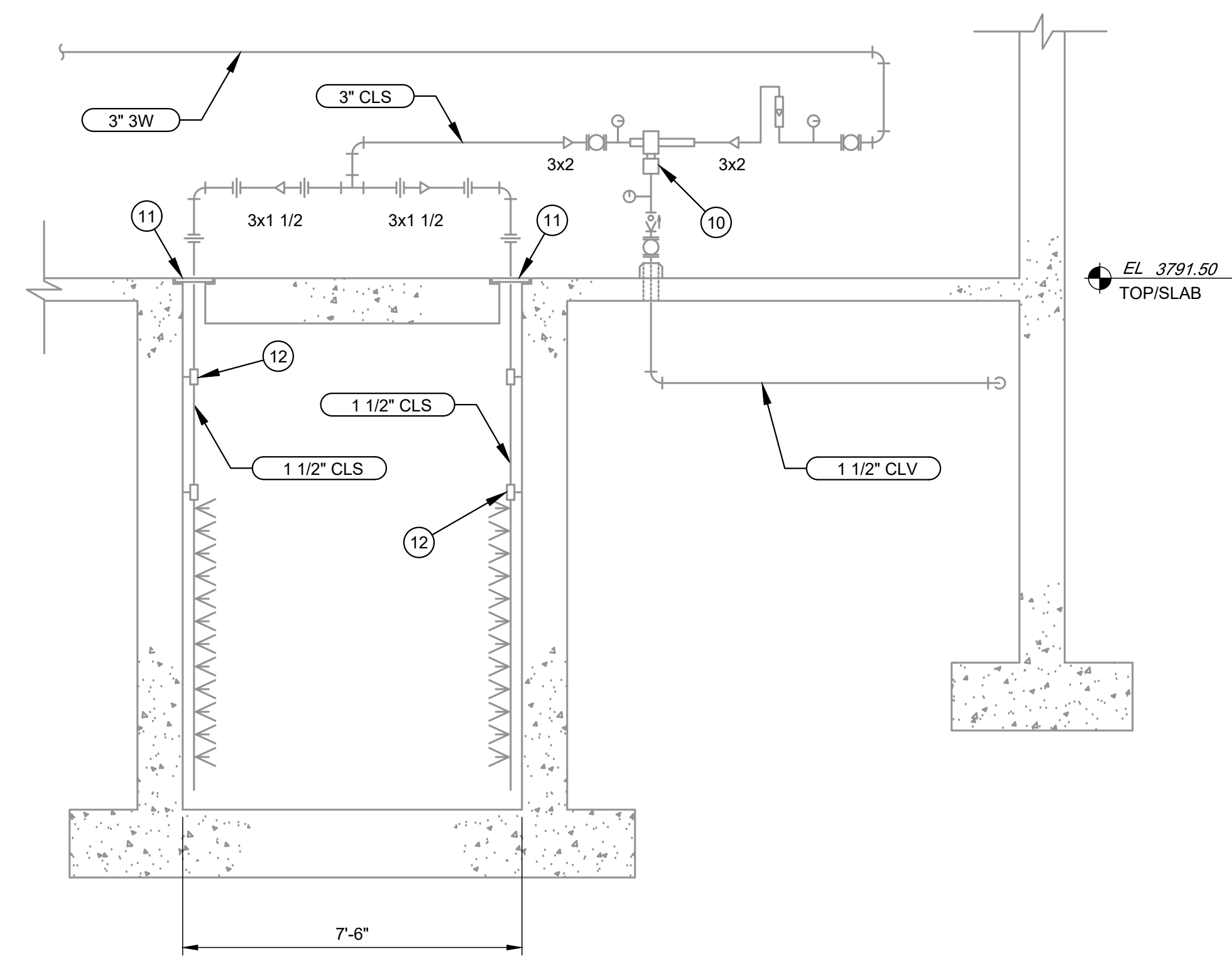
GRIT PUMP ROOM
EXISTING HVAC
PLAN AND SECTIONS



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936



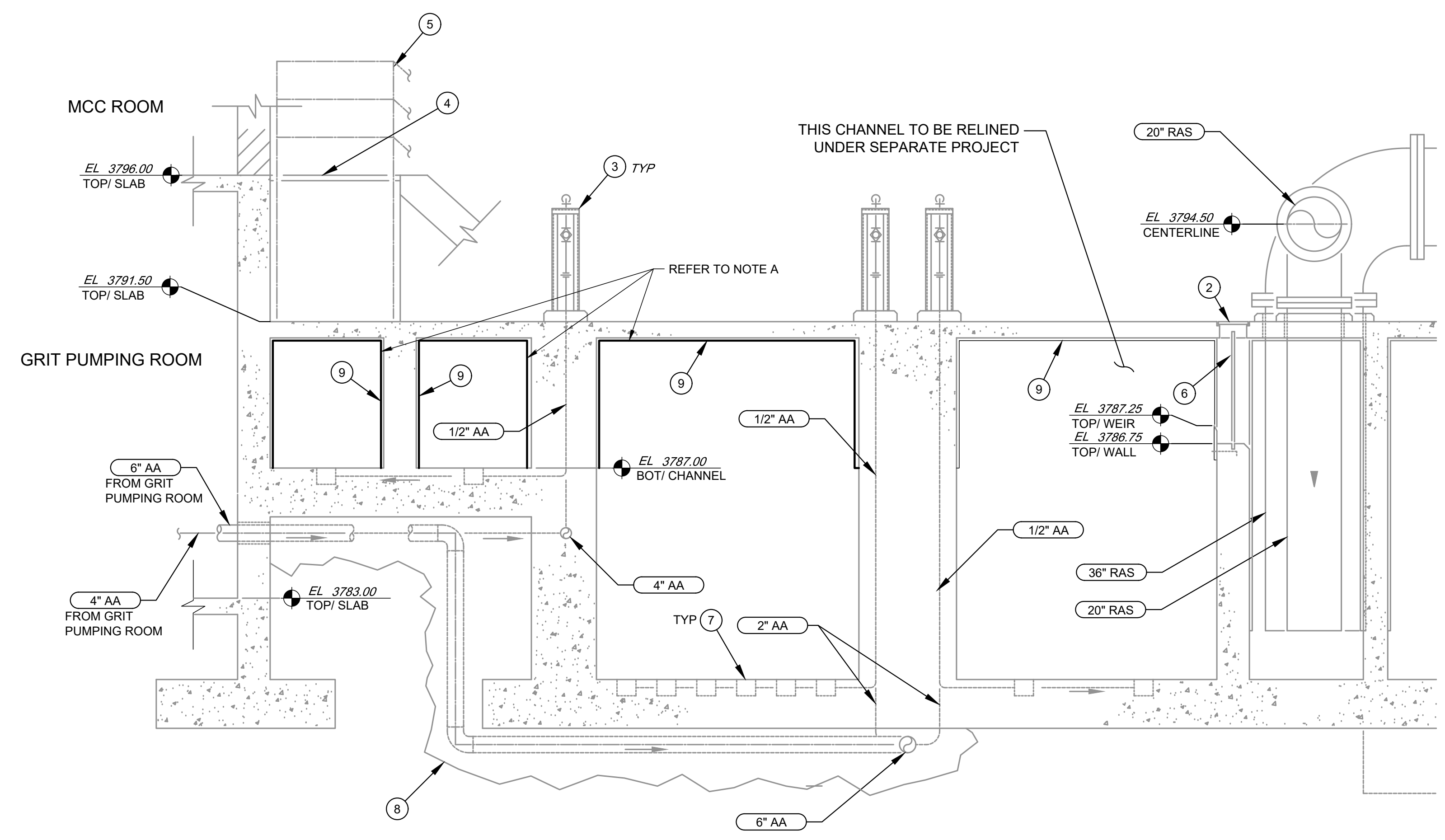
3 SECTION
 M102 SCALE: 3/8" = 1'-0"

KEY NOTES

- AS INDICATED BY: (00)
- NOT USED
 - HINGED CHECKERPLATE COVER FOR STOP PLATES, FLUSH MOUNTED
 - AGITATION AIR MANIFOLD
 - ACCESS PLATFORM TO MCC ROOM
 - HANDRAIL.
 - 14" x 36" STOP PLATE
 - SHEAR BOX DIFFUSER
 - CONCRETE ENCASEMENT
 - PLASTIC LINING
 - CHLORINE EJECTOR
 - 6"x6" REMOVABLE CHECKER PLATE HATCH
 - AIR DROP STAND OFF

GENERAL NOTES

- EXISTING PLASTIC LINING SHOWN ON THESE SHEETS IS TO BE REMOVED AND SURFACE PREPARED FOR NEW PROTECTIVE COATING.
- NEW PROTECTIVE COATING SHALL BE SEWERGARD 210X MANUFACTURED BY SAUERISEN WITH A MINIMUM 120 MILS DFT.
- NEW PROTECTIVE COATING SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, THE DRAWINGS AND SPECIFICATIONS.



13 SECTION
 M106 SCALE: 3/8" = 1'-0"

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

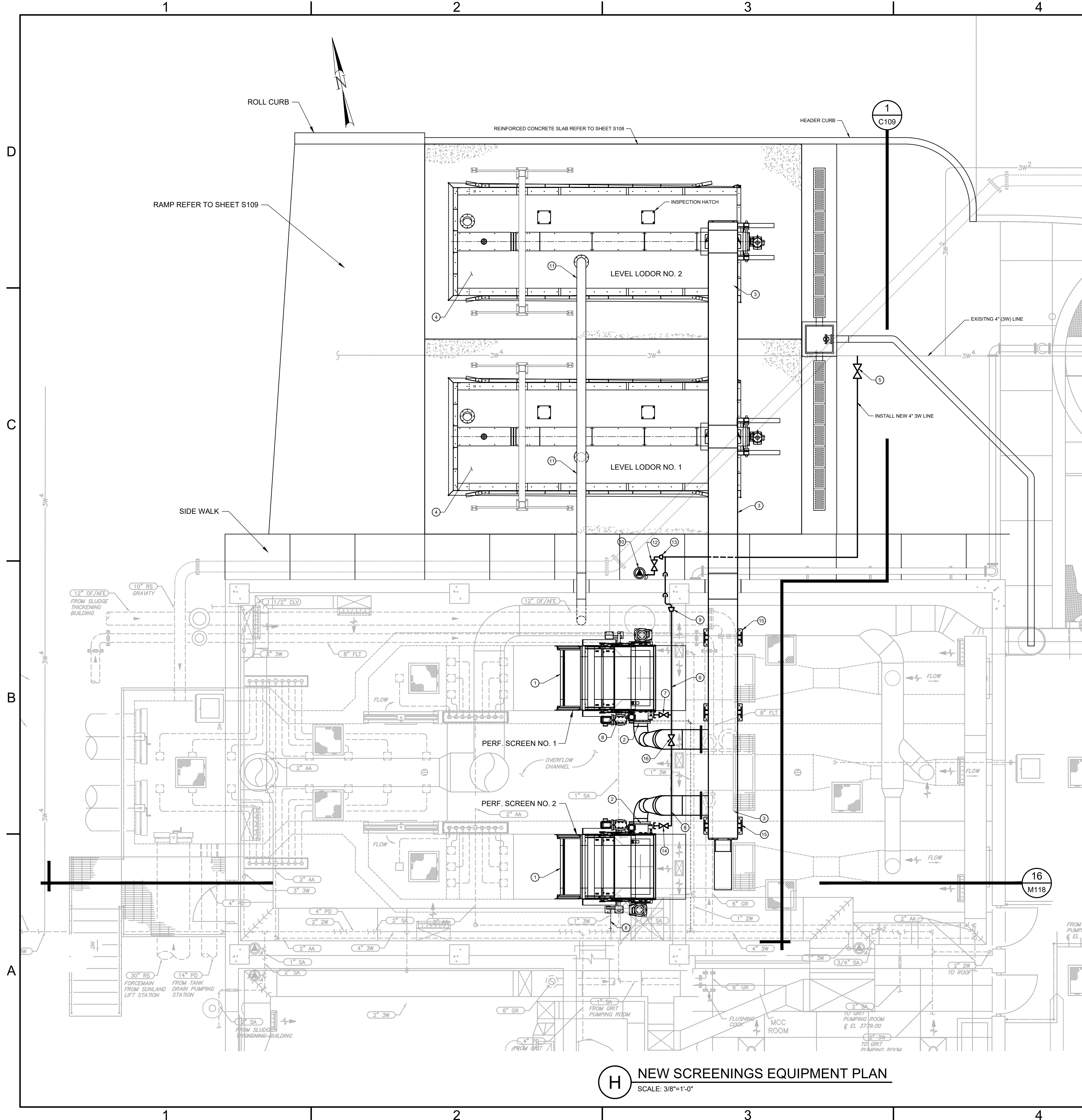
ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

GRIT CHANNEL RELINING SECTION

M116

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG050_CIVILM116-3065.dwg LAYOUT NAME: M116 PRINTED: Thursday, April 06, 2023 - 7:38pm USER: osanchez

FILE NAME: A:\20213065.21103_DSGND1_DWG050_CIVILM117-3065.dwg LAYOUT NAME: M117 PRINTED: Thursday, April 06, 2023 - 7:39pm USER: osanchez



H NEW SCREENINGS EQUIPMENT PLAN
SCALE: 3/8"=1'-0"

GENERAL NOTES

- A. ALL UNDERGROUND PIPING AND FITTINGS TO BE FULLY RESTRAINED WITH MECHANICAL JOINT RESTRAINTS.
- B. ALL EXTERIOR EXPOSED PIPING SHALL BE FLANGED, WELDED, OR GROOVE JOINT WITH MECHANICAL COUPLING STEEL OR DUCTILE IRON PIPE.
- C. ALL EXTERIOR EXPOSED VALVES 4" AND LARGER SHALL HAVE FLANGED JOINTS.
- D. ALL INTERIOR EXPOSED PIPING SHALL BE PVC SCHEDULE 80, GLUED JOINTS AND FITTINGS.
- E. ALL INTERIOR VALVES ON PVC PIPE SHALL BE THREADED WITH UNION.
- F. ALL EXTERIOR EXPOSED PIPING SHALL BE INSULATED WITH ALUMINUM JACKET.

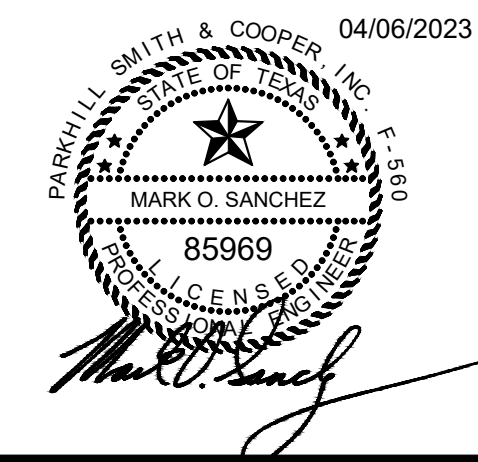
KEY NOTES

AS INDICATED BY: (00)

- 1. PERF PLATE BARSCREEN
- 2. WASH PRESS
- 3. HORIZONTAL CONVEYOR
- 4. LEVEL LODOR
- 5. 4" CUT IN TEE (RESTRAINED) WITH 4" GATE VALVE AND VALVE BOX
- 6. INSTALL 3" LINE ALONG CONCRETE BEAM
- 7. INSTALL 3"x2" TEE WITH 2" BALL VALVE AND CONNECT TO BARSCREEN
- 8. CONNECT EXISTING 1" 3W TO NEW WASH PRESS AND PROVIDE 1" BALL VALVE AHEAD OF CONNECTION FOR ISOLATION
- 9. 4"x3" REDUCER
- 10. INSTALL NEW UTILITY STATION
- 11. 8" EXHAUST DUCT
- 12. 2" BALL VALVE
- 13. 4"x2" REDUCER
- 14. INSTALL 3" ELBOW, 3"x2" REDUCER AND 2" BALL VALVE CONNECT TO PERF SCREEN.
- 15. BRACKET SUPPORTS REFER TO SHEETS C110 & C111
- 16. 3" BALL VALVE WITH UNION

Parkhill

Parkhill.com



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT
EL PASO WATER
 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

BARSCREEN
NEW SCREENINGS
EQUIPMENT PLAN

M117

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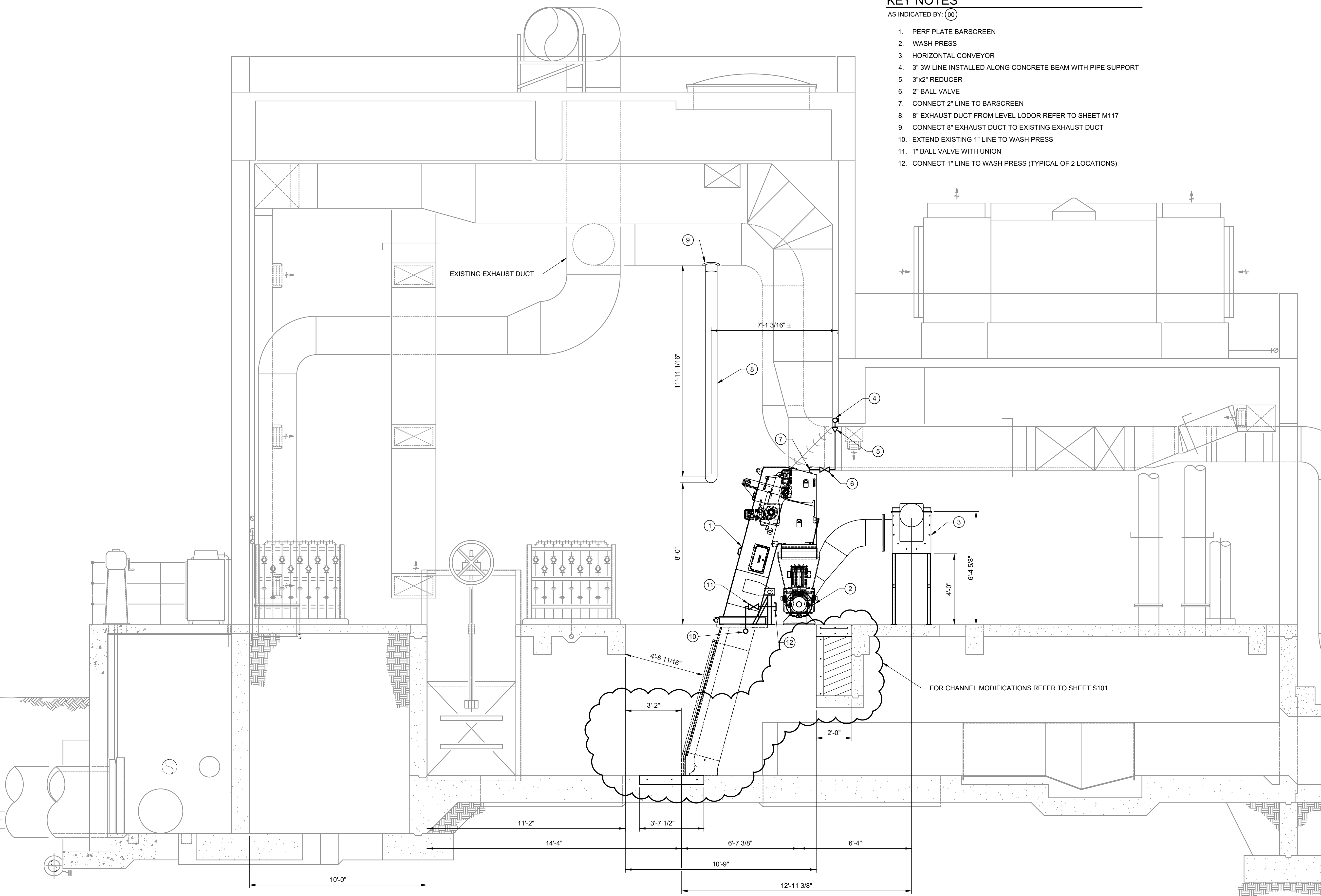
B

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KEY NOTES

AS INDICATED BY: (00)

1. PERF PLATE BARSCREEN
2. WASH PRESS
3. HORIZONTAL CONVEYOR
4. 3" 3W LINE INSTALLED ALONG CONCRETE BEAM WITH PIPE SUPPORT
5. 3"x2" REDUCER
6. 2" BALL VALVE
7. CONNECT 2" LINE TO BARSCREEN
8. 8" EXHAUST DUCT FROM LEVEL LODOR REFER TO SHEET M117
9. CONNECT 8" EXHAUST DUCT TO EXISTING EXHAUST DUCT
10. EXTEND EXISTING 1" LINE TO WASH PRESS
11. 1" BALL VALVE WITH UNION
12. CONNECT 1" LINE TO WASH PRESS (TYPICAL OF 2 LOCATIONS)



16 SECTION
 M117 SCALE: 3/8" = 1'-0"



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

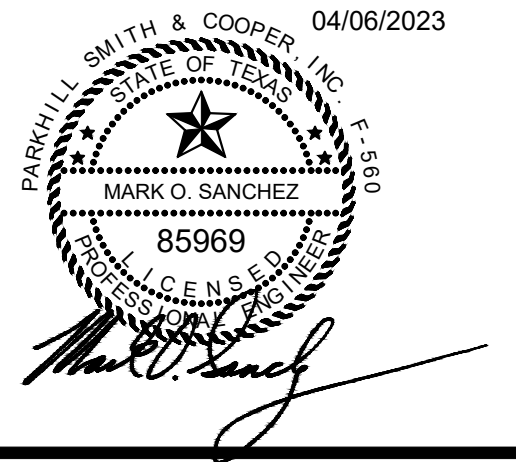
VERIFY SCALES
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

BARSCREEN
NEW SCREENINGS
EQUIPMENT SECTION

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG050_CIVIL\M118-3065.dwg LAYOUT NAME: M118 PRINTED: Thursday, April 06, 2023 - 7:39pm USER: osanchez



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

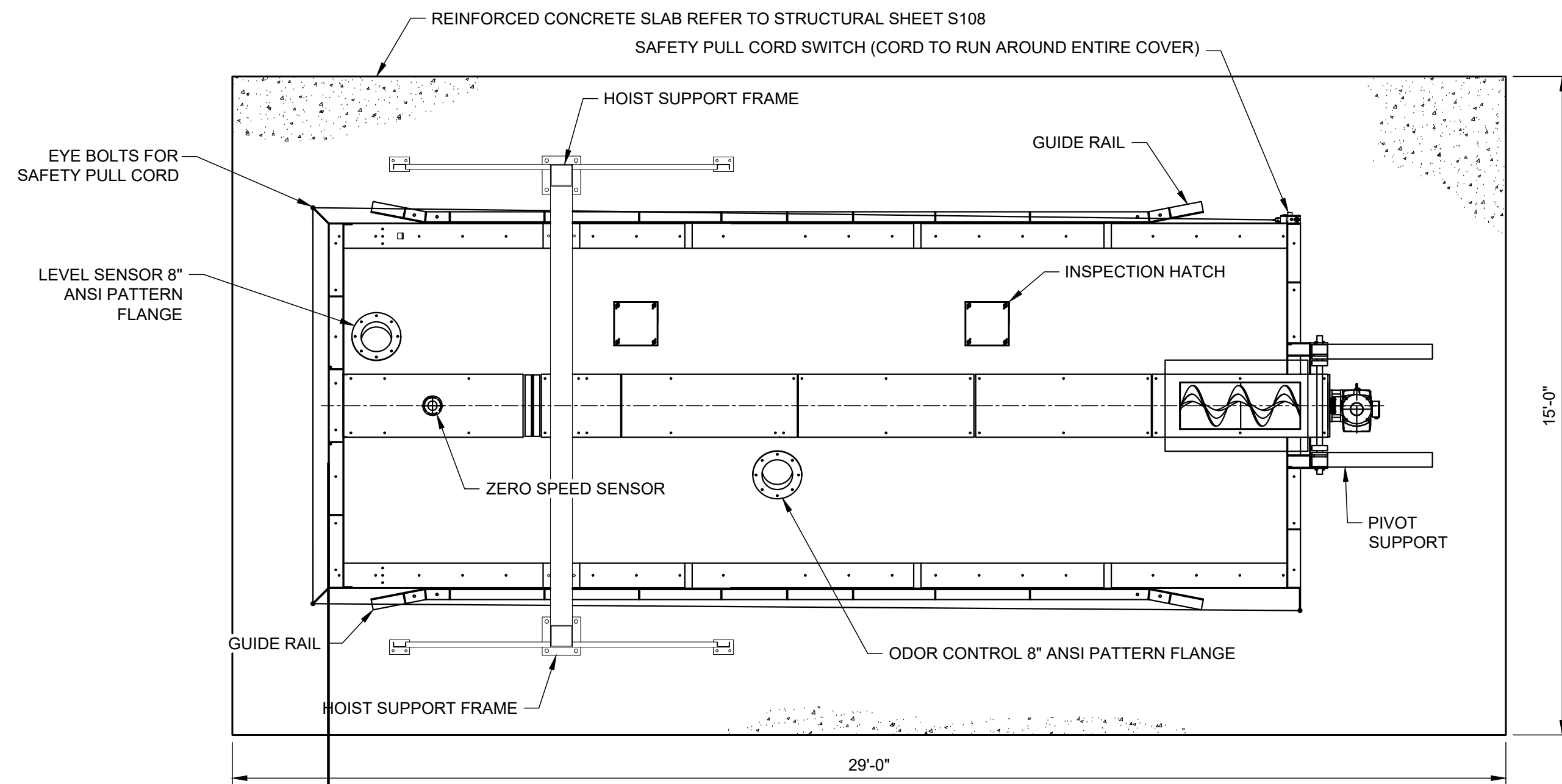
KEY PLAN

VERIFY SCALES
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0 1"
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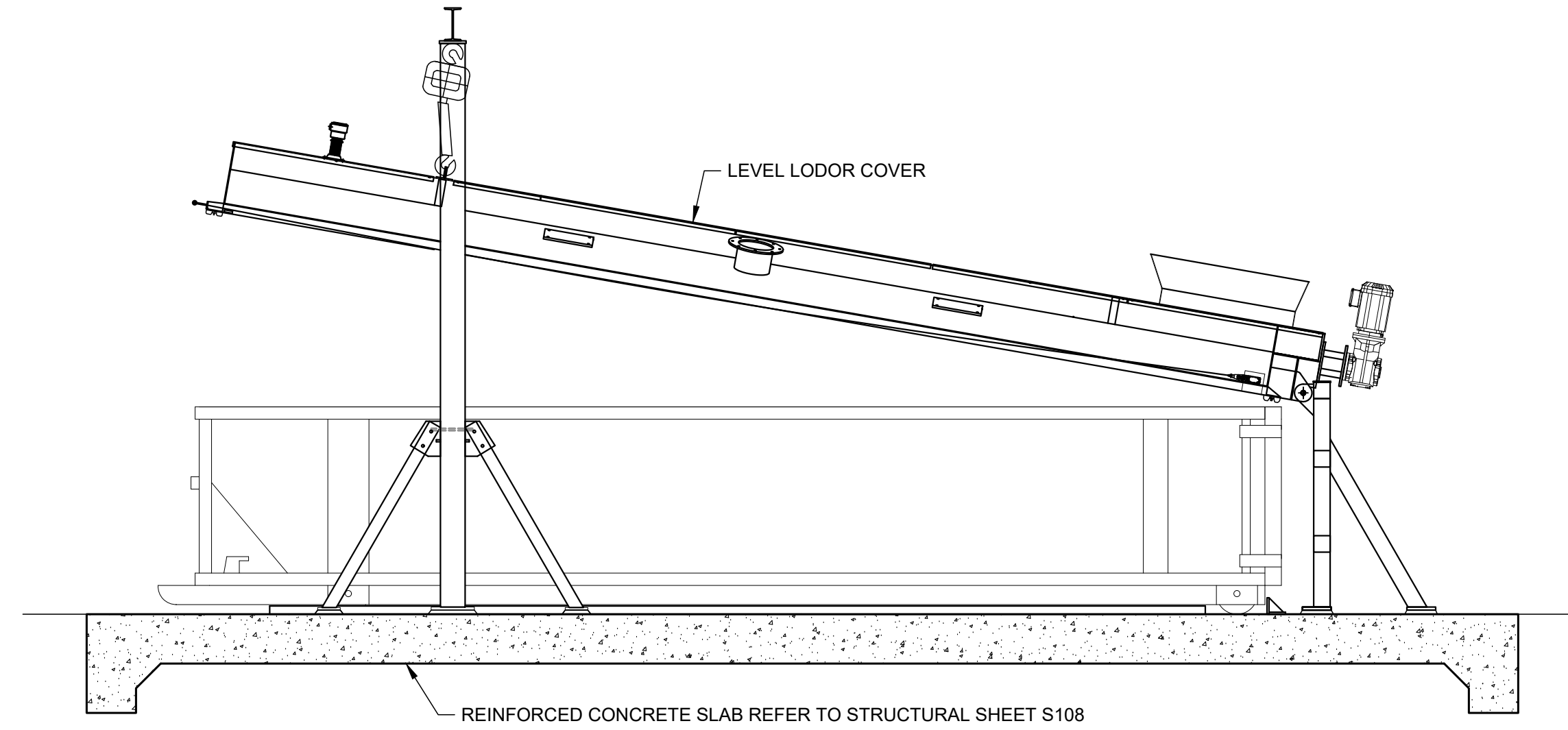
NO.	DATE	DESCRIPTION

**LEVEL LODOR
PLAN AND ELEVATIONS**

M119



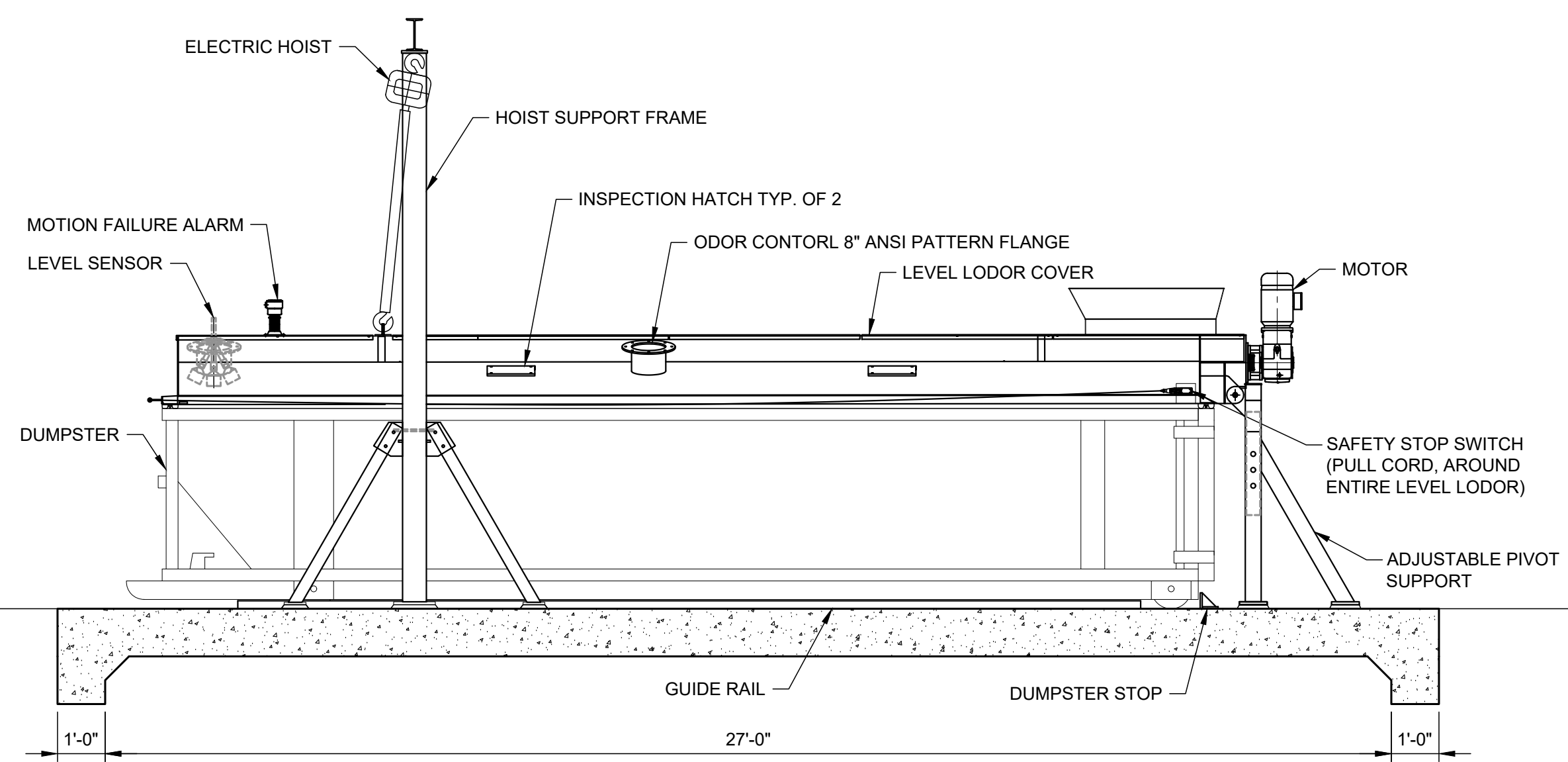
1 LEVEL LODOR PLAN
SCALE: 3/8"=1'-0"



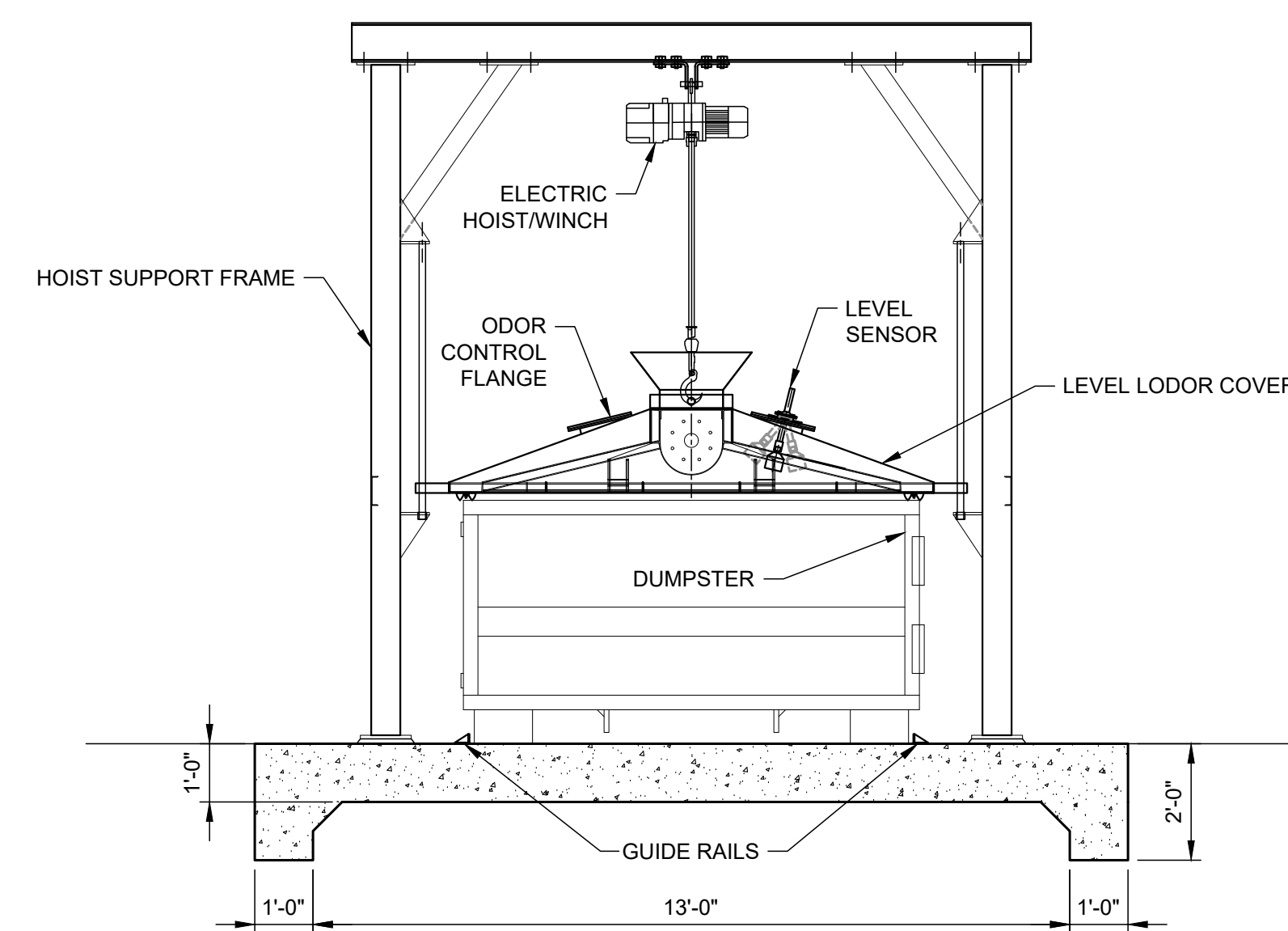
1 SIDE ELEVATION COVER OPEN
SCALE: 3/8"=1'-0"

NOTES

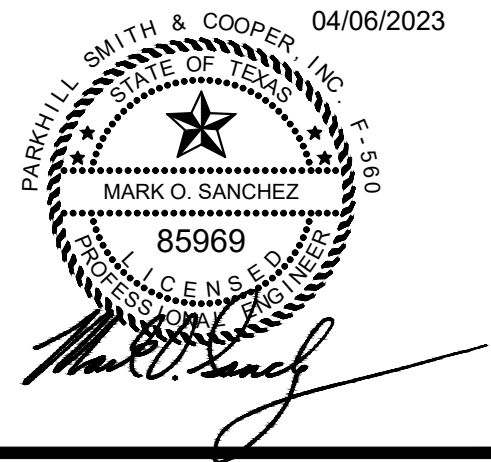
- ALL POST INSTALLED ANCHORS FOR LEVEL LODOR GUIDE RAIL, ADJUSTABLE PIVOT BASE PLATE, DUMPSTER STOP AND HOIST SUPPORT PLATE REFER TO SHEET S108 FOR ANCHOR DETAIL AND BOLT SIZES.



2 SIDE ELEVATION COVER CLOSED
SCALE: 3/8"=1'-0"



3 FRONT ELEVATION COVER
SCALE: 3/8"=1'-0"



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT
EL PASO WATER
 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

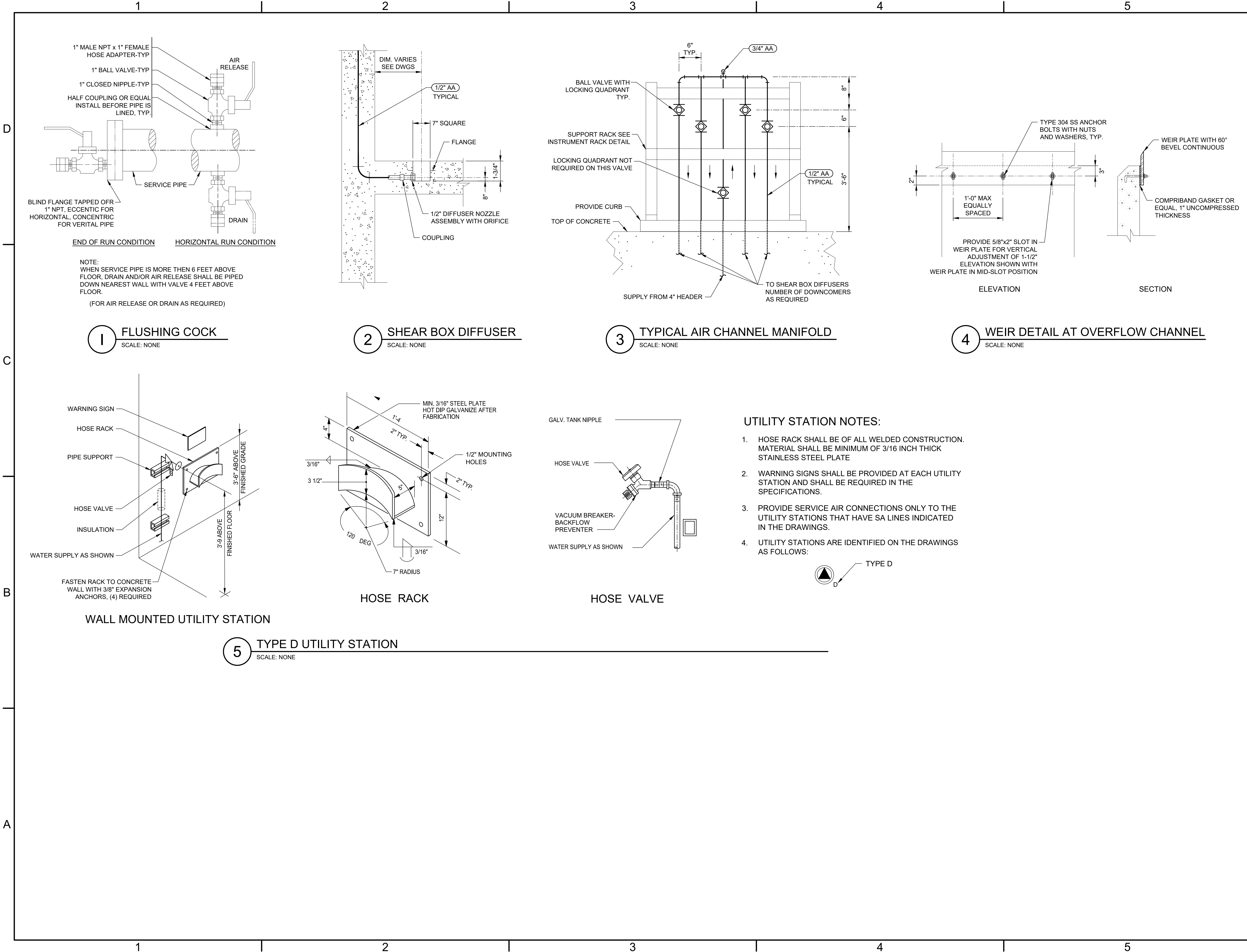
VERIFY SCALES
 BAR IS 1 INCH ON ORIGINAL DRAWING
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

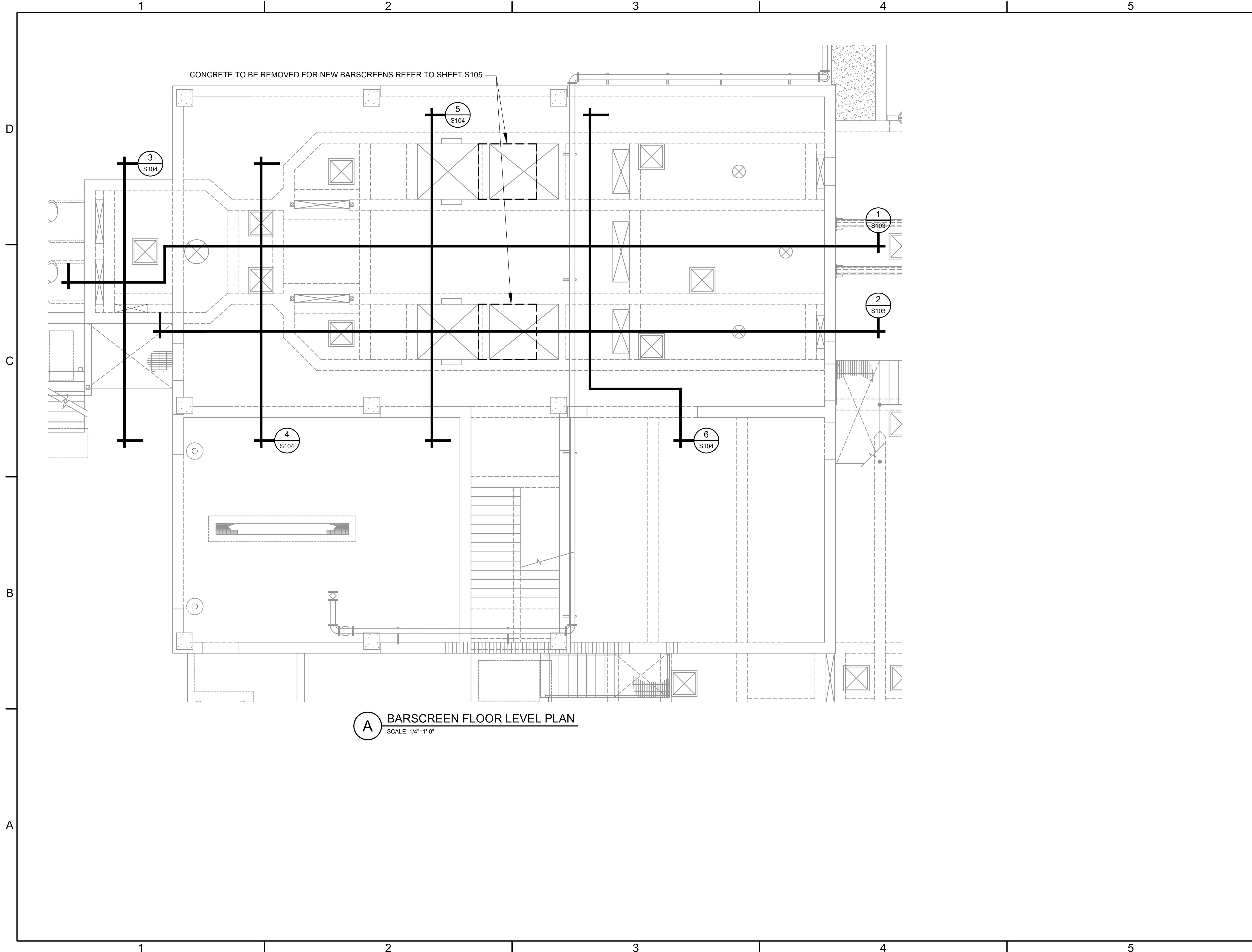
MISCELLANEOUS DETAILS

M120



FILE NAME: A:\2021\3065.21\03_DSGN01_DWG050_CIVIL\M120-3065.dwg LAYOUT NAME: M120 PRINTED: Thursday, April 06, 2023 - 7:39pm USER: osanchez

FILE NAME: A:\202\13065.21\103_DSGN01_DWG070_STRUCTS\101-3065.dwg LAYOUT NAME: S101 PRINTED: Thursday, April 06, 2023 - 8:04pm USER: osanchez



(A) BARSCREEN FLOOR LEVEL PLAN
SCALE: 1/4"=1'-0"



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

HEADWORKS
STRUCTURAL
MODIFICATIONS
FLOOR LEVEL
PLAN
S101

FILE NAME: A:\202\13065.21\03_DSGN01_DWG070_STRUCTS\102-3065.dwg LAYOUT NAME: S102 PRINTED: Thursday, April 06, 2023 - 8:04pm USER: osanchez

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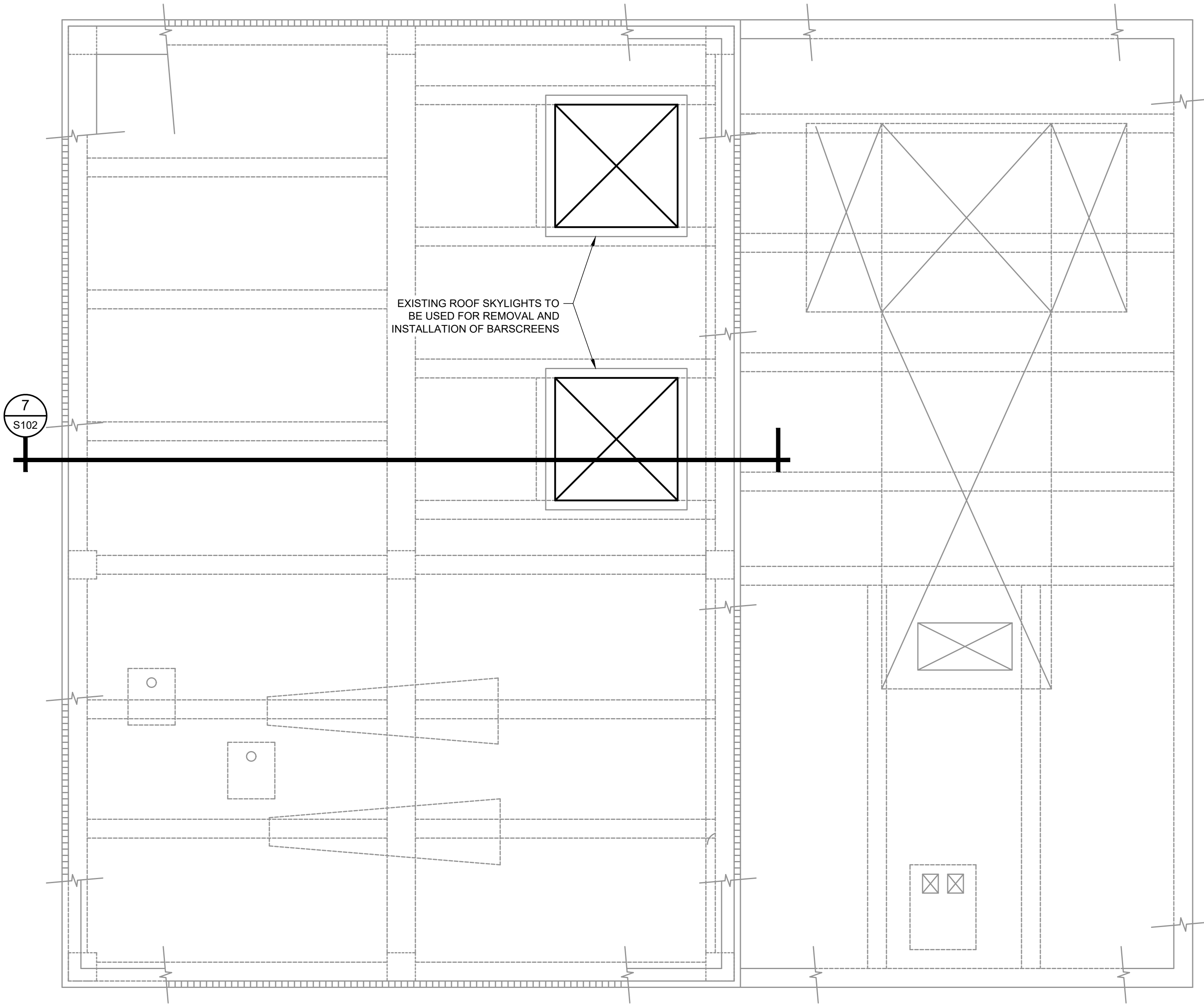
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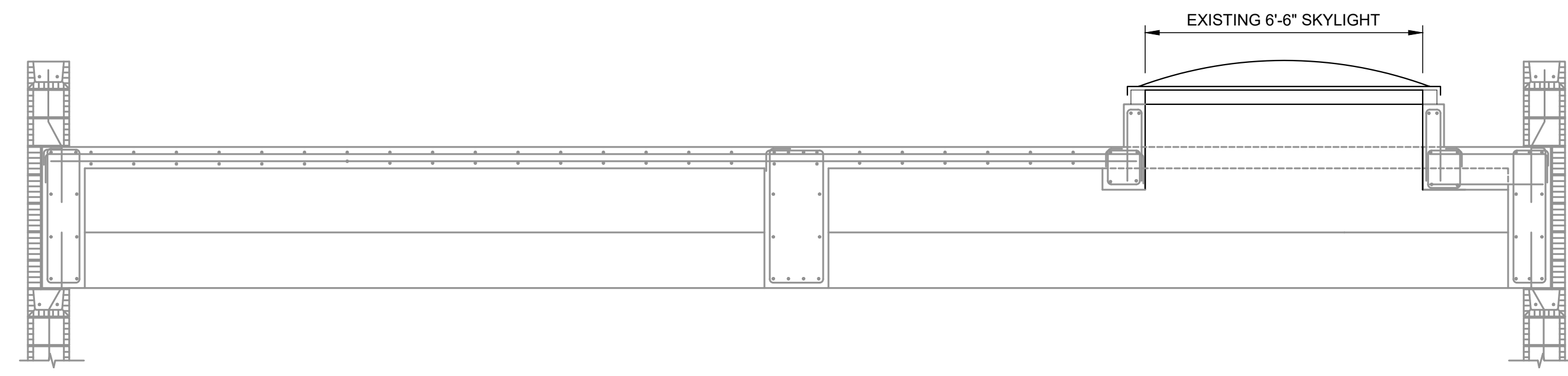
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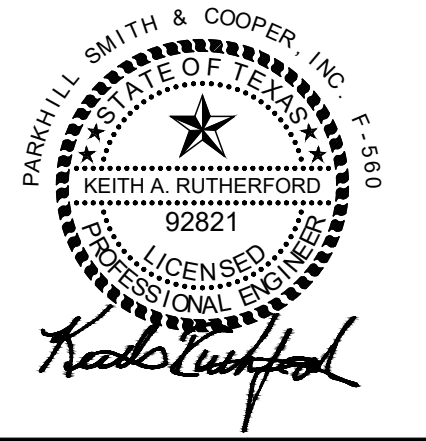
EXISTING ROOF SKYLIGHTS TO BE USED FOR REMOVAL AND INSTALLATION OF BARSCHRENS

7
S102

B BARSCHREN ROOM ROOF PLAN
SCALE: 1/4"=1'-0"



7 SECTION
S102 SCALE: 3/8"=1'-0"



JOHN T. HICKERSON
HEADWORKS
BARSCHREN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

HEADWORKS
STRUCTURAL
BARSCHREN ROOM
ROOF PLAN

S102

DRAWING INFORMATION SHOWN IS FROM RECORD DRAWINGS PREPARED BY BROWN & CALDWELL FOR NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION 1992



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JOHN T. HICKERSON HEADWORKS BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

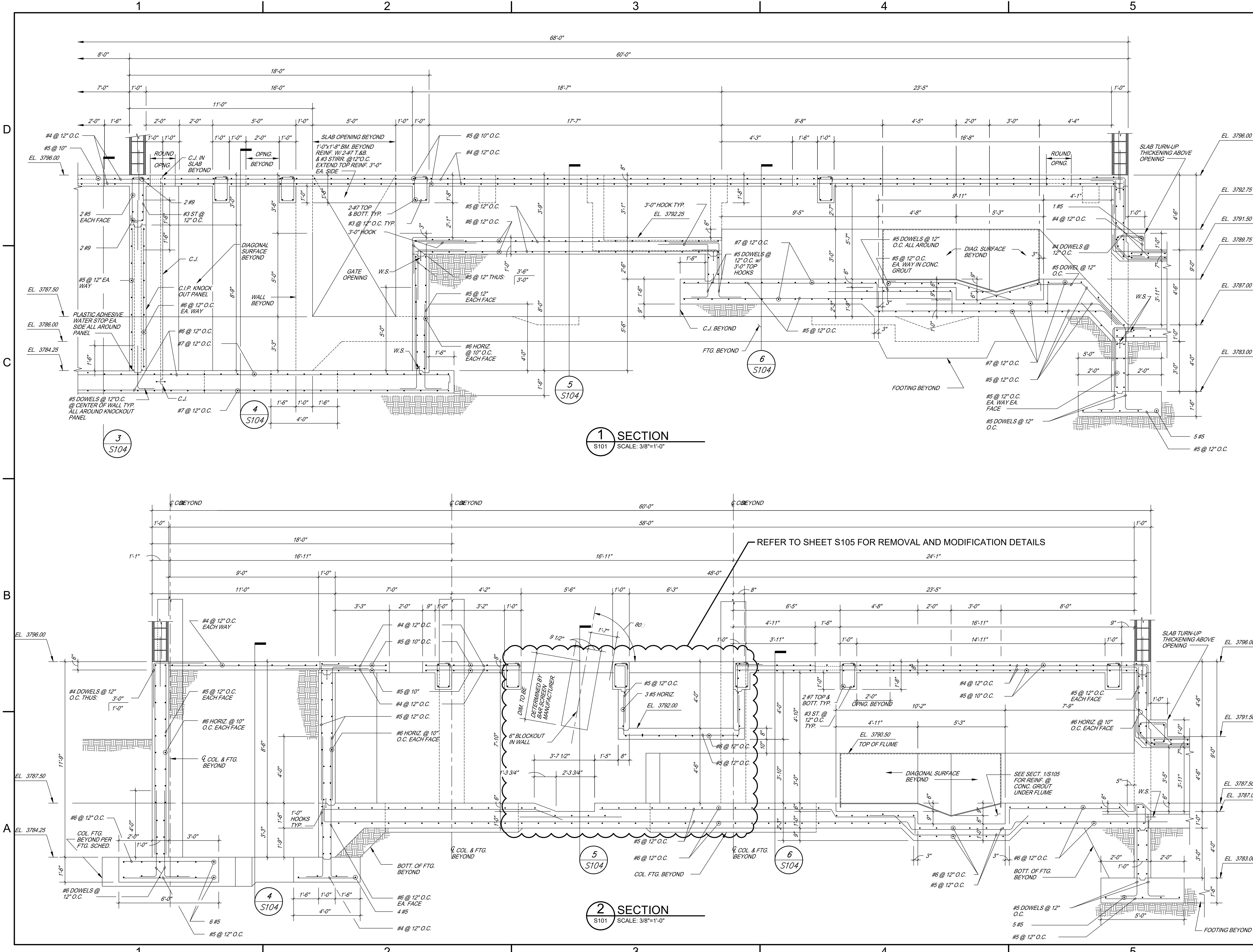
VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

BARSREEN EXISTING STRUCTURAL SECTIONS

S103



1 SECTION
S101 SCALE: 3/8"=1'-0"

2 SECTION
S101 SCALE: 3/8"=1'-0"

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG070_STRUCTS103-3065.dwg LAYOUT NAME: S103 PRINTED: Thursday, April 06, 2023 - 8:04pm USER: osanchez

DRAWING INFORMATION
SHOWN IS FROM RECORD
DRAWINGS PREPARED BY
BROWN & CALDWELL FOR
NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION 1992



**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

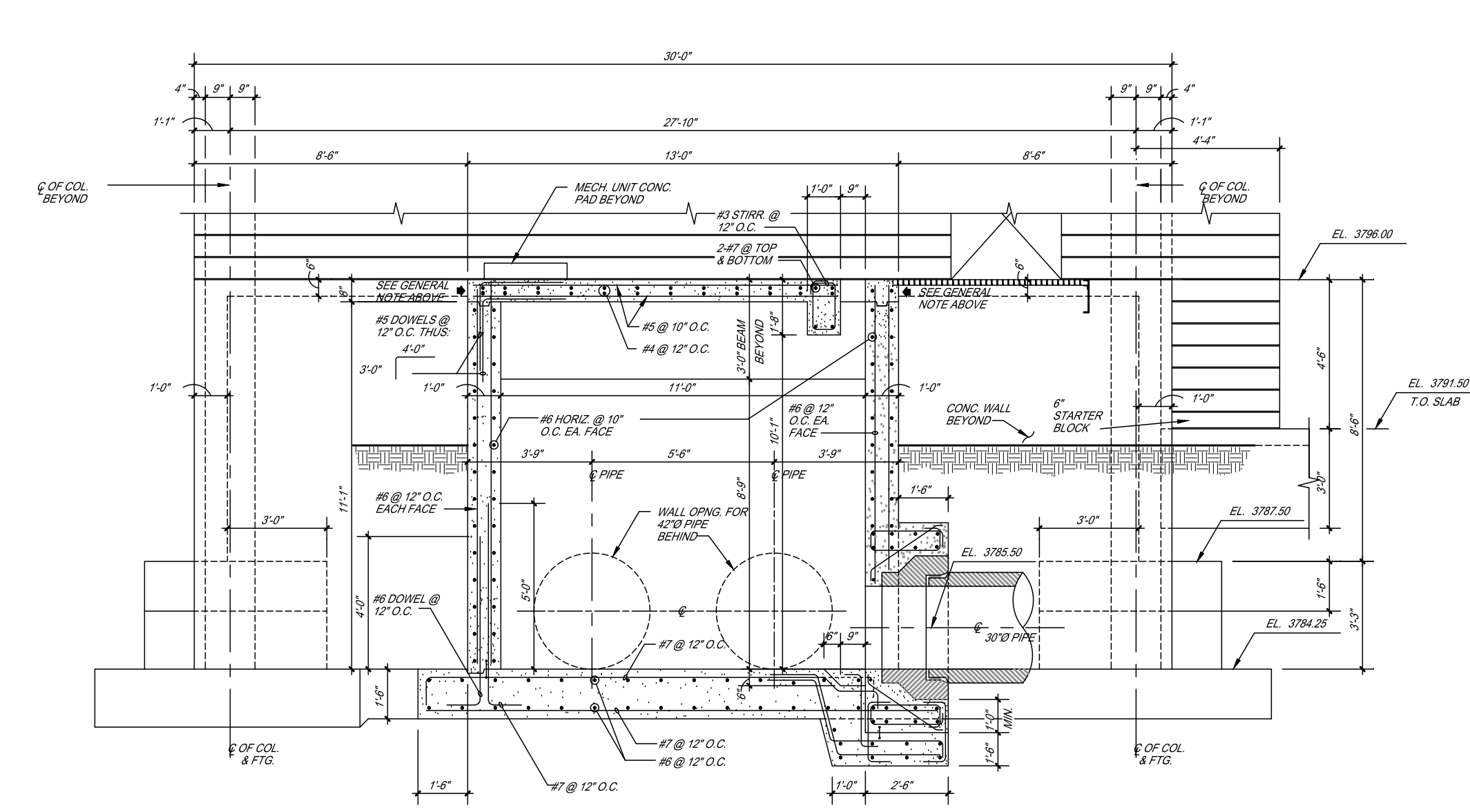
KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

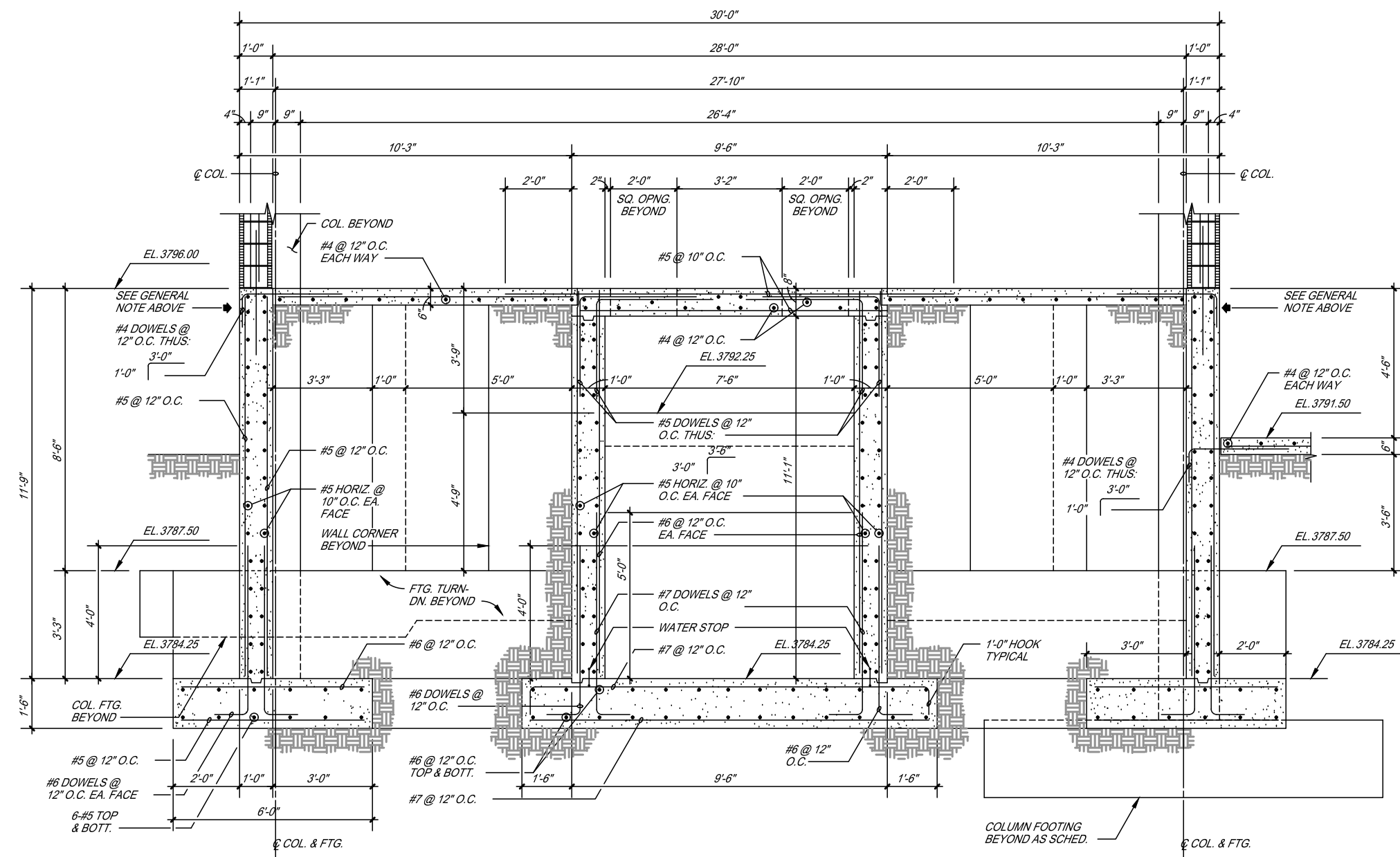
NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

**BARSREEN CHANNELS
EXISTING STRUCTURAL**

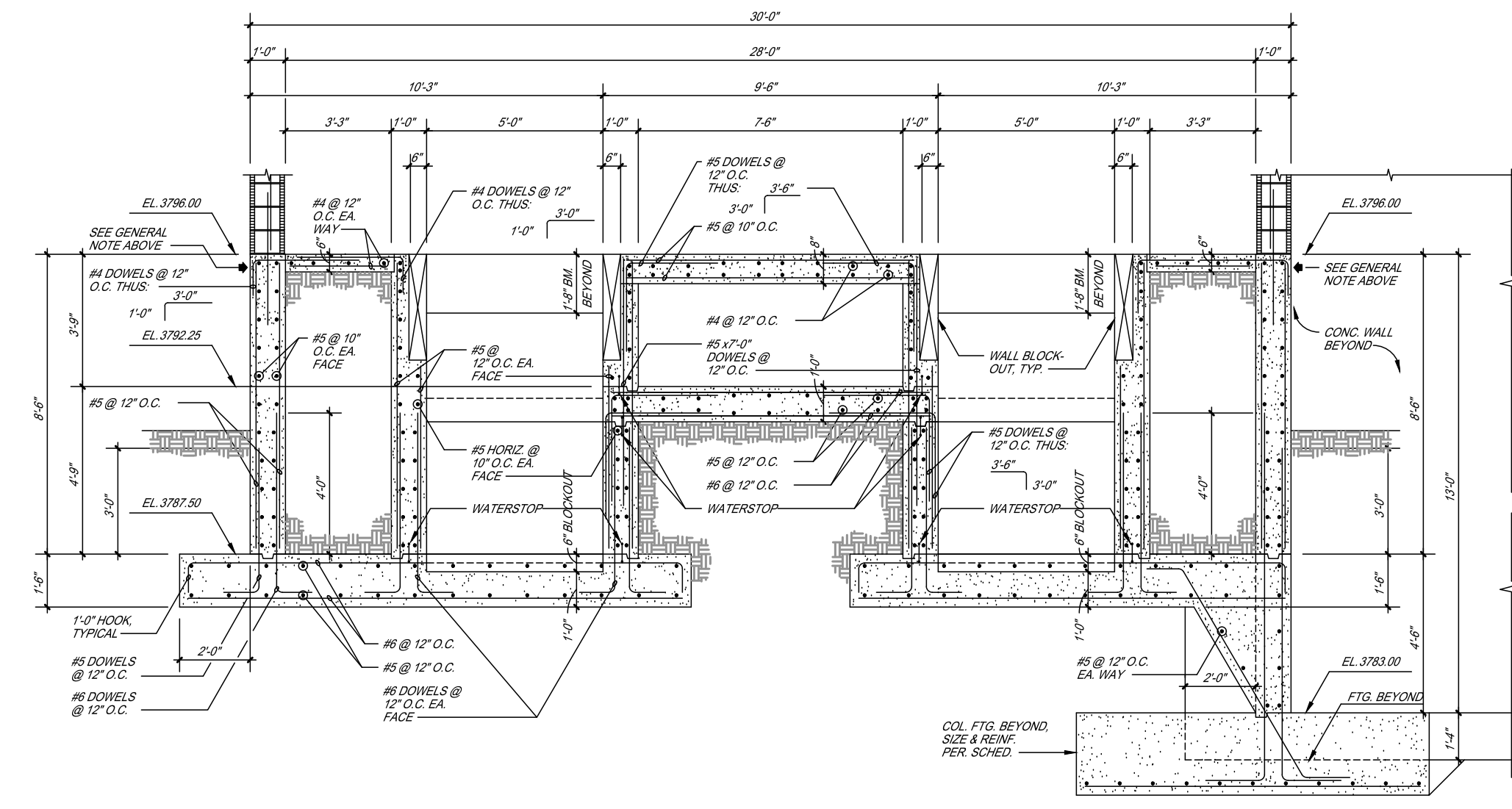
S104



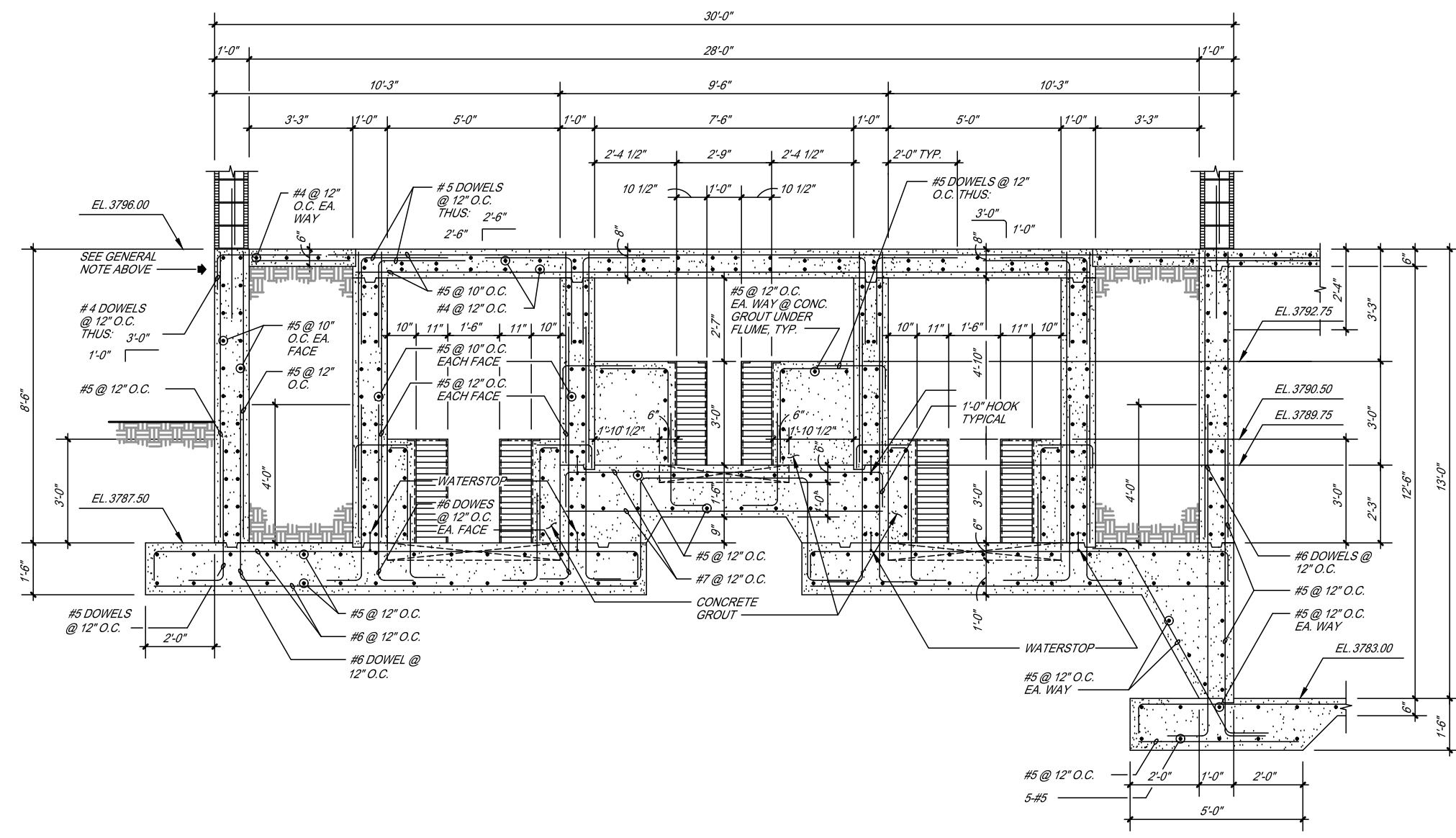
3 SECTION
S101 SCALE: 1/4" = 1'-0"



4 SECTION
S101 SCALE: 1/4" = 1'-0"



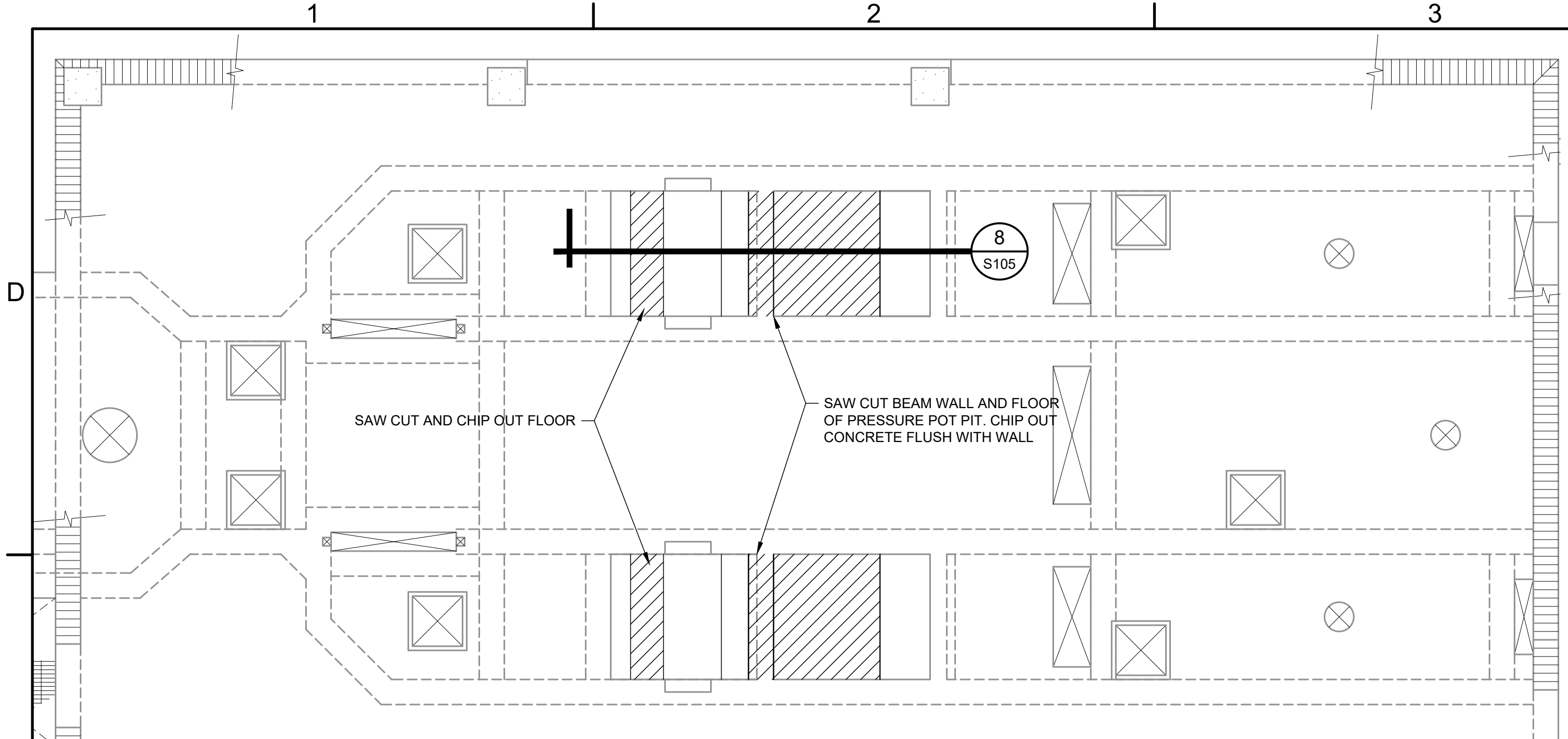
5 SECTION
S101 SCALE: 1/4" = 1'-0"



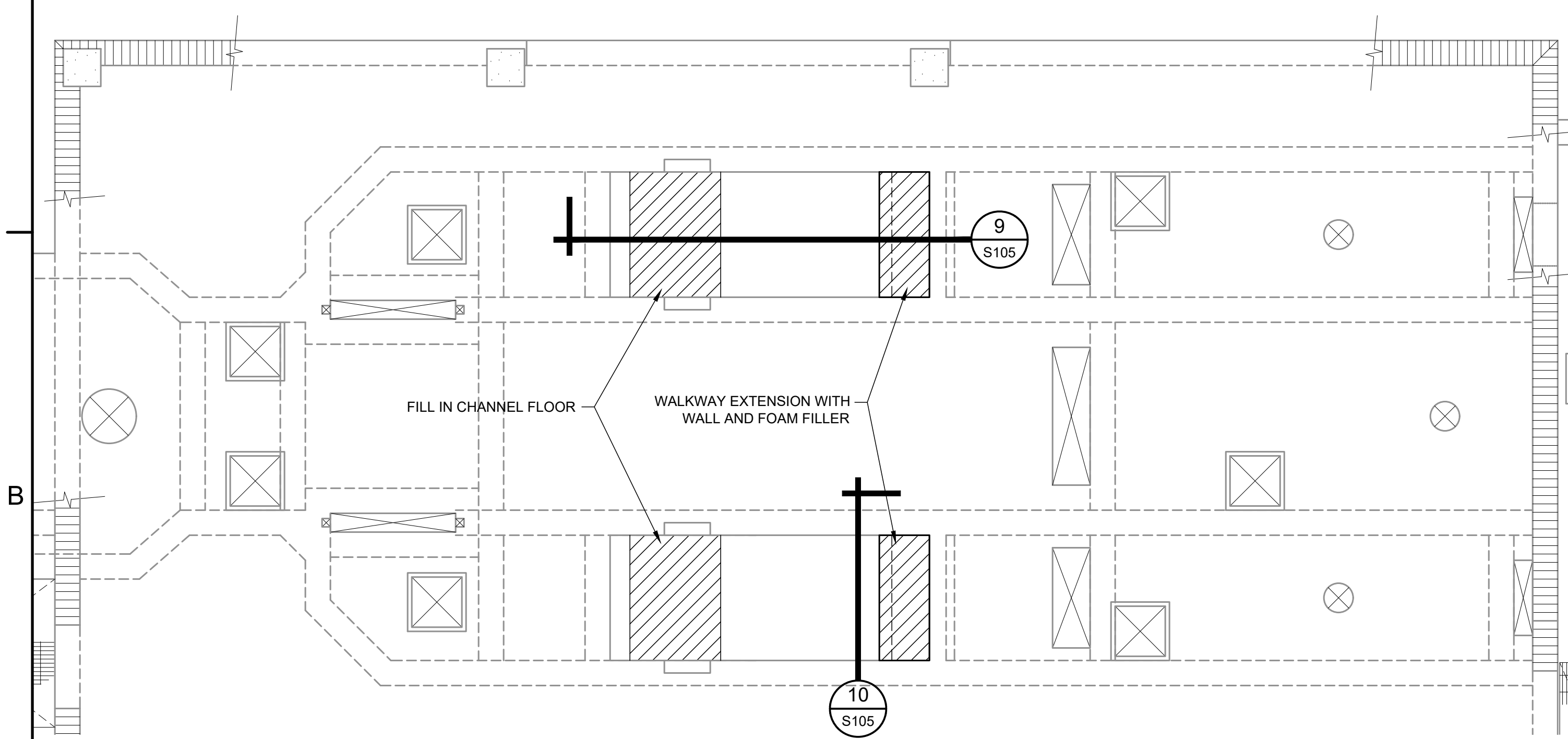
6 SECTION
S101 SCALE: 1/4" = 1'-0"

FILE NAME: A:\2021\3065.21\103_DSGND1_DWG070_STRUCTS\104-3065.dwg LAYOUT NAME: S104 PRINTED: Thursday, April 06, 2023 - 8:04pm USER: osanchez

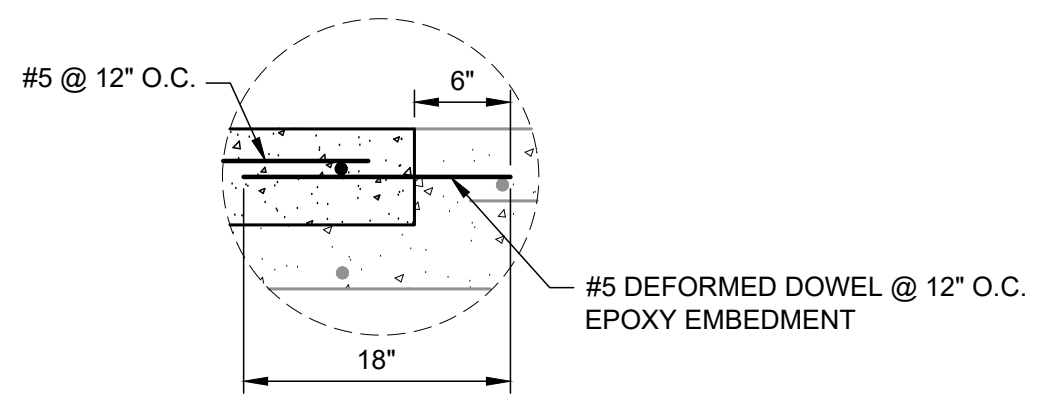
FILE NAME: A:\202\13065.21\03_DSGND01_DWG070_STRUCTS\105-3065.dwg LAYOUT NAME: S105 PRINTED: Thursday, April 06, 2023 - 8:04pm USER: osanchez



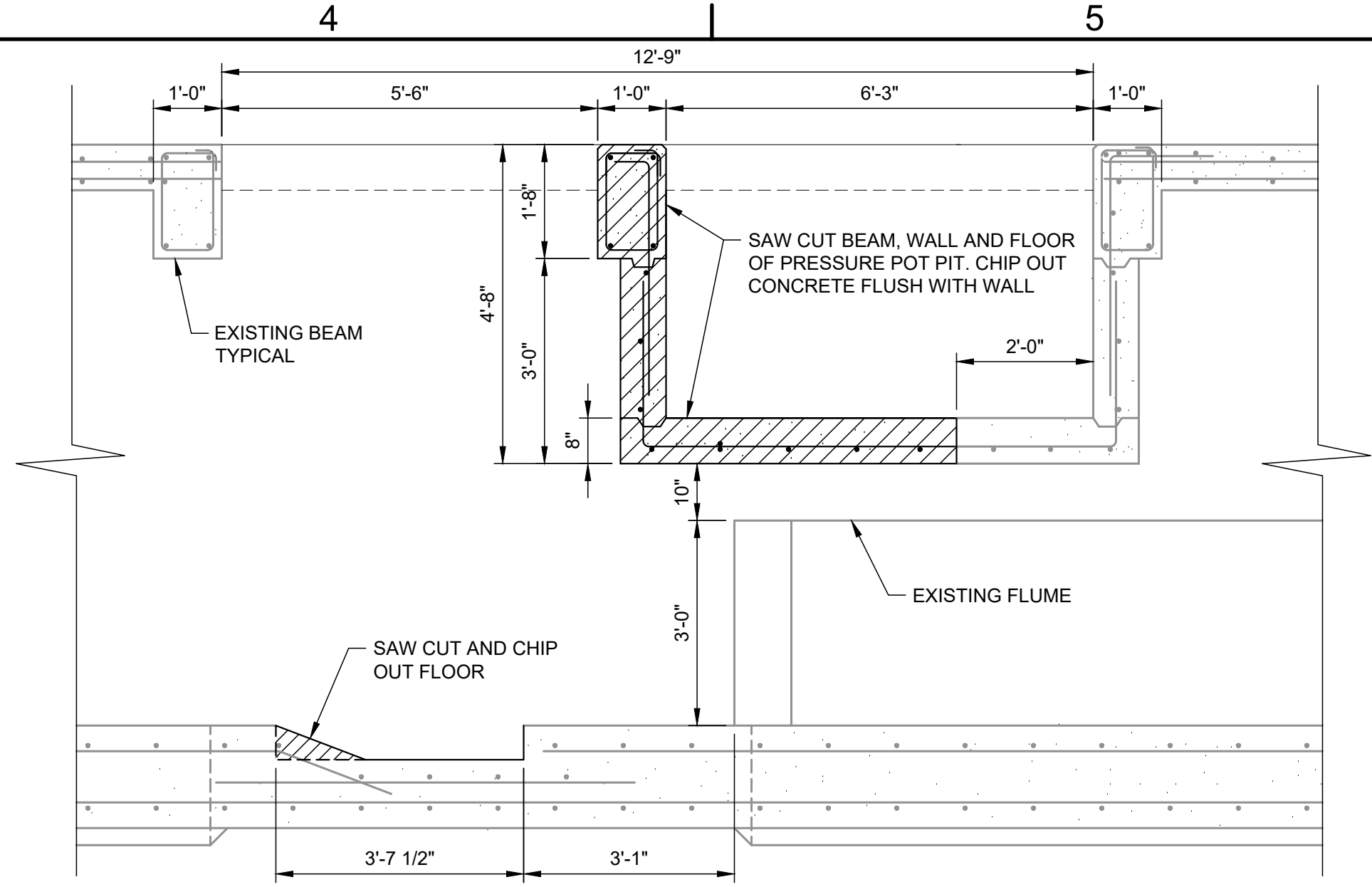
C DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'



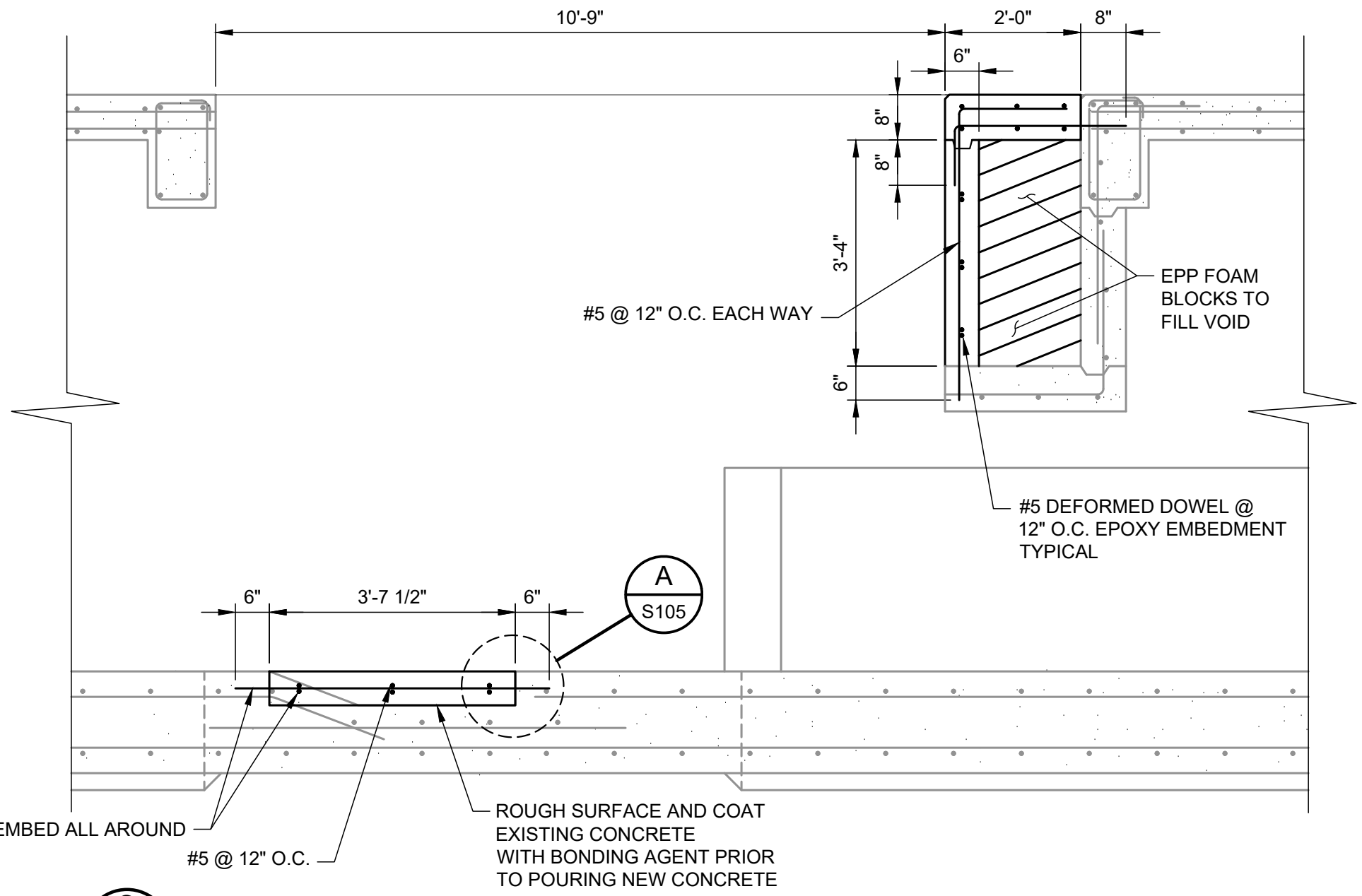
D FINISHED FLOOR PLAN
SCALE: 1/4" = 1'



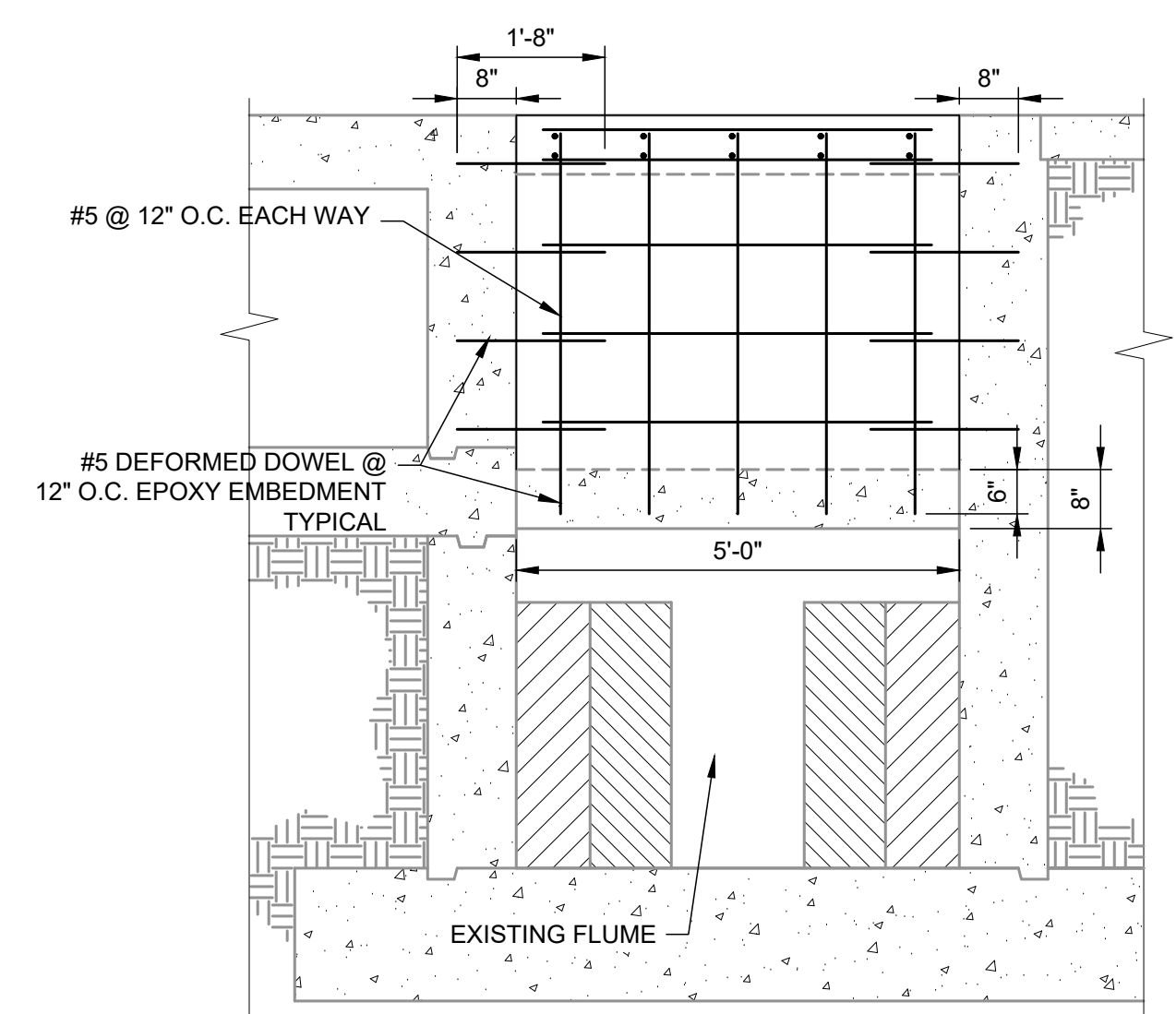
A DETAIL
C105 SCALE: NONE



8 SECTION
S105 SCALE: 1/2" = 1'



9 SECTION
S105 SCALE: 1/2" = 1'



10 SECTION
S105 SCALE: 1/2" = 1'



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

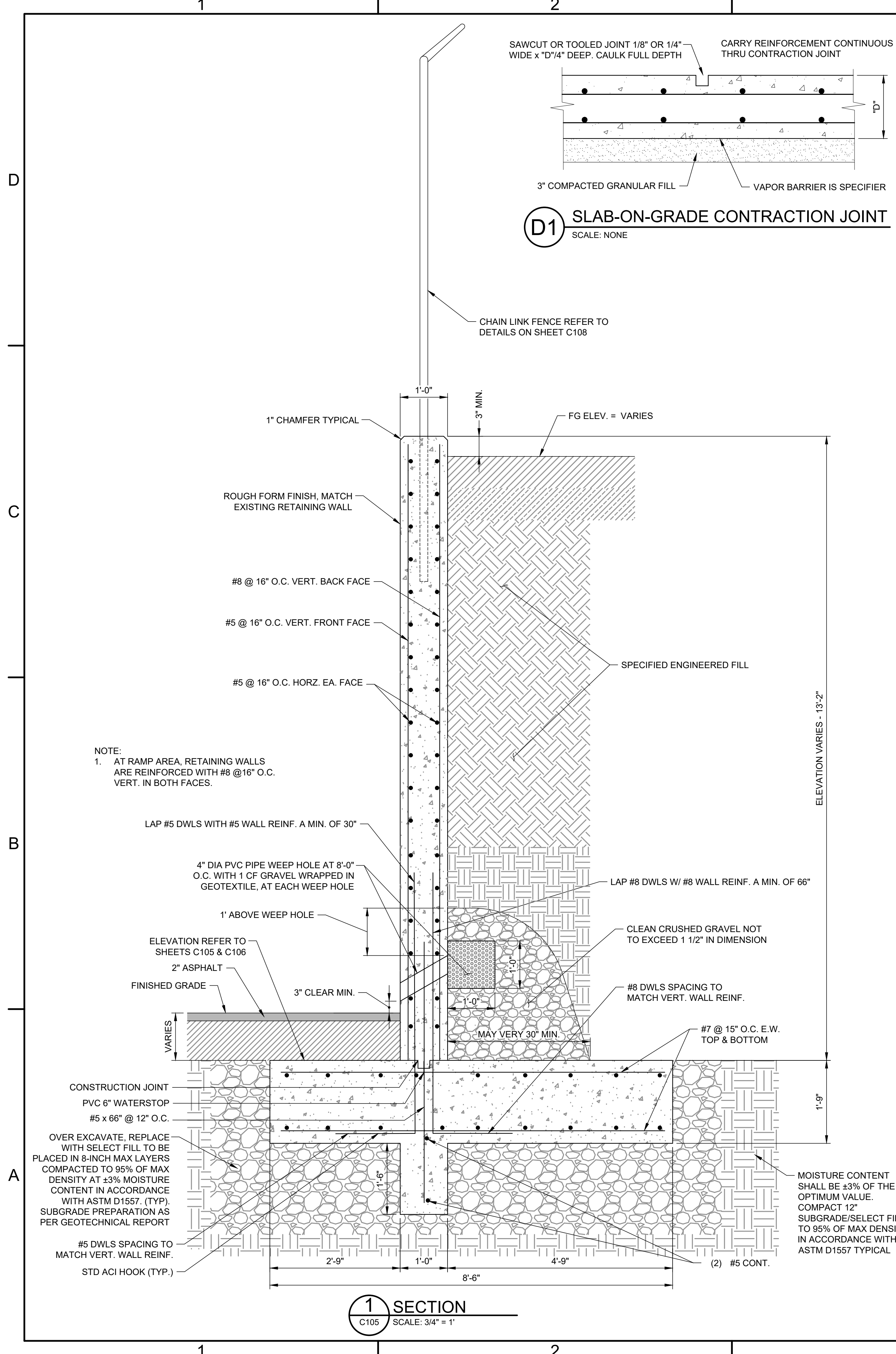
VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

BARSCREEN CHANNELS MODIFICATION DETAILS

S105

FILE NAME: A:\2021\3065.21103_DSGND1_DWG070_STRUCTS\106-3065.dwg LAYOUT NAME: S106 PRINTED: Thursday, April 06, 2023 - 8:04pm USER: osanchez



1 SECTION
C105 SCALE: 3/4" = 1'

GENERAL NOTES

- A. THESE GENERAL NOTES PERTAIN ONLY TO SHEETS S106, S107 AND S108.
- B. SITE WORK SHALL BE AS CALLED OUT IN THE GEOTECHNICAL REPORT. IF NOT CALLED OUT IN THE GEOTECHNICAL REPORT, THE "SITE PLANNING AND FILL NOTES" FOUND BELOW SHALL APPLY.

CODES

ALL FABRICATION, ERECTION, AND DESIGN OF STRUCTURAL MEMBERS SHALL MEET THE MINIMUM STANDARDS OF THE FOLLOWING CODES:

- A. INTERNATIONAL BUILDING CODE (IBC) 2015
- B. AMERICAN CONCRETE INSTITUTE (ACI); ACI 318-14 AND OTHER APPLICABLE ACI STANDARDS
- C. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) - STANDARD 7-10
- D. AMERICAN WELDING SOCIETY (AWS)
- E. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
- F. ASTM SPECIFICATIONS
- G. AMERICAN IRON AND STEEL INSTITUTE (AISI)
- H. WIRE REINFORCEMENT INSTITUTE (WRI)

DESIGN LOADS

- A. LATERAL SOIL PRESSURE 40 PSF
- B. WIND LOAD PER ASCE 7-10 110 MPH
- BASIC WIND SPEED C
- EXPOSURE I
- C. SEISMIC LOADS: PER IBC 2015
- BUILDING CATEGORY: I
- SEISMIC IMPORTANCE FACTOR, Is: 1.00
- MAPPED SPECTRAL RESPONSE ACCELERATION, Ss: 29.73%g
- MAPPED SPECTRAL RESPONSE ACCELERATION, S1: 9.19%g
- SITE CLASS: D
- SPECTRAL RESPONSE COEFFICIENT, Sds: .31
- SPECTRAL RESPONSE COEFFICIENT, Sd1: .147
- SEISMIC DESIGN CATEGORY: C

MATERIAL PROPERTIES

CONCRETE	
SLABS	4000 PSI
RETAINING WALLS & FOOTINGS	3500 PSI
REINFORCING	
TYPICAL	ASTM A-615 - GRADE 60
LOW ALLOY/WELDABLE	ASTM A-706 - GRADE 60
WELD	
STRUCTURAL STEEL	E70XX

SITE PLANNING AND FILL NOTES

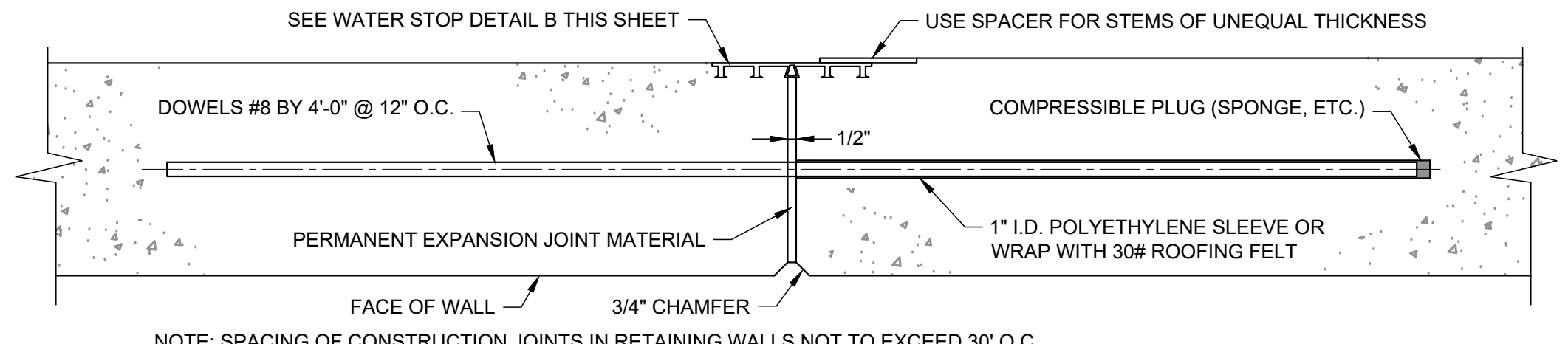
- IF ANY OF THE INFORMATION IN THIS SECTION IS IN CONFLICT WITH INFORMATION PROVIDED IN THE GEOTECHNICAL REPORT SITED, THE INFORMATION IN THE GEOTECHNICAL REPORT SHALL GOVERN.
- A. PROPER CONSTRUCTION DRAINAGE SHALL BE PROVIDED AND MAINTAINED AT ALL TIMES DURING FOUNDATION CONSTRUCTION. PONDING OF WATER AT THE SITE SHOULD BE AVOIDED DURING ALL PHASES OF CONSTRUCTION.
 - B. SCARIFY SITE TO MINIMUM DEPTH OF 6" TO REMOVE ALL EXISTING VEGETATION. REMOVAL SHALL EXTEND 5'-0" BEYOND BUILDING AREAS AND 2'-0" BEYOND PAVING AREAS.
 - C. SCARIFY AND RECOMPACT TOP 6" OF SUBGRADE TO MINIMUM OF 95% OF ASTM D698 OR ASTM D1557 MAXIMUM DENSITY. REMOVE AND REPLACE WEAK OR SOFT AREAS WITH COMPACTED SELECT FILL OR BASE MATERIALS.
 - D. BUILDING PAD SHALL BE RAISED TO PROPER ELEVATION USING SATISFACTORY SOILS COMPACTED IN 8" MAXIMUM LOOSE LIFTS TO 95% OF ASTM D698 MAXIMUM DENSITY. MOISTURE SHALL BE CONTROLLED TO ±3% OF OPTIMUM PER D698 DURING COMPACTION OPERATIONS.
 - E. FOOTING MAY BE BACKFILLED USING SATISFACTORY SOILS AS SPECIFIED COMPACTED IN 6" MAXIMUM LOOSE LIFTS TO 95% OF MAXIMUM DENSITY PER ASTM D698.
 - F. UTILITY TRENCHES WITHIN BUILDING OR PAVING AREAS SHALL BE FILLED PER THE ABOVE CRITERIA.
 - G. TREE STUMPS, IF ENCOUNTERED, SHALL BE COMPLETELY REMOVED AND BACKFILLED PER THE ABOVE CRITERIA.
 - H. DESIGN OF FOUNDATIONS AND STRUCTURAL COMPONENTS IN CONTACT WITH SOIL IS BASE ON THE RECOMMENDATIONS GIVEN IN THE FOLLOWING GEOTECHNICAL REPORT WHICH HAS BEEN INCLUDED IN SECTION _____ OF THE PROJECT MANUAL.
REPORT BY: LOI ENGINEERS DATE OF REPORT: JANUARY 10, 2002 REPORT NO.: LOI21-413

CONCRETE MIX DESIGNS

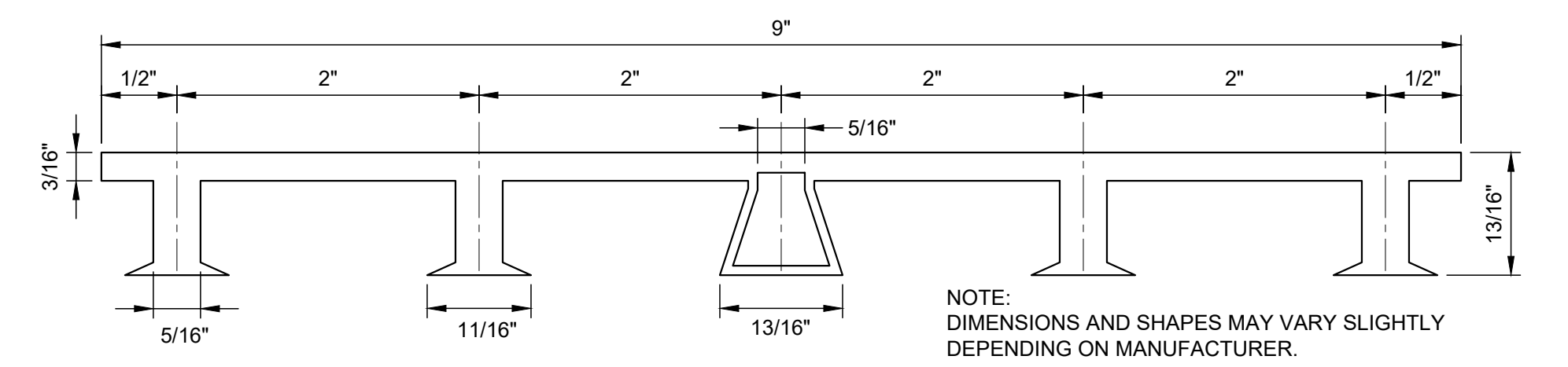
- ALL CONCRETE TO BE NORMAL WEIGHT CONCRETE, MAXIMUM FLY ASH CONTENT TO BE NO MORE THAN 25% OF TOTAL CEMENTITIOUS WEIGHT
- A. SLABS-ON-GRADE
 - 1. MINIMUM COMPRESSIVE STRENGTH: 4,000 psi @ 28 DAYS
 - 2. MAXIMUM W/C RATIO: 0.45
 - 3. SLUMP LIMIT: 4 INCHES ±1 INCH
 - 4. AIR CONTENT: DO NOT ALLOW AIR CONTENT OF TROWEL-FINISHED FLOORS NOT EXPOSED TO THE ELEMENTS TO EXCEED 3%
 - B. RETAINING WALLS, CONTINUOUS FOOTINGS
 - 1. MINIMUM COMPRESSIVE STRENGTH: 3,500 psi @ 28 DAYS
 - 2. MAXIMUM W/C RATIO: 0.50
 - 3. SLUMP LIMIT: 5 INCHES FOR CONCRETE WITH VERIFIED SLUMP OF 2 TO 4 INCHES BEFORE ADDING HIGH-RANGE WATER-REDUCING ADMIXTURE OR PLASTICIZING ADMIXTURE, ±1 INCH

REINFORCEMENT AND MISC. STEEL

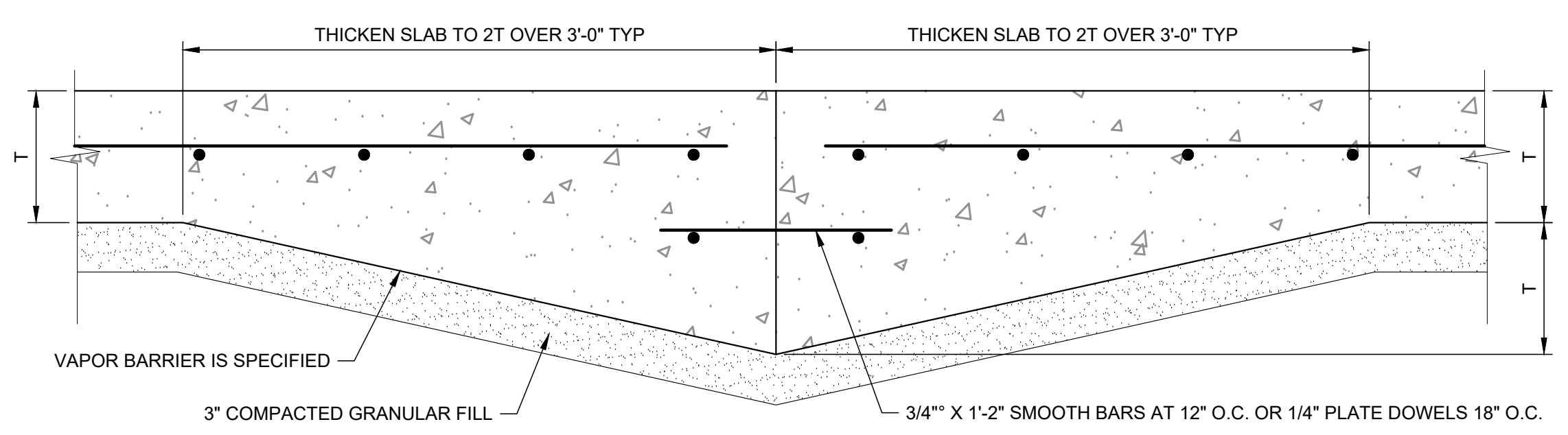
- A. UNLESS OTHERWISE NOTED, CONCRETE COVER OVER STEEL REINFORCEMENT SHALL CONFORM TO THE MINIMUMS REQUIRED BY THE CURRENT EDITION OF ACI 318.
- B. REINFORCEMENT DETAILING AND PLACEMENT SHALL CONFORM TO ACI 318 AND ACI 315 EXCEPT WHERE OTHERWISE INDICATED.



A RETAINING WALL EXPANSION/CONSTRUCTION JOINT DETAIL
S106 SCALE: 1 1/2" = 1'

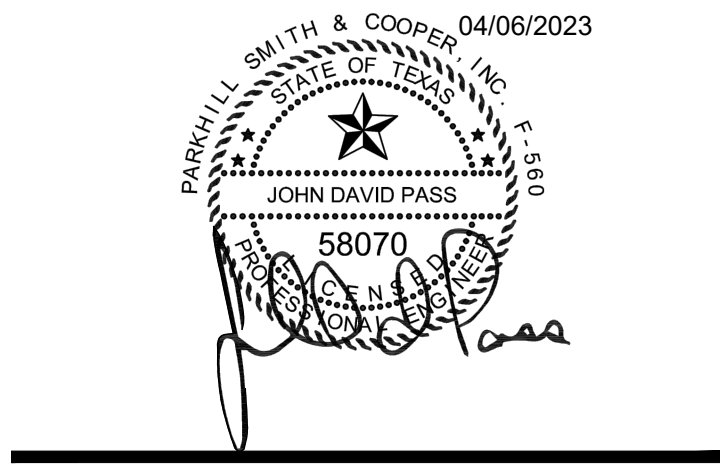


B PVC WATERSTOP DETAIL
S106 SCALE: 1:1



D2 SLAB-ON-GRADE CONSTRUCTION JOINT
SCALE: NONE

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HEADWORKS
BARSREEN REPLACEMENT
EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

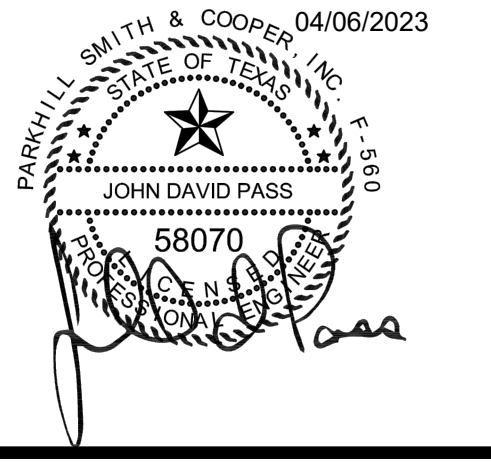
KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

RETAINING WALL
STRUCTURAL
DETAILS
S106



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HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

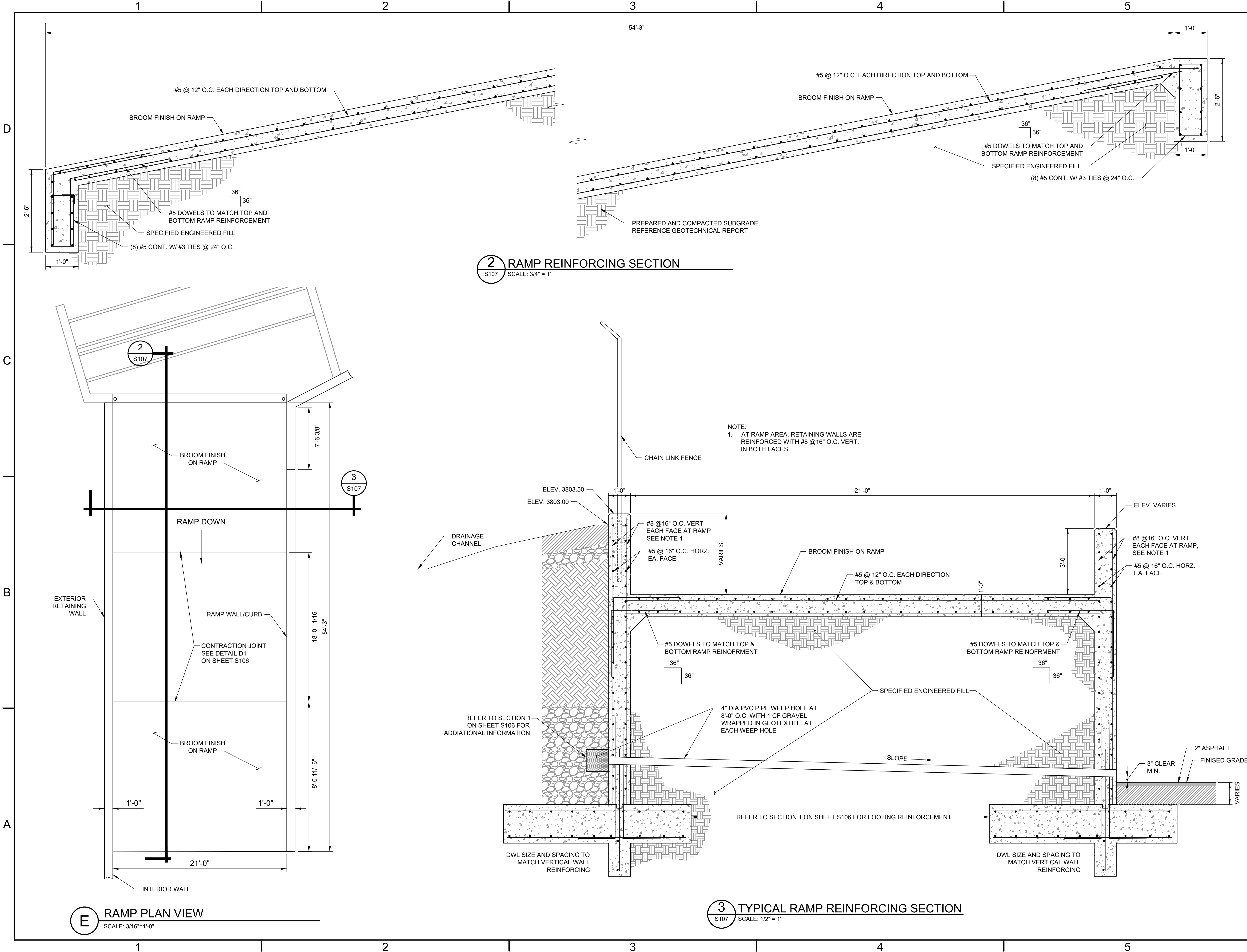
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**RETAINING WALL
CONCRETE RAMP
SECTIONS AND DETAILS**

S107



FILE NAME: A:\202\13065.21\03_DSGN01_DWG070_STRUCTS\107-3065.dwg LAYOUT NAME: S107 PRINTED: Thursday, April 06, 2023 - 8:04pm USER: osanchez

FILE NAME: A:\2021\3065.21103_DSGND1_DWG070_STRUCTS\108-3065.dwg LAYOUT NAME: S108 PRINTED: Thursday, April 06, 2023 - 8:05pm USER: osanchez

GENERAL NOTES FOR POST-INSTALLED ANCHORS

1) EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES AS PROVIDED BY HILTI, INC. CONTACT HILTI AT (800) 879-8000 FOR PRODUCT RELATED QUESTIONS.

a) ANCHORAGE TO CONCRETE

- i) ADHESIVE ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE:
 - (1) ADHESIVES FOR USE:
 - (a) HILTI HIT-HY 200 V3 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT AND VACUUM WITH HAS THREADED ROD PER ICC ESR-4868
 - (2) STEEL ELEMENTS FOR USE WITH ADHESIVE:
 - (a) HILTI HAS-V-36 HDG GRADE 36 CARBON STEEL ROD
 - ii) BASIS OF DESIGN INCLUDES THE FOLLOWING DESIGN PARAMETERS:
 - (1) CRACKED CONCRETE
 - (2) WATER-SATURATED CONCRETE
 - (3) WATER-FILLED HOLES
 - (4) BASE MATERIAL TEMPERATURE OF 23-104 DEGREES FAHRENHEIT
 - (5) ALLOWABLE WITH HAMMER-DRILL, HOLLOW DRILL BIT SYSTEM, AND CORE DRILLING METHODS

2) ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY HILTI OR OTHER SUCH METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS THAT HAVE BEEN SEALED BY ANOTHER LICENSED ENGINEER DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF MEETING THE PERFORMANCE OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE, INSTALLATION TEMPERATURE, MOISTURE CONDITION OF CONCRETE, AND DRILLING METHODS.

3) USE OF DIAMOND CORE BIT WITH ROUGHENING TOOL FOR ANCHOR HOLES REQUIRES APPROVAL FROM ENGINEER OF RECORD PRIOR TO DRILLING. UNLESS OTHERWISE SHOWN IN THE DRAWINGS, ALL HOLES SHALL BE DRILLED PERPENDICULAR TO THE CONCRETE SURFACE.

4) INSTALL ANCHORS PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.

5) FOR PROJECTS MEETING IBC 2012 OR LATER, ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION IS REQUIRED FOR ALL INSTALLERS OF ADHESIVE ANCHORS IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATION. THE HILTI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM (HAAICP) IS AN APPROVED EQUIVALENT.

6) THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL ANCHOR PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF ANCHOR INSTALLATION.

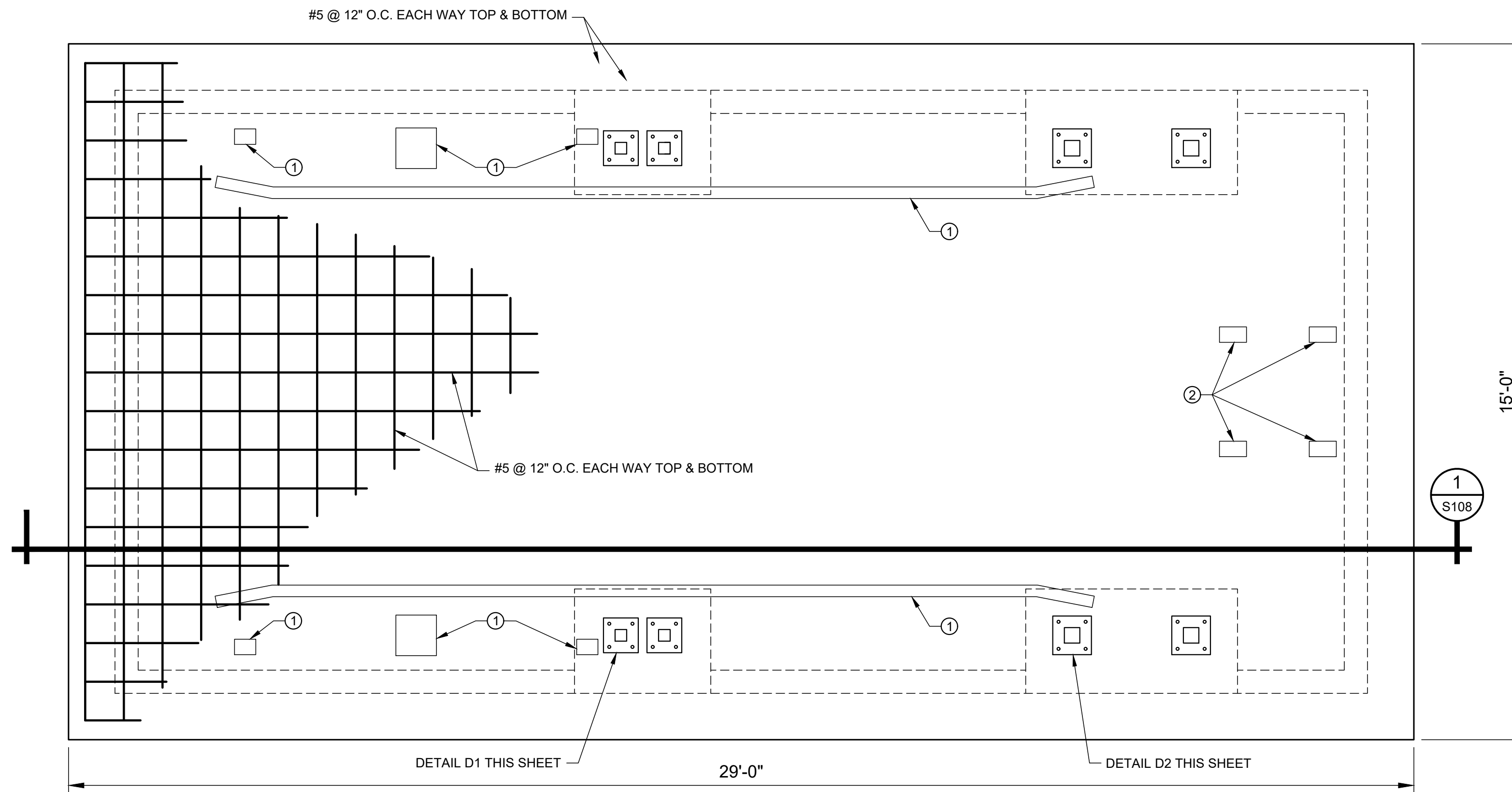
7) ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.

8) EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE ANCHORS BY HILTI PS 1000 OR OTHER GPR, X-RAY, CHIPPING OR OTHER APPROVED MEANS.

KEY NOTES

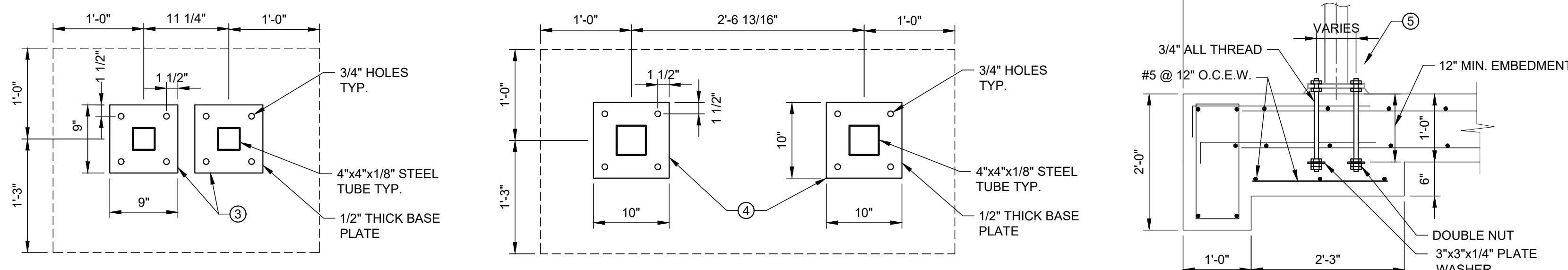
AS INDICATED BY: (00)

1. POST INSTALLED ANCHORS FOR THE LEVEL LODOR DUMPSTER GUIDE RAIL DETAIL. ALL ANCHORS TO BE 5/8" DIAMETER HAS-V-36 OR AM THREADED ROD - GRADE 8.8 HDG AT A MAXIMUM SPACING OF 24" O.C. DRILL AND EPOXY ANCHORS INTO SLAB-ON-GRADE A MINIMUM OF 7".
2. POST INSTALLED ANCHORS FOR THE LEVEL LODOR ADJUSTABLE PIVOT DETAIL BASE PLATE AND THE LEVEL LODOR HOIST SUPPORT DETAIL BASE PLATE. ALL ANCHORS TO BE 3/4" DIAMETER HAS-V-36 OR AM THREADED ROD - GRADE 8.8 HDG. DRILL AND EPOXY ANCHORS INTO SLAB-ON-GRADE A MINIMUM OF 7".
3. LEVEL LODOR, EXHAUST DUCT SUPPORT FOOTINGS. REFER TO C110 & C111 FOR SUPPORT DETAILS.
4. LEVEL LODOR, TROUGH SUPPORT FOOTINGS. REFER TO C110 & C111 FOR SUPPORT DETAILS.
5. TYPICAL FOOTING SECTION FOR DUCT AND TROUGH SUPPORTS.



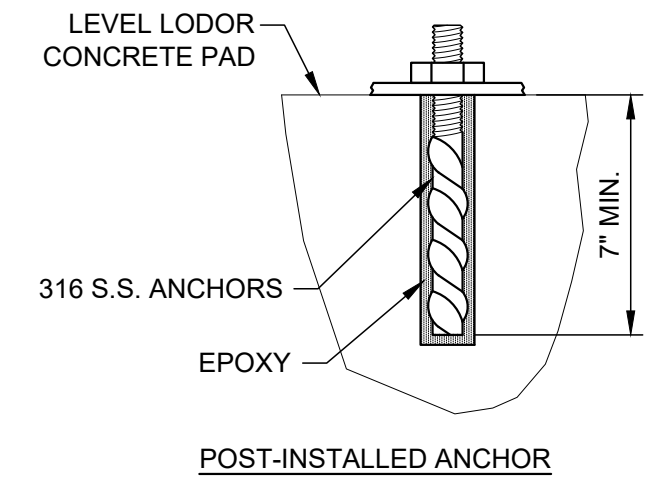
F LEVEL LODOR REINFORCED CONCRETE SLAB

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



D4 ANCHOR DETAIL TYP.

SCALE: NONE



D1 FOOTING DETAIL

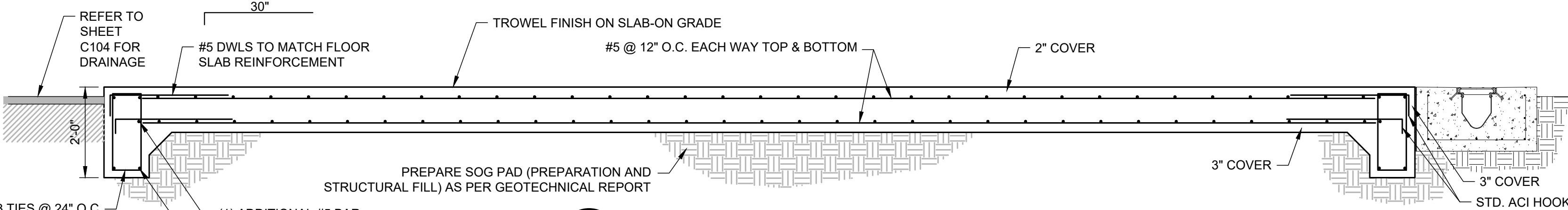
SCALE: 1"=1'-0"

D2 FOOTING DETAIL

SCALE: 1"=1'-0"

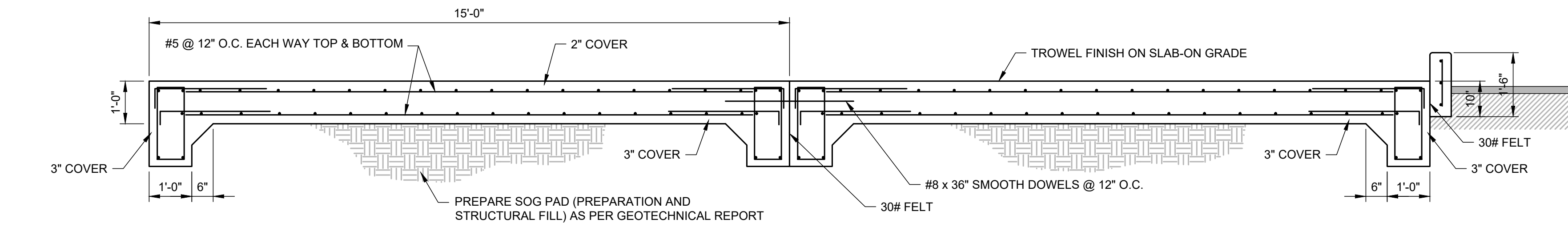
D3 FOOTING SECTION

SCALE: 1"=1'-0"



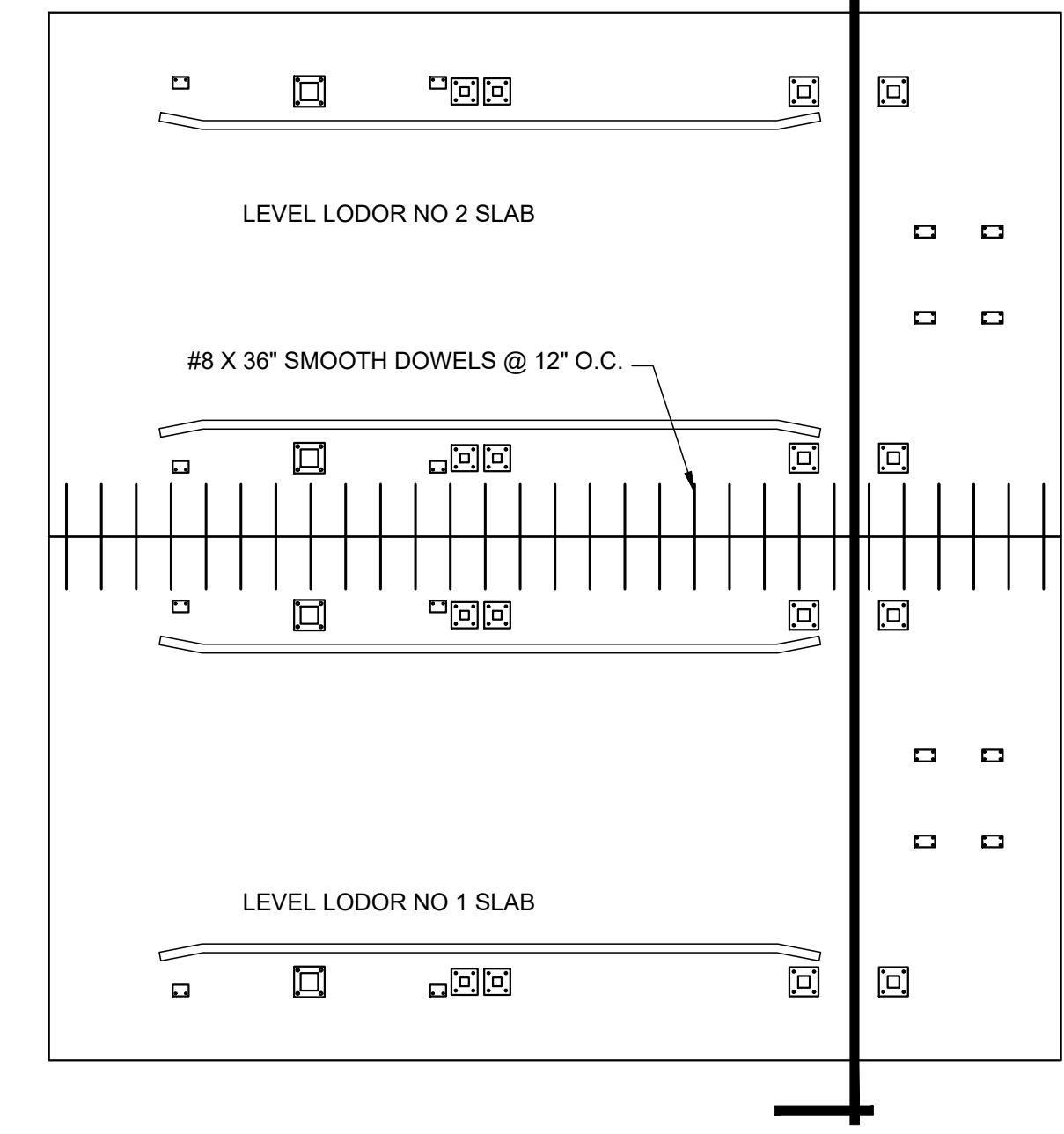
1 LEVEL LODOR SLAB REINFORCING SECTION

S108 SCALE: 1/2" = 1'



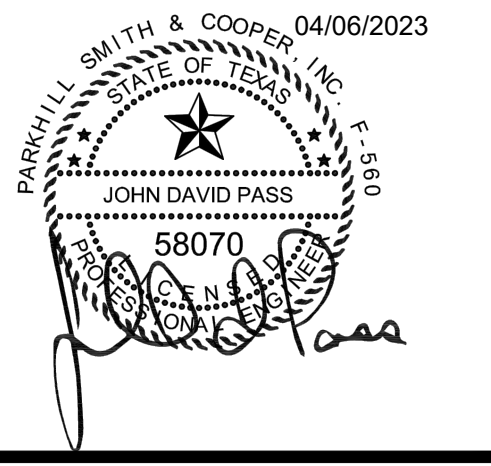
2 LEVEL LODOR SLAB REINFORCING SECTION

S108 SCALE: 1/2" = 1'



G LEVEL LODOR REINFORCED CONCRETE SLABS

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



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KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

0 1"

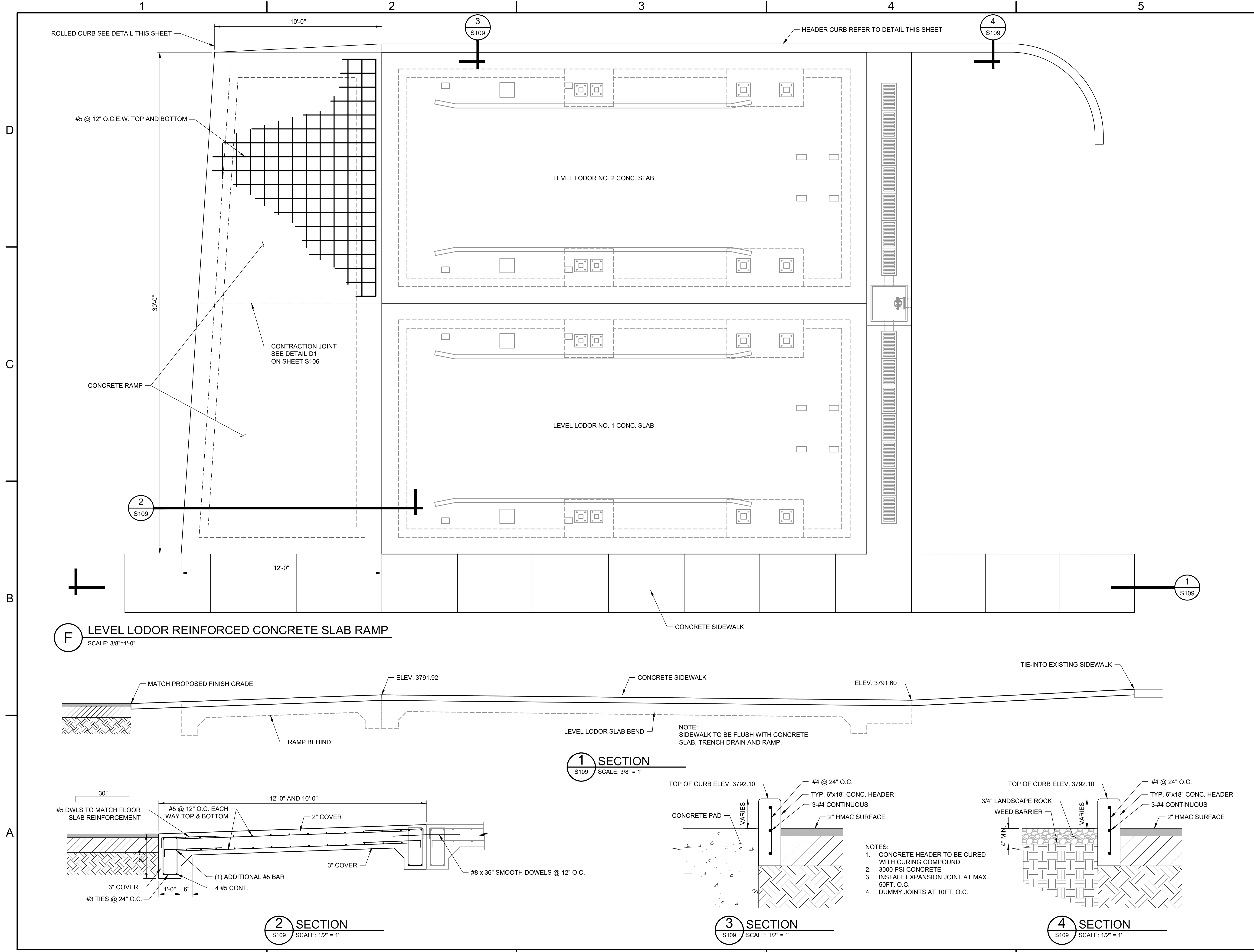
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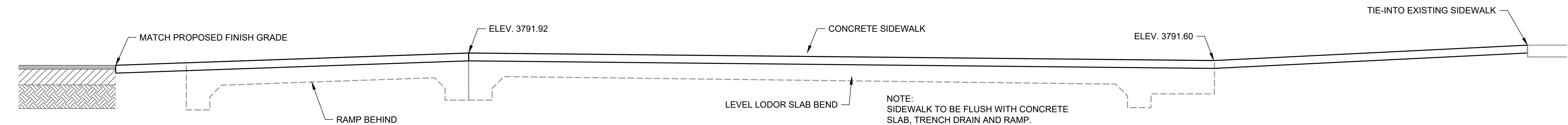
ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

LEVEL LODOR CONCRETE SLAB PLAN & SECTIONS

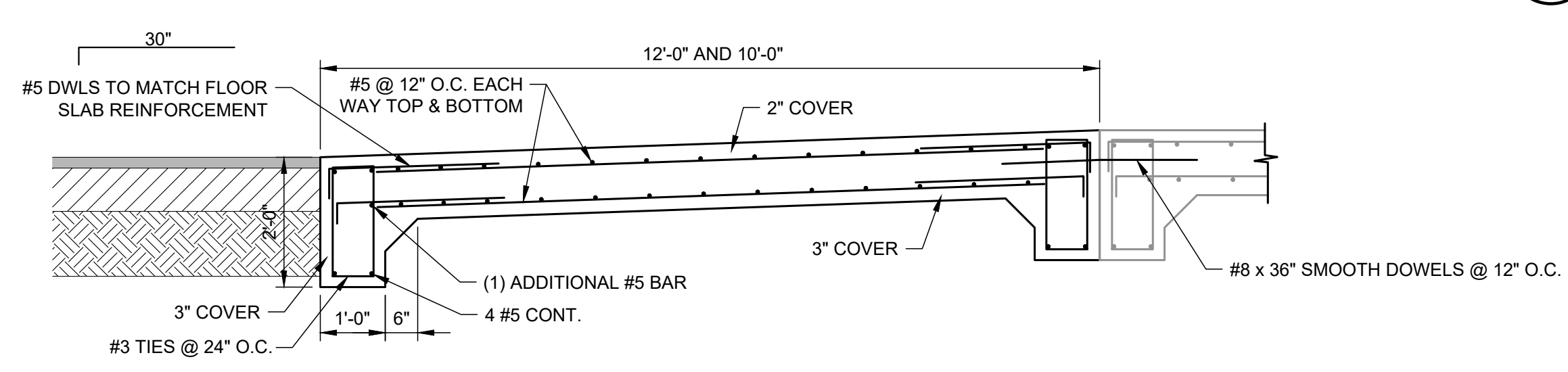
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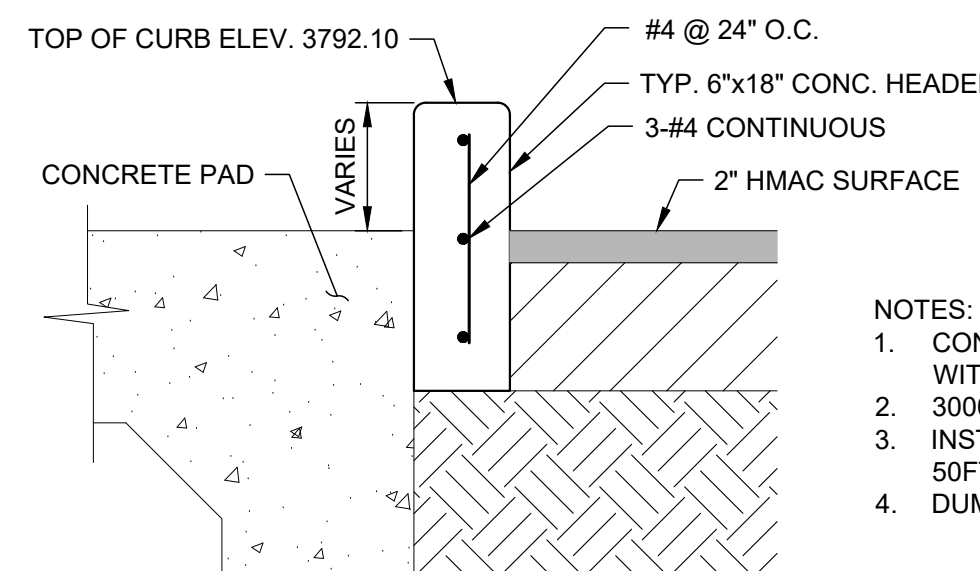
F LEVEL LODOR REINFORCED CONCRETE SLAB RAMP
SCALE: 3/8"=1'-0"



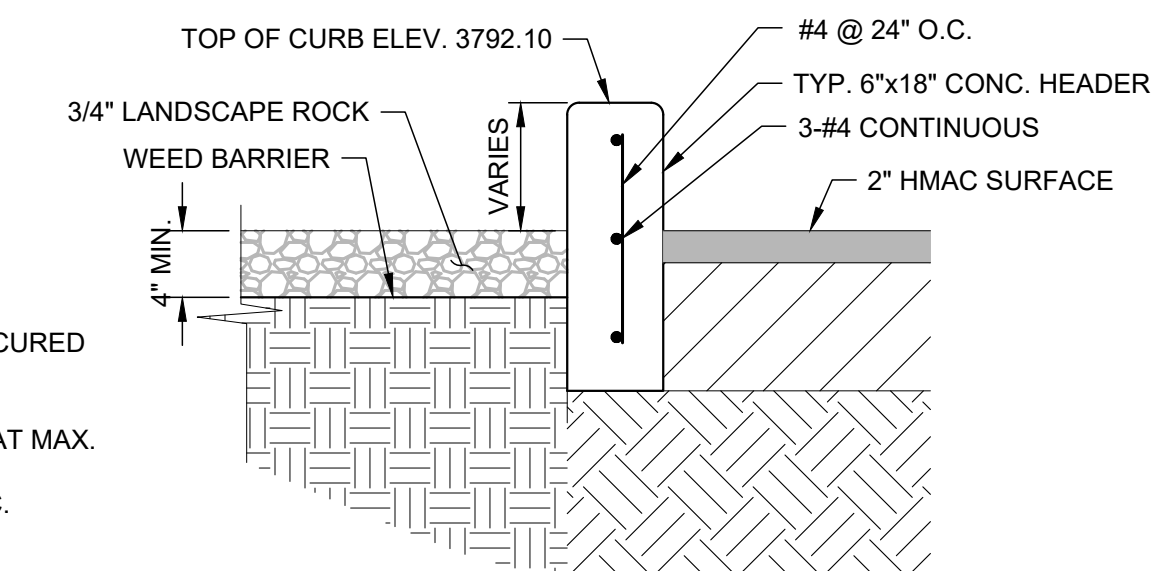
1 SECTION
S109 SCALE: 3/8" = 1'



2 SECTION
S109 SCALE: 1/2" = 1'



3 SECTION
S109 SCALE: 1/2" = 1'



4 SECTION
S109 SCALE: 1/2" = 1'

- NOTES:
1. CONCRETE HEADER TO BE CURED WITH CURING COMPOUND
 2. 3000 PSI CONCRETE
 3. INSTALL EXPANSION JOINT AT MAX. 50FT. O.C.
 4. DUMMY JOINTS AT 10FT. O.C.



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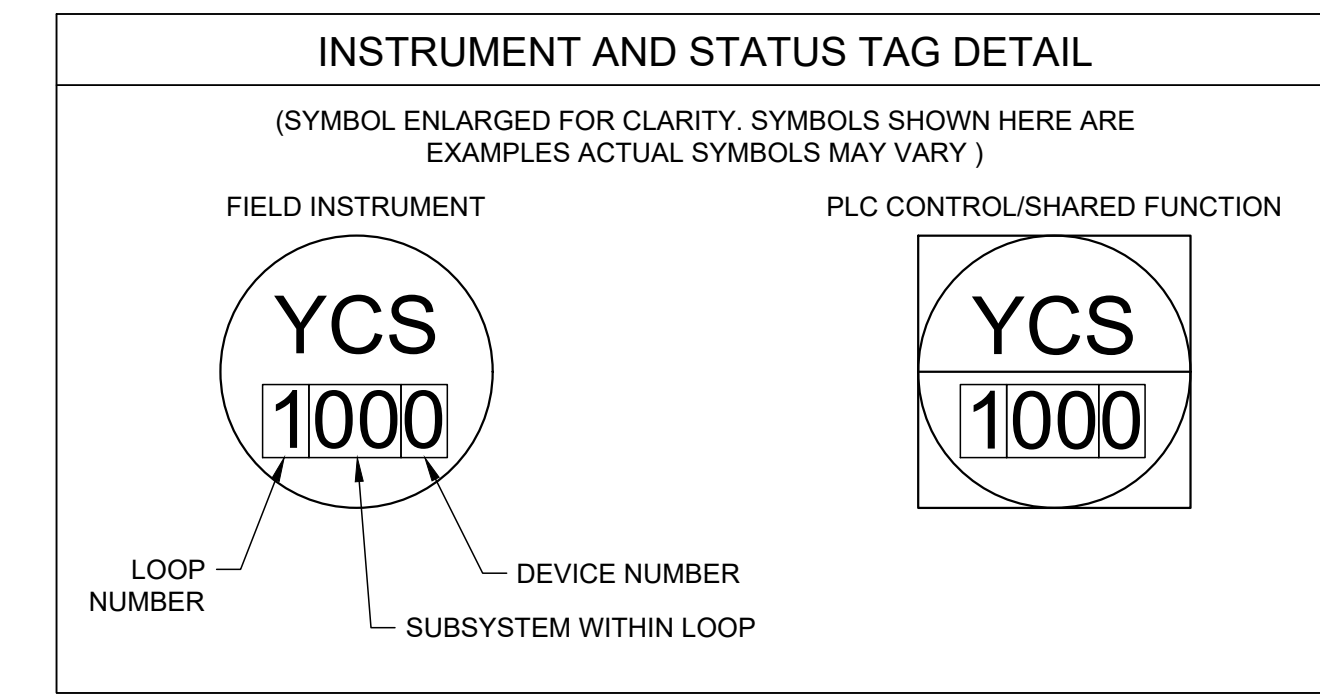
ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

LEVEL LODOR
CONCRETE SLAB RAMP
PLAN & SECTIONS

GENERAL NOTES

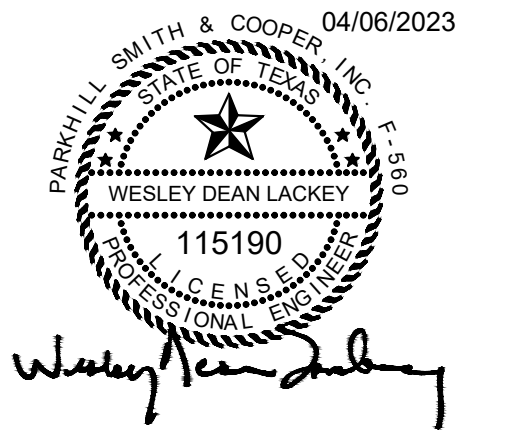
- PROCESS AND INSTRUMENTATION DIAGRAMS (P&IDs) ARE PROCESS FLOW AND CONTROL GUIDES. THEY DO NOT NECESSARILY REFLECT THE ACTUAL SPACE RELATIONSHIP OR ORIENTATION OF SOME ITEMS. P&IDs ARE NOT TO BE INTERPRETED AS PIPING SCHEMATICS OR WIRING DIAGRAMS.
- CONTRACTOR TO INTEGRATE ALL EQUIPMENT INDICATED AS NEW AND ALL EQUIPMENT INDICATED AS REMOVE AND REPLACE INTO EXISTING PLANT CONTROL SYSTEM. CONTRACTOR TO PROVIDE SYSTEM INTEGRATION SERVICES TO ADDRESS REMOVED EQUIPMENT/SYSTEMS AS WELL AS NEWLY INSTALLED EQUIPMENT/SYSTEMS. CONTRACTOR TO INTEGRATE NEWLY INSTALLED SYSTEMS INTO EXISTING PLANT CONTROL SYSTEM TO INCLUDE OPERATOR SCREEN MODIFICATION, ALARMING, AND TRENDING WHERE APPLICABLE.
- CONTRACTOR SHALL CONSULT WITH THE PROJECT SPECIFICATION SECTIONS FOR CONTROL STRATEGIES SPECIFIC TO EQUIPMENT/SYSTEMS INSTALLED. CONTRACTOR TO COORDINATE WITH EQUIPMENT/SYSTEMS MANUFACTURERS TO BE INSTALLED FOR INTERCONNECTION WHERE APPLICABLE OF SYSTEMS REQUIRED TO PARTLY OR FULLY FUNCTION AS A SEMI-INTEGRATED OR FULLY INTEGRATED SYSTEM TO ACHIEVE INTENDED RESULTS AS DESCRIBED WITHIN THE PROJECT DOCUMENTS AND DRAWINGS WHILST ADHERING TO MANUFACTURER REQUIREMENTS, CAPABILITIES AND LIMITATIONS PER EQUIPMENT/SYSTEM INSTALLED.
- CONTRACTOR SHALL CONSULT WITH EQUIPMENT MANUFACTURER(S) AS TO COMMUNICATION REQUIREMENTS OF OEM CONTROLLER EQUIPMENT ACCOMPANYING AUTOMATED SYSTEMS INSTALLED WITHIN THIS PROJECT.
- CONTRACTOR TO COORDINATE WITH PLANT PERSONNEL FOR COMMUNICATION SCHEMES AND/OR TOPOLOGY CURRENTLY UTILIZED WITHIN THE EXISTING PLANT CONTROL SYSTEM FOR TO QUALIFY CORRECT STANDARDS AND COMMUNICATION PROTOCOLS.
- CONTRACTOR SHALL COORDINATE REMOVAL AND REPLACEMENT EQUIPMENT REQUIREMENTS WITH EXISTING INPUT/OUTPUT SCHEMES UTILIZED WITHIN THE PLANT CONTROL SYSTEM AND SUB-SYSTEMS ASSOCIATED WITH AREAS IDENTIFIED TO RECEIVE NEW AND/OR REMOVE AND REPLACE WITH NEW EQUIPMENT. INPUT/OUTPUT REQUIREMENTS OF NEW OR NEWLY REPLACED EQUIPMENT TO MATCH CONTROL VOLTAGES AS INSTITUTED BY THE EXISTING PLANT CONTROL SYSTEM.
- CONTRACTOR SHALL INTEGRATE ALL NEW EQUIPMENT INTO EXISTING PLANT CONTROL SYSTEM EITHER BY DATA COMMUNICATION CONNECTION AND/OR BY INPUT/OUTPUT CONNECTION TO EXISTING LOCATIONS AS IDENTIFIED WITHIN THE PROJECT DRAWINGS.
- CONTRACTOR TO FIELD INVESTIGATE ALL ITEMS BEING MODIFIED WITHIN THE PROJECT AND IDENTIFY ANY ALTERNATE REQUIREMENTS NEEDED FOR NEW OR NEWLY REPLACED EQUIPMENT. CONTRACTOR SHALL INCLUDE FOUND ITEMS WITHIN PROJECT COMPLETION.
- CONTRACTOR TO PROVIDE A FULLY FUNCTIONAL CONTROL SYSTEM ONCE NEW AND NEWLY REPLACED EQUIPMENT HAS BEEN INSTALLED. CONTROL SYSTEM MODIFICATIONS AND NEW ITEMS INSTALLED SHALL PERFORM RELIABLY AND AS INTENDED BASED ON ORIGINAL PLANT SYSTEM DESIGN AS WELL AS THAT OF NEW METHODS ACHIEVED WITH NEWLY INSTALLED EQUIPMENT.
- CONTRACTOR TO PROVIDE PLANT PERSONNEL TRAINING ON NEW CONTROL AND MODIFIED CONTROL SYSTEM ALGORITHMS, OPERATOR INTERFACES AND LOCAL OPERATOR PANELS.
- CONTRACTOR TO COORDINATE WITH PLANT OPERATIONS PRIOR TO REMOVAL OF AUTOMATED SYSTEMS/SUBSYSTEMS AND EQUIPMENT VITAL TO THE PROPER OVERALL OPERATION OF THE PLANT.
- CONTRACTOR TO QUALIFY PROPER AUTOMATED OPERATION OF NEW AND NEWLY REPLACED EQUIPMENT BEFORE PLACING EQUIPMENT INTO FULL-TIME PLANT OPERATION.

INSTRUMENT FUNCTION IDENTIFICATION					
LETTER	FIRST LETTER(S)		SUCCEEDING LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM	AGITATOR	
B	BURNER FLAME		USERS CHOICE	BLOWER	USERS CHOICE
C	CONDUCTIVITY			CONTROL	
D	DENSITY(S.G.)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAUGE, FIRE, SMOKE		GLASS	GATE	
H	HAND/MANUAL				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE	TIME RATE CHANGE		CONTROL STATION	
L	LEVEL		LIGHT(PILOT)		LOW
M	MOTION/MOTOR MOISTURE	MOMENTARY			MIDDLE
N	TORQUE		USERS CHOICE	USERS CHOICE	USERS CHOICE
O	USERS CHOICE		ORIFICE		
P	PRESSURE(OR VACUUM)		POINT(TEST CONNECTION)	PUMP	
Q	QUANTITY OR EVENT	INTEGRATE	INTEGRATE		
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION		MULTIFUNCTION
V	VISCOSITY, VIBRATION			VALVE, DAMPER	VALVE, DAMPER
W	WEIGHT OR FORCE	WELL			
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATUS			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	



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HEADWORKS
BARSREEN REPLACEMENT**

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EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

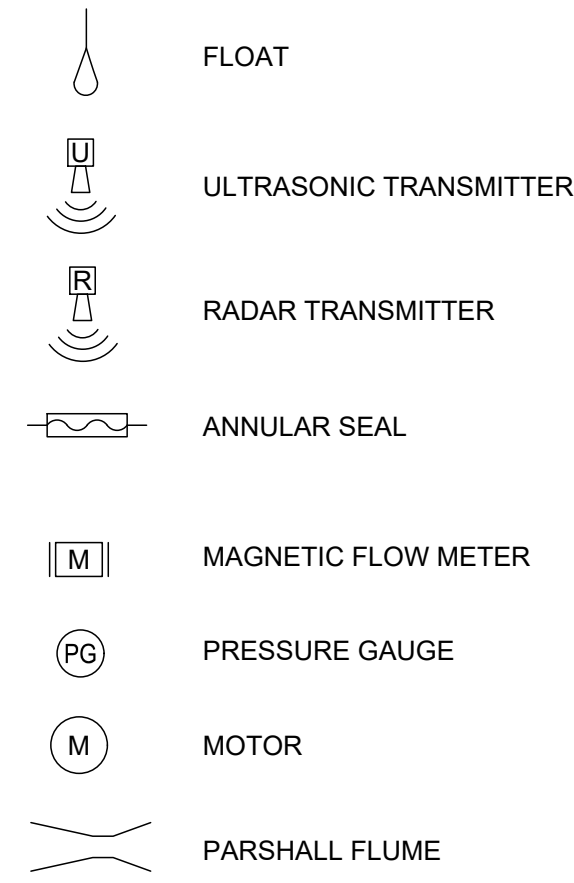
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NO	DATE	DESCRIPTION	PROJECT NO:
			3065.21

**P&ID
GENERAL NOTES**

P001

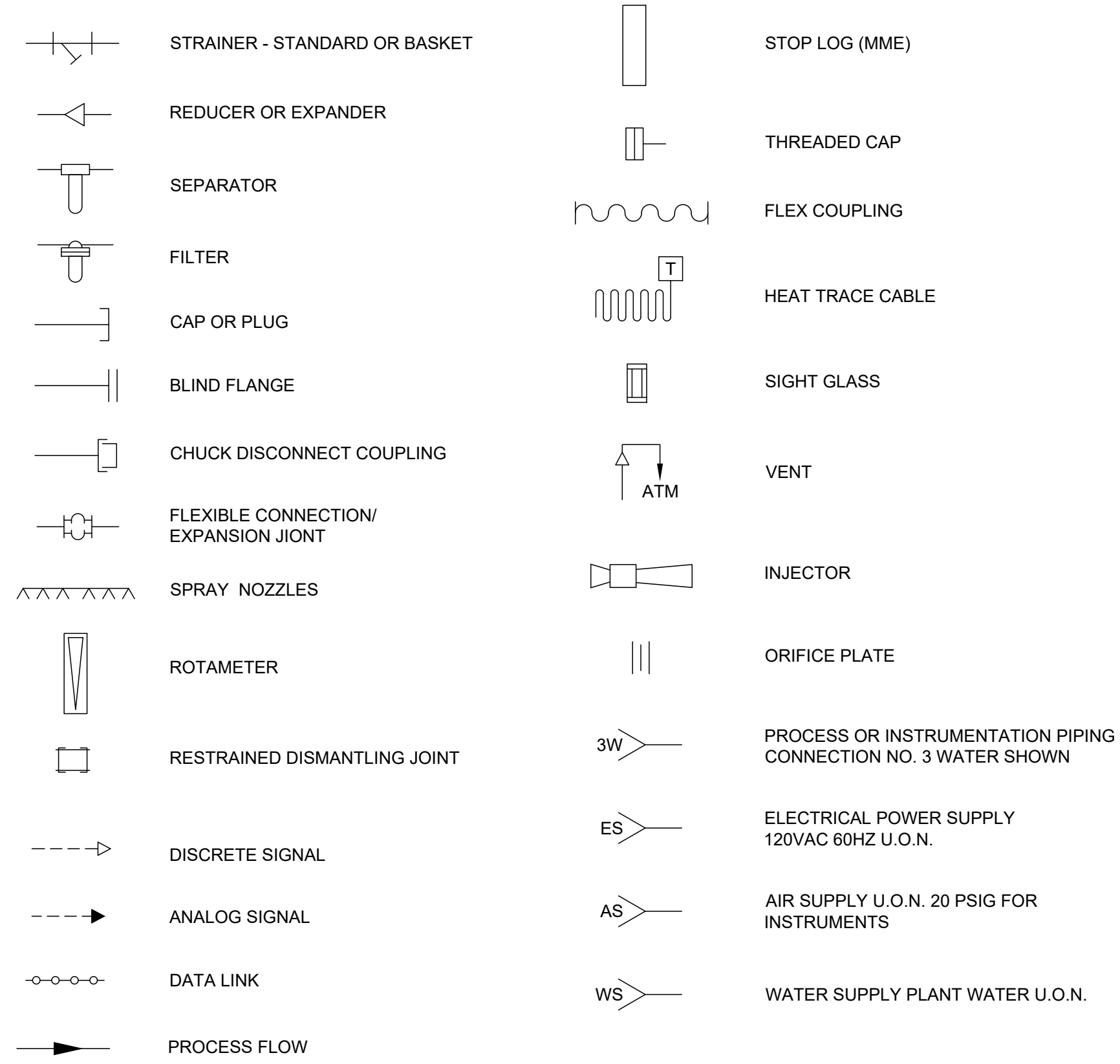
INSTRUMENT IDENTIFICATION AND SYMBOLS LEGENDS



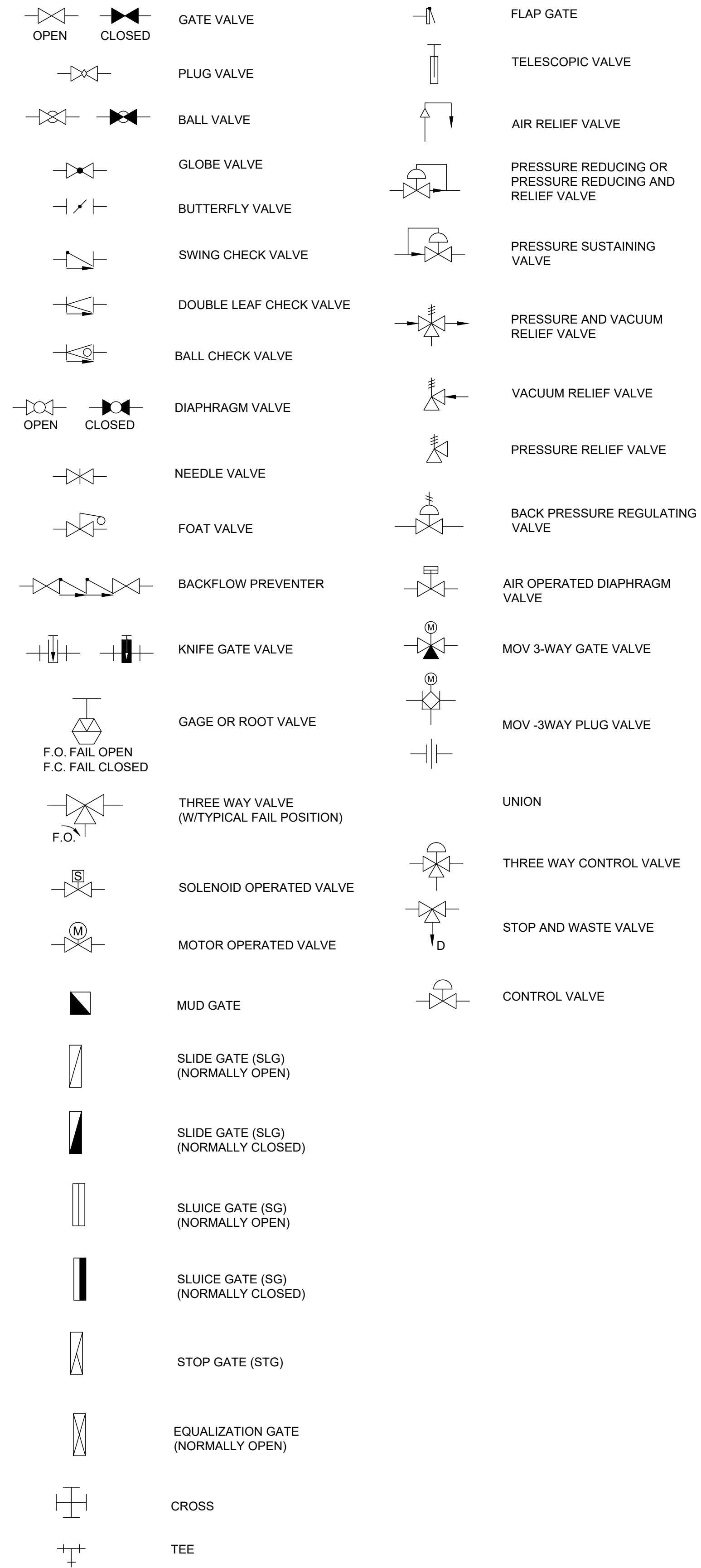
PROCESS STREAM IDENTIFICATION

AA	AIR, LOW PRESSURE
CLS	CHLORINE SOLUTION
D	DRAIN
DEW	DEWATERING (PLANT)
FA	FOUL AIR
GR	GRIT
GS	GRIT SCREENINGS
IPW	IN-PLANT WASTEWATER
PA	PREAERATION
PI	PRIMARY CLARIFIER INFLUENT
RAS	RE-ACTIVATED SLUDGE
RS	RAW SEWAGE
SCN	BAR SCREENINGS
SEP	SEPTAGE
SA	AIR, HIGH PRESSURE (SERVICE AIR)

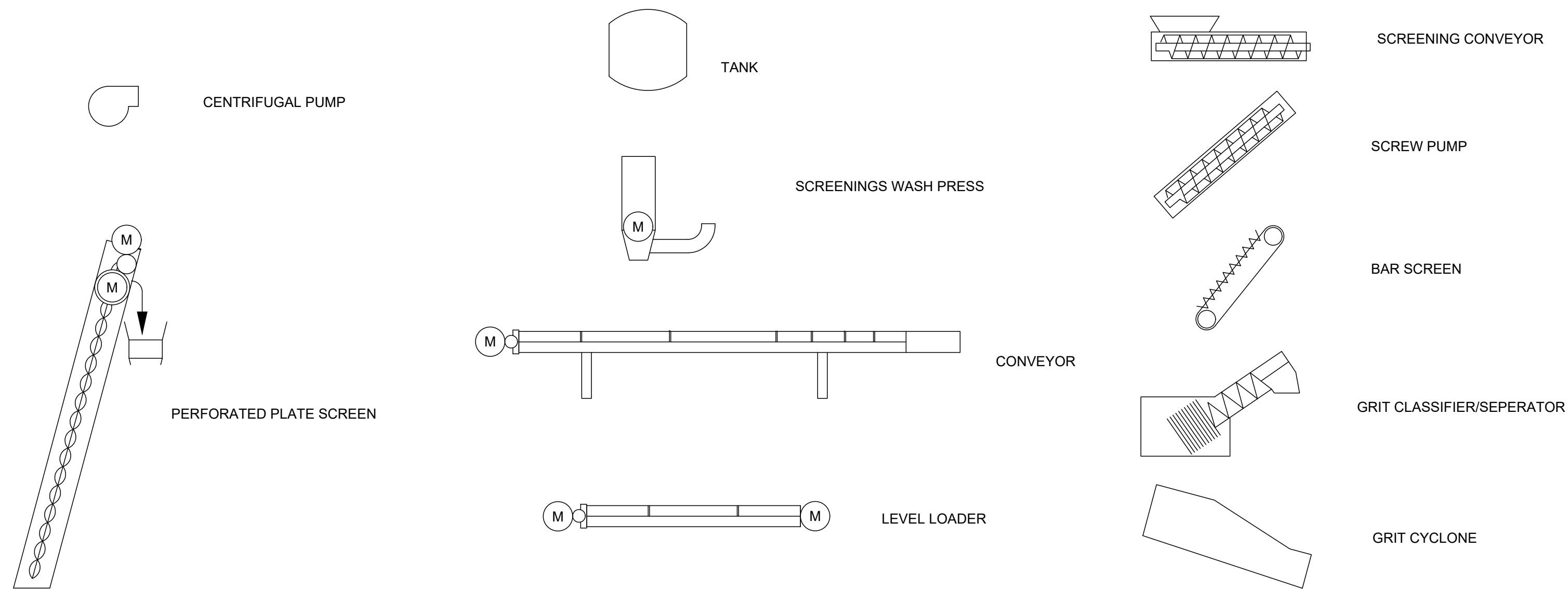
PROCESS AND SIGNAL LINE SYMBOLS



VALVE AND ACTUATOR SYMBOLS

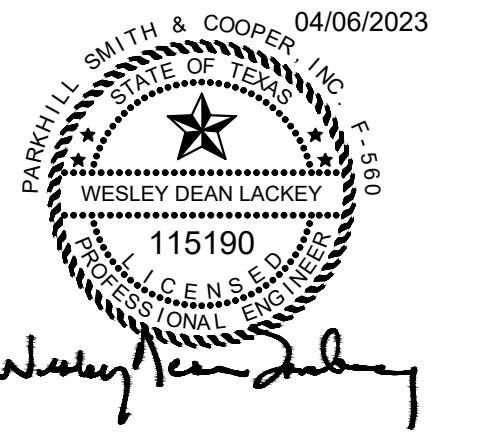


MISCELLANEOUS MECHANICAL EQUIPMENT SYMBOLS



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**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

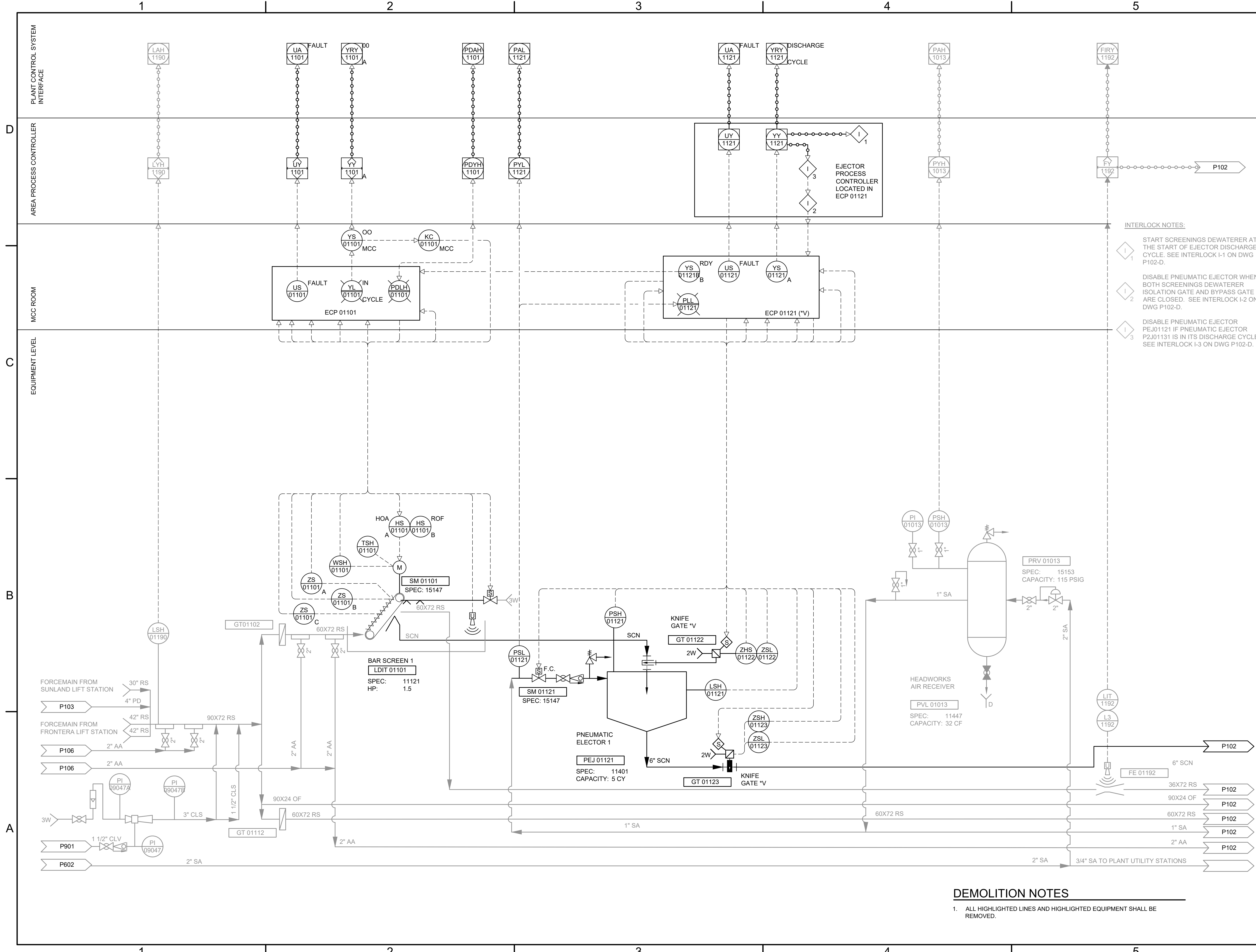
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

**P&ID
LEGEND AND SYMBOLS**

P002

FILE NAME: A:\2021\3065.21103_DSGM01_DWG\050_CIVIL\P101-D-3065.dwg LAYOUT NAME: P101-D PRINTED: Thursday, April 06, 2023 - 7:40pm USER: osanchez

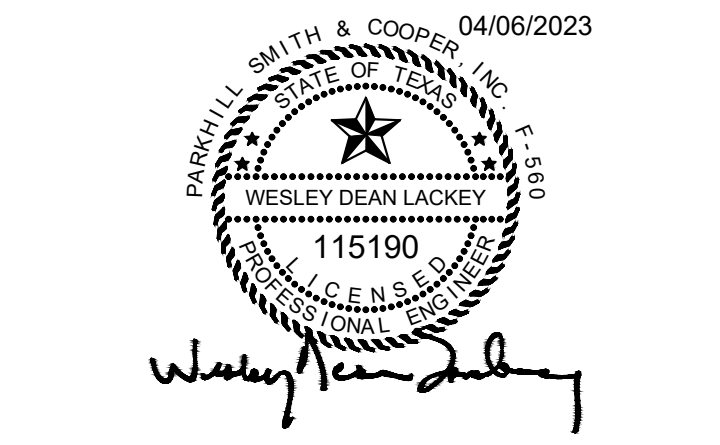


INTERLOCK NOTES:

- I-1 START SCREENINGS DEWATERER AT THE START OF EJECTOR DISCHARGE CYCLE. SEE INTERLOCK I-1 ON DWG P102-D.
- I-2 DISABLE PNEUMATIC EJECTOR WHEN BOTH SCREENINGS DEWATERER ISOLATION GATE AND BYPASS GATE ARE CLOSED. SEE INTERLOCK I-2 ON DWG P102-D.
- I-3 DISABLE PNEUMATIC EJECTOR PEJ01121 IF PNEUMATIC EJECTOR P2J01131 IS IN ITS DISCHARGE CYCLE. SEE INTERLOCK I-3 ON DWG P102-D.

DEMOLITION NOTES

1. ALL HIGHLIGHTED LINES AND HIGHLIGHTED EQUIPMENT SHALL BE REMOVED.



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

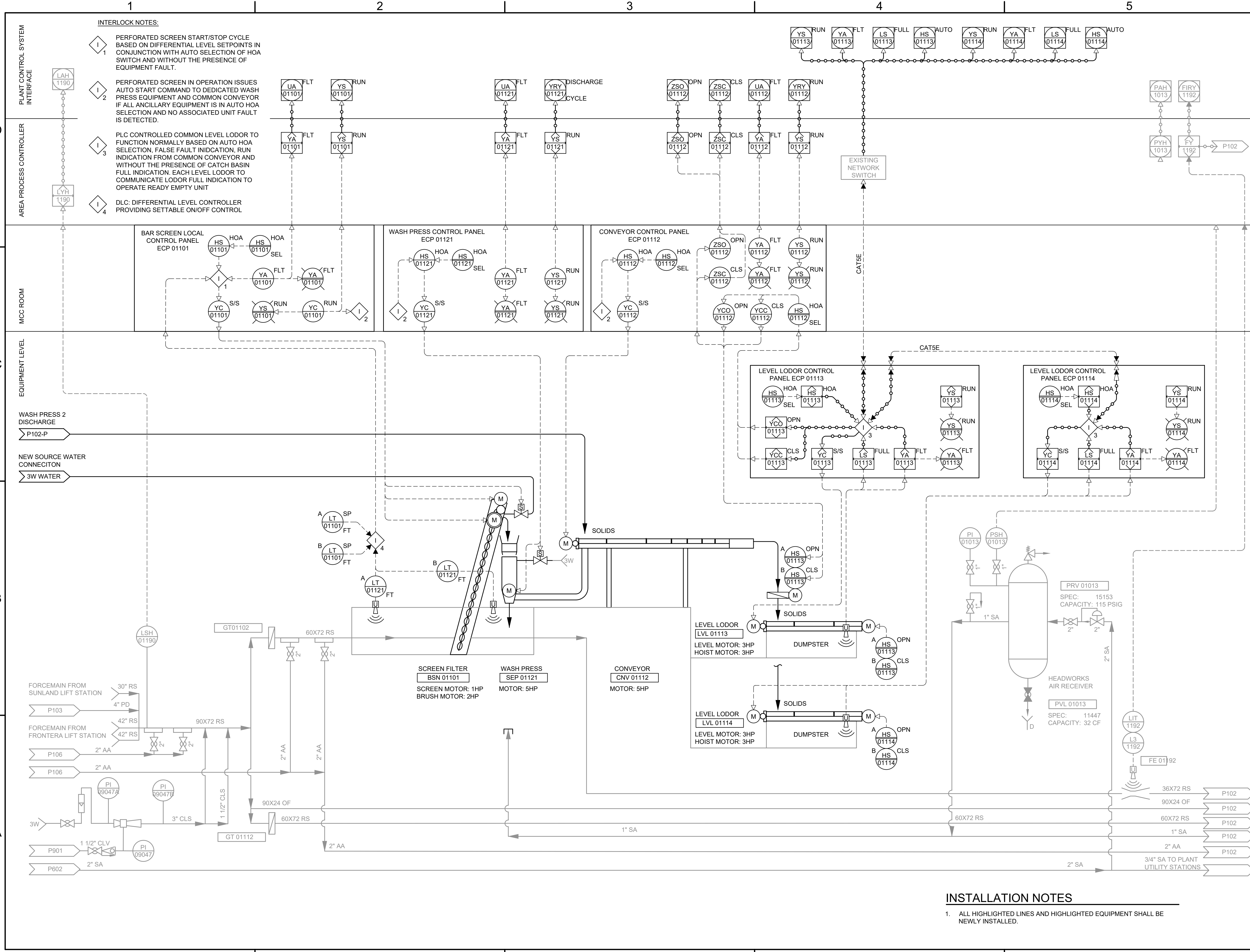
0 1"

IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

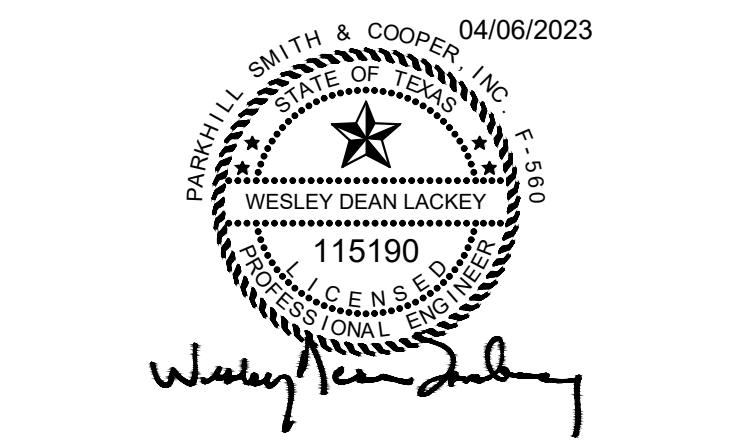
HEADWORKS
SCREENING
DEMOLITION

FILE NAME: A:\2021\3065.21\103_DSGND1_DWG\050_CVILP101-P-3065.dwg LAYOUT NAME: P101-P PRINTED: Thursday, April 06, 2023 - 7:40pm USER: osanchez



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JOHN T. HICKERSON HEADWORKS BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

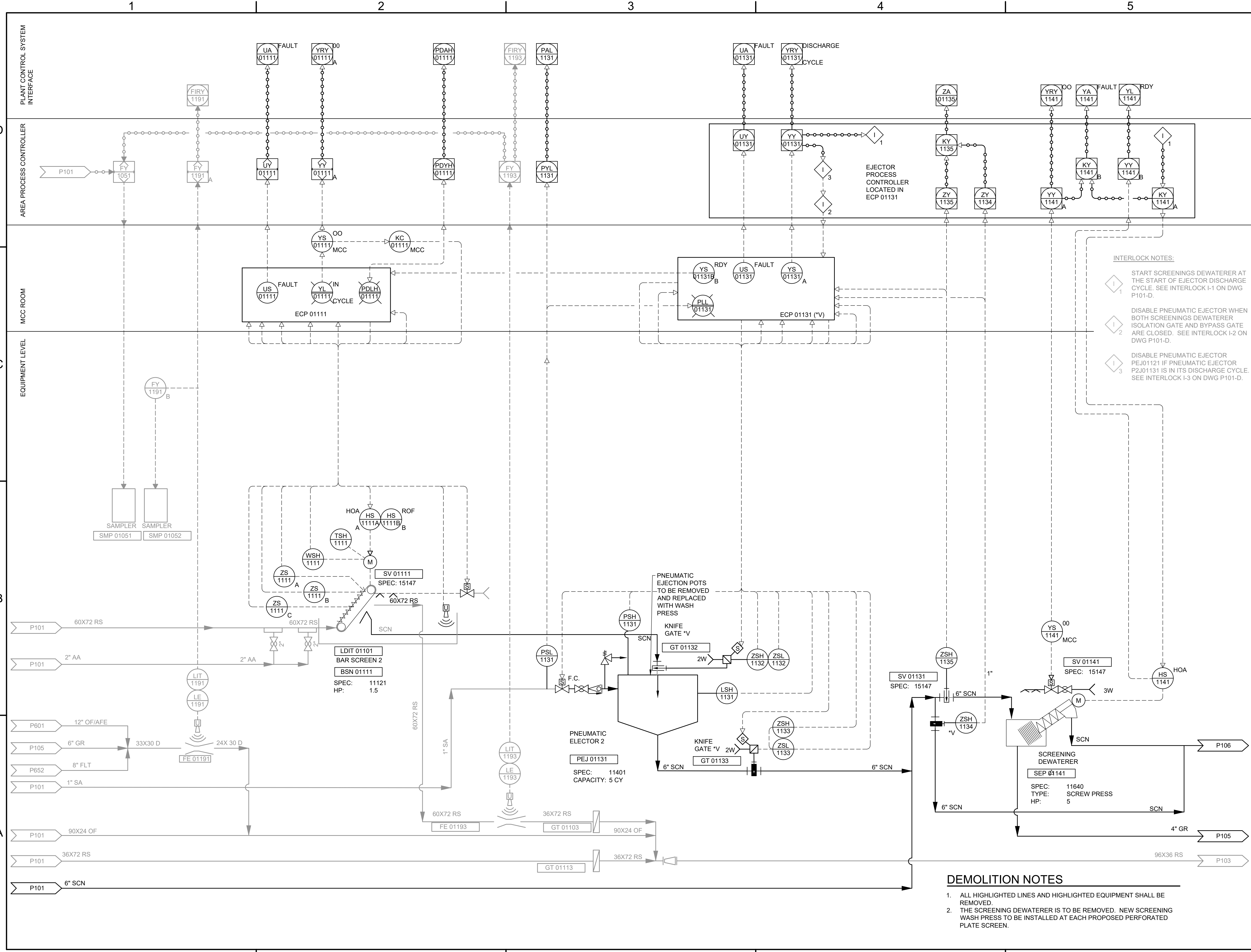
NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

HEADWORKS SCREENING PROPOSED

P101-P

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG050_CIVIL\P102-D-3065.dwg LAYOUT NAME: P102-D PRINTED: Thursday, April 06, 2023 - 7:40pm USER: osanchez

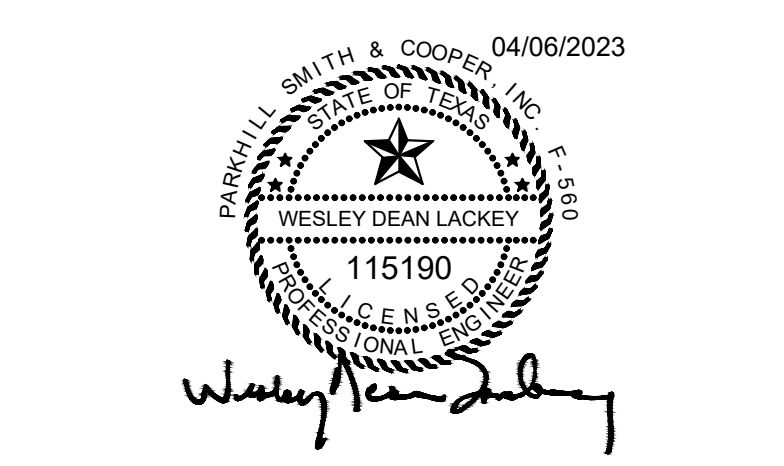


INTERLOCK NOTES:

- I 1 START SCREENINGS DEWATERER AT THE START OF EJECTOR DISCHARGE CYCLE. SEE INTERLOCK I-1 ON DWG P101-D.
- I 2 DISABLE PNEUMATIC EJECTOR WHEN BOTH SCREENINGS DEWATERER ISOLATION GATE AND BYPASS GATE ARE CLOSED. SEE INTERLOCK I-2 ON DWG P101-D.
- I 3 DISABLE PNEUMATIC EJECTOR PEJ01121 IF PNEUMATIC EJECTOR P2J01131 IS IN ITS DISCHARGE CYCLE. SEE INTERLOCK I-3 ON DWG P101-D.

DEMOLITION NOTES

- ALL HIGHLIGHTED LINES AND HIGHLIGHTED EQUIPMENT SHALL BE REMOVED.
- THE SCREENING DEWATERER IS TO BE REMOVED. NEW SCREENING WASH PRESS TO BE INSTALLED AT EACH PROPOSED PERFORMATED PLATE SCREEN.



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

0 1"

IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

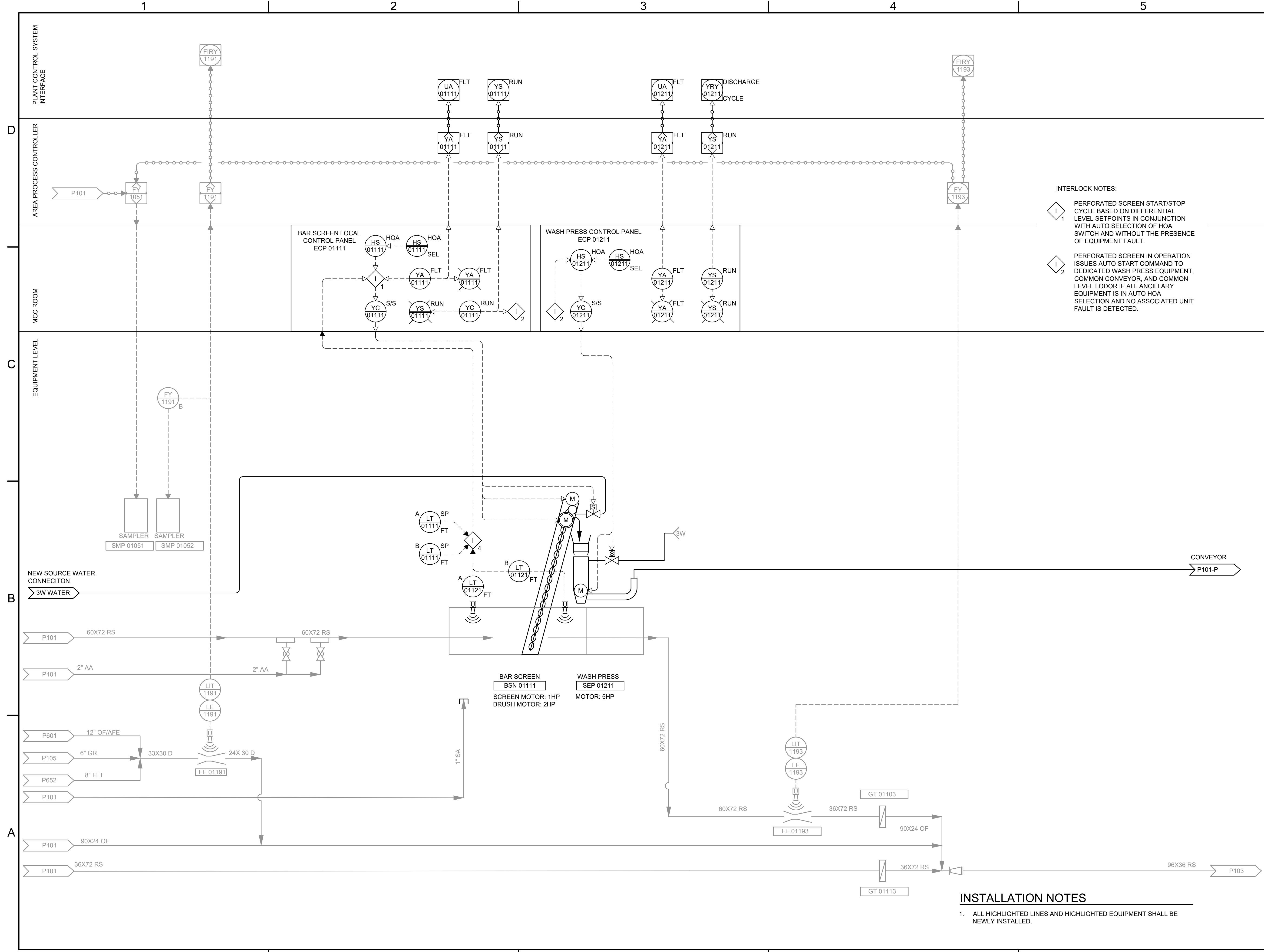
NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**HEADWORKS
SCREENING
DEMOLITION**

P102-D

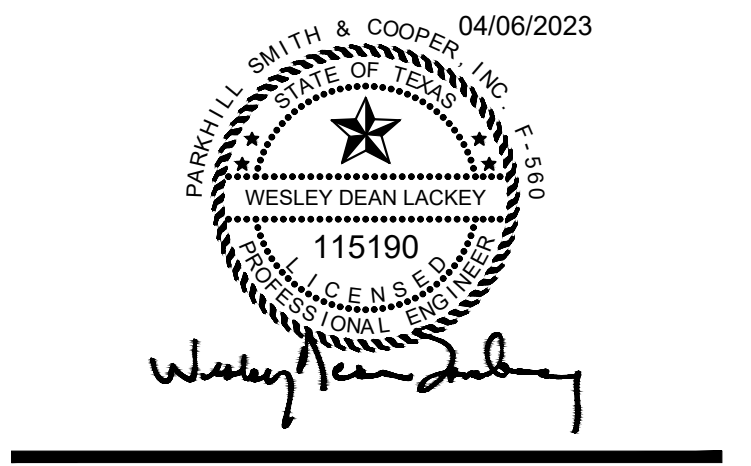
FILE NAME: A:\2021\3065.21103_DSGND1_DWG050_CIVIL\P102-P-3085.dwg LAYOUT NAME: P102-P PRINTED: Thursday, April 06, 2023 - 7:40pm USER: osanchez



INTERLOCK NOTES:

1 PERFORATED SCREEN START/STOP CYCLE BASED ON DIFFERENTIAL LEVEL SETPOINTS IN CONJUNCTION WITH AUTO SELECTION OF HOA SWITCH AND WITHOUT THE PRESENCE OF EQUIPMENT FAULT.

2 PERFORATED SCREEN IN OPERATION ISSUES AUTO START COMMAND TO DEDICATED WASH PRESS EQUIPMENT, COMMON CONVEYOR, AND COMMON LEVEL LODOR IF ALL ANCILLARY EQUIPMENT IS IN AUTO HOA SELECTION AND NO ASSOCIATED UNIT FAULT IS DETECTED.



**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

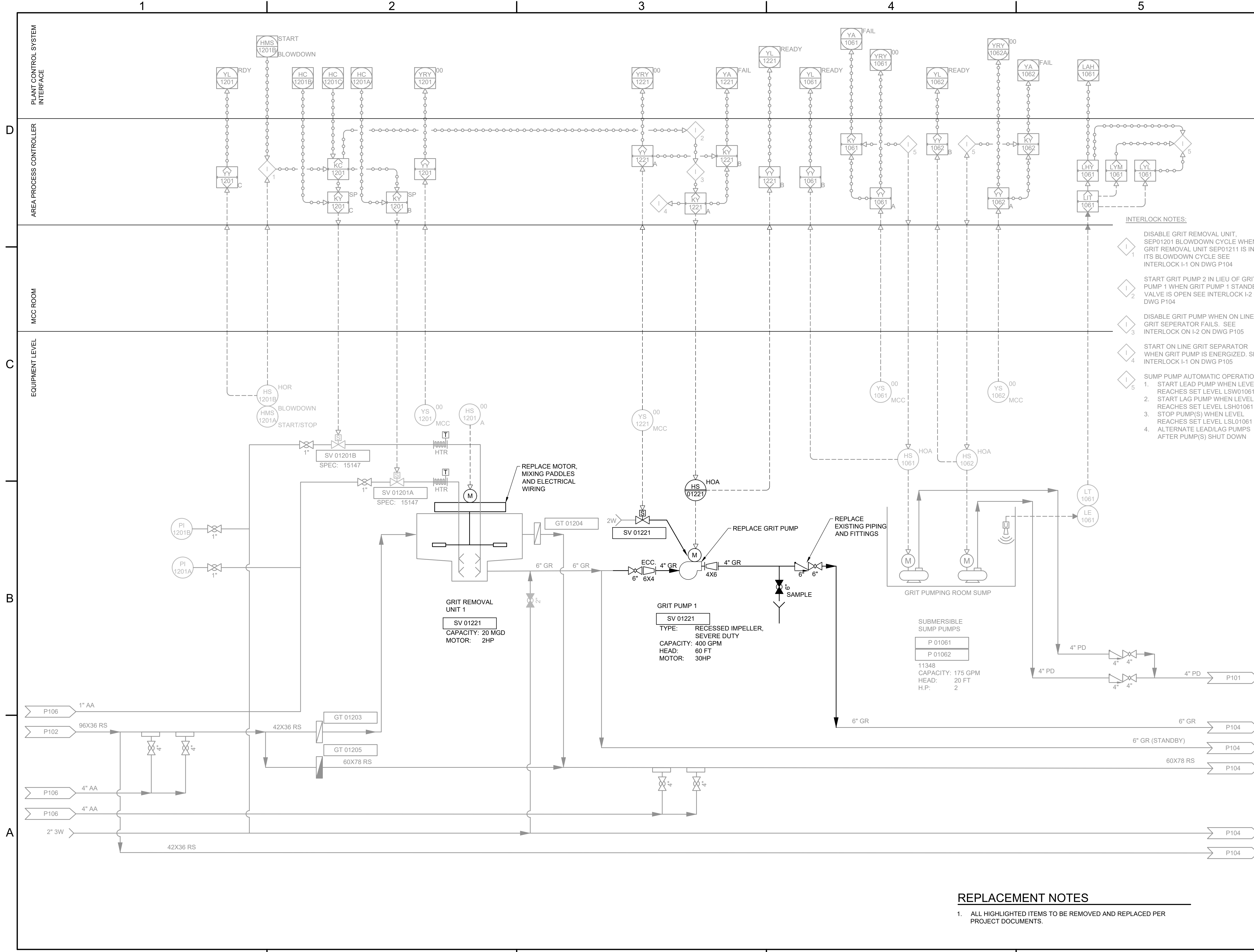
NO.	DATE	DESCRIPTION	PROJECT NO.
ISSUING OFFICE:	EL PASO		3065.21

**HEADWORKS
SCREENING
PROPOSED**

INSTALLATION NOTES

1. ALL HIGHLIGHTED LINES AND HIGHLIGHTED EQUIPMENT SHALL BE NEWLY INSTALLED.

FILE NAME: A:20213065.21103_DSGN01_DWG050_CIVILP103-D-3065.dwg LAYOUT NAME: P103 PRINTED: Thursday, April 06, 2023 - 7:40pm USER: osanchez



INTERLOCK NOTES:

- I 1 DISABLE GRIT REMOVAL UNIT, SEP01201 BLOWDOWN CYCLE WHEN GRIT REMOVAL UNIT SEP01211 IS IN ITS BLOWDOWN CYCLE SEE INTERLOCK I-1 ON DWG P104
- I 2 START GRIT PUMP 2 IN LIEU OF GRIT PUMP 1 WHEN GRIT PUMP 1 STANDBY VALVE IS OPEN SEE INTERLOCK I-2 ON DWG P104
- I 3 DISABLE GRIT PUMP WHEN ON LINE GRIT SEPARATOR FAILS. SEE INTERLOCK ON I-2 ON DWG P105
- I 4 START ON LINE GRIT SEPARATOR WHEN GRIT PUMP IS ENERGIZED. SEE INTERLOCK I-1 ON DWG P105
- I 5 SUMP PUMP AUTOMATIC OPERATION:
 1. START LEAD PUMP WHEN LEVEL REACHES SET LEVEL LSW01061
 2. START LAG PUMP WHEN LEVEL REACHES SET LEVEL LSH01061
 3. STOP PUMP(S) WHEN LEVEL REACHES SET LEVEL LSL01061
 4. ALTERNATE LEAD/LAG PUMPS AFTER PUMP(S) SHUT DOWN

REPLACEMENT NOTES

1. ALL HIGHLIGHTED ITEMS TO BE REMOVED AND REPLACED PER PROJECT DOCUMENTS.



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

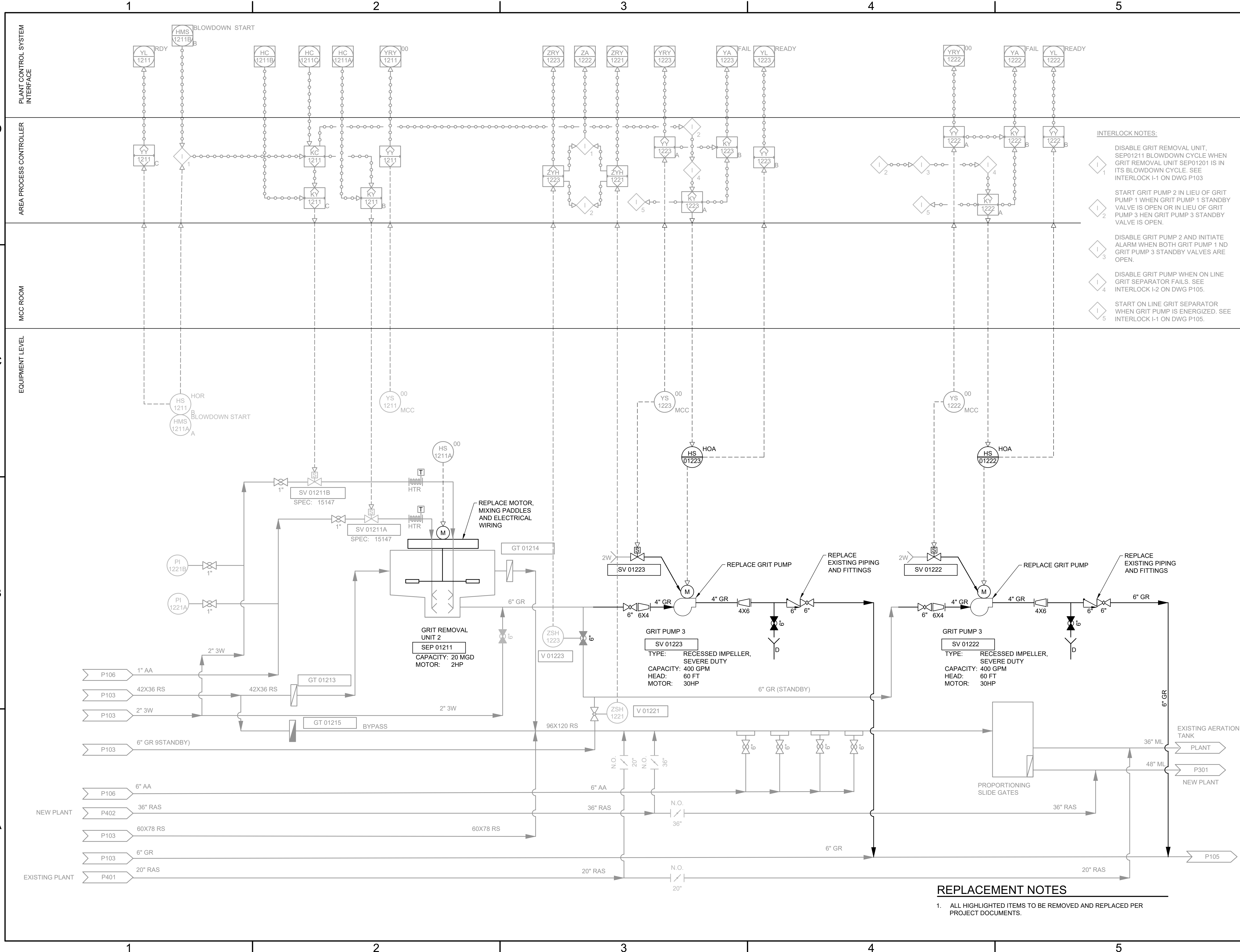
NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**HEADWORKS
GRIT REMOVAL
AND PUMPING
EQUIPMENT
REPLACEMENT**

P103

FILE NAME: A:\2021\3065.21103_DSGN01_DWG050_CIVIL\IP104-D-3065.dwg LAYOUT NAME: P104 PRINTED: Thursday, April 06, 2023 - 7:40pm USER: osanchez



INTERLOCK NOTES:

- I 1 DISABLE GRIT REMOVAL UNIT, SEP01211 BLOWDOWN CYCLE WHEN GRIT REMOVAL UNIT SEP01201 IS IN ITS BLOWDOWN CYCLE. SEE INTERLOCK I-1 ON DWG P103
- I 2 START GRIT PUMP 2 IN LIEU OF GRIT PUMP 1 WHEN GRIT PUMP 1 STANDBY VALVE IS OPEN OR IN LIEU OF GRIT PUMP 3 WHEN GRIT PUMP 3 STANDBY VALVE IS OPEN.
- I 3 DISABLE GRIT PUMP 2 AND INITIATE ALARM WHEN BOTH GRIT PUMP 1 AND GRIT PUMP 3 STANDBY VALVES ARE OPEN.
- I 4 DISABLE GRIT PUMP WHEN ON LINE GRIT SEPARATOR FAILS. SEE INTERLOCK I-2 ON DWG P105.
- I 5 START ON LINE GRIT SEPARATOR WHEN GRIT PUMP IS ENERGIZED. SEE INTERLOCK I-1 ON DWG P105.

REPLACEMENT NOTES

- ALL HIGHLIGHTED ITEMS TO BE REMOVED AND REPLACED PER PROJECT DOCUMENTS.



**JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

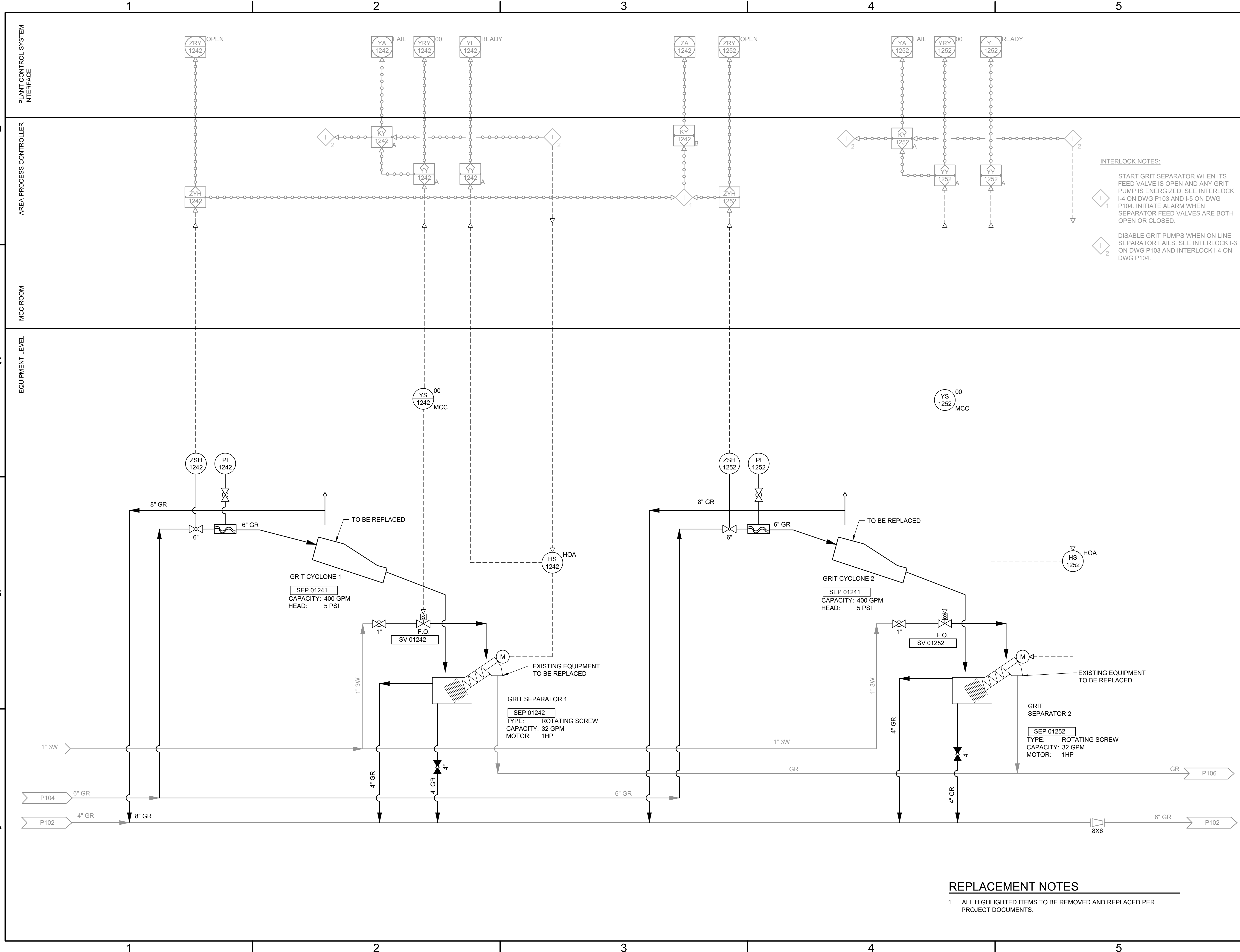
NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**HEADWORKS
GRIT REMOVAL
AND PUMPING
EQUIPMENT
REPLACEMENT**

P104

FILE NAME: A:\2021\3065.21103_DSGND1_DWG050_CIVIL\IP105-D-3065.dwg LAYOUT NAME: P105 PRINTED: Thursday, April 06, 2023 - 7:40pm USER: osanchez



INTERLOCK NOTES:

1 START GRIT SEPARATOR WHEN ITS FEED VALVE IS OPEN AND ANY GRIT PUMP IS ENERGIZED. SEE INTERLOCK I-4 ON DWG P103 AND I-5 ON DWG P104. INITIATE ALARM WHEN SEPARATOR FEED VALVES ARE BOTH OPEN OR CLOSED.

2 DISABLE GRIT PUMPS WHEN ON LINE SEPARATOR FAILS. SEE INTERLOCK I-3 ON DWG P103 AND INTERLOCK I-4 ON DWG P104.

REPLACEMENT NOTES

1. ALL HIGHLIGHTED ITEMS TO BE REMOVED AND REPLACED PER PROJECT DOCUMENTS.



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING

0 1"

IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

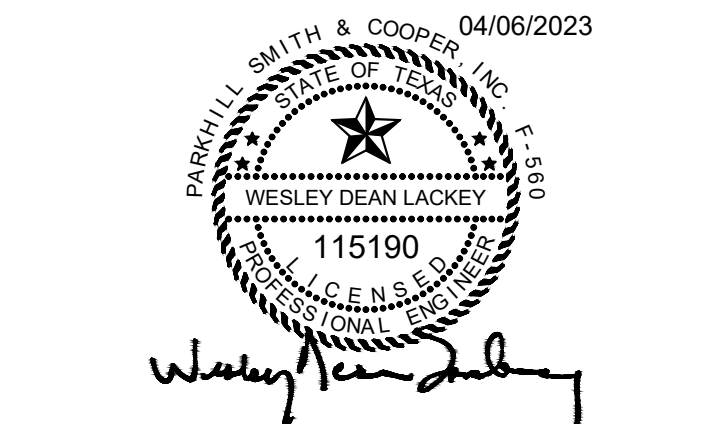
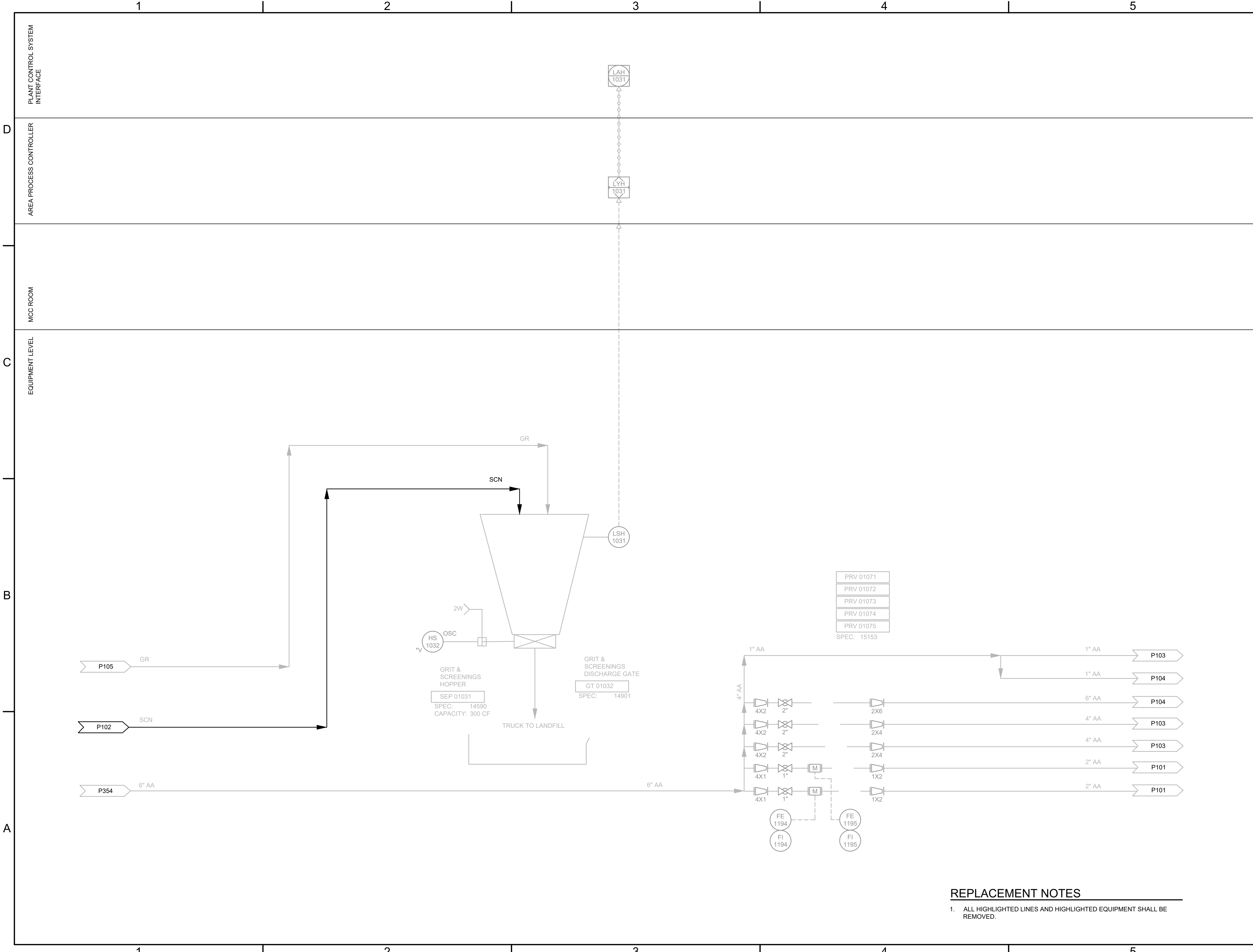
NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**HEADWORKS
GRIT SEPARATION
AND WASHING
EQUIPMENT REMOVAL
AND REPLACEMENT**

P105

FILE NAME: A:\2021\3065.2\103_DSGN01_DWG050_CIVIL\PI06-3065.dwg LAYOUT NAME: P106 PRINTED: Thursday, April 06, 2023 - 7:41pm USER: osanchez



JOHN T. HICKERSON HEADWORKS BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
 BAR IS 1 INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

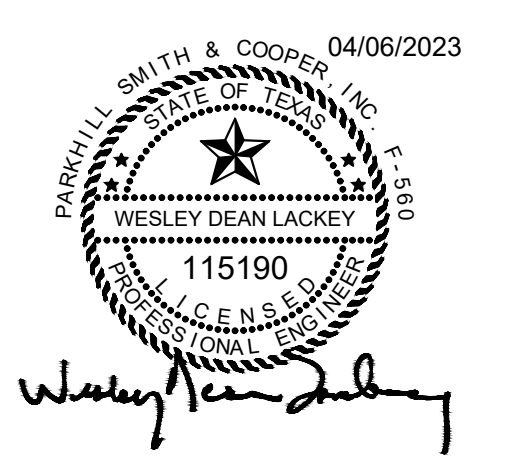
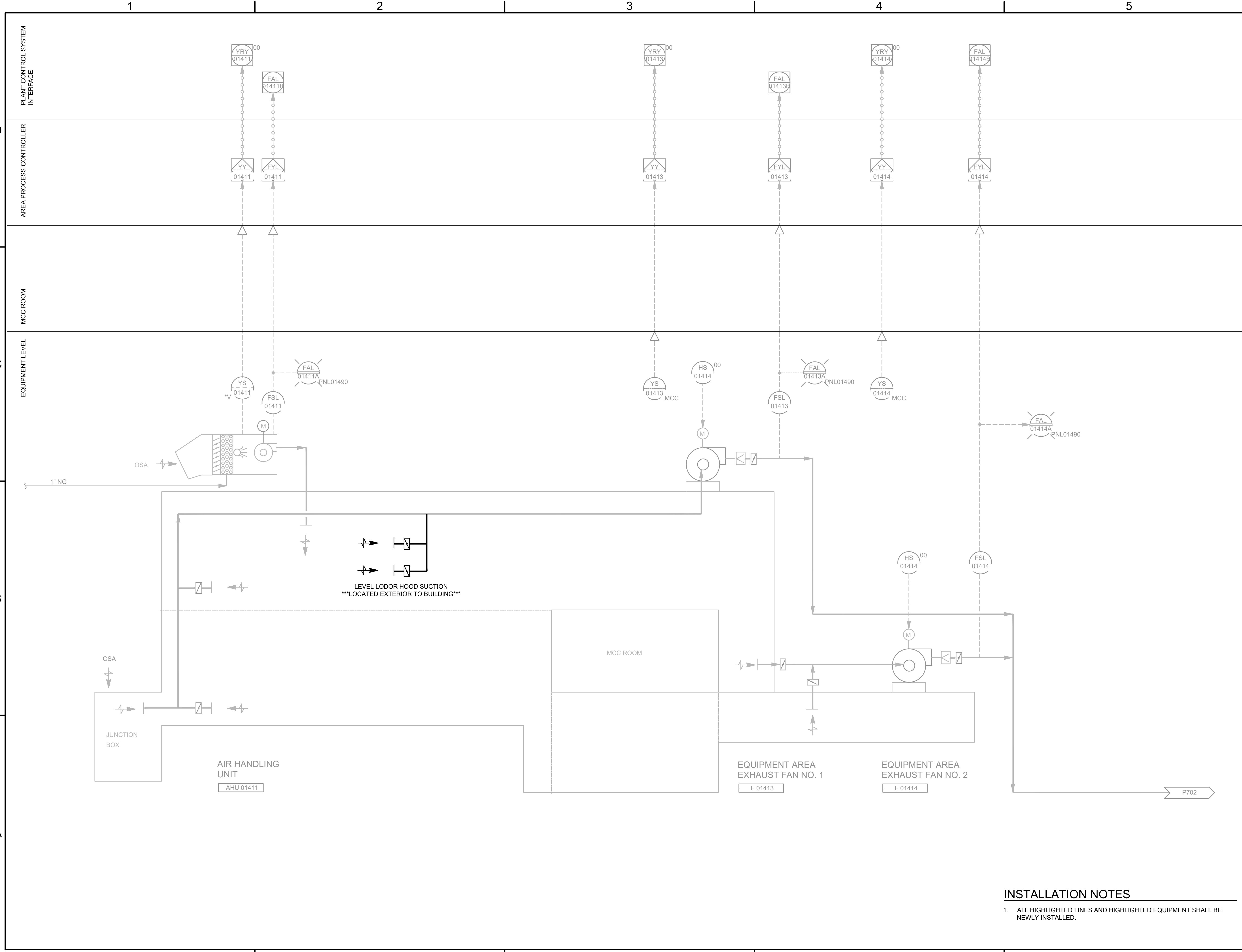
HEADWORKS GRIT HOPPER EQUIPMENT

P106

REPLACEMENT NOTES

1. ALL HIGHLIGHTED LINES AND HIGHLIGHTED EQUIPMENT SHALL BE REMOVED.

FILE NAME: A:\2021\3065.21103_DSGND1_DWG050_CIVIL\PI107-3065.dwg LAYOUT NAME: P107 PRINTED: Thursday, April 06, 2023 - 7:41pm USER: osanchez



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**HEADWORKS
AIRFLOW**

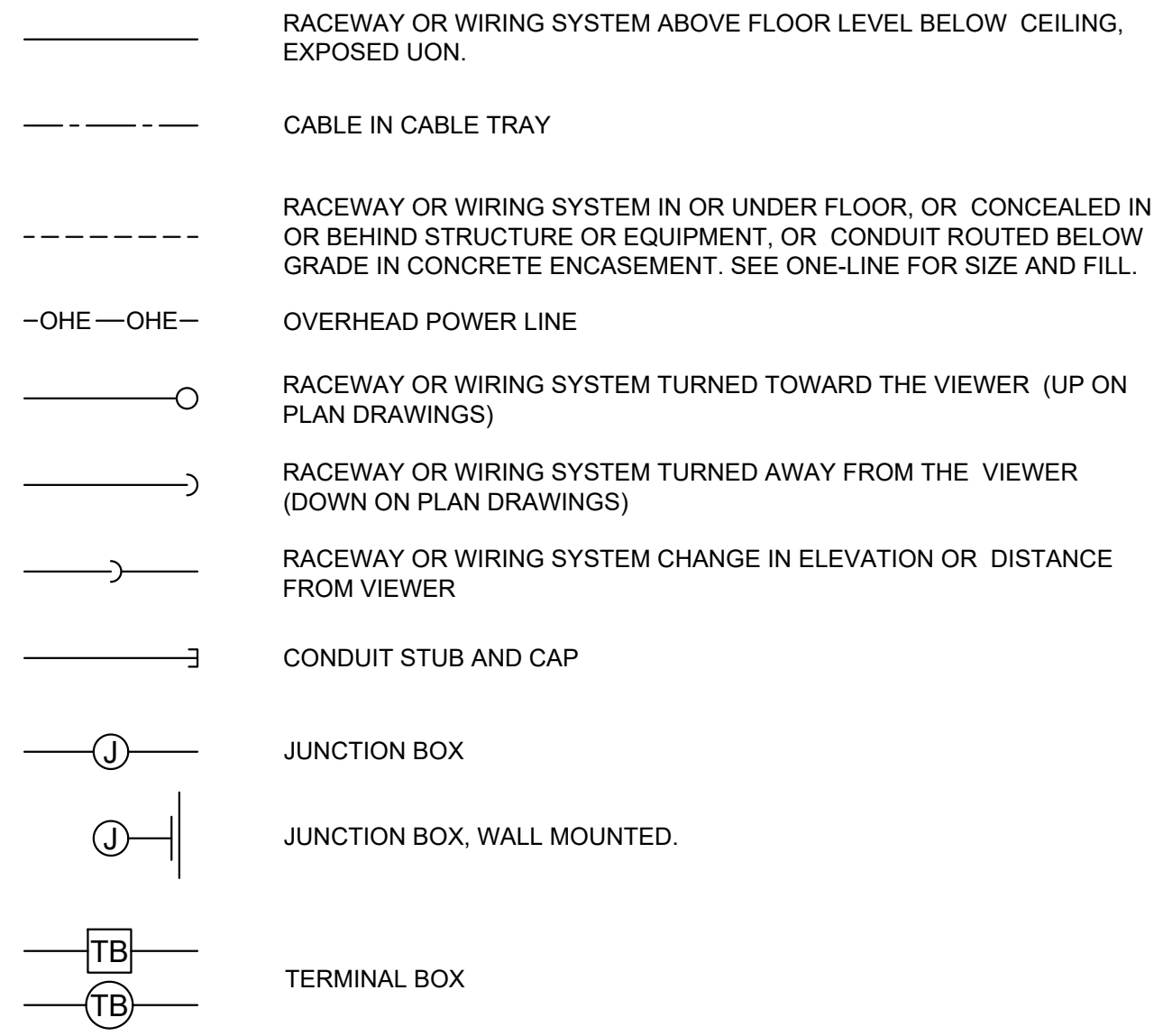
INSTALLATION NOTES

1. ALL HIGHLIGHTED LINES AND HIGHLIGHTED EQUIPMENT SHALL BE NEWLY INSTALLED.

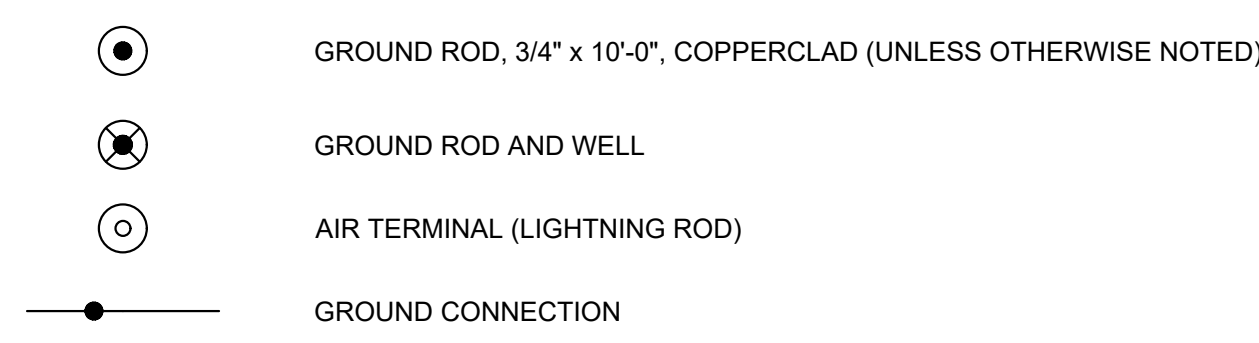
P107

SYMBOLS:

CIRCUIT AND RACEWAYS:



GROUNDING:



DISTRIBUTION EQUIPMENT:

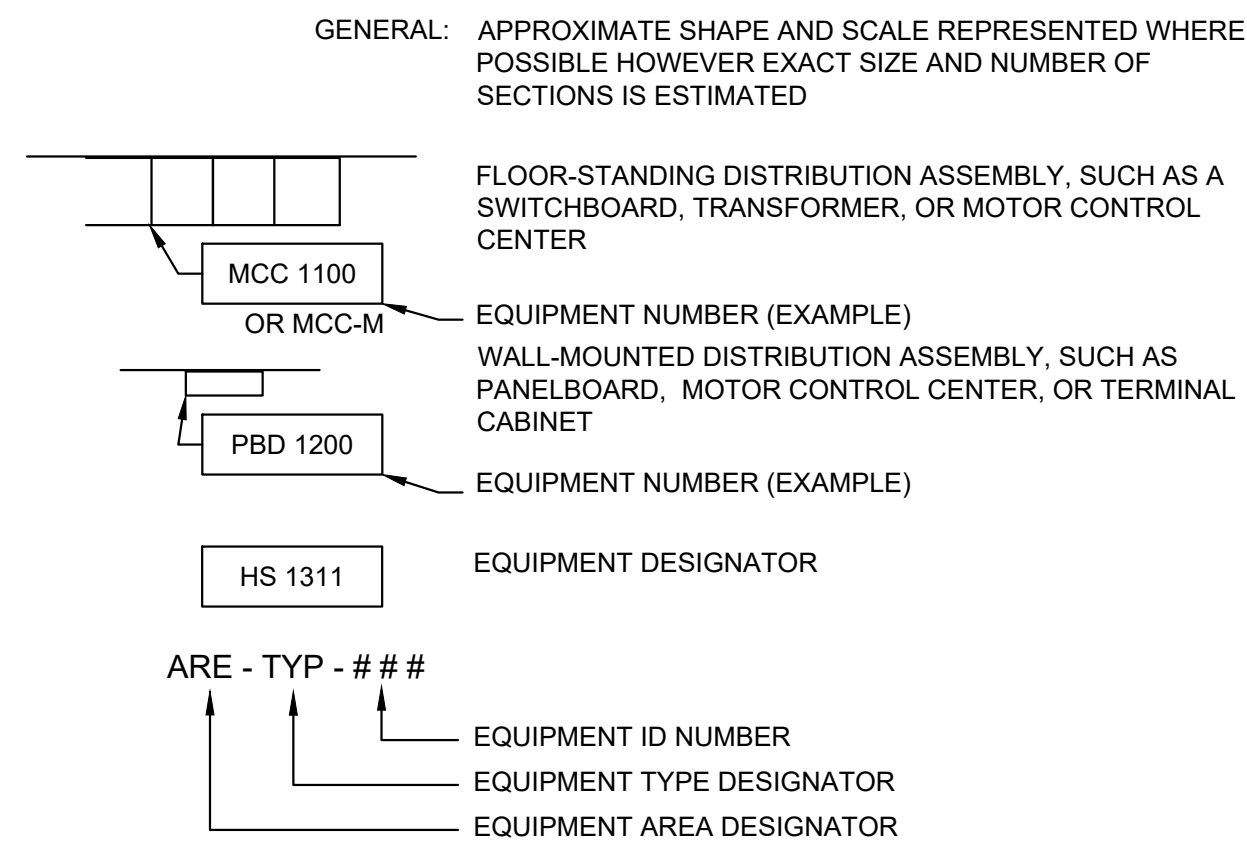
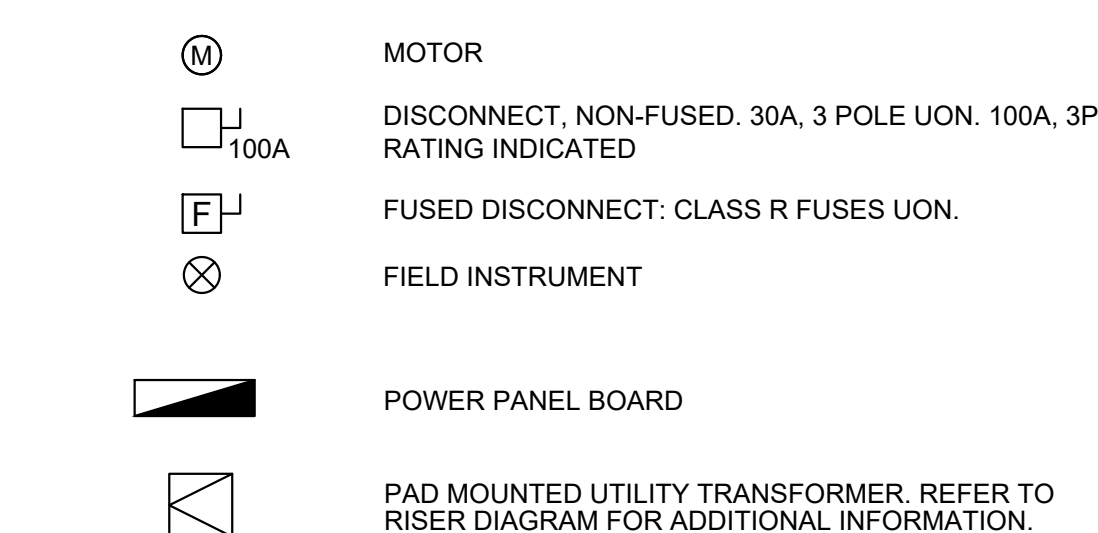


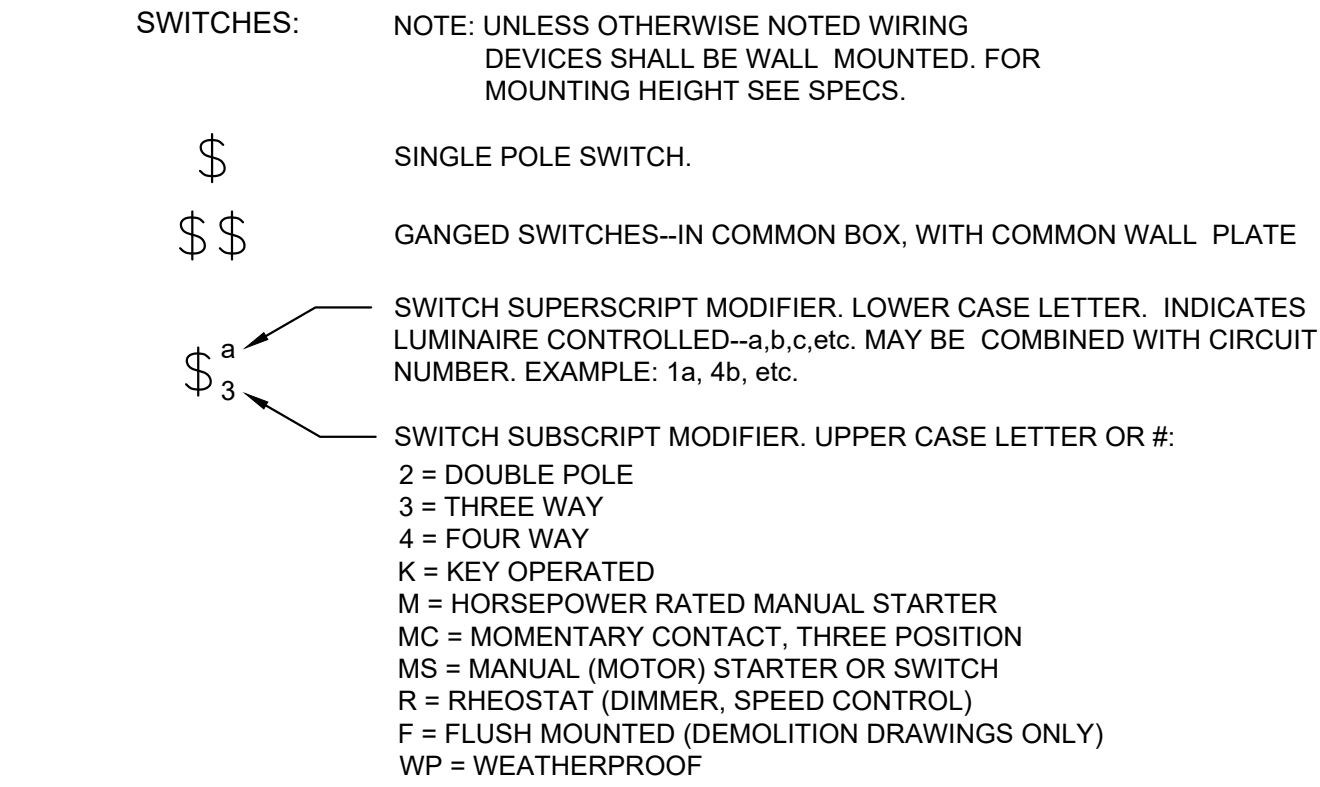
PHOTO DETAIL CALLOUT



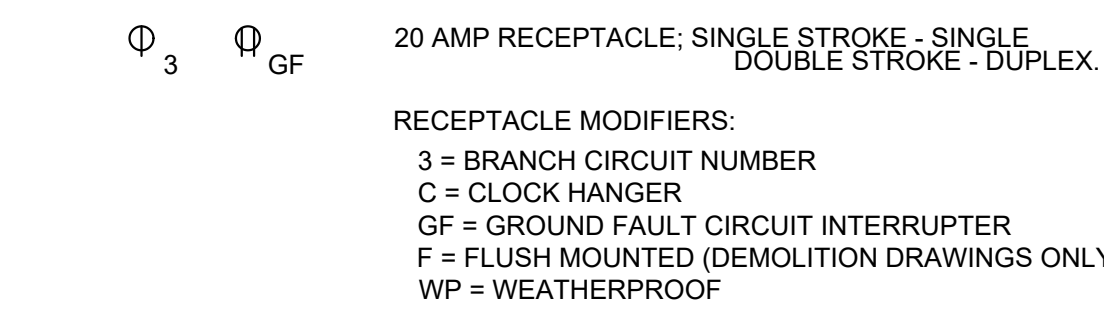
MOTOR AND EQUIPMENT:



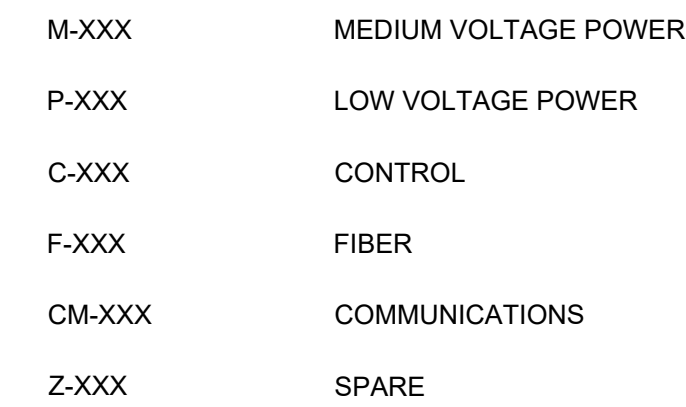
WIRING DEVICES:



RECEPTACLES:



CABLE, CONDUIT AND TRAY IDENTIFICATION:

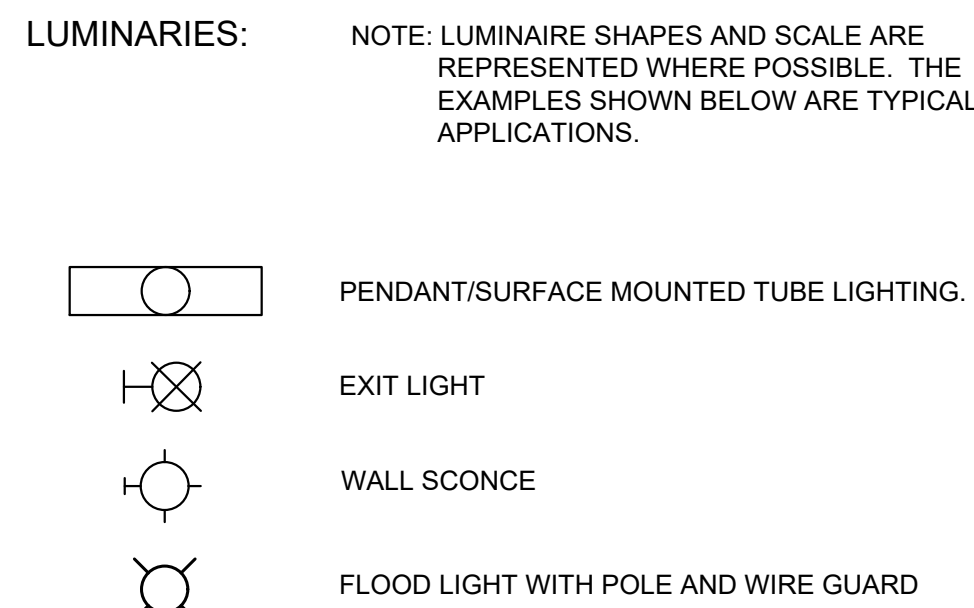


LIGHTING CONTROL AND CIRCUITING:

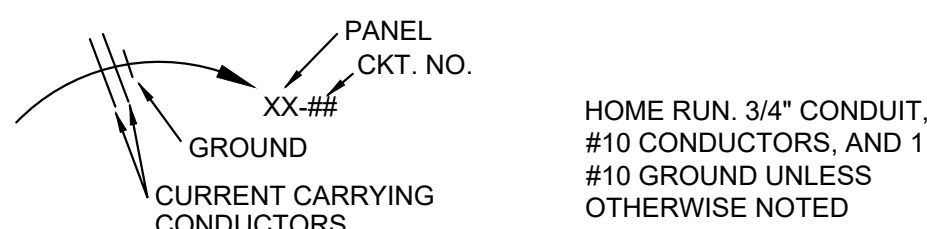
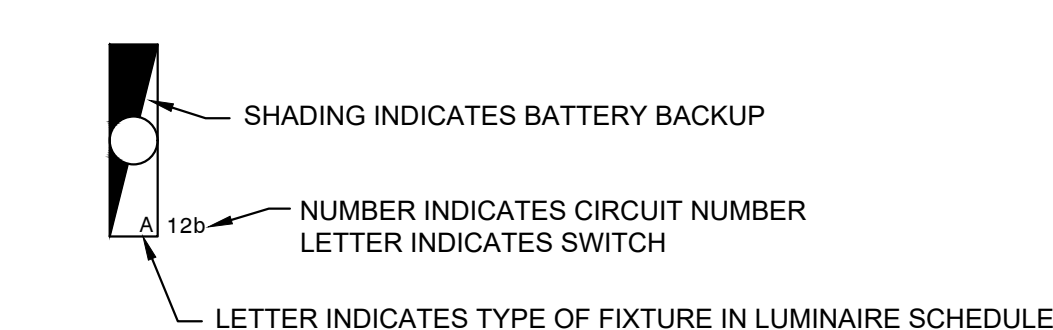
CONTRACTOR SHALL PROVIDE ALL CONDUIT AND CONDUCTORS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.



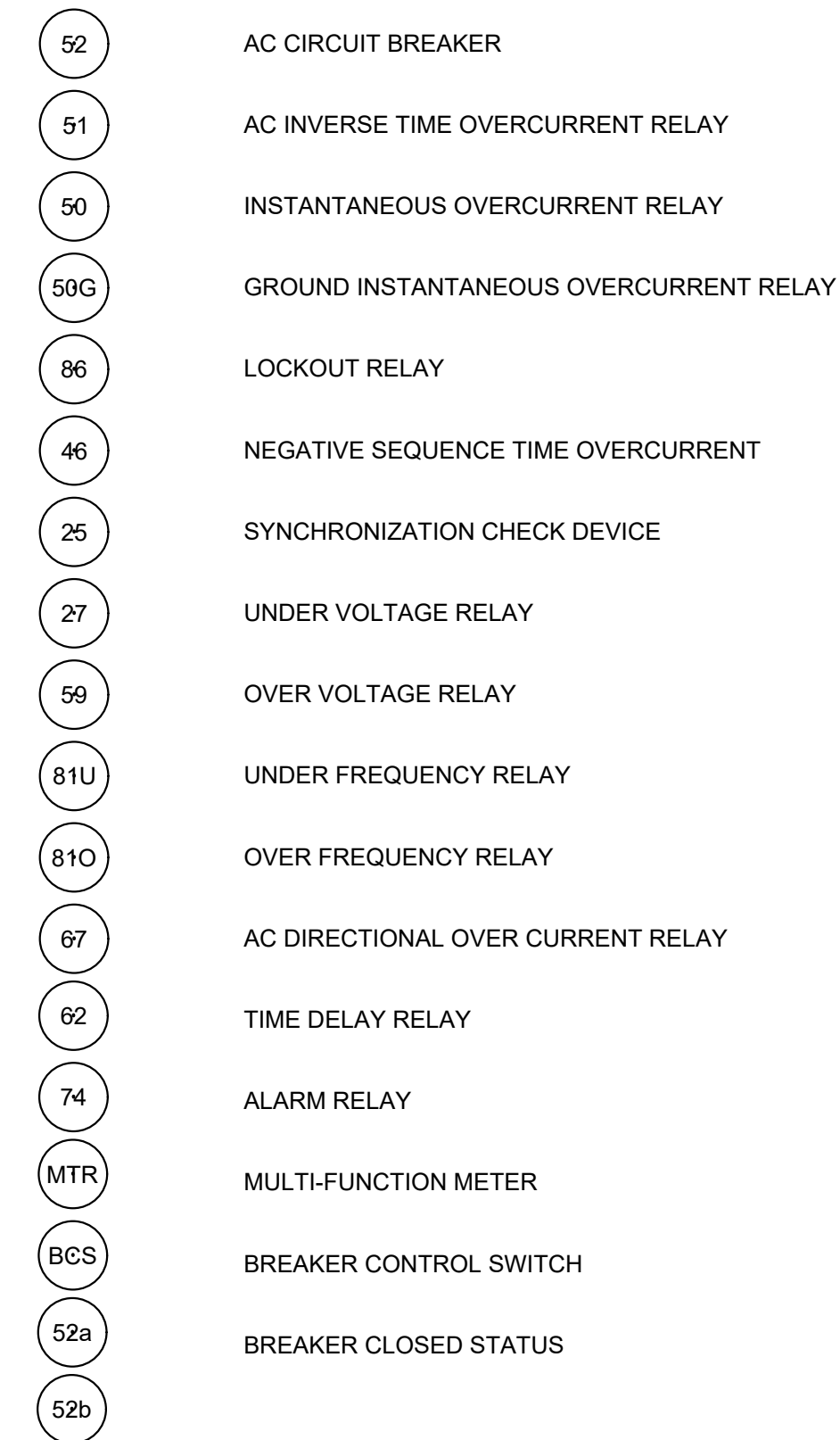
LUMINARIES:



EXAMPLE 1:



ANSI / IEEE DEVICE FUNCTION:



ABBREVIATIONS:

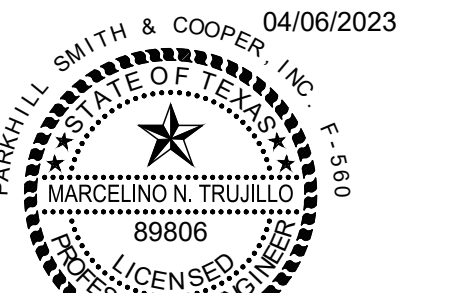
NOTES:

- 1. IN GENERAL, ABBREVIATIONS USED IN ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ANSI Y1.1-1972. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION, OR ARE AMENDMENTS TO ANSI Y1.1-1972 AND ABBREVIATIONS DEFINED ON OTHER DRAWINGS. IN CASE OF CONFLICT THESE ABBREVIATIONS SHALL TAKE PRECEDENCE.
2. THE FOLLOWING ABBREVIATIONS ARE NOT TO BE CONFUSED WITH EQUIPMENT NUMBERING PREFIXES LISTED ON GENERAL DRAWINGS OR OTHER CONTRACT DOCUMENTS.

Table with columns for abbreviations and their definitions. Includes: AMP, AC, AFF, AHAF, AIC, AL, ARCH, ASYM, AUTO, AUX, AWG, BC, BLDG, BOT, C, CB, CKT, CLG, CM, CND, C.O., CONC, CPT, CNTL, CT, CU, DB, DC, DCU, DET, DIAG, DISC, DWG, EA, EC, ECP, EDB, EG, EL, ELEC, EMH, EMER, ENCL, EPB, EQUIP, FDR, FL, FLA, FLEX, F.O., FO, FUT, GDR, GEC, GF, GFI, GND, GRS, H, HGT, HH, HID, HP, HPS, HTR, HV, HVAC, HZ, ICOM, ID, IMC, IMC, INTLK, INST, I/O, IPB, KCMIL, KV, KVA, KVAR, KW, KWH, L, LCP, LHH, LMH, LP, LT, LTG, LV, MA, MBS, MCC, MCP, MPC, MECH, MFR, MH, MH, MIC, MIS, MISC, MM, MMH, MOV, MR, MTS, MV, MVMC, N/A, N.C., NEUT,N, NF, NIC, N.O., NO., NOM, NP, NTS, OC, OCC, OD, OH, OT, OWS, P, PB, PCP, PF, PH, PLC, PMM, PNL, PP, PPR, PSL, PT, PVC, PWR, QSB, RCPT, REF, REQD, RMS, RNG, RTD, RTU, SA, SCR, SD, SEC, SEL, SHH, SPEC, SR, ST, SUB, SW, SWBD, SWGR, SYMM, SYS, TB, TEL, TEMP, TFR, TVSS, TYP, U/G, UON, V, VA, VAR, VC, XFMR, XMTR, W/O, WW, WG, WP, XP, Z.

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Member N. Trujillo



JOHN T. HICKERSON HEADWORKS BARSREEN REPLACEMENT EL PASO WATER 701 EXECUTIVE CENTER BLVD EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

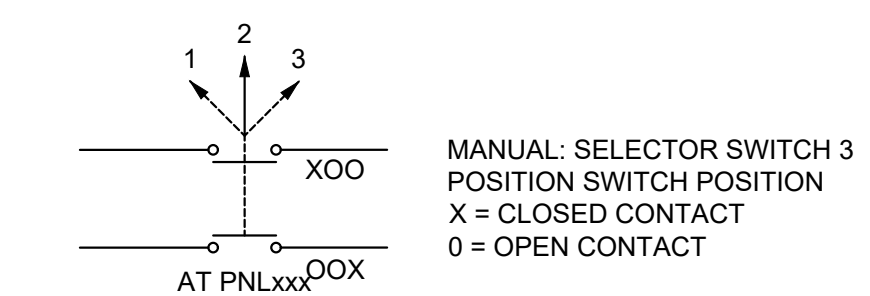
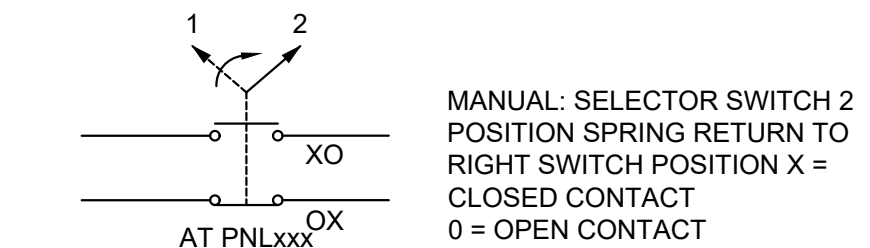
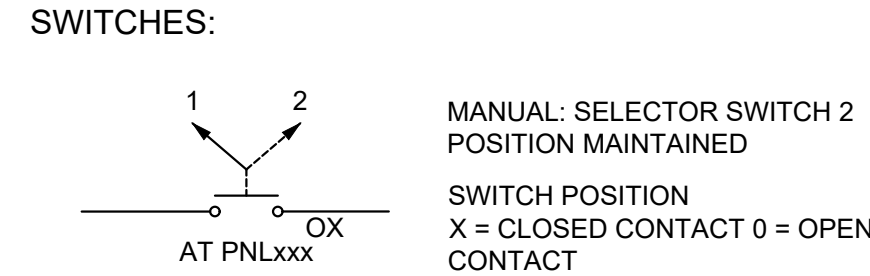
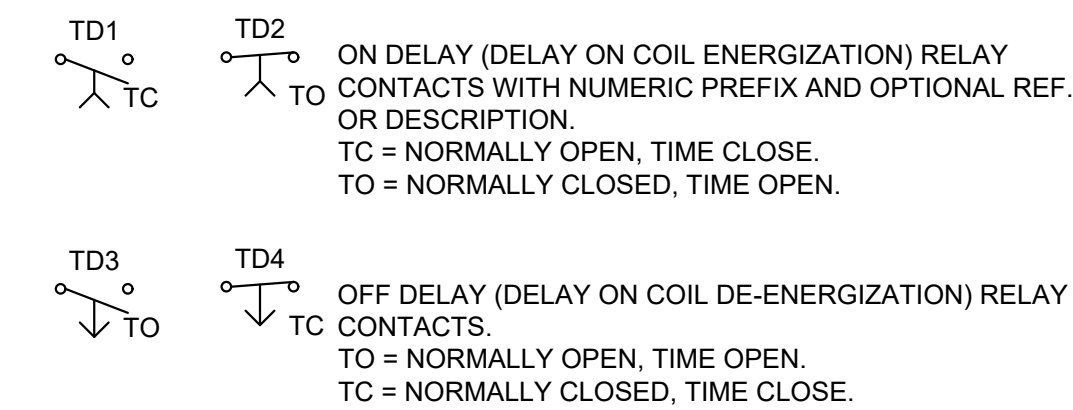
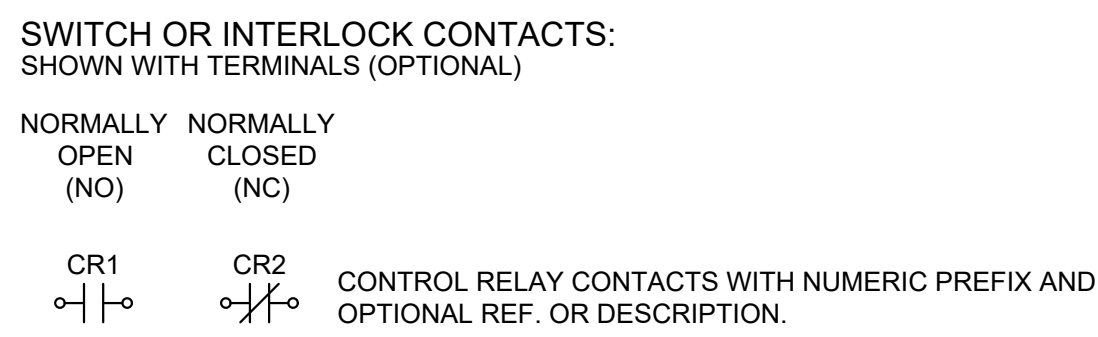
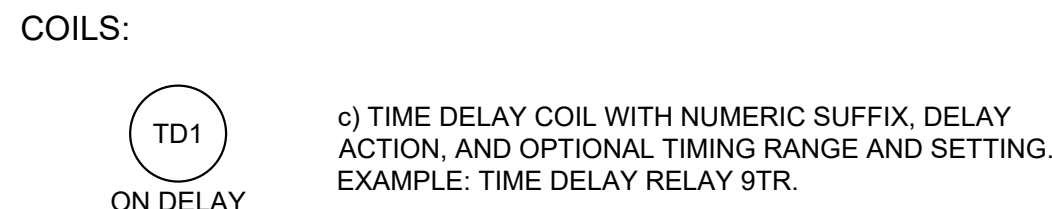
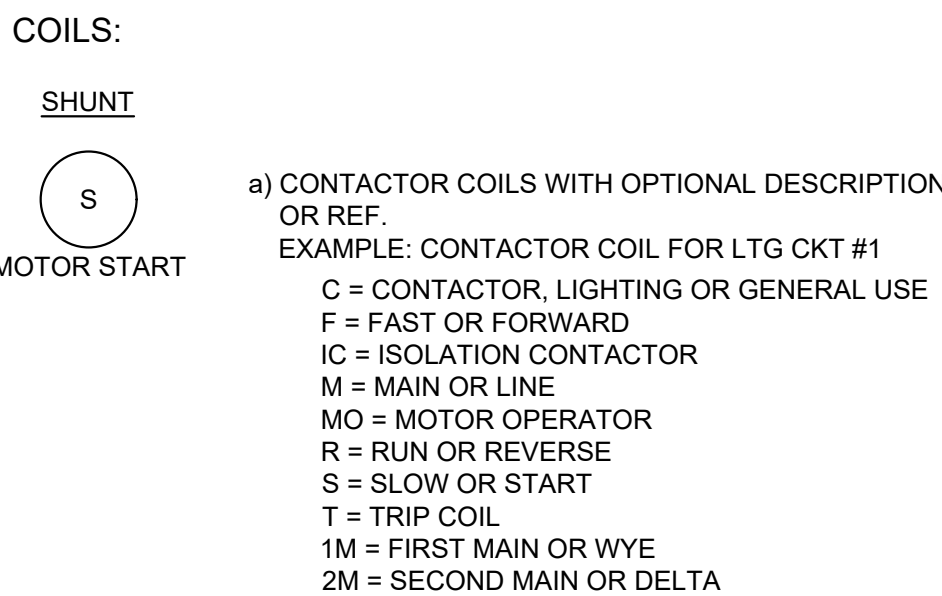
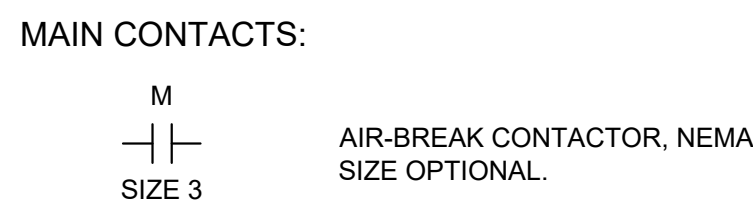
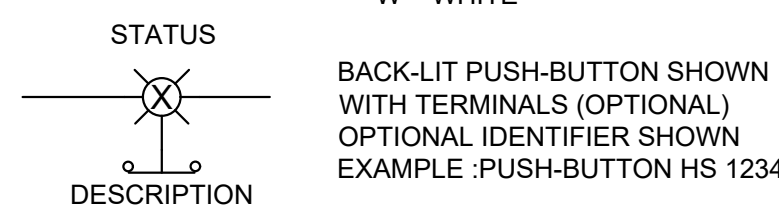
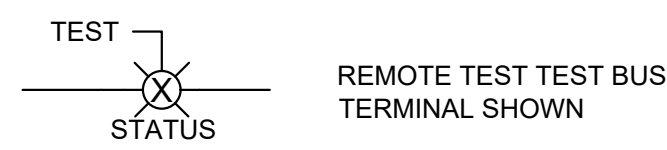
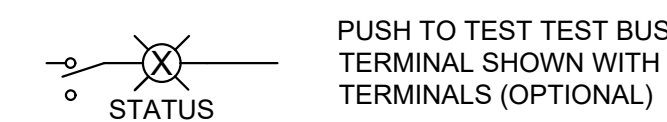
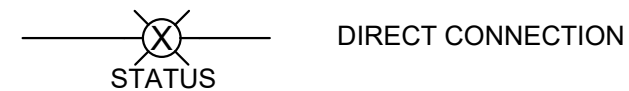
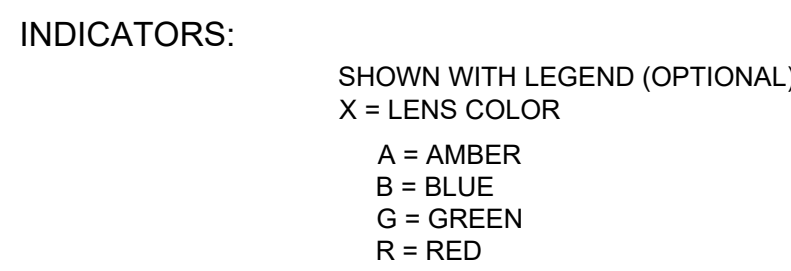
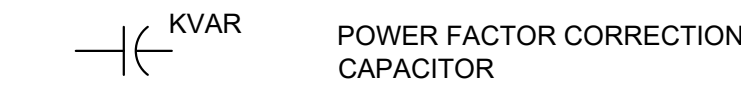
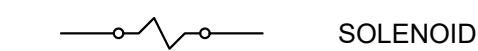
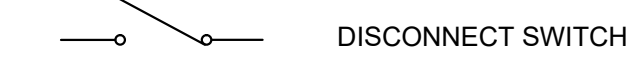
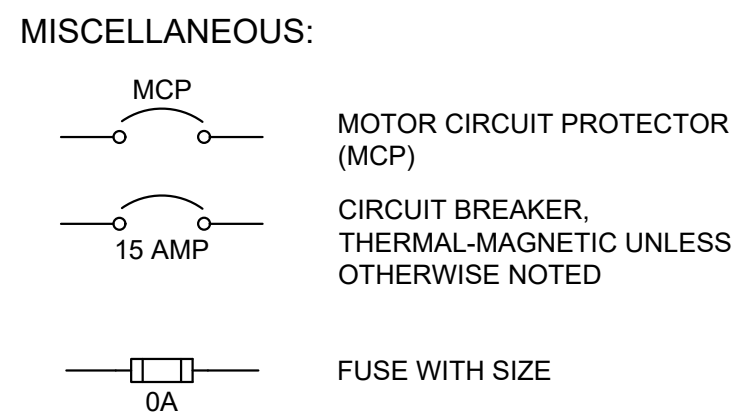
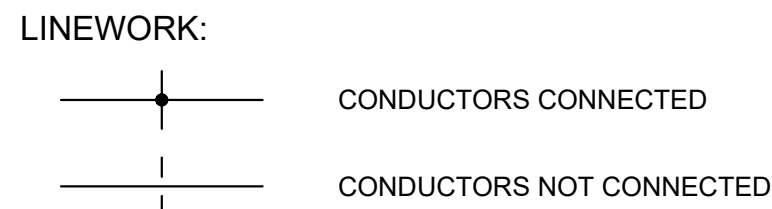
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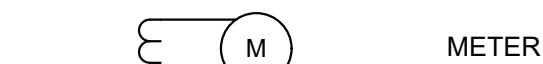
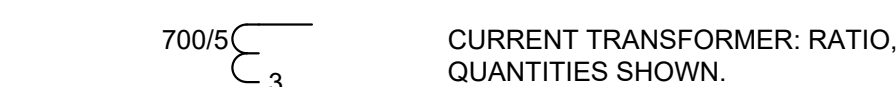
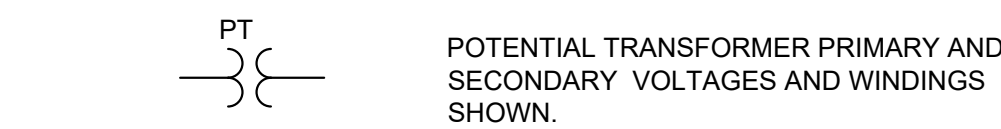
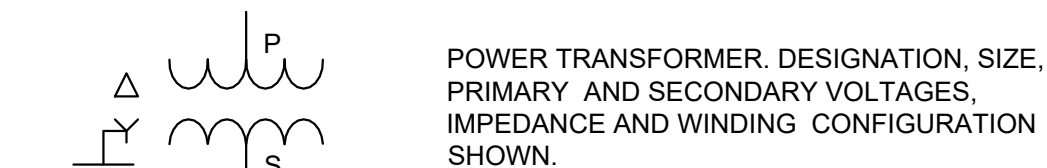
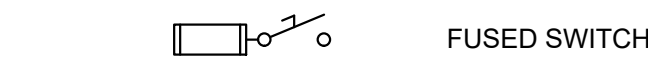
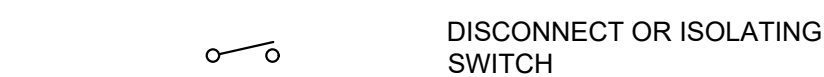
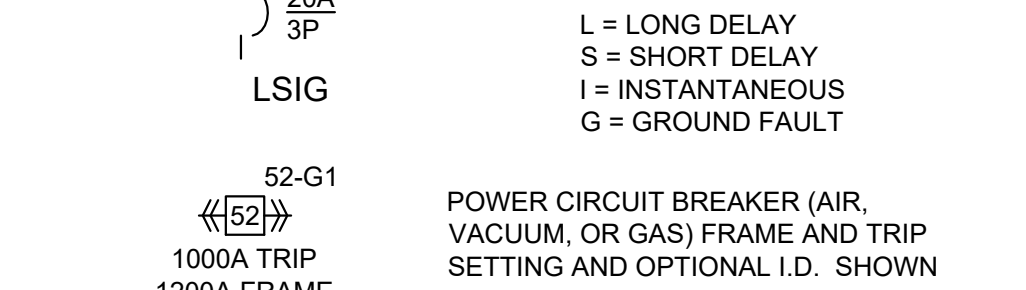
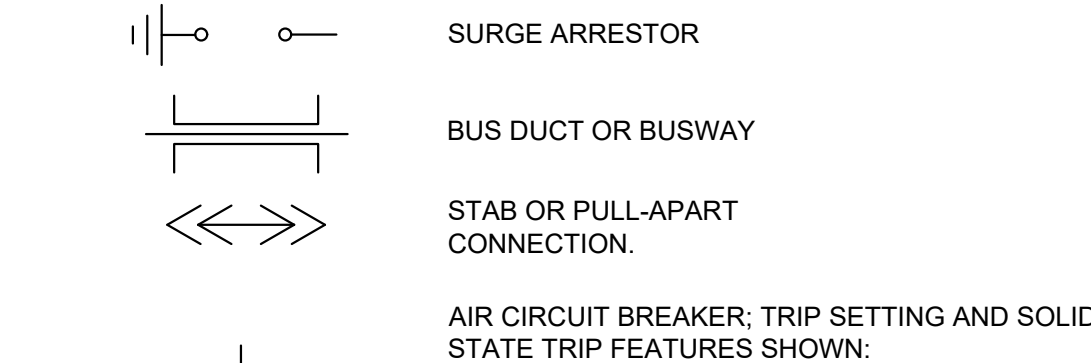
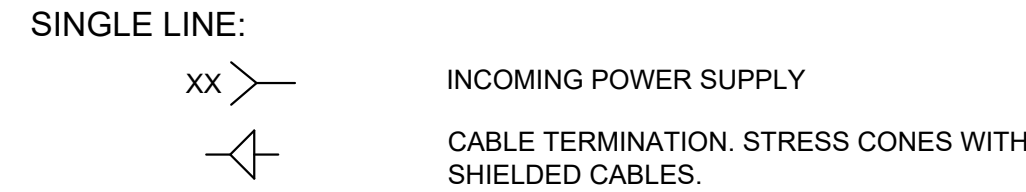
ELECTRICAL LEGEND, ABBREVIATIONS, AND SYMBOLS

E001

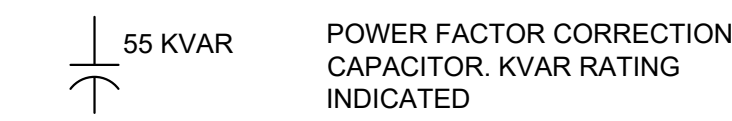
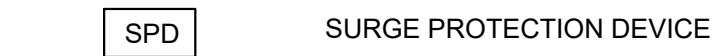
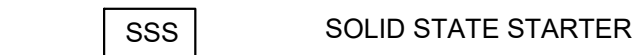
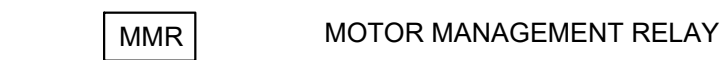
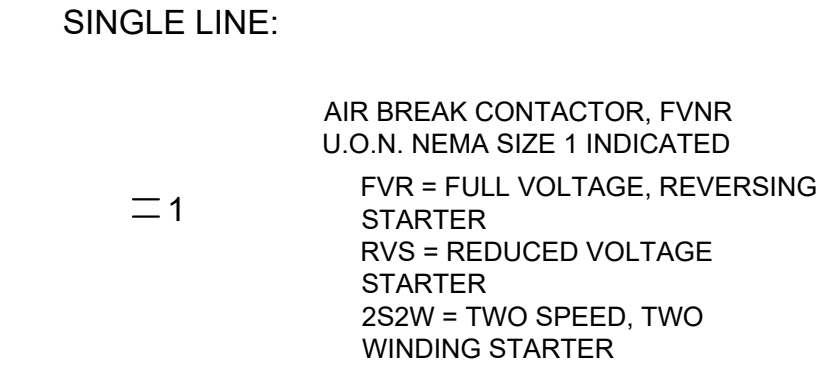
CONTROL DIAGRAMS



POWER DIAGRAMS



POWER DIAGRAMS



GENERAL NOTES

- PRIOR TO BEGINNING CONSTRUCTION, ALL EXISTING EQUIPMENT AND STRUCTURES SHALL BE LOCATED. ANY ITEMS OR AREAS THAT WILL CONFLICT WITH THE INSTALLATION OF CONDUIT OR EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
- ANY DEVIATION OR SUBSTITUTIONS IN EQUIPMENT, MATERIALS OR ENGINEERING PRACTICES MUST HAVE THE CLIENT REPRESENTATIVE'S APPROVAL. FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS AND ALL APPLICABLE CODES.
- ALL POWER, COMMUNICATION, INSTRUMENTATION, GROUNDING AND DETAIL DRAWINGS SHALL BE COORDINATED PRIOR TO AND DURING CONSTRUCTION. ALL INSTALLATION SHALL BE DONE IN A SAFE AND WORKMAN LIKE MANNER. WHERE MANUFACTURERS INSTRUCTIONS ARE FURNISHED WITH EQUIPMENT, INSTALLATION SHALL CONFORM TO THEIR REQUIREMENTS.
- CONTRACTOR SHALL NOT BORE HOLES OR MAKE OPENINGS OF ANY TYPE IN STRUCTURAL BEAMS, COLUMNS OR BRACES UNLESS INDICATED AND SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS.
- ALL CONDUIT AND CABLE ROUTING IS SHOWN DIAGRAMMATIC. FINAL ROUTING SHALL BE DETERMINED IN THE FIELD TO AVOID ANY DAMAGE OR INTERFERENCE WITH OTHER SYSTEMS. MEET ALL CODE REQUIREMENTS AND MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
- TYPICAL RECOMMENDED METHODS AND INSTALLATION PRACTICES ARE COVERED IN THE NOTES AND DETAILS. THE DETAILS REPRESENT GENERAL CONSTRUCTION METHODS ONLY AND DO NOT NECESSARILY IMPLY EXACT INSTALLATION PROCEDURES. THE DETAILS MAY BE MODIFIED TO MEET ACTUAL FIELD CONDITIONS PER CLIENT REPRESENTATIVE'S APPROVAL.
- CONTRACTOR WILL BE RESPONSIBLE FOR COMPLETE LABOR, DEMOLITION, RELOCATION, INSTALLATION AND CABLE TERMINATIONS OF ALL ELECTRICAL EQUIPMENT INVOLVED IN THIS PROJECT.
- CONTRACTOR SHALL COORDINATE DISPOSAL OF ALL EQUIPMENT AND MATERIAL WITH OWNER. MATERIAL RETURNED TO OWNER SHALL REMAIN ON SITE AND BE STORED IN AN ORDERLY FASHION.
- ALL ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH NEC-2014 AND CITY OF EL PASO MUNICIPAL CODE.

COORDINATION CONSIDERATIONS

- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR INSTALLATION OF CONDUIT, EQUIPMENT, CONTROLS, AND DECOMMISSIONING AND COMMISSIONING OF RELATED EQUIPMENT.
- ALL OUTAGES, OR ACTIONS THAT WILL REQUIRE THE UV SYSTEM TO BE SHUT DOWN SHALL BE COORDINATED WITH THE OWNER AND SHALL LAST NO LONGER THAN THE TIME ALLOTTED BY THE OWNER.
- CONTRACTOR SHALL COORDINATE ITS WORK WITH THAT OF OTHER CONTRACTORS WORKING ON OTHER PARTS OF THE PLANT. POWER OUTAGES REQUESTED BY OTHER CONTRACTORS MAY IMPACT THE WORK OF THE CONTRACTOR SELECTED FOR THIS WORK.

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**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

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NO.	DATE	DESCRIPTION

**ELECTRICAL LEGEND,
ABBREVIATIONS,
SYMBOLS AND
GENERAL NOTES**

E002



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

BAR IS 1 INCH ON ORIGINAL DRAWING
0" = 1"
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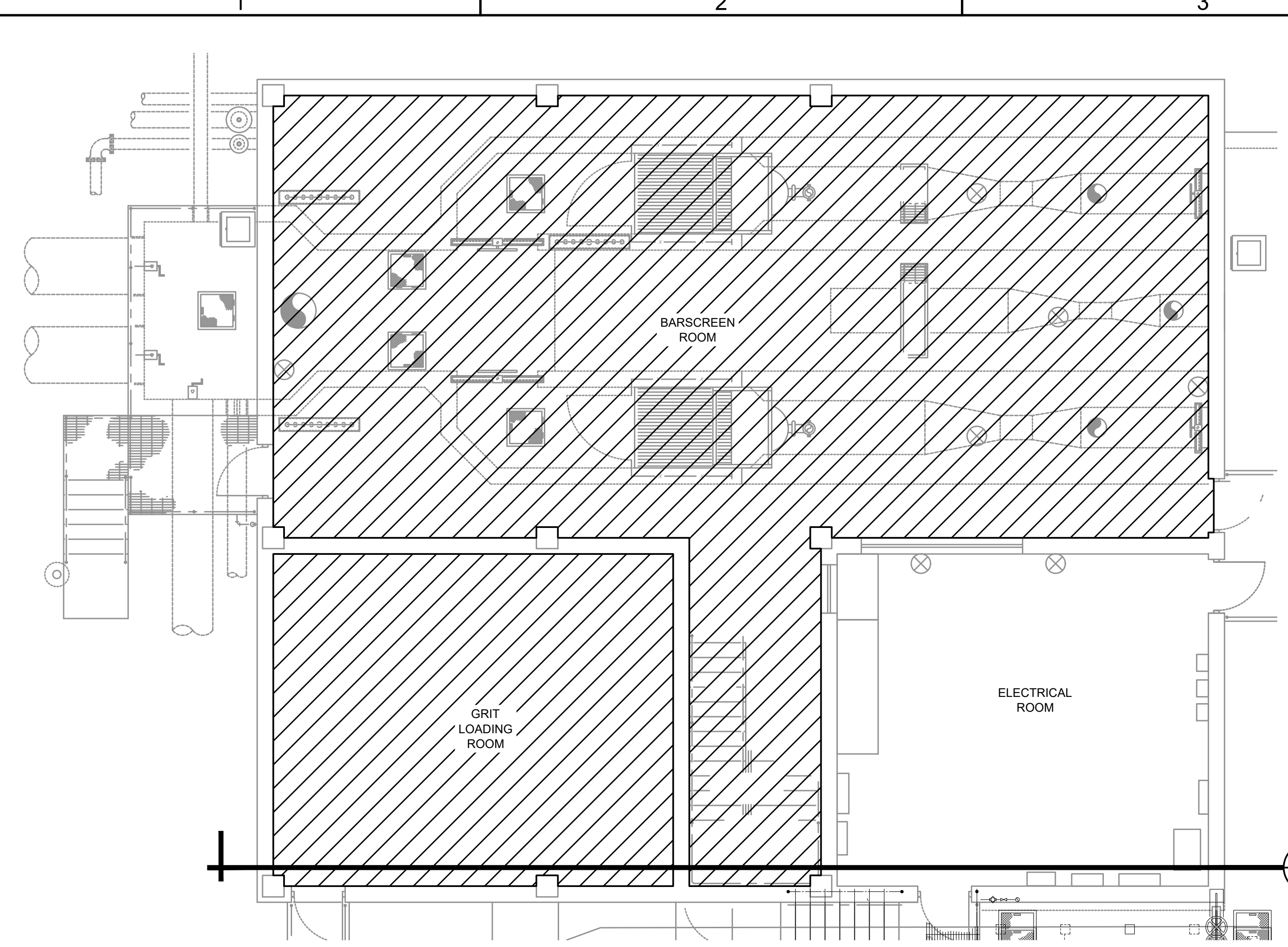
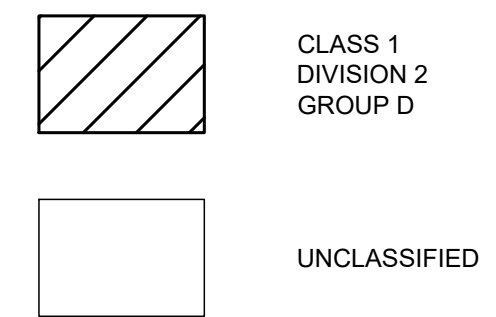
NO.	DATE	DESCRIPTION

**ELECTRICAL
HAZARDOUS
AREA CLASSIFICATION**

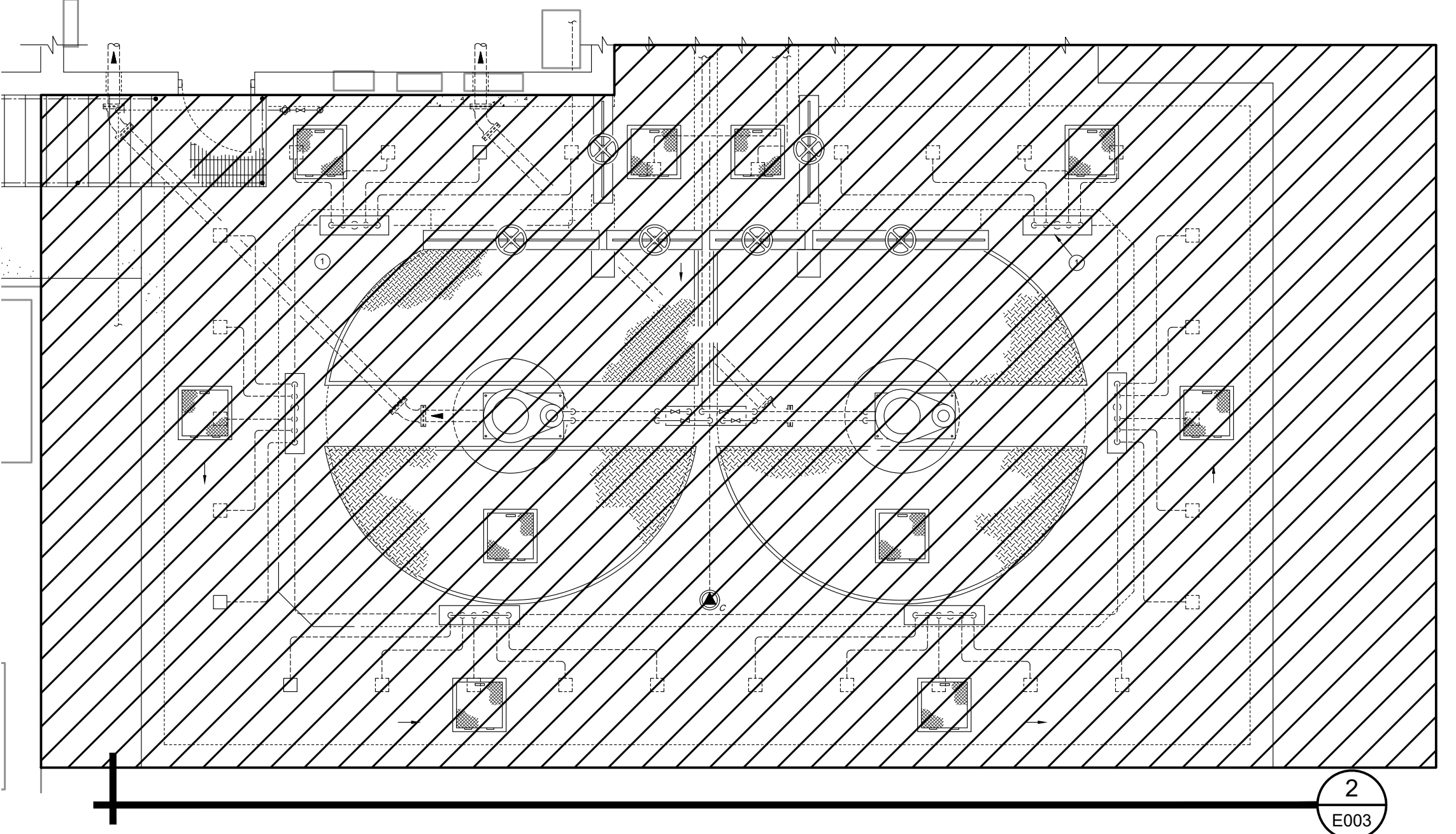
E003

NOTES:

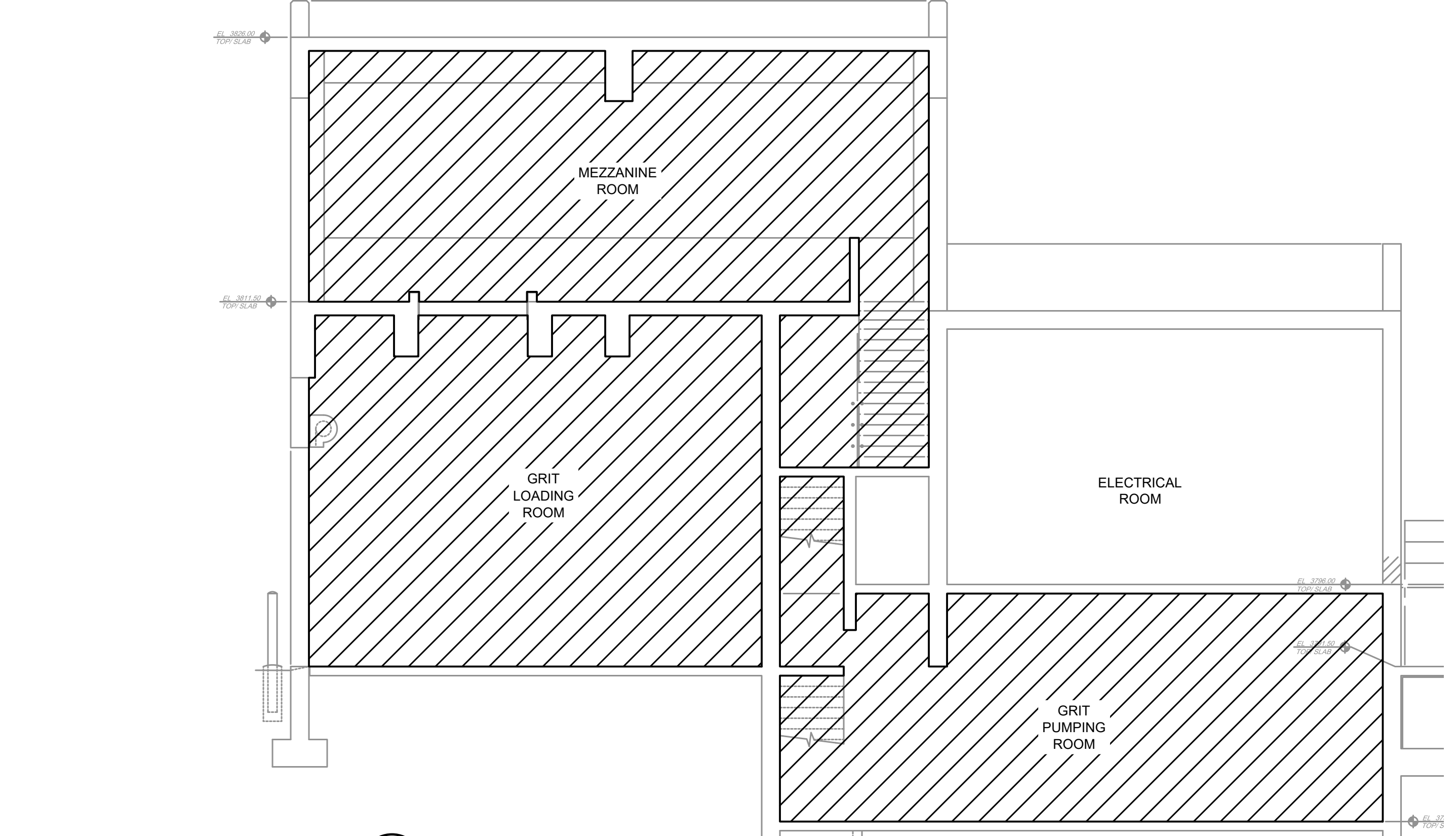
1. THE AREA CLASSIFICATION AS DESCRIBED ON THIS DRAWING IS BASED ON NFPA 820 STANDARD FOR FIRE PROTECTION IN WASTEWATER TREATMENT AND COLLECTION FACILITIES, AND IS FOR ELECTRICAL EQUIPMENT ONLY.
2. CONDUIT SEALS SHALL BE LOCATED IN ACCORDANCE WITH AND COMPLY WITH THE REQUIREMENTS OF NEC 501.15.
3. A CONDUIT SEAL SHALL BE INSTALLED IN EACH CONDUIT RUN LEAVING A CLASS 1, DIVISION 2 LOCATION. THE SEALING FITTING SHALL BE PERMITTED TO BE INSTALLED ON EITHER SIDE OF THE BOUNDARY WITHIN 10 FT OF THE BOUNDARY.
4. ABOVE GRADE, ALL CONDUITS SHALL BE ALUMINUM RIGID METAL CONDUIT. BELOW GRADE, SHALL BE PVC COATED ALUMINUM RIGID METAL CONDUIT.



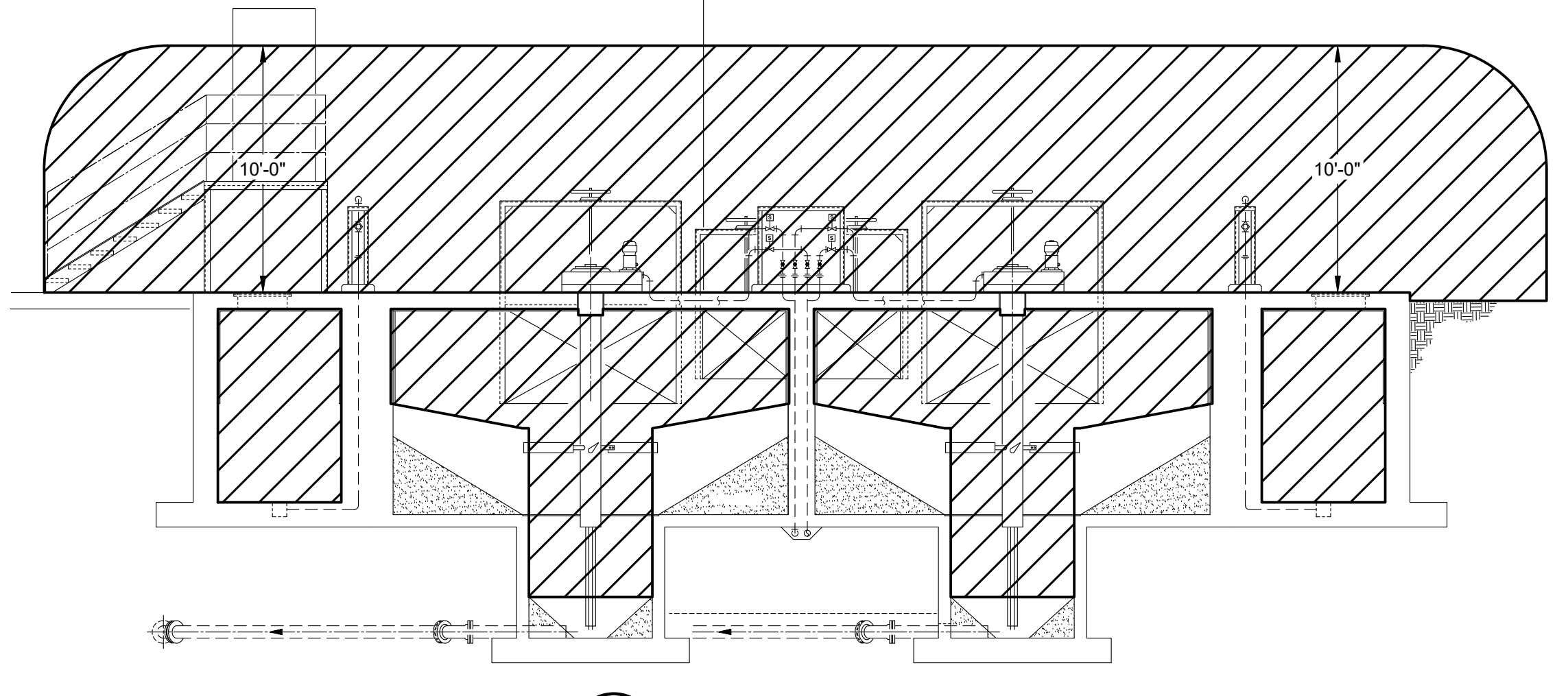
A HEADWORKS FLOOR PLAN
SCALE: NONE



B GRIT REMOVAL CHAMBERS 1 AND 2
SCALE: NONE



1 HEADWORKS SECTION
E003 SCALE: NONE



2 GRIT REMOVAL SECTION
E003 SCALE: NONE

FILE NAME: A:\2021\3065.21103_DSGN\01_DWG\150_ELEC\E003-3065.dwg LAYOUT NAME: E003 PRINTED: Thursday, April 06, 2023 - 7:56pm USER: osanchez

1

2

3

4

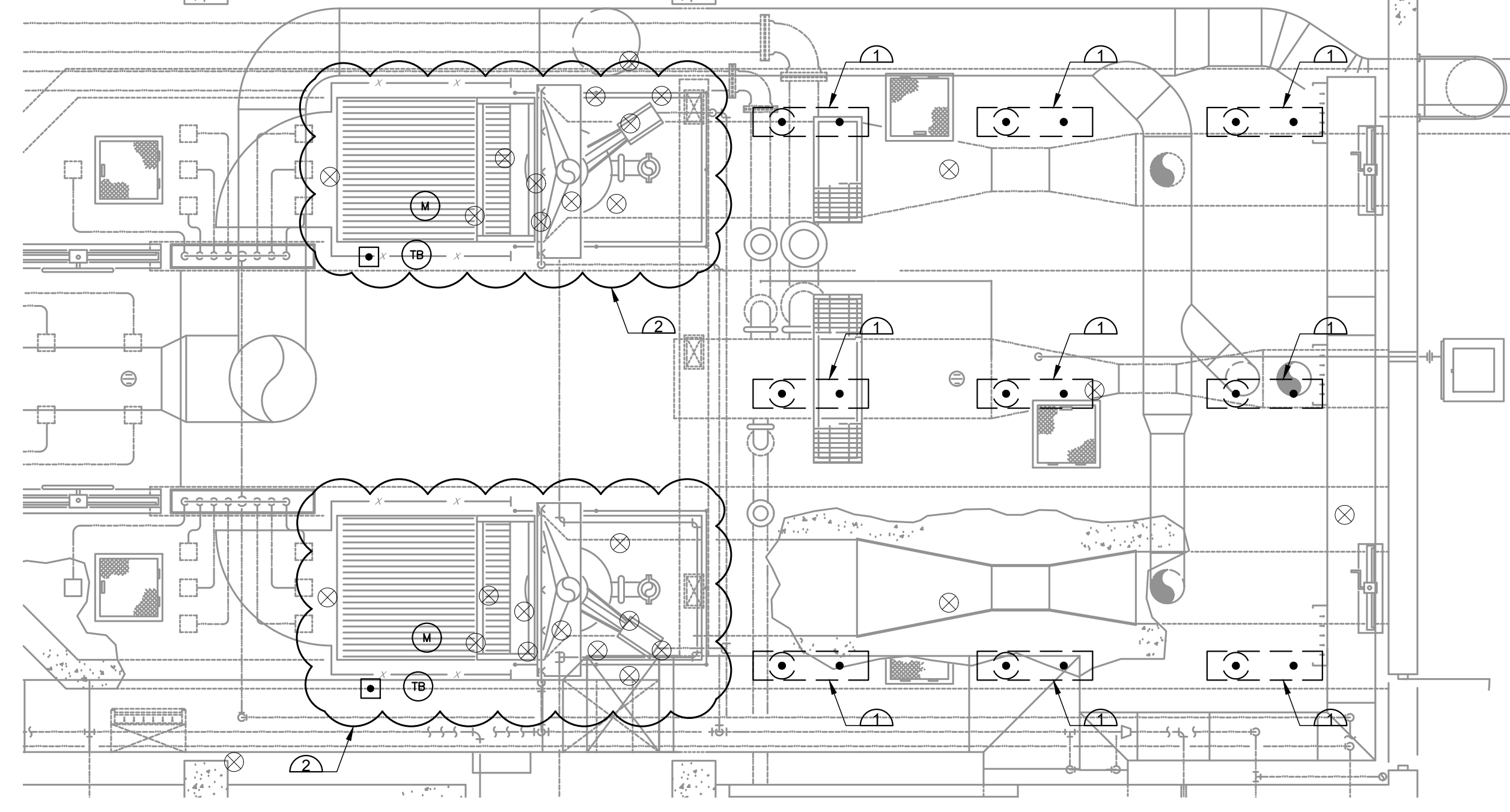
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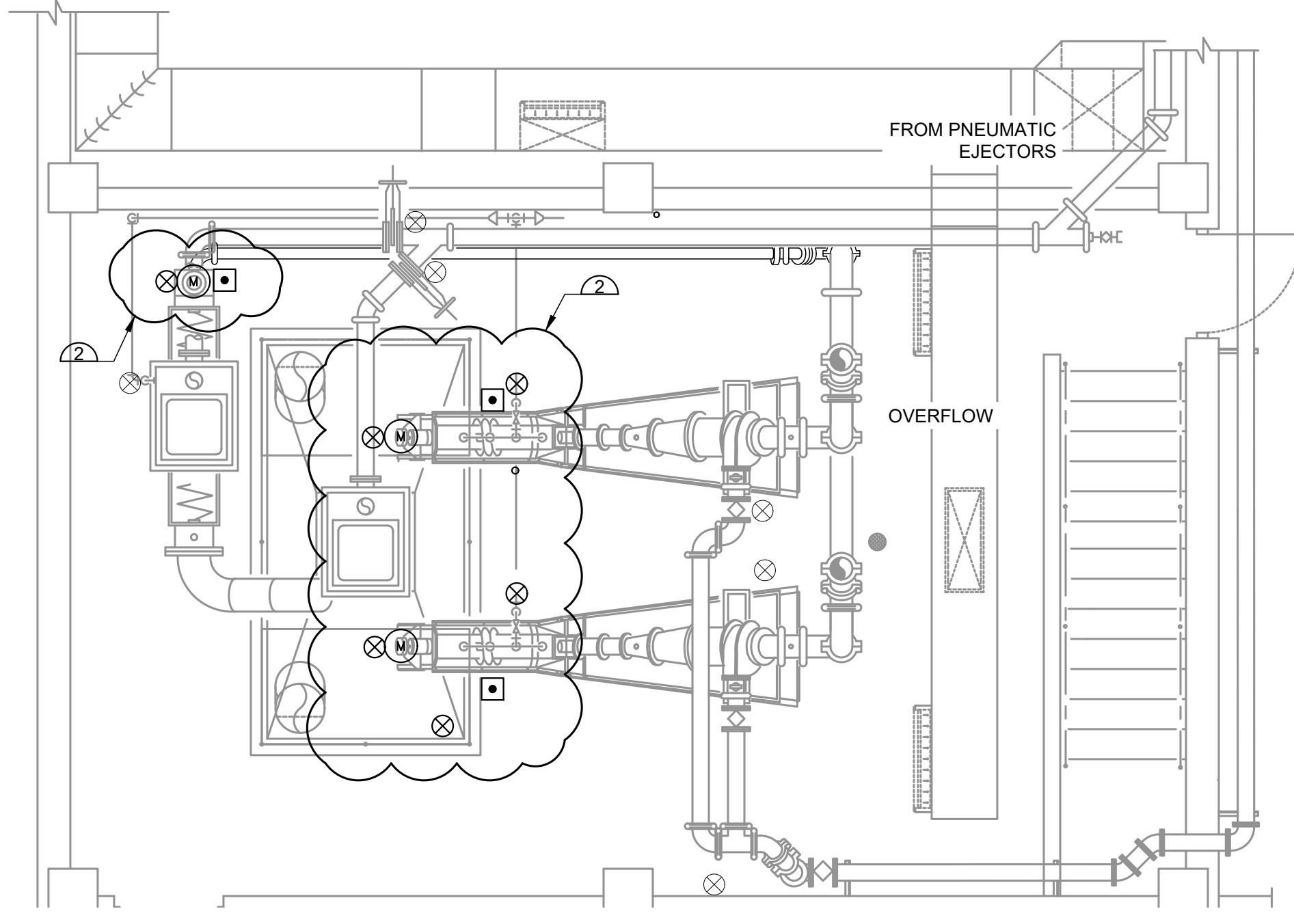
C

B

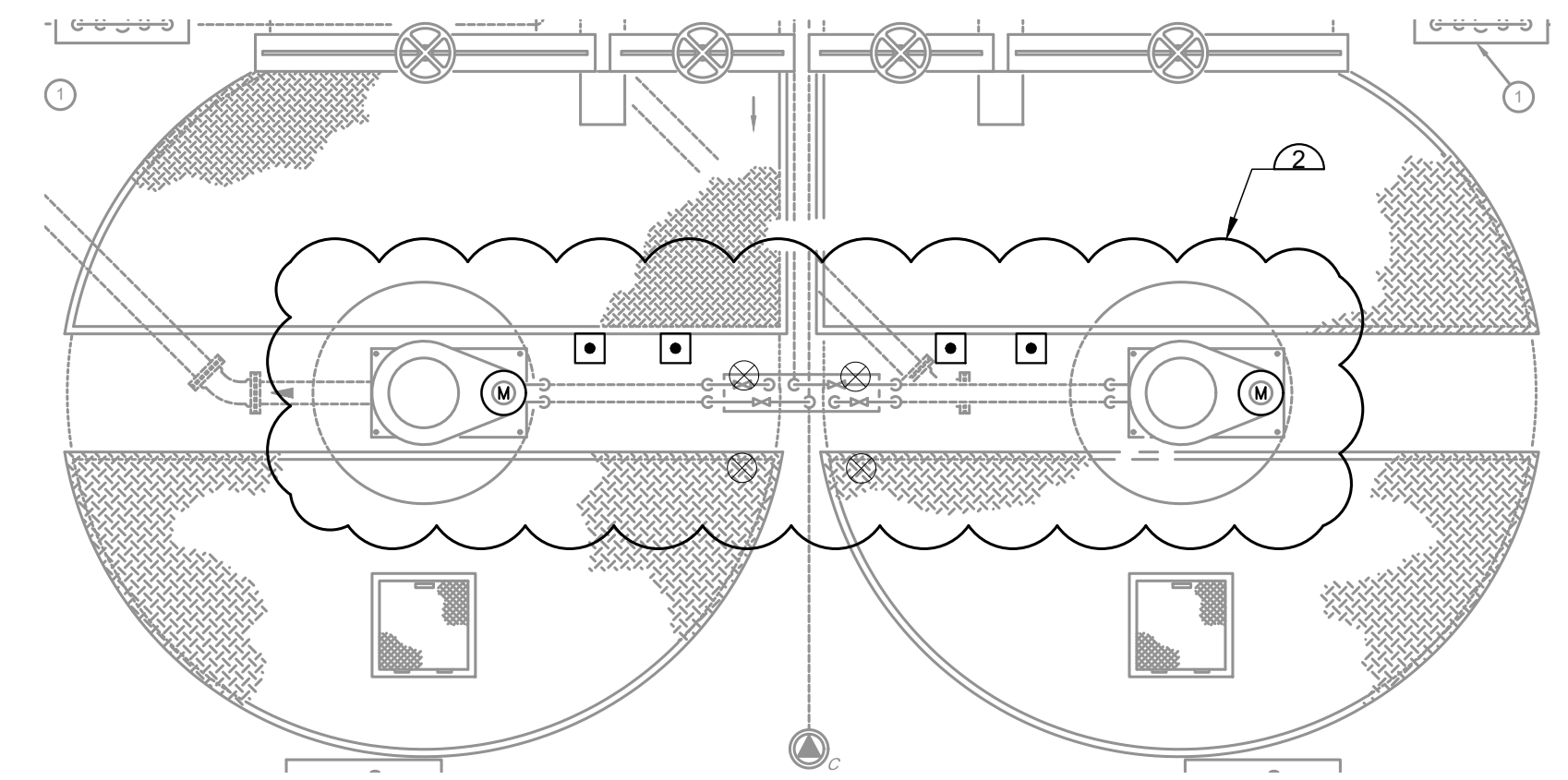
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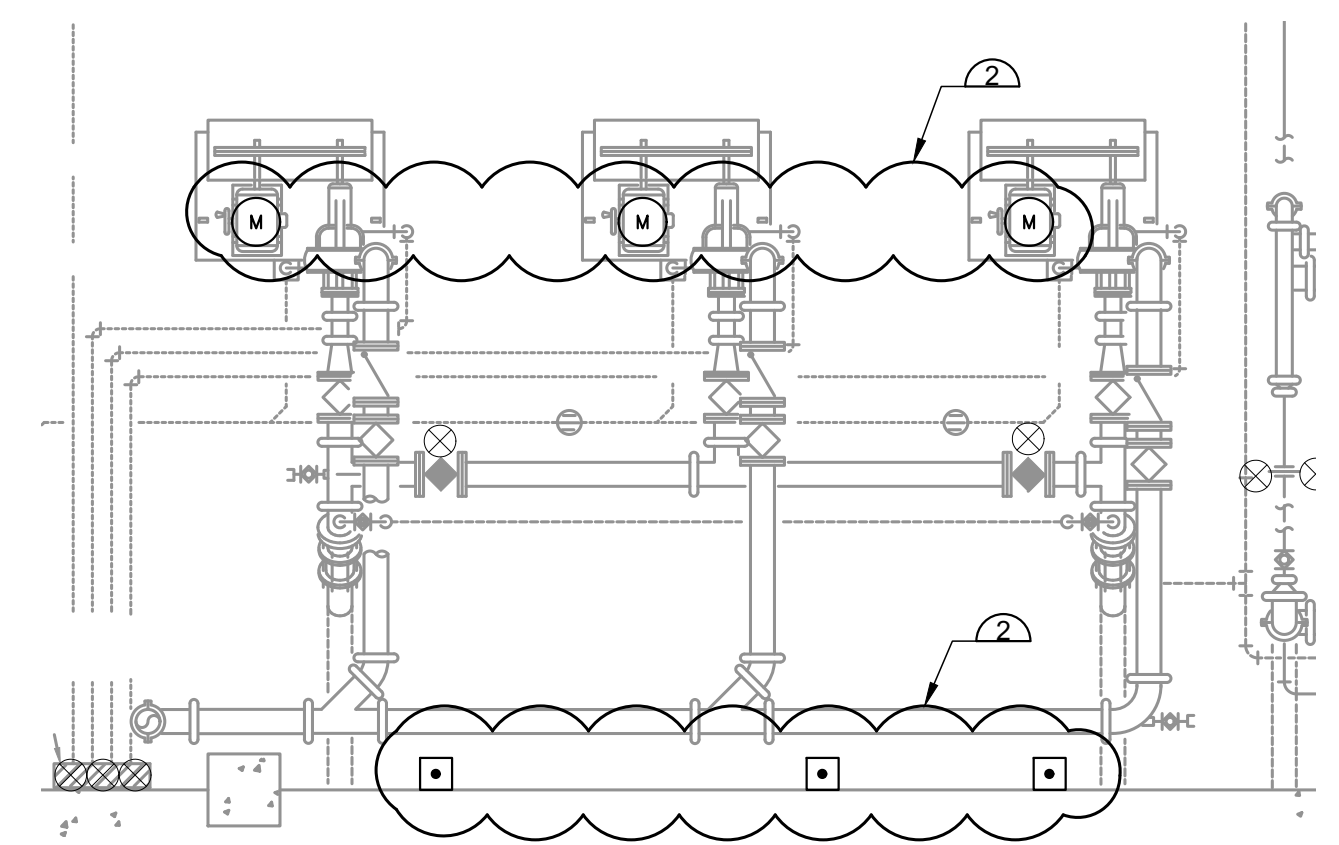
A BARSCREEN DEMOLITION PLAN
SCALE: 1/4"=1'-0"



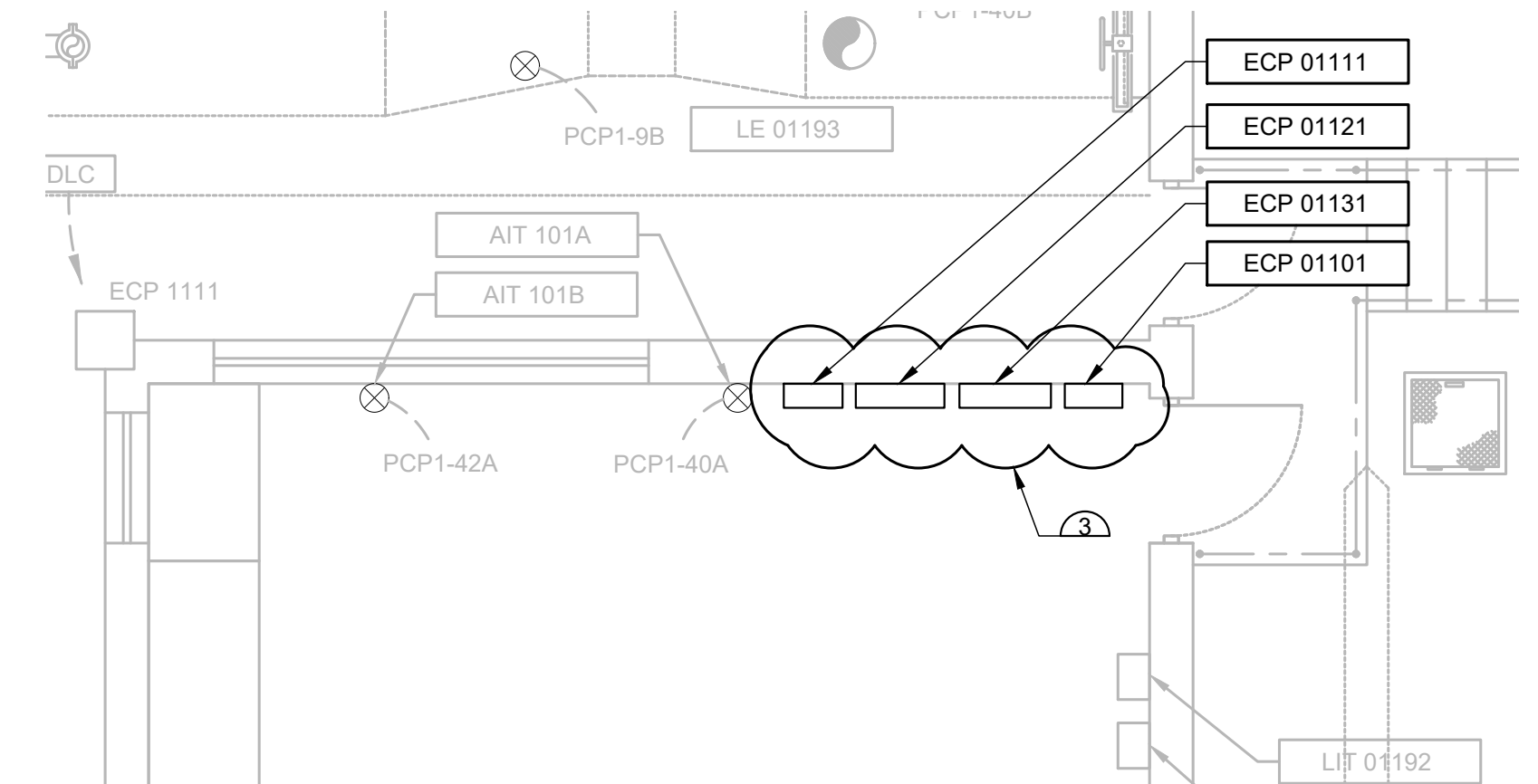
B GRIT CLASSIFIERS DEMOLITION PLAN
SCALE: 1/4"=1'-0"



C GRIT CHAMBERS 1 AND 2 DEMOLITION PLAN
SCALE: 1/4"=1'-0"



C GRIT PUMP DEMOLITION PLAN
SCALE: 1/4"=1'-0"



D ELECTRICAL ROOM DEMOLITION PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTES

- A. REFER TO SPECIFICATION SECTION 26 05 05.
- B. COORDINATE WORK WITH MECHANICAL PROCESS EQUIPMENT DEMO WORK, SEE MECHANICAL DEMO SHEETS.
- C. REFER TO SHEETS E004 AND E005 FOR ADDITIONAL INFO ON CONDUITS AND CABLING TO BE REMOVED.

DEMOLITION NOTES

- REMOVE EXISTING CONSTRUCTION AS INDICATED BY:
- 1. RELOCATE EXISTING FIXTURES TO ACCOMMODATE NEW SCREW CONVEYOR. SEE SHEET E006.
 - 2. DEMO MOTORS, CONTROL STATION, CONDUITS, WIRING AND SENSORS FOR ASSOCIATED EQUIPMENT.
 - 3. REMOVE EXISTING PANELS. COORDINATE WITH OWNER TO IDENTIFY CONTROL EQUIPMENT OF SALVAGEABLE VALUE TO BE TURNED OVER TO OWNER.



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

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NO.	DATE	DESCRIPTION

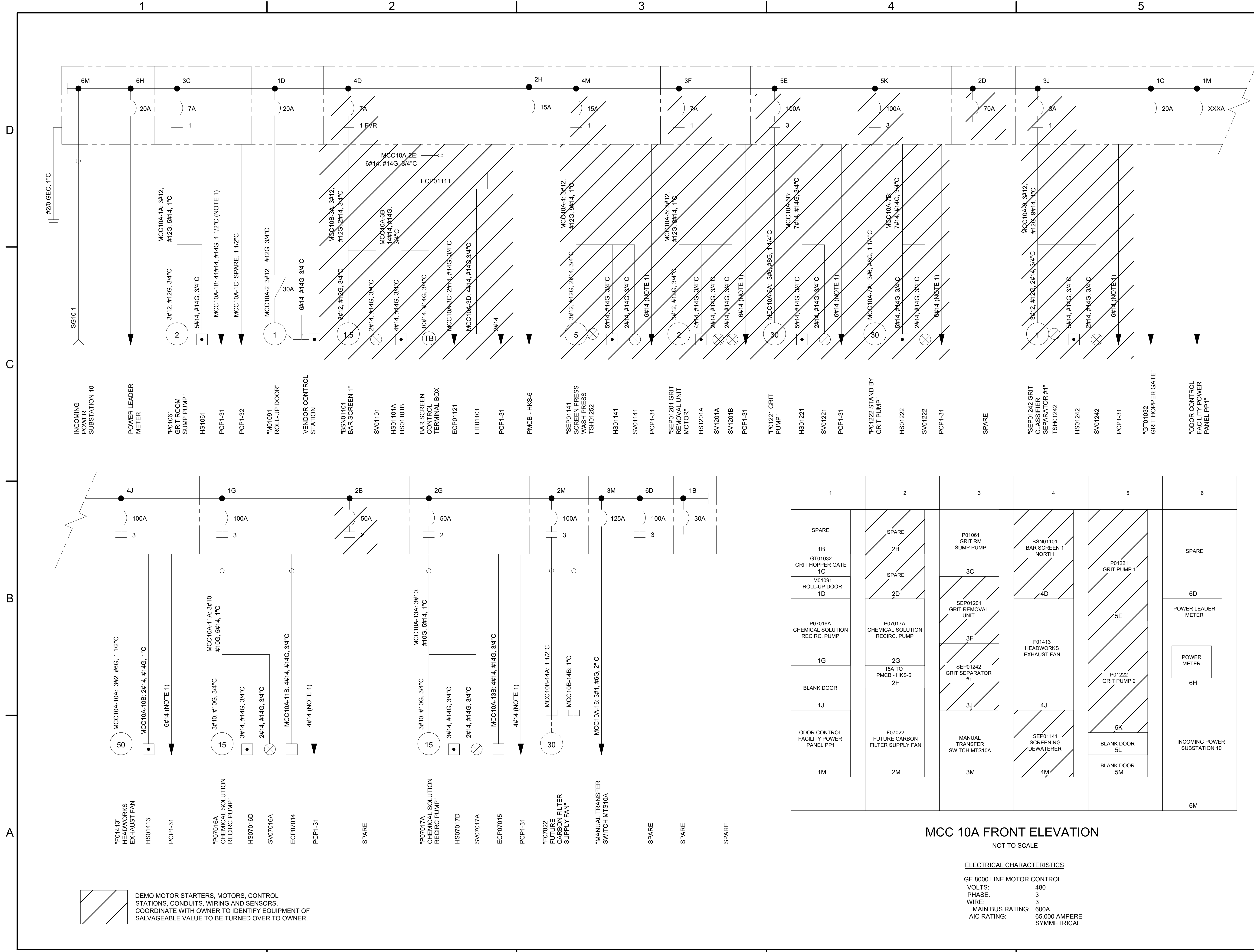
ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

ELECTRICAL DEMOLITION PLAN

E004

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG\150_ELECE\E004-3065.dwg LAYOUT NAME: E004 PRINTED: Thursday, April 06, 2023 - 7:56pm USER: csanchez

FILE NAME: A:\2021\3065.21103_DSGN01_DWG150_ELEC005-3065.dwg LAYOUT NAME: E005 PRINTED: Thursday, April 06, 2023 - 7:56pm USER: osanchez



MCC 10A FRONT ELEVATION
NOT TO SCALE

ELECTRICAL CHARACTERISTICS
 GE 8000 LINE MOTOR CONTROL
 VOLTS: 480
 PHASE: 3
 WIRE: 3
 MAIN BUS RATING: 600A
 AIC RATING: 65,000 AMPERE SYMMETRICAL

DEMO MOTOR STARTERS, MOTORS, CONTROL STATIONS, CONDUITS, WIRING AND SENSORS. COORDINATE WITH OWNER TO IDENTIFY EQUIPMENT OF SALVAGEABLE VALUE TO BE TURNED OVER TO OWNER.

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04/06/2023
 PARKHILL SMITH & COOPER, INC. F-5610
 MARCELO N. TRUJILLO
 89806
 LICENSED PROFESSIONAL ENGINEER
 Member N. Trujillo

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 1154 Hawkins El Paso, Tx. 79925 • (915) 694-5500

**JOHN T. HICKERSON
 HEADWORKS
 BARSCREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

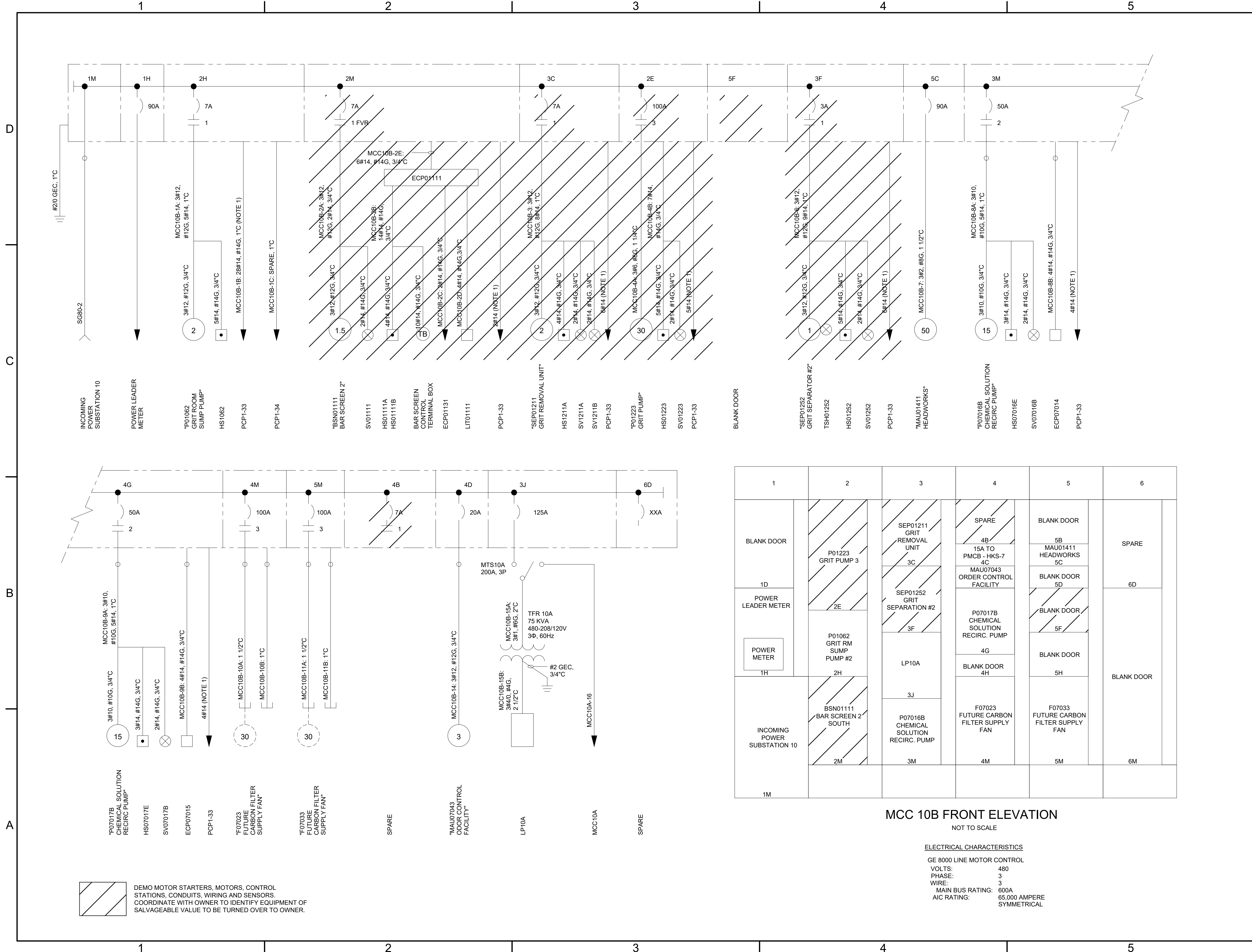
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**ELECTRICAL
 MCC-10A
 ONE-LINE DIAGRAM
 DEMO-SHEET**

E005



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 HEADWORKS
 BARSREEN REPLACEMENT**

EL PASO WATER

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 EL PASO, TEXAS 79936

KEY PLAN

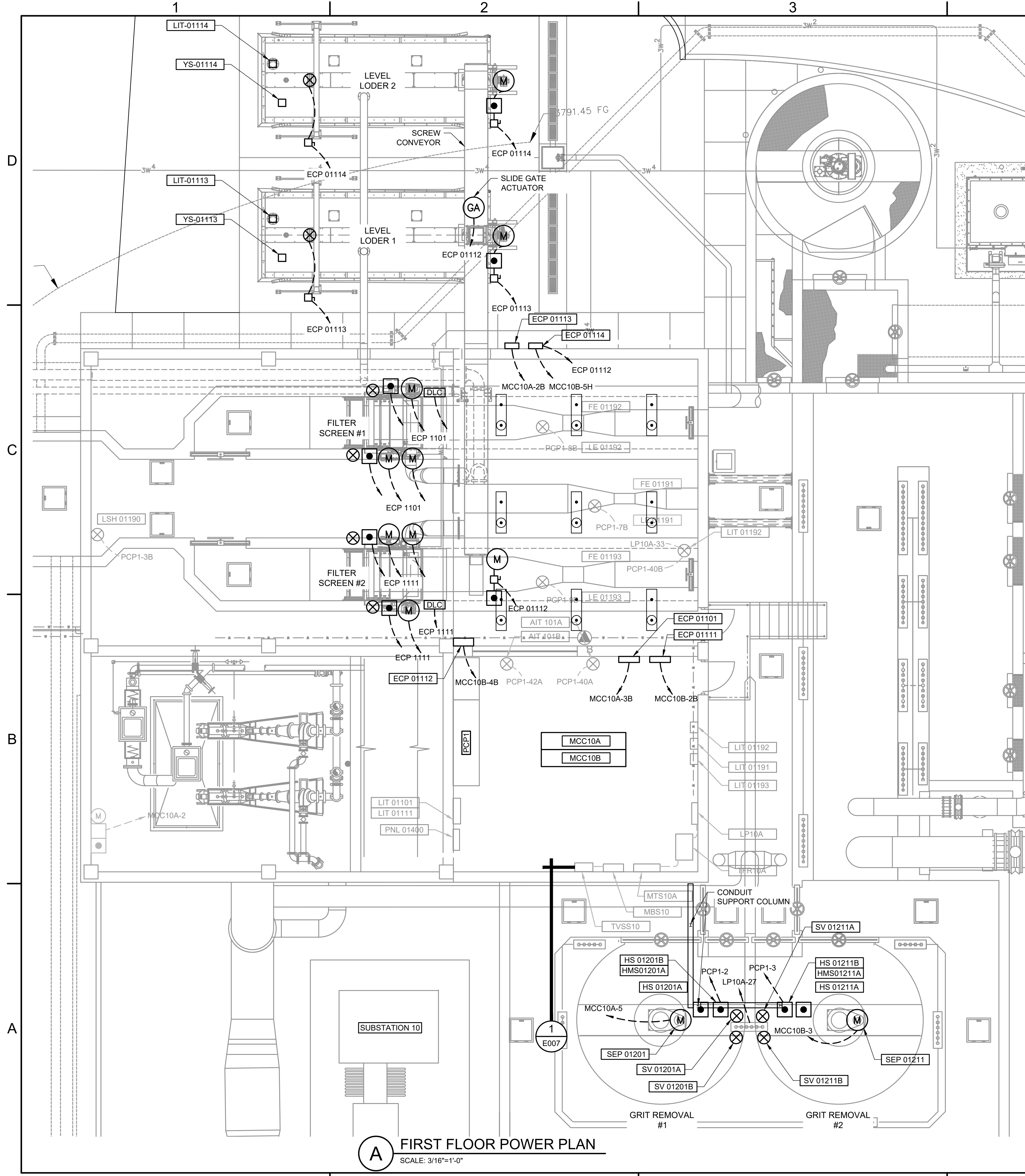
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 IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION

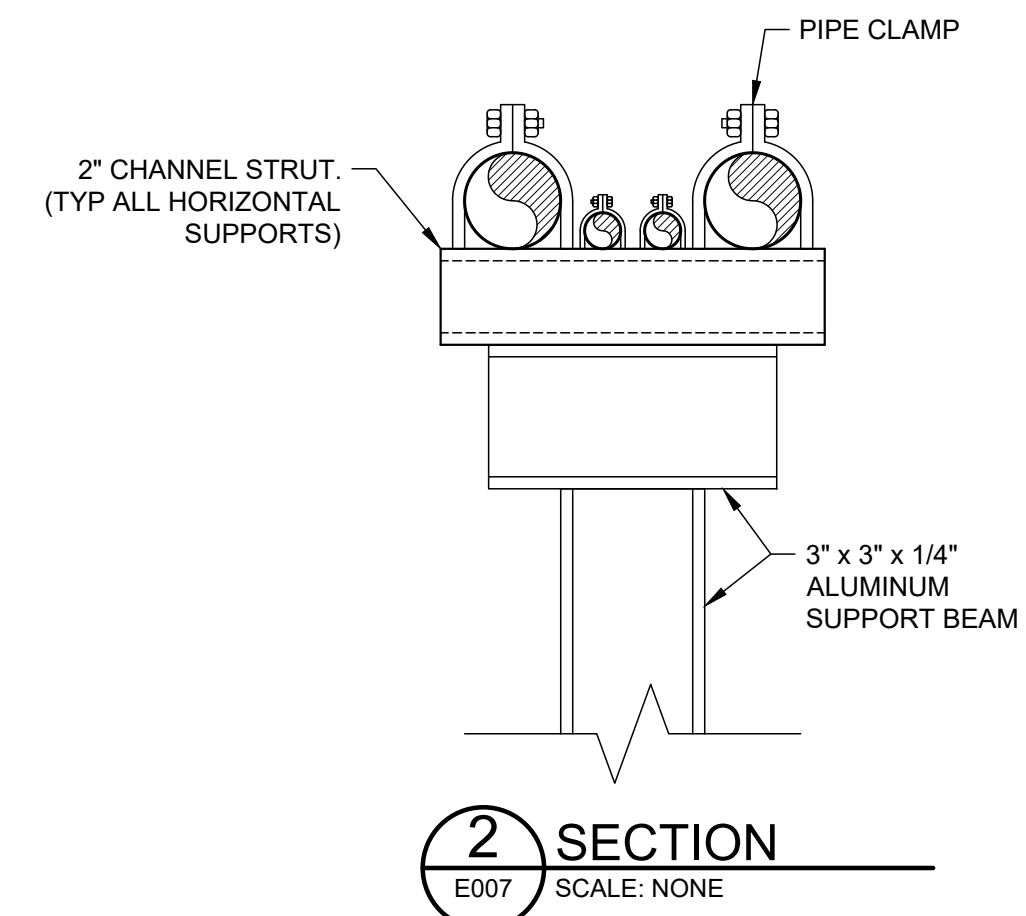
ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

FILE NAME: A:\2021\3065.21103_DSGN01_DWG\150_ELEC\E007-3065.dwg LAYOUT NAME: E007 PRINTED: Thursday, April 06, 2023 - 7:57pm USER: csanchez



EQUIPMENT CONTROL PANEL TAGS

- ECP 01101 FILTER SCREEN AND WASH PRESS #1 CONTROL PANEL.
- ECP 01111 FILTER SCREEN AND WASH PRESS #2 CONTROL PANEL.
- ECP 01112 SCREW CONVEYOR CONTROL PANEL.
- ECP 01113 LEVEL LODER #1 CONTROL PANEL.
- ECP 01114 LEVEL LODER #2 CONTROL PANEL.
- PCP1-31 STATION CONTROL PANEL.
- PCP1-33 STATION CONTROL PANEL.



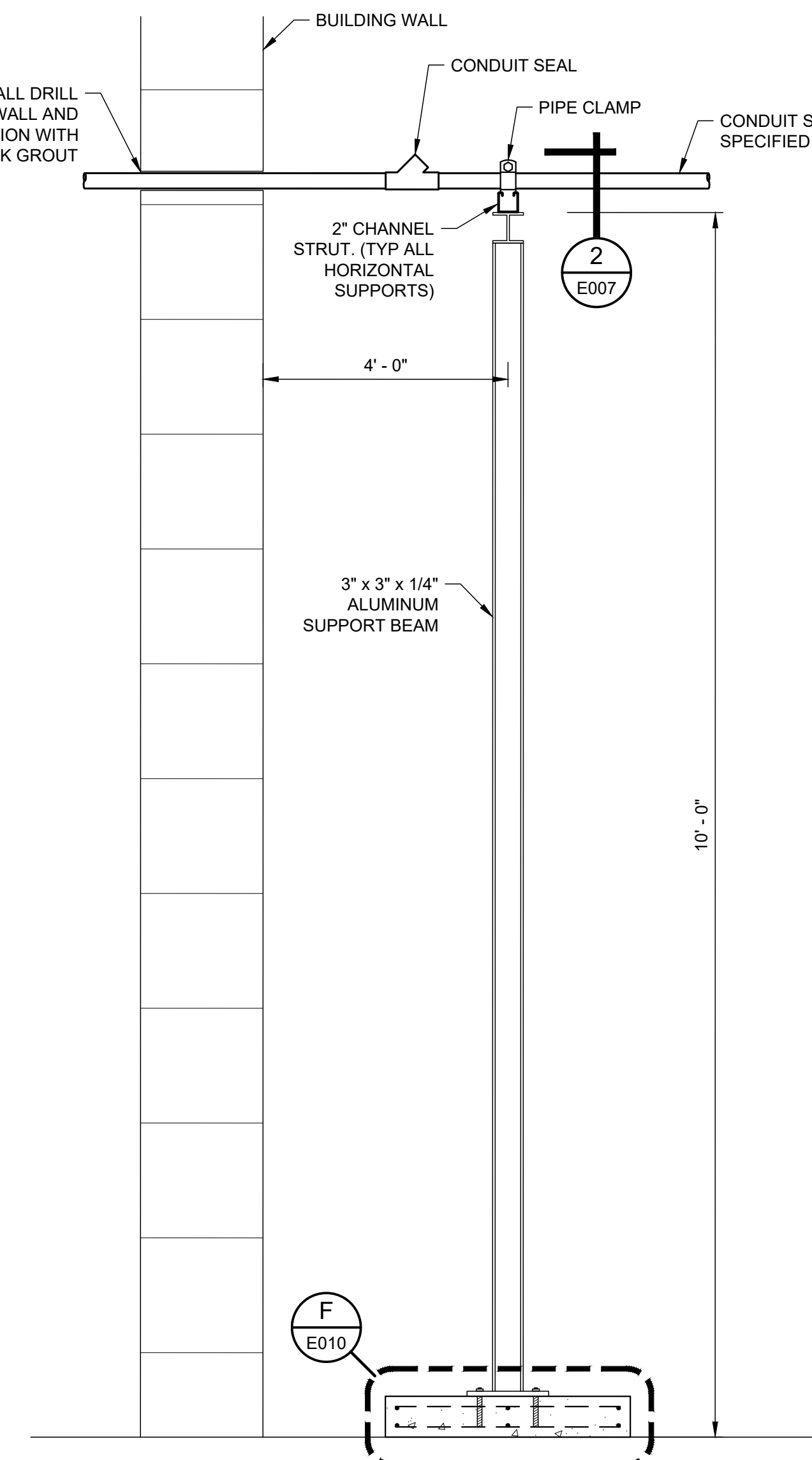
CONTRACTOR SHALL DRILL THROUGH WALL AND REPAIR PENETRATION WITH NON-SHRINK GROUT

BUILDING WALL

CONDUIT SEAL

PIPE CLAMP

CONDUIT SIZE AS SPECIFIED ON ONE-LINE



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HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

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KEY PLAN

VERIFY SCALES

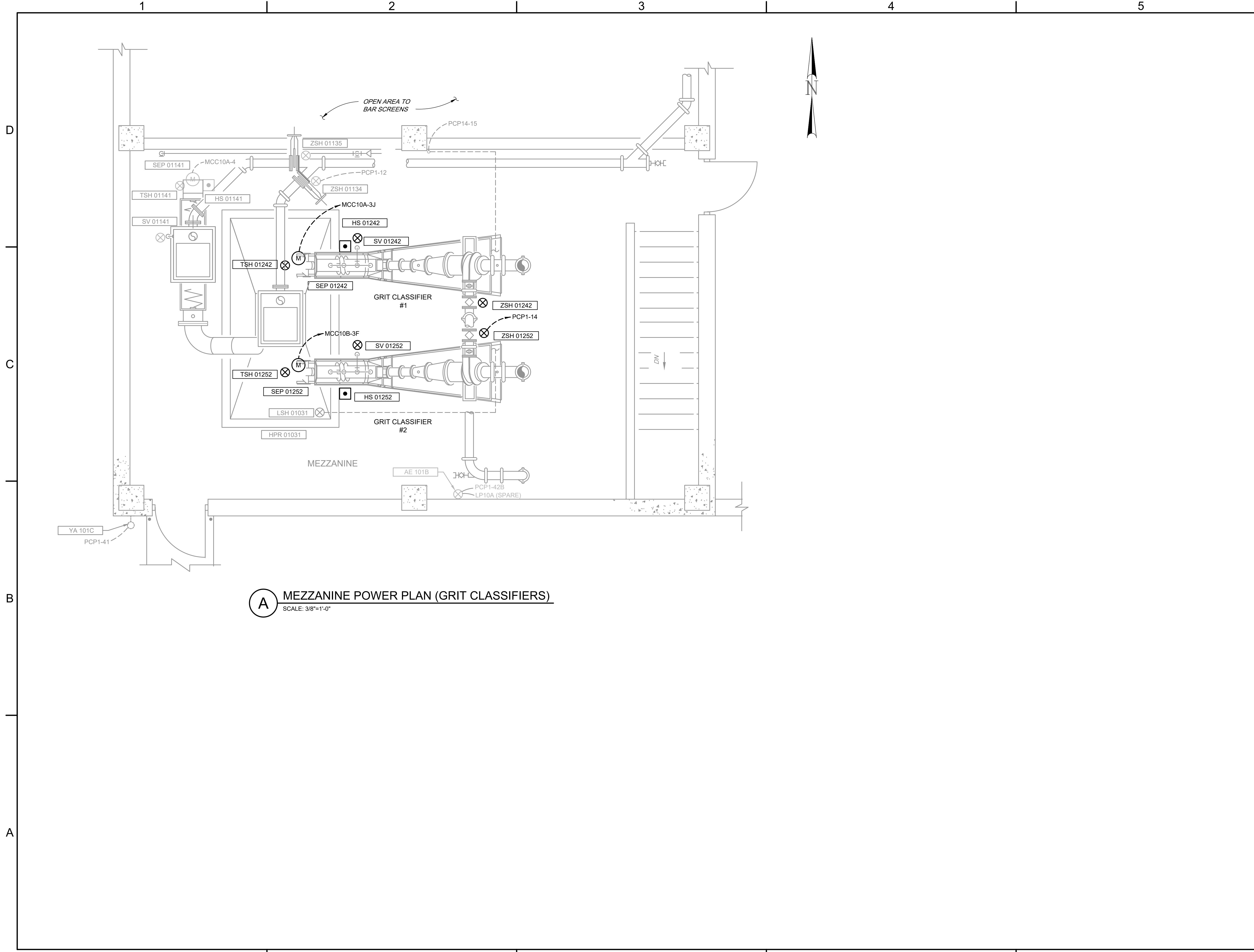
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NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

ELECTRICAL
FIRST FLOOR
POWER PLAN

E007

FILE NAME: A:\2021\3065.21103_DSGND1_DWG\150_ELEC\008-3065.dwg LAYOUT NAME: E008 PRINTED: Thursday, April 06, 2023 - 7:57pm USER: osanchez



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HEADWORKS
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EL PASO WATER

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KEY PLAN

VERIFY SCALES

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0 1"
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NO.	DATE	DESCRIPTION
ISSUING OFFICE:	EL PASO	PROJECT NO: 3065.21

**ELECTRICAL
MEZZANINE
POWER PLAN**



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

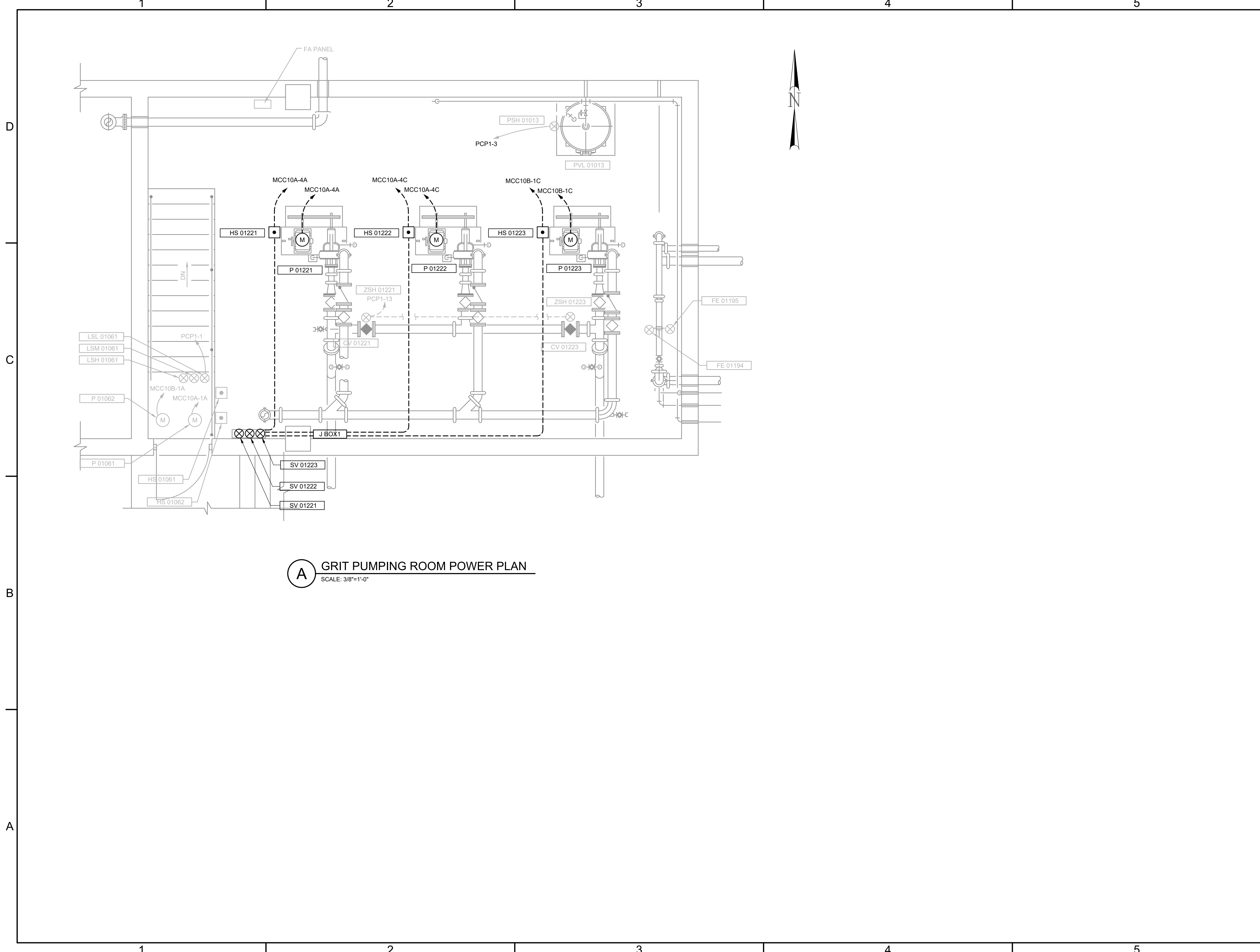
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
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NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

**ELECTRICAL
GRIT PUMPING ROOM
POWER PLAN**

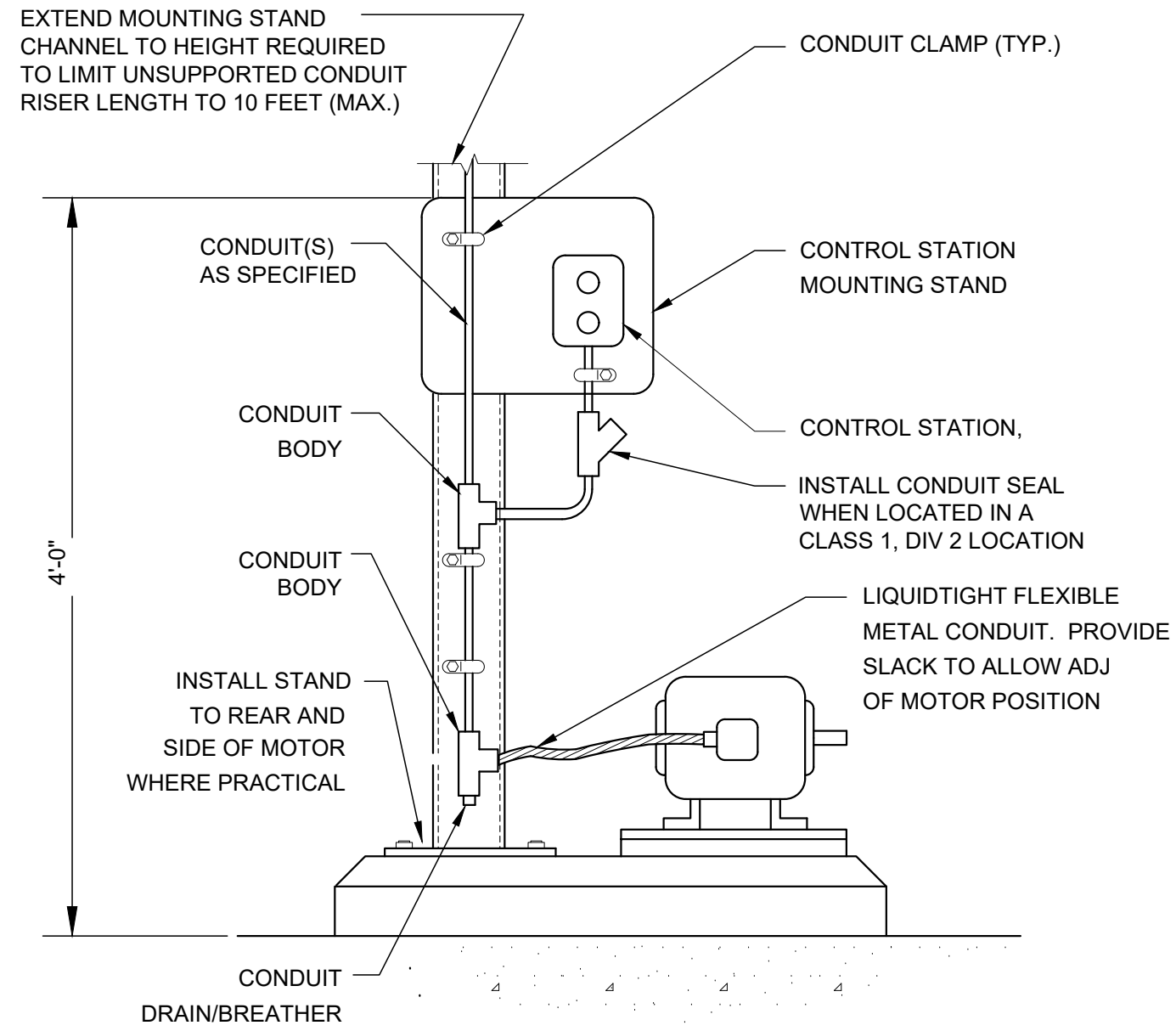
E009

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG\150_ELEC\009-3065.dwg LAYOUT NAME: E009 PRINTED: Thursday, April 06, 2023 - 7:57pm USER: osanchez



A GRIT PUMPING ROOM POWER PLAN
SCALE: 3/8"=1'-0"

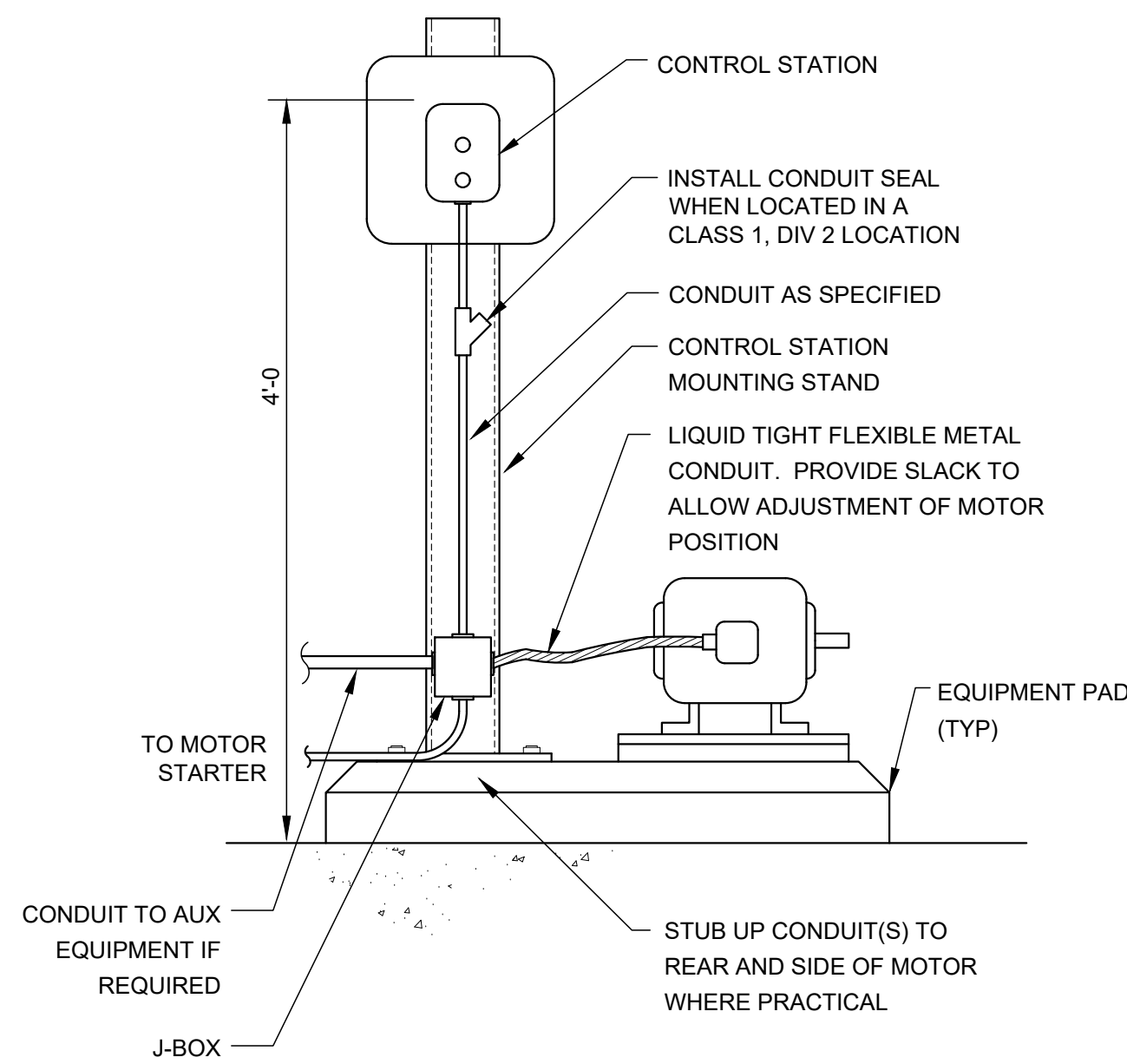
FILE NAME: A:\2021\3065.21\03_DSGND1_DWG\150_ELEC\10-3065.dwg LAYOUT NAME: E010 PRINTED: Thursday, April 06, 2023 - 7:58pm USER: osanchez



NOTES:

- CONDUIT SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAM.
- MOUNTING STAND REQUIREMENTS VARY WITH EQUIPMENT SIZE. REFER TO DETAILS A/E3 AND C/E5.

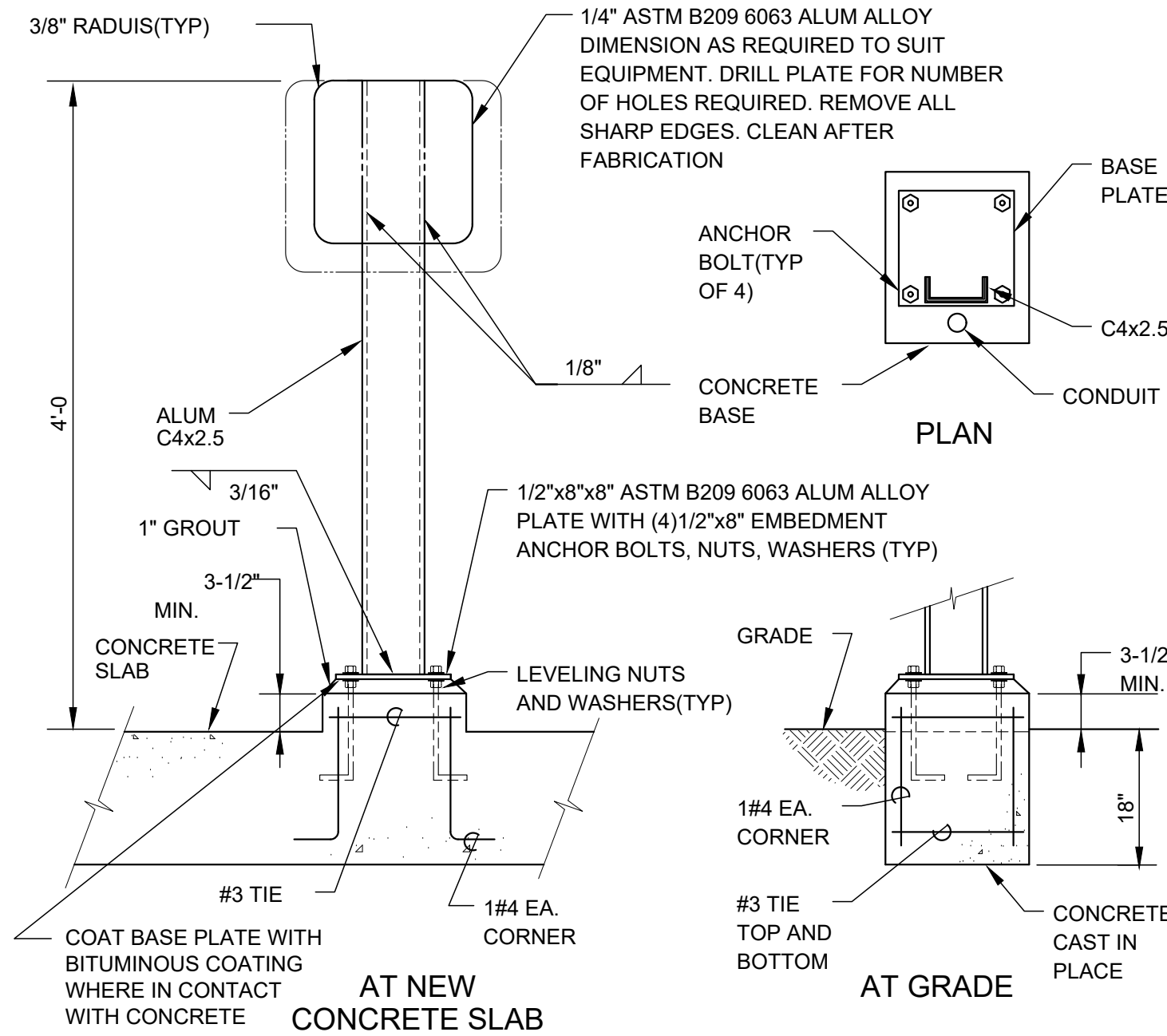
A OVERHEAD MOTRO FEED
VAR SCALE: NONE



NOTES:

- CONDUIT SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAM.
- MOUNTING STAND REQUIREMENTS VARY WITH EQUIPMENT SIZE. REFER TO DETAILS A/E3 AND C/E5.

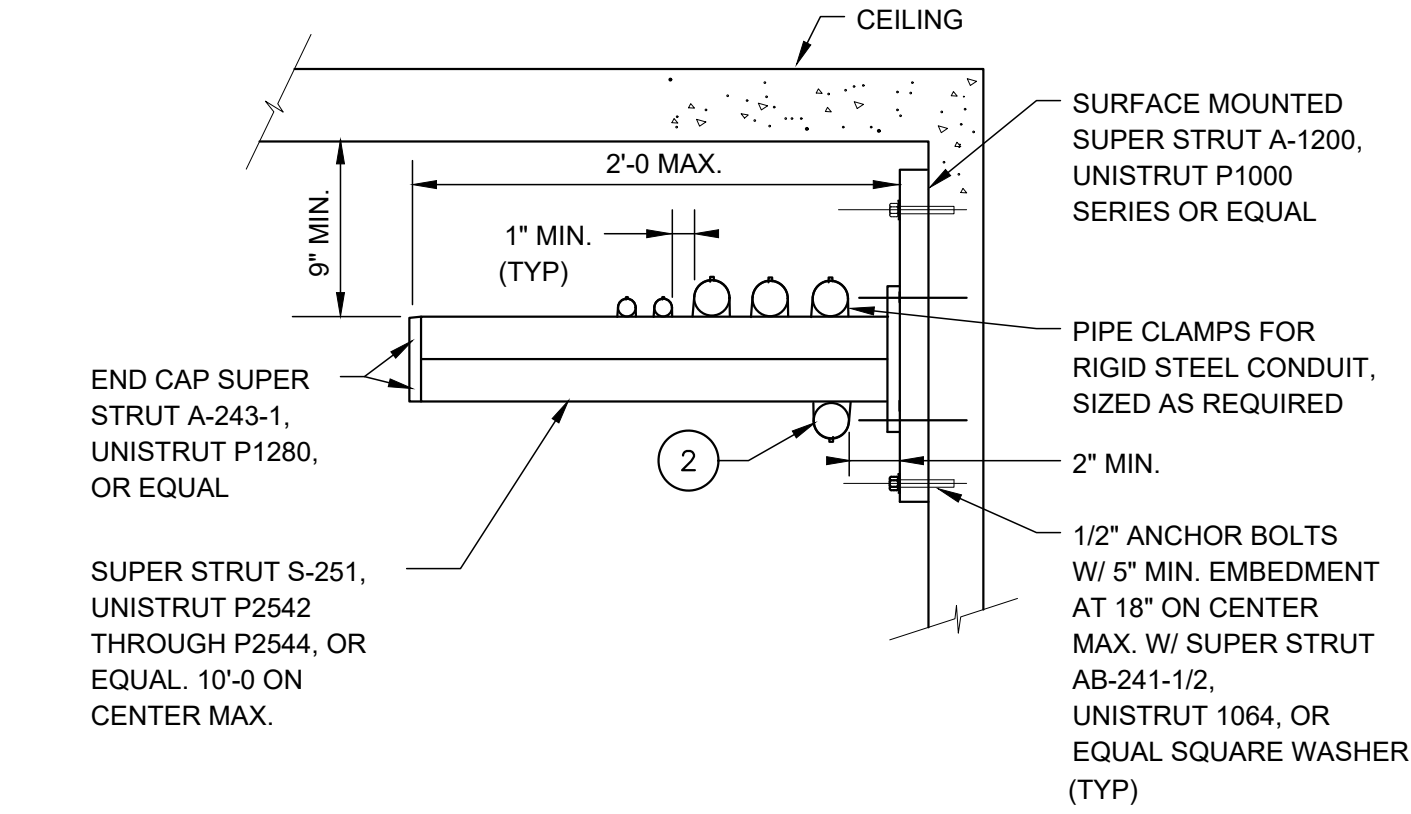
D MOTOR FEED FROM BELOW
VAR SCALE: NONE



NOTES:

- REFER TO EQUIPMENT RACK DETAIL C/E5 FOR CONSTRUCTION REQUIREMENTS OF CONCRETE PEDESTAL AT EXISTING CONCRETE SLAB.
- CONTROL STATION MOUNTING STAND SHALL BE UTILIZED FOR MOUNTING THE FOLLOWING.
 - A. ONE EQUIPMENT ITEM WITH MOUNTING FOOTPRINT LESS THAN 150 IN.
 - B. TWO EQUIPMENT ITEMS WITH COMBINED MOUNTING FOOTPRINT LESS THAN 130 IN.

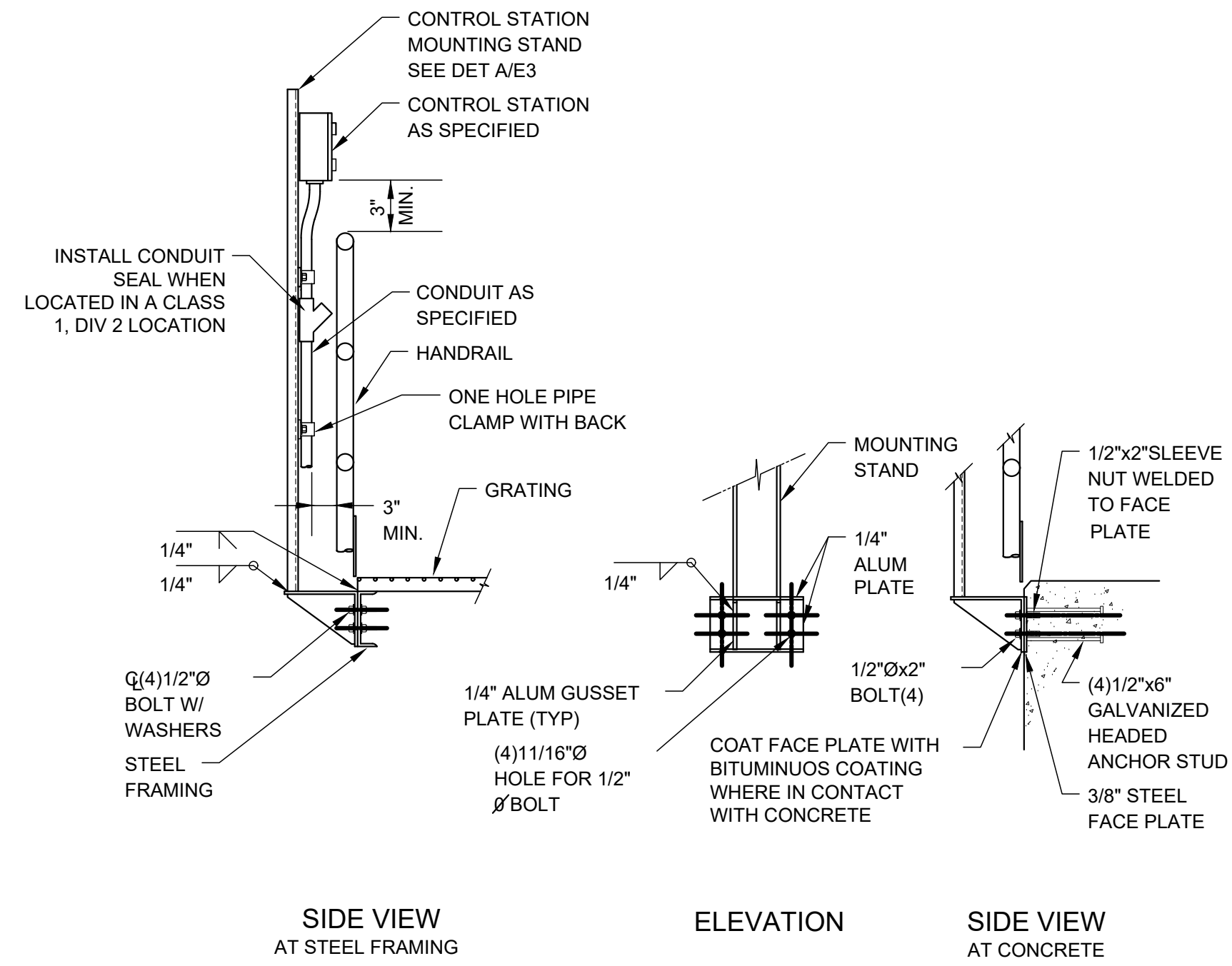
B CONTROL STATION MOUNTING STAND
VAR SCALE: NONE



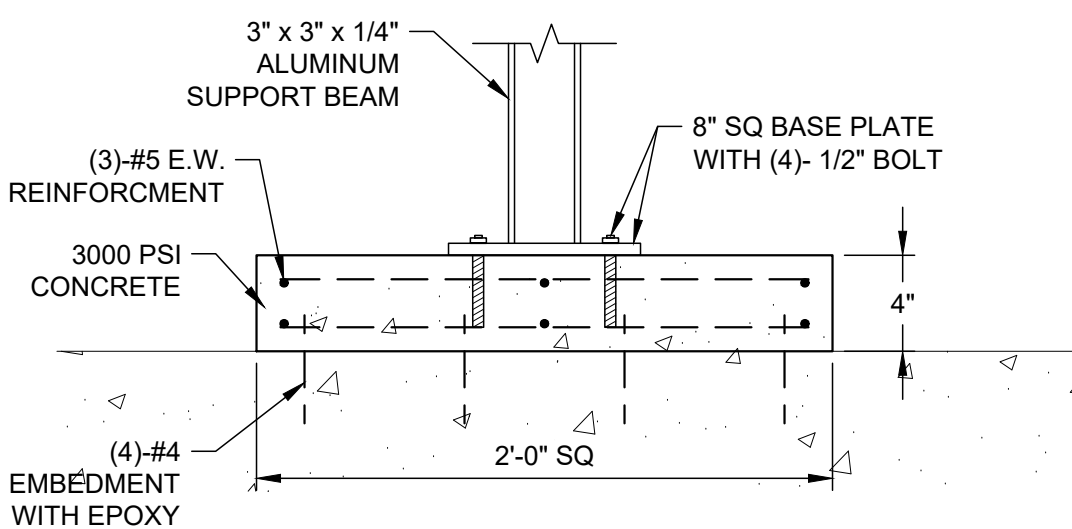
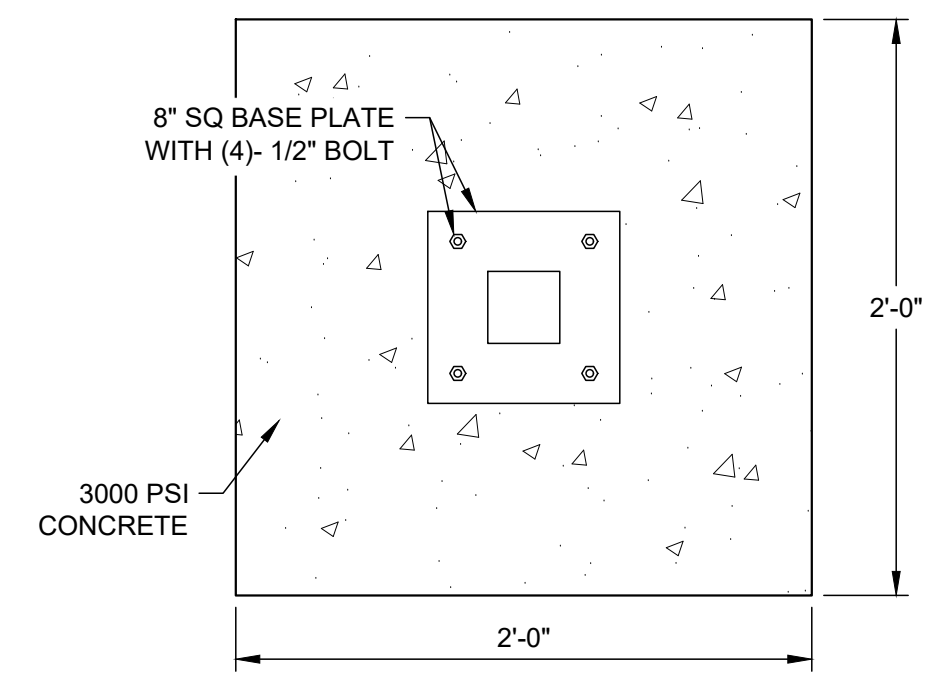
NOTES:

- MAX. UNIFORMLY DISTRIBUTED LOAD (CONDUIT AND FILL) PER UNIT TO BE 1000 LBS. CONTRACTOR TO PROVIDE CALCULATIONS WHEN ANY CONDUIT IS OVER 2" IN SIZE OR IF CONDUIT IS INSTALLED ON TOP AND BOTTOM OF RACK.
- HOLE SIZE ON FITTINGS SHALL BE 9/16" Ø WITH 1/2" HEX HEAD CAP SCREW 15/16" LONG AND 1/2" CLAMP NUT WITH SPRING.

E CONDUIT RACK
VAR SCALE: NONE



C CONTROL STATION MOUNTING AT HANDRAIL
VAR SCALE: NONE



F CONDUIT COLUMN BASE SUPORT
E007 SCALE: NONE



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

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0 1"
IF NOT 1 INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

ELECTRICAL
DETAILS

E010

NOTES:

- CONTROL DIAGRAMS REPRESENTING MORE THAN ONE EQUIPMENT ITEM INDICATE THE AUXILIARY DEVICE TAG NUMBERS FOR THE FIRST LISTED EQUIPMENT ITEM IN THE ASSOCIATED ADAPTER TABLE. REFER TO THE REFERENCED PROCESS AND INSTRUMENTATION DIAGRAM FOR THE CORRESPONDING TAG NUMBERS OF THE OTHER EQUIPMENT.



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT
EL PASO WATER
 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

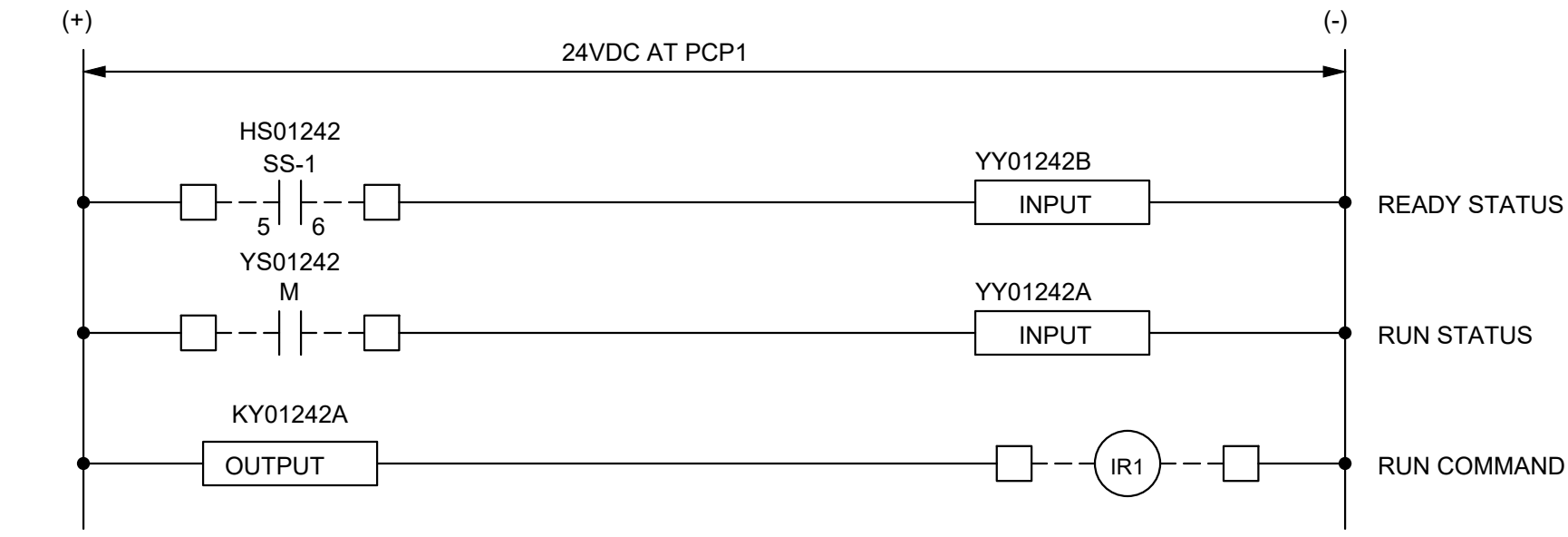
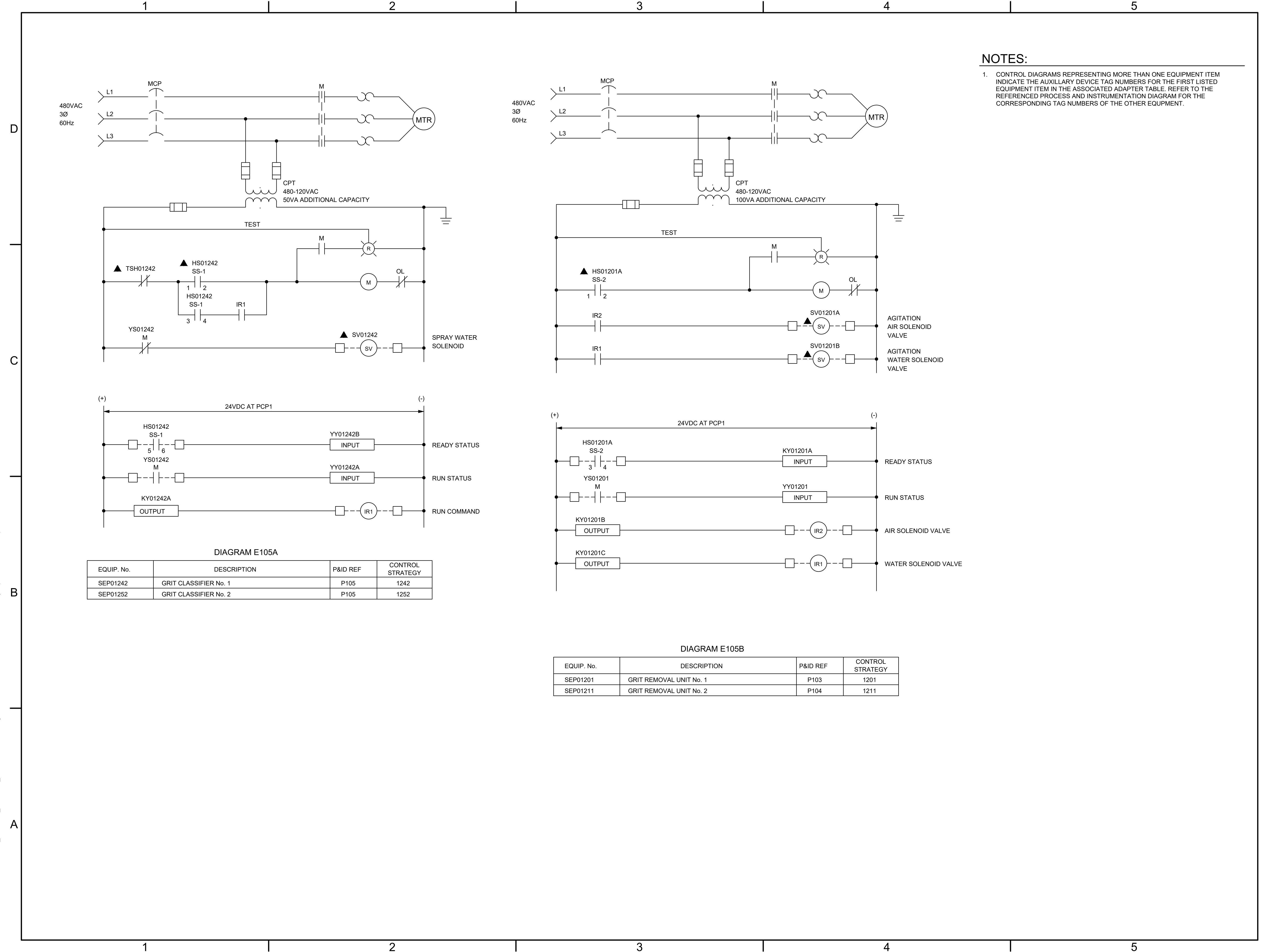


DIAGRAM E105A

EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
SEP01242	GRIT CLASSIFIER No. 1	P105	1242
SEP01252	GRIT CLASSIFIER No. 2	P105	1252

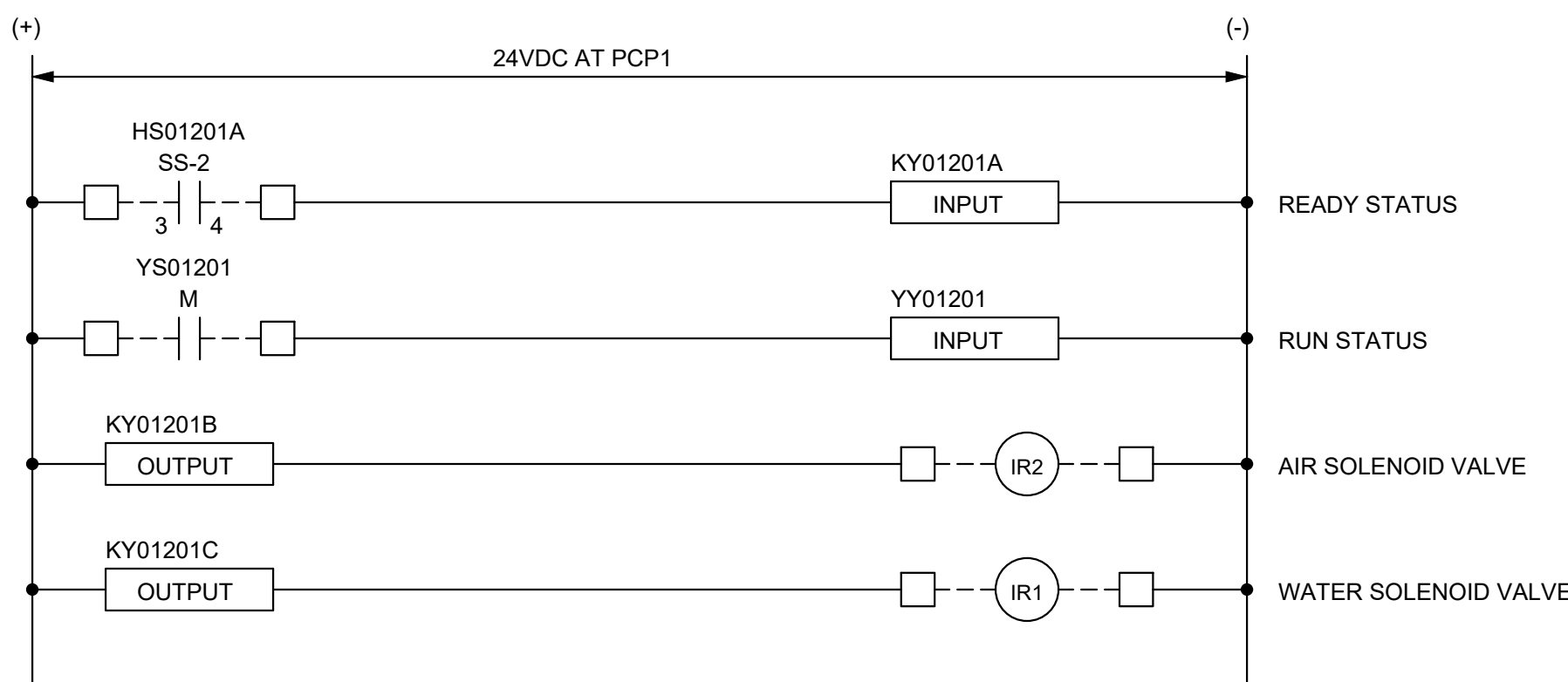


DIAGRAM E105B

EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
SEP01201	GRIT REMOVAL UNIT No. 1	P103	1201
SEP01211	GRIT REMOVAL UNIT No. 2	P104	1211

KEY PLAN

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NO.	DATE	DESCRIPTION	PROJECT NO.
			3065.21

ELECTRICAL
CONTROL SCHEMATIC
DIAGRAMS-1

FILE NAME: A:\2021\3065.21\03_DSGN01_DWG\150_ELEC\011-3065.dwg LAYOUT NAME: E011 PRINTED: Thursday, April 06, 2023 - 7:58pm USER: ceanchez



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

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NO.	DATE	DESCRIPTION

**ELECTRICAL
CONTROL SCHEMATIC
DIAGRAMS-2**

E012

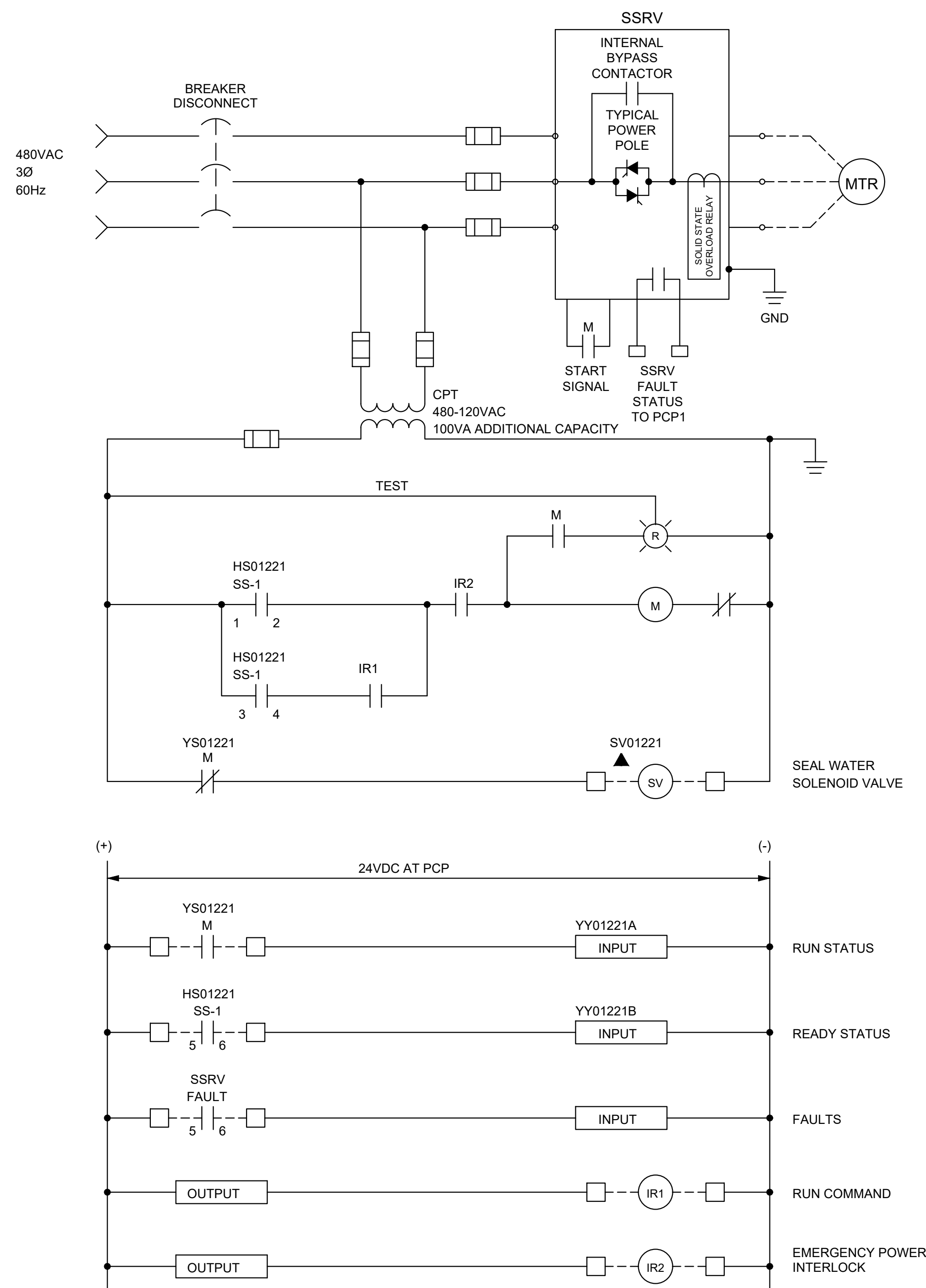


DIAGRAM E106A

EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
P01221	GRIT PUMP No. 1	P103	1221
P01222	GRIT PUMP No. 2	P104	1222
P01223	GRIT PUMP No. 3	P104	1223

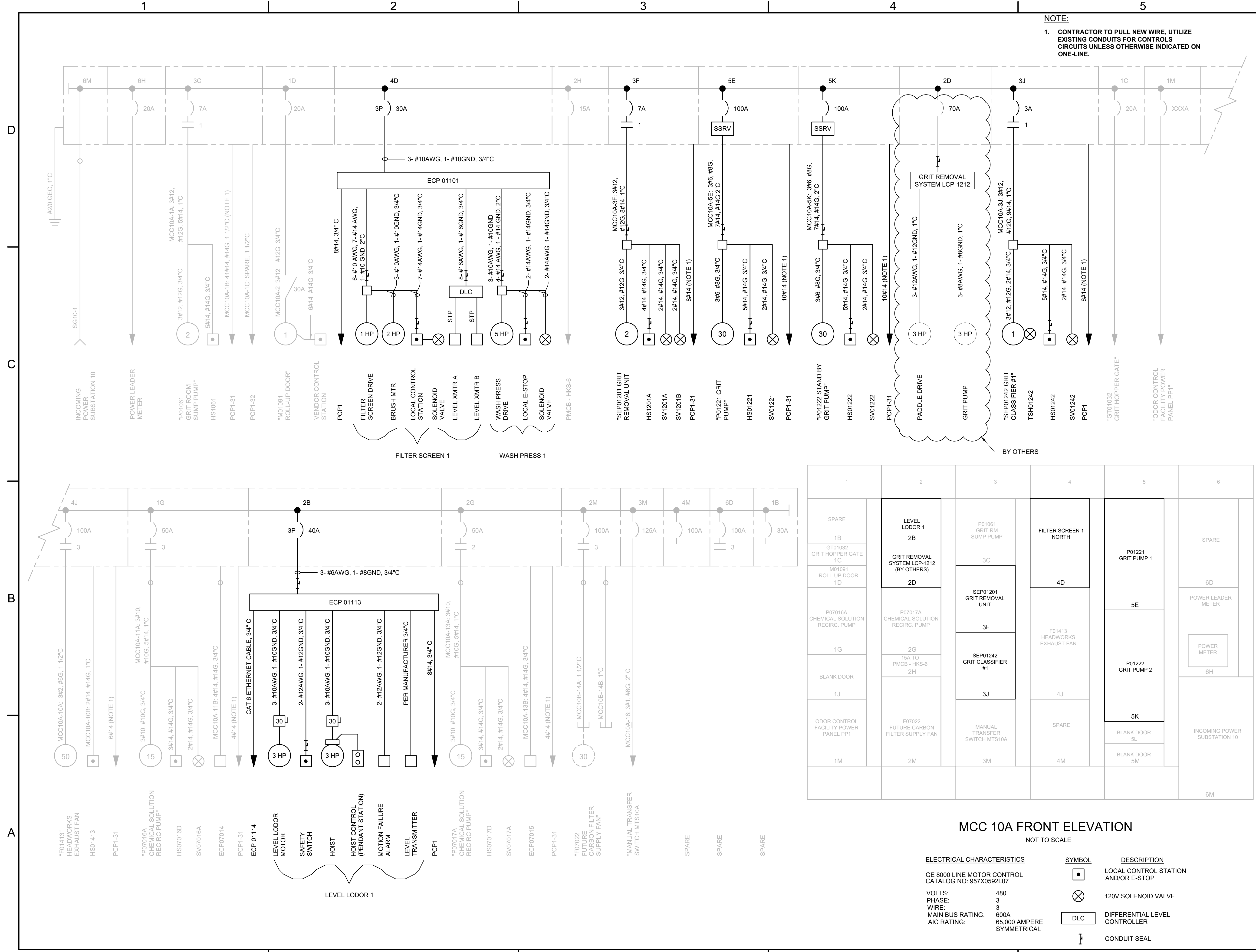
(A1) GRIT PUMPS
SCALE: NONE

NOTES:

- CONTROL DIAGRAMS REPRESENTING MORE THAN ONE EQUIPMENT ITEM INDICATE THE AUXILIARY DEVICE TAG NUMBERS FOR THE FIRST LISTED EQUIPMENT ITEM IN THE ASSOCIATED ADAPTER TABLE. REFER TO THE REFERENCED PROCESS AND INSTRUMENTATION DIAGRAM FOR THE CORRESPONDING TAG NUMBERS OF THE OTHER EQUIPMENT.

◇	CONTROL PANEL TERMINAL BLOCK
---	FIELD WIRING

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG\150_ELEC\013-3065.dwg LAYOUT NAME: E013 PRINTED: Thursday, April 06, 2023 - 7:58pm USER: osanchez



NOTE:
 1. CONTRACTOR TO PULL NEW WIRE, UTILIZE EXISTING CONDUITS FOR CONTROLS CIRCUITS UNLESS OTHERWISE INDICATED ON ONE-LINE.

1	2	3	4	5	6
SPARE	LEVEL LODOR 1	P01061 GRIT RM SUMP PUMP	FILTER SCREEN 1 NORTH	P01221 GRIT PUMP 1	SPARE
1B GT01032 GRIT HOPPER GATE	GRIT REMOVAL SYSTEM LCP-1212 (BY OTHERS)	3C	4D	5E	6D POWER LEADER METER
1D M01091 ROLL-UP DOOR	2D	SEP01201 GRIT REMOVAL UNIT	4J	5K	6H POWER METER
P07016A CHEMICAL SOLUTION RECIRC. PUMP	P07017A CHEMICAL SOLUTION RECIRC. PUMP	3F	F01413 HEADWORKS EXHAUST FAN	P01222 GRIT PUMP 2	6M INCOMING POWER SUBSTATION 10
1G	2G	SEP01242 GRIT CLASSIFIER #1	4M	5L BLANK DOOR	5M BLANK DOOR
1J	2H 15A TO PMCB - HKS-6	3J	SPARE	5K	
1M ODOR CONTROL FACILITY POWER PANEL PP1	2M F07022 FUTURE CARBON FILTER SUPPLY FAN	3M MANUAL TRANSFER SWITCH MTS10A			

MCC 10A FRONT ELEVATION
 NOT TO SCALE

ELECTRICAL CHARACTERISTICS	SYMBOL	DESCRIPTION
GE 8000 LINE MOTOR CONTROL CATALOG NO: 957X0592L07	□	LOCAL CONTROL STATION AND/OR E-STOP
VOLTS: 480	⊗	120V SOLENOID VALVE
PHASE: 3	DLC	DIFFERENTIAL LEVEL CONTROLLER
WIRE: 3	┌	CONDUIT SEAL
MAIN BUS RATING: 600A		
AIC RATING: 65,000 AMPERE SYMMETRICAL		

Parkhill

Parkhill.com

04/06/2023
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 STATE OF TEXAS
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el paso WATER
 1154 Hawkins El Paso, Tx. 79925 • (915) 694-5500

JOHN T. HICKERSON HEADWORKS BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

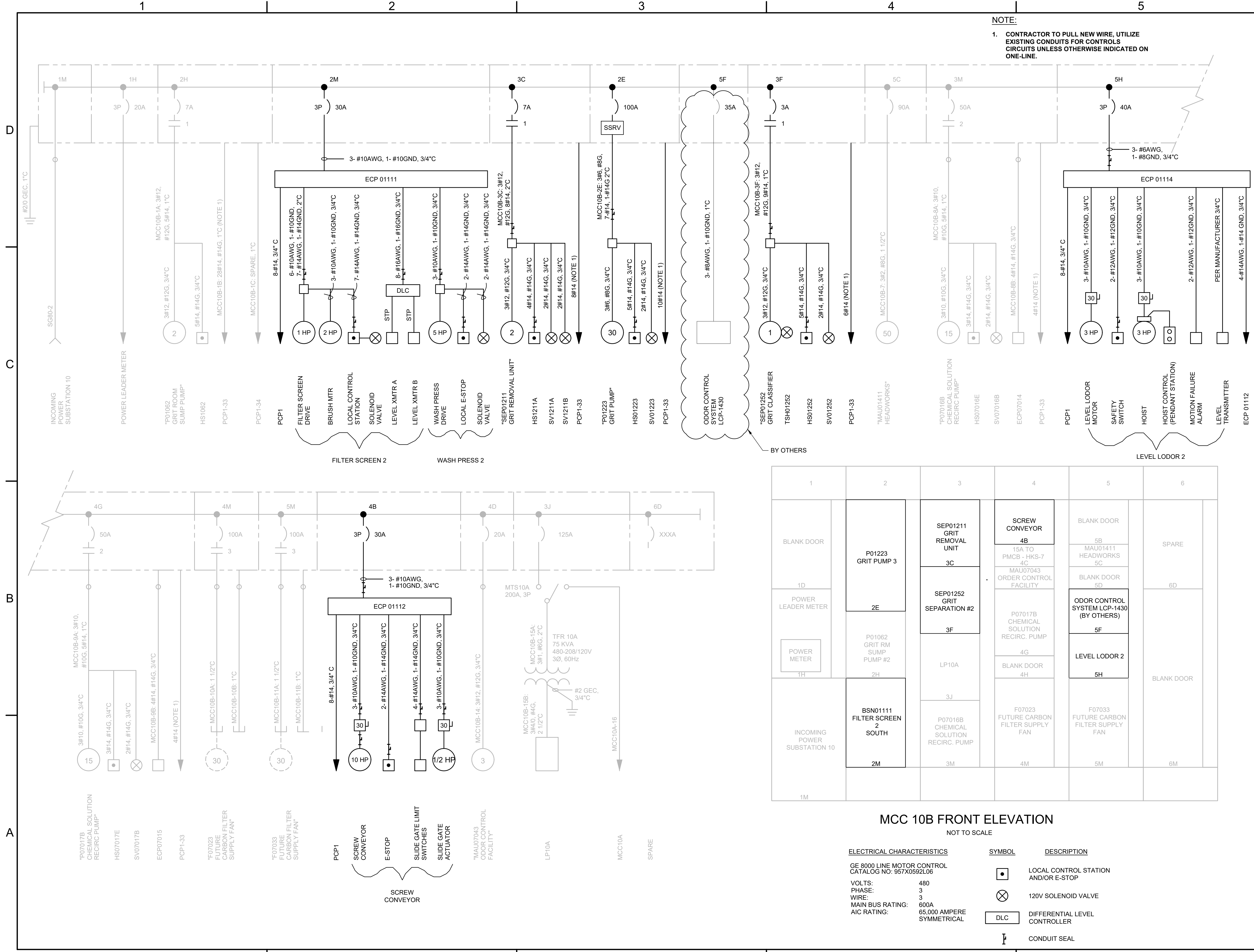
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

ELECTRICAL MCC-10A ONE-LINE DIAGRAM

E013



NOTE:
1. CONTRACTOR TO PULL NEW WIRE, UTILIZE EXISTING CONDUITS FOR CONTROLS CIRCUITS UNLESS OTHERWISE INDICATED ON ONE-LINE.

1	2	3	4	5	6
BLANK DOOR	P01223 GRIT PUMP 3	SEP01211 GRIT REMOVAL UNIT	SCREW CONVEYOR 4B	BLANK DOOR	SPARE
1D	2E	3C	15A TO PMCB - HKS-7 4C	5B MAU01411 HEADWORKS 5C	6D
POWER LEADER METER	P01062 GRIT RM SUMP PUMP #2	SEP01252 GRIT SEPARATION #2	MAU07043 ORDER CONTROL FACILITY	BLANK DOOR 5D	
POWER METER 1H	2H	3F	P07017B CHEMICAL SOLUTION RECIRC. PUMP	ODOR CONTROL SYSTEM LCP-1430 (BY OTHERS)	
		LP10A	4G	5F	
		3J	BLANK DOOR 4H	5H	
			F07023 FUTURE CARBON FILTER SUPPLY FAN		
INCOMING POWER SUBSTATION 10	2M	3M	4M	5M	6M

MCC 10B FRONT ELEVATION

NOT TO SCALE

ELECTRICAL CHARACTERISTICS	SYMBOL	DESCRIPTION
GE 8000 LINE MOTOR CONTROL CATALOG NO: 957X0592L06	□	LOCAL CONTROL STATION AND/OR E-STOP
VOLTS: 480	⊗	120V SOLENOID VALVE
PHASE: 3	DLC	DIFFERENTIAL LEVEL CONTROLLER
WIRE: 3	⊥	CONDUIT SEAL
MAIN BUS RATING: 600A		
AIC RATING: 65,000 AMPERE SYMMETRICAL		



JOHN T. HICKERSON
HEADWORKS
BARSCREEN REPLACEMENT

EL PASO WATER
701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

ELECTRICAL
MCC-10B
ONE-LINE DIAGRAM

1

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D

C

B

A

FILE NAME: A:\2021\3065.21\03_DSGND1_DWG\150_ELEC\015-3065.dwg LAYOUT NAME: E015 PRINTED: Thursday, April 06, 2023 - 7:56pm USER: csanchez

MCC 10A- LOAD TABLE												
CUSTOMER: EL PASO WATER						DATE: 3/30/2023						
PROJECT: JOHN T. HICKERSON HEADWORKD BARSCREENS REPLACEMENT						REVISION NO.: A						
JOB NO: 01-3065-21												
480 VAC			MODIFIED FACILITY LOAD CALCULATIONS						336 AMPS (CONNECTED)			
EQUIP. TAG #	PANEL HA	LOAD RATING		@ FULL LOAD		CONNECTED			ESTIMATED			COMMENTS
		HP, KW, KVA		EST. EFF	EST. PF	KVA	FLA	KW	KVA	AMPS	KW	
P01061	GRIT ROOM SUMP PUMP	2	HP	0.88	0.80	2.82	3.40	1.49	2.82	3.40	1.49	
M01091	ROLL -UP DOOR	1	HP	0.88	0.80	1.74	2.10	0.75	1.74	2.10	0.75	
BSN01101	BARSCREEN 1	3	HP	0.88	0.80	3.99	4.80	2.24	3.99	4.80	2.24	
SEP01141	WASH PRESS 1	5	HP	0.88	0.80	6.31	7.60	3.73	6.31	7.60	3.73	
SEP01201	GRIT REMOVAL UNIT	2	HP	0.88	0.80	2.82	3.40	1.49	2.82	3.40	1.49	
P01221	GRIT PUMP	30	HP	0.88	0.80	33.22	40.00	22.38	33.22	40.00	22.38	
P01222	GRIT PUMP (STANDBY)	30	HP	0.88	0.80	33.22	40.00	22.38	33.22	40.00	22.38	
SEP01242	GRIT CLASSIFIER 1	1	HP	0.88	0.80	1.74	2.10	0.75	1.74	2.10	0.75	
F01413	HEADWORKS EXHAUST FAN	50	HP	0.88	0.80	53.98	65.00	37.30	53.98	65.00	37.30	
P07016A	CHEMICAL SOLUTION RECIRC PUMP	15	HP	0.88	0.80	17.44	21.00	11.19	17.44	21.00	11.19	
	LEVEL LODOR 1	3	HP	0.88	0.80	3.99	4.80	2.24	3.99	4.80	2.24	
	HOIST	3	HP	0.88	0.80	3.99	4.80	2.24	3.99	4.80	2.24	
P07017A	CHEMICAL SOLUTION RECIRC PUMP	15	HP	0.88	0.80	17.44	21.00	11.19	17.44	21.00	11.19	
F07022	CARBON FILTER SUPPLY FAN (FUTURE)	30	HP	0.88	0.80	33.22	40.00	22.38	33.22	40.00	22.38	
	PADDLE DRIVE	3	HP	0.88	0.80	3.99	4.80	2.24	3.99	4.80	2.24	BY OTHERS
	GRIT PUMP	3	HP	0.88	0.80	3.99	4.80	2.24	3.99	4.80	2.24	BY OTHERS
	SLIDE GATE 1	1/2	HP	0.88	0.80	0.91	1.10	0.37	0.91	1.10	0.37	
PANEL PP1	ODOR CONTROL FACILITY POWER	15	KVA	0.88	0.80	15.00	31.25	12.00	15.00	31.25	12.00	
	PMCB - HKS-6	15	A		0.80	12.47	15.00	9.98				
	25% OF LARGEST MOTOR	15	HP	0.88	0.82	15.99	19.25	11.19				
TOTALS						268.2	336.2	179.8	239.8	302.0	158.6	
						KVA	AMPS	KW	KVA	AMPS	KW	

MIN. SHORT CIRCUIT CURRENT RATING (NEC 110.9)
 CIRCUIT BREAKERS = 18 kA
 PANELBOARD ISC = 18 kA
 FUSES = 18 kA

FAULT CURRENT ANALYSIS
 XFMR KVA = 225 KVA
 %Z= 2.00%
 100% MOTOR LOAD IN AMPS = 316.95
 AVAILABLE UTILITY= INFINITE BUS
Isc = 14.8 KA



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT

EL PASO WATER

 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES
 BAR IS 1 INCH ON ORIGINAL DRAWING
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NO	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

ELECTRICAL
LOAD TABLE
MCC-10A

E015



JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT
EL PASO WATER
 701 EXECUTIVE CENTER BLVD
 EL PASO, TEXAS 79936

MCC 10B- LOAD TABLE												
CUSTOMER: EL PASO WATER						DATE: 3/30/2023						
PROJECT: JOHN T. HICKERSON HEADWORKD BARSREENS REPLACEMENT						REVISION NO.: A						
JOB NO: 01-3065-21												
480 VAC				MODIFIED FACILITY LOAD CALCULATIONS					508 AMPS (CONNECTED)			
EQUIP. TAG #	PANEL HA	LOAD RATING		@ FULL LOAD		CONNECTED			ESTIMATED			COMMENTS
		HP, KW, KVA		EST. EFF	EST. PF	KVA	FLA	KW	KVA	AMPS	KW	
P01062	GRIT ROOM SUMP PUMP	2	HP	0.88	0.80	2.82	3.40	1.49	2.82	3.40	1.49	
M01091	ZA	1	HP	0.88	0.80	1.74	2.10	0.75	1.74	2.10	0.75	
BSN01111	BARSREEN 2	3	HP	0.88	0.80	3.99	4.80	2.24	3.99	4.80	2.24	
SEP01151	WASH PRESS 2	5	HP	0.88	0.80	6.31	7.60	3.73	6.31	7.60	3.73	
SEP01211	GRIT REMOVAL UNIT	2	HP	0.88	0.80	2.82	3.40	1.49	2.82	3.40	1.49	
P01223	GRIT PUMP	30	HP	0.88	0.80	33.22	40.00	22.38	33.22	40.00	22.38	
LCP-1430	ODOR CONTROL SYSTEM	35	A	0.88	0.80	33.22	40.00	26.11	33.22	40.00	26.11	BY OTHERS
SEP01252	GRIT CLASSIFIER 2	1	HP	0.88	0.80	1.74	2.10	0.75	1.74	2.10	0.75	
MAU01411	HEADWORKS	50	HP	0.88	0.80	53.98	65.00	37.30	53.98	65.00	37.30	
P07016B	CHEMICAL SOLUTION RECIRC PUMP	15	HP	0.88	0.80	17.44	21.00	11.19	17.44	21.00	11.19	
P07017B	CHEMICAL SOLUTION RECIRC PUMP	15	HP	0.88	0.80	3.99	4.80	11.19	3.99	4.80	11.19	
F07023	CARBON FILTER SUPPLY FAN (FUTURE)	30	HP	0.88	0.80	33.22	40.00	22.38	33.22	40.00	22.38	
F07033	CARBON FILTER SUPPLY FAN (FUTURE)	30	HP	0.88	0.80	33.22	40.00	22.38	33.22	40.00	22.38	
	SCREW CONVEYOR	10	HP	0.88	0.80	11.63	14.00	7.46	11.63	14.00	7.46	
MAU07043	ODOR CONTROL FACILITY POWER	3	HP	0.88	0.80	3.99	4.80	2.24	3.99	4.80	2.24	
	LEVEL LODOR 2	3	HP	0.88	0.80	3.99	4.80	2.24	3.99	4.80	2.24	
	TRANSFORMER	75	KVA	0.88	0.80	75.00	156.25	55.95	129.75	156.25	55.95	
	EXTERIOR LIGHTING	20	A		0.80	16.63	20.00	14.92	16.61	20.00	14.92	
	PMCB - HKS-7	15	A		0.80	12.47	15.00	11.19	12.46	15.00	11.19	
	25% OF LARGEST MOTOR	15	HP	0.88	0.82	15.99	19.25	11.19				
TOTALS						367.4	508.3	268.6	406.1	489.1	257.4	
						KVA	AMPS	KW	KVA	AMPS	KW	

<p style="text-align: center;">MIN. SHORT CIRCUIT CURRENT RATING (NEC 110.9)</p> <p style="text-align: center;">CIRCUIT BREAKERS = 18 kA PANELBOARD ISC = 18 kA FUSES = 18 kA</p>	<p style="text-align: center;">FAULT CURRENT ANALYSIS</p> <p style="text-align: center;">XFMR KVA = 225 KVA %Z= 2.00% 100% MOTOR LOAD IN AMPS = 489.05 AVAILABLE UTILITY= INFINITE BUS</p> <p style="text-align: center;">Isc = 15.5 KA</p>
--	--

KEY PLAN

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NO	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

ELECTRICAL
LOAD TABLE
MCC-10B

THIS SHEET IS PROVIDED FOR REFERENCE ONLY. MCC10A AND MCC10B ARE FED FROM SUBSTATION 10



JOHN T. HICKERSON HEADWORKS BARSCREEN REPLACEMENT

EL PASO WATER

701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936

KEY PLAN

VERIFY SCALES

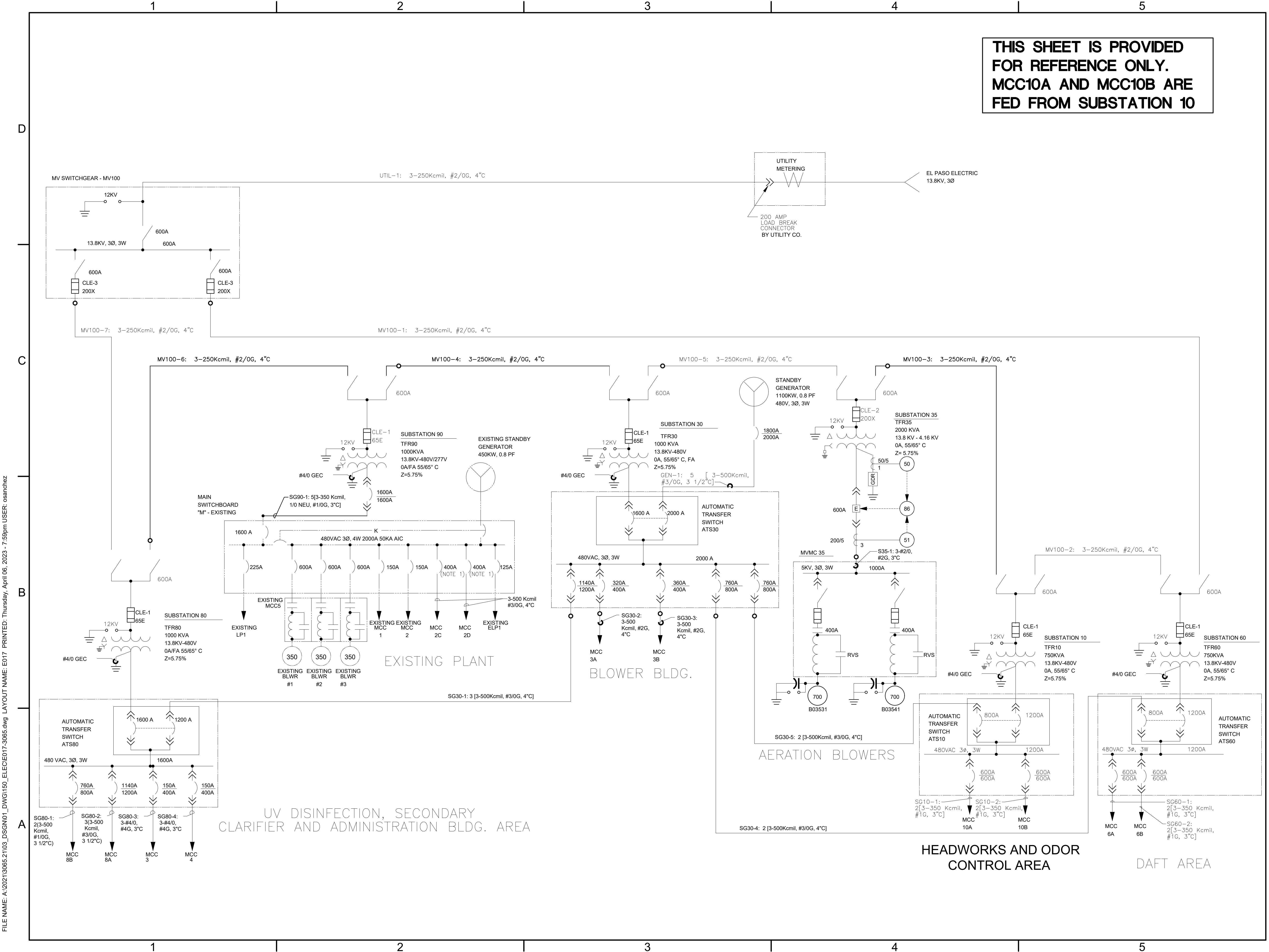
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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

ELECTRICAL OVERALL PLANT ONE-LINE DIAGRAM

E017



FILE NAME: A:\2021\3065.21\03_DSGND1_DWG\150_ELECE017-3065.dwg LAYOUT NAME: E017 PRINTED: Thursday, April 06, 2023 - 7:59pm USER: osanchez

FILE NAME: A:\202\13065.21\03_DSGN01_DWG\050_CIVIL\RD-COVER-3065.dwg LAYOUT NAME: RD001 PRINTED: Thursday, April 06, 2023 - 7:59pm USER: osanchez

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**NORTHWEST WASTEWATER TREATMENT
PLANT EXPANSION
RECORD DRAWINGS FOR CONTRACTOR
REFERENCE
(122 SHEETS)**



**JOHN T. HICKERSON
HEADWORKS
BARSREEN REPLACEMENT**

EL PASO WATER

**701 EXECUTIVE CENTER BLVD
EL PASO, TEXAS 79936**

KEY PLAN

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NO.	DATE	DESCRIPTION

ISSUING OFFICE: EL PASO PROJECT NO: 3065.21

**COVER SHEET
RECORD DRAWINGS**

RD001

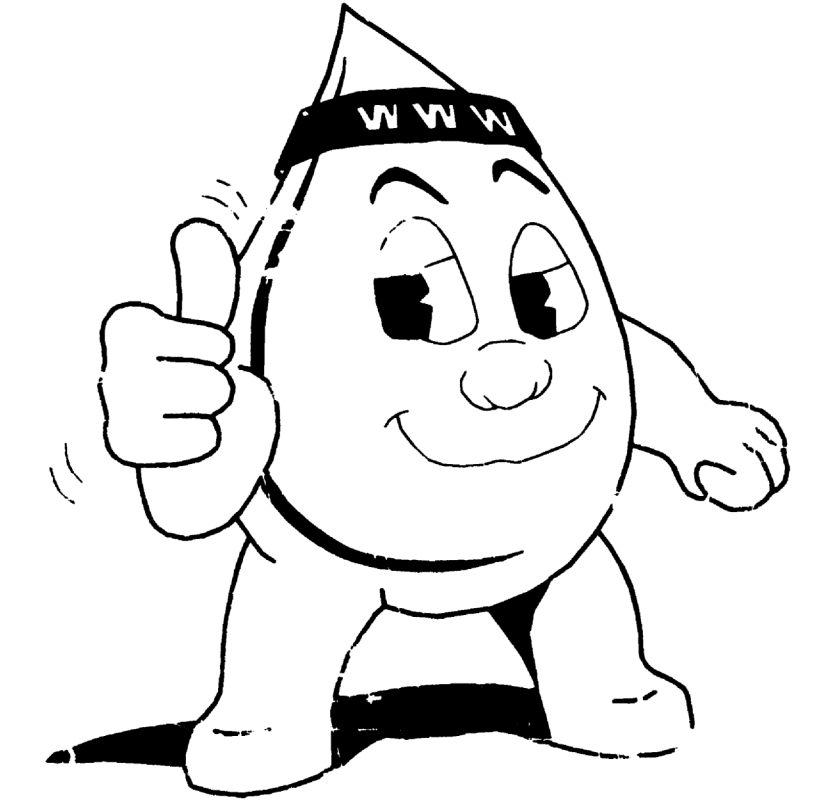
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**EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD**

**NORTHWEST WASTEWATER TREATMENT
PLANT EXPANSION**

POSTED

GENERAL MANAGER

Edmund G. Archuleta, P.E.

DEPUTY GENERAL MANAGER

David R. Brosman, P.E.

ENGINEERING SERVICES MANAGER

Armando Gonzalez, Jr., P.E.

WASTEWATER TREATMENT MANAGER

Enrique Woo, P.E.

VOLUME IV

DRAWINGS "G" THROUGH "S"

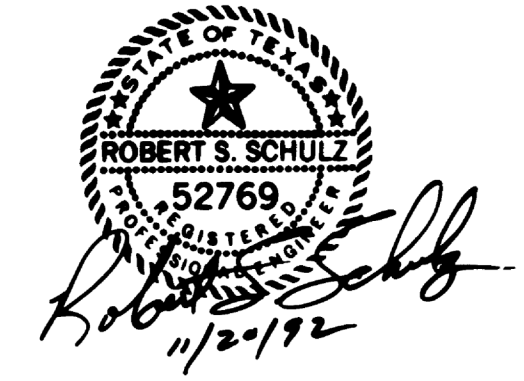
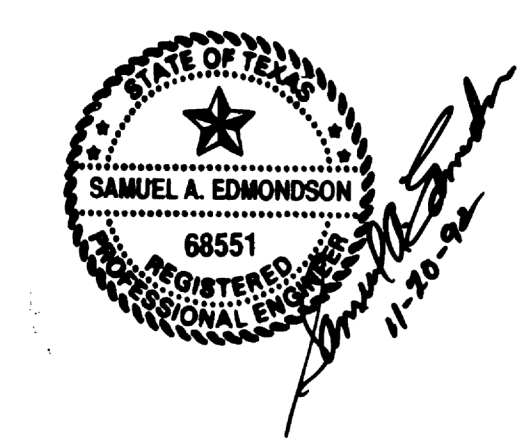
PART C - DRAWINGS

PUBLIC SERVICE BOARD MEMBERS

- | | |
|----------------------|----------|
| Joe G. Hanson | CHAIRMAN |
| Elza Echaniz Dushing | MEMBER |
| Nancy Heydemann | MEMBER |
| Hector Zavaleta | MEMBER |
| William S. Tilney | MAYOR |

APPROVALS

_____	DATE
_____	DATE



THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED THEREFORE, THIS DRAWING CANNOT BE RELIED UPON FOR AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

1992

5870-122 11-05-92 JA

BC Brown and Caldwell
Consultants
Phoenix, Arizona - El Paso, Texas

DRAWING INDEX

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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VOLUME IV

GENERAL:

1	G1	--- VICINITY AND LOCATION MAPS, AND DRAWING DESIGNATION SYSTEMS
2	G2	--- GENERAL SYMBOLS
3	G3	--- PLANT FLOW SCHEMATIC
4	G4	--- HYDRAULIC PROFILE - 1
5	G5	--- HYDRAULIC PROFILE - 2
6	G6	--- SITE PLAN AND SURVEY CONTROL

CIVIL:

SITE WORK AND GENERAL:

7	C1	--- PAVING AND GRADING - 1
8	C2	--- PAVING AND GRADING - 2
9	C3	--- PAVING AND GRADING - 3
10	C4	--- PAVING AND GRADING - 4

OUTSIDE PIPING:

11	C5	--- MANHOLE AND TRENCHING DETAILS
12	C6	--- MISCELLANEOUS DETAILS
13	C7	--- OUTSIDE PIPING REMOVAL PLAN
14	C8	--- OUTSIDE PIPING PLAN - 1
15	C9	--- OUTSIDE PIPING PLAN - 2
16	C10	--- OUTSIDE PIPING PLAN - 3
17	C11	--- OUTSIDE PIPING PLAN - 4
17.1	C101	--- FLOOD PROTECTION CHANNEL - PLAN & PROFILE
17.2	C102	--- FLOOD PROTECTION CHANNEL - TAILWALL PLAN, AND SECTION
17.3	C103	--- FLOOD PROTECTION CHANNEL - FOUNDATION PLAN
17.4	C104	--- FLOOD PROTECTION CHANNEL - RETAINING WALL, SCHEDULE, AND SECTIONS
17.5	C105	--- FLOOD PROTECTION CHANNEL - SECTIONS AND DETAILS
17.6	C110	--- 18" RS BYPASS - STATION 0+00 TO 12+00 PLAN, SECTION AND DETAIL
17.7	C111	--- 18" RS BYPASS - STATION 12+00 TO 25+00 PLAN, SECTIONS AND DETAILS
18	C2001	--- JUNCTION STRUCTURES

CATHODIC PROTECTION:

19	CP1	--- INSTALLATION SITE PLAN
20	CP2	--- INSTALLATION NOTES
21	CP3	--- GALVANIC ANODE INSTALLATION DETAILS
22	CP4	--- FORCEMAIN CP TEST STATION DETAILS
23	CP5	--- FORCEMAIN PIPE JOINT BONDING DETAILS

LANDSCAPING:

24	L1	--- LANDSCAPING PLAN
25	L2	--- IRRIGATION PLAN
26	L3	--- LANDSCAPING DETAILS

PROCESS AND INSTRUMENTATION DIAGRAMS:

27	P1	--- SYMBOLS AND ABBREVIATIONS
28	P2	--- IDENTIFICATION SYMBOLS AND IDENTIFICATION SYSTEMS

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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PROCESS AND INSTRUMENTATION DIAGRAMS:

29	P101	--- HEADWORKS - SCREENINGS AND DEWATERING
30	P102	--- HEADWORKS - SCREENINGS AND DEWATERING
31	P103	--- HEADWORKS - GRIT REMOVAL AND PUMPING
32	P104	--- HEADWORKS - GRIT REMOVAL AND PUMPING
33	P105	--- HEADWORKS - GRIT SEPARATION AND WASHING
34	P106	--- HEADWORKS - GRIT HOPPER
35	P301	--- AERATION TANK - 1
36	P302	--- AERATION TANK - 2
37	P303	--- AERATION TANK - 3
38	P351	--- BLOWER BUILDING - AERATION BLOWER 1
39	P352	--- BLOWER BUILDING - AERATION BLOWER 2
40	P353	--- BLOWER BUILDING - AERATION BLOWER 3
41	P354	--- BLOWER BUILDING - AERATION BLOWER 4
42	P355	--- BLOWER BUILDING - STANDBY GENERATOR
43	P356	--- BLOWER BUILDING - LUBE OIL SYSTEM
44	P357	--- BLOWER BUILDING - ENGINE STARTING AIR SYSTEM
45	P401	--- EXISTING SECONDARY CLARIFIERS SCUM PUMP AND MODIFICATIONS
46	P402	--- SECONDARY CLARIFIER - 3
47	P403	--- SECONDARY CLARIFIER - 4
48	P404	--- SECONDARY CLARIFIER - 5
49	P405	--- SECONDARY CLARIFIER - 6
50	P406	--- SCUM/TANK DRAIN PUMPING STATIONS
51	P407	--- WAS PUMP MODIFICATIONS
52	P501	--- EFFLUENT FILTER - 1
53	P502	--- EFFLUENT FILTER - 2
54	P503	--- EFFLUENT FILTER - 3
55	P504	--- FILTER BACKWASH PUMPING STATION
56	P601	--- SLUDGE DISTRIBUTION STRUCTURE
57	P602	--- PLANT SERVICE AIR SYSTEM
58	P603	--- DAFT POLYMER FEED SYSTEM
59	P604	--- DISSOLVED AIR FLOTATION THICKENER - 1
60	P605	--- DISSOLVED AIR FLOTATION THICKENER - 2
61	P606	--- DAFT PRESSURIZATION SYSTEM
62	P607	--- THICKENED SLUDGE STORAGE TANK - 1
63	P608	--- THICKENED SLUDGE STORAGE TANK - 2
64	P609	--- BELT PRESS FEED PUMPS
65	P651	--- POLYMER FEED SYSTEM
66	P652	--- BELT FILTER PRESS
67	P653	--- SLUDGE STABILIZATION AND DISPOSAL
68	P654	--- SLUDGE STABILIZATION AND DISPOSAL
69	P655	--- LIME FEED SYSTEM
70	P700	--- ODOR CONTROL - CHEMICAL STORAGE TANKS
71	P701	--- ODOR CONTROL - CHEMICAL FEED SYSTEM
72	P702	--- ODOR CONTROL - ODOR REDUCTION TOWER NO. 1
73	P703	--- ODOR CONTROL - ODOR REDUCTION TOWER NO. 2
74	P801	--- ULTRA VIOLET DISINFECTION CHANNELS NO. 1 AND NO. 2
75	P802	--- ULTRA VIOLET DISINFECTION CHANNELS NO. 3 AND NO. 4
76	P803	--- ULTRA VIOLET DISINFECTION CHANNELS - NO. 5
77	P804	--- ULTRA VIOLET DISINFECTION - 3W PUMPING STATION
78	P805	--- 3W HYDROPNEUMATIC TANK
79	P851	--- REARATION
80	P901	--- CHLORINATION
81	P902	--- CHLORINATION

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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ARCHITECTURAL:

GENERAL:

82	A1	--- GENERAL DETAILS
83	A2	--- GENERAL DETAILS
84	A3	--- GENERAL DETAILS
85	A4	--- GENERAL DETAILS

HEADWORKS:

86	A101	--- FIRST FLOOR, MEZZ, AND BASEMENT PLANS
87	A102	--- EXTERIOR ELEVATIONS
88	A103	--- CROSS SECTIONS
89	A104	--- WALL SECTIONS
90	A105	--- STAIR SECTIONS
91	A106	--- STAIR SECTION

BLOWER BUILDING:

92	A351	--- FLOOR PLANS
93	A352	--- EXTERIOR ELEVATIONS
94	A353	--- ROOF PLAN AND CROSS SECTIONS
95	A354	--- WALL SECTIONS
96	A355	--- STAIR SECTION
97	A356	--- ACOUSTICAL TREATMENT

SLUDGE THICKENING BUILDING:

98	A601	--- FLOOR PLAN
99	A602	--- ROOF PLANS
100	A603	--- EXTERIOR ELEVATIONS
101	A604	--- CROSS SECTIONS
102	A605	--- WALL SECTIONS
103	A606	--- STAIR SECTION

SLUDGE DEWATERING BUILDING:

104	A660	--- PART FIRST FLOOR PLAN
105	A661	--- PART SECOND FLOOR AND ROOF PLANS
106	A662	--- EXTERIOR ELEVATIONS
107	A663	--- CROSS SECTIONS AND WALL SECTIONS
108	A664	--- STAIR SECTION

ODOR CONTROL FACILITY:

109	A701	--- CHEMICAL BUILDING FLOOR PLAN
110	A702	--- EXTERIOR ELEVATIONS
111	A703	--- CROSS SECTIONS AND WALL SECTIONS

ULTRA VIOLET DISINFECTION BUILDING:

112	A801	--- FLOOR AND ROOF PLANS
113	A802	--- EXTERIOR ELEVATIONS AND CROSS SECTION
114	A803	--- WALL SECTIONS

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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ARCHITECTURAL: CON'T

ADMINISTRATION BUILDING:

+15	A1001	--- FLOOR AND ROOF PLANS
116	A1002	--- EXTERIOR ELEVATIONS
117	A1003	--- CROSS SECTION AND WALL SECTIONS

STRUCTURAL:

GENERAL:

+18	S1	--- GENERAL NOTES
119	S2	--- TYPICAL CONCRETE DETAILS
120	S3	--- TYPICAL CONCRETE AND MASONRY DETAILS
121	S4	--- TYPICAL CONCRETE AND MASONRY DETAILS
122	S5	--- TYPICAL DOUBLE TEE DETAILS
123	S6	--- EARTHWORK NOTES
124	S7	--- DOUBLE TEE NOTES AND CRANE SCHEDULE

HEADWORKS:

125	S101	--- FOUNDATION PLAN
126	S102	--- PLAN TOP
127	S103	--- FRAMING PLAN AND SECTIONS
128	S104	--- ROOF FRAMING PLAN AND SECTIONS
129	S105	--- SECTIONS AND DETAILS
130	S106	--- SECTIONS AND DETAILS
131	S107	--- SECTIONS AND DETAILS
132	S108	--- SECTIONS AND DETAILS
133	S109	--- SECTIONS AND DETAILS
134	S110	--- SECTIONS AND DETAILS
135	S111	--- SECTIONS AND DETAILS
136	S112	--- SECTIONS AND DETAILS
137	S113	--- SECTIONS AND DETAILS
138	S114	--- SECTIONS AND DETAILS

AERATION TANKS:

+39	S301	--- FOUNDATION PLAN - AREA 1
140	S302	--- FOUNDATION PLAN - AREA 2
141	S303	--- FOUNDATION PLAN - AREA 3
142	S304	--- PLAN TOP - AREA 1
143	S305	--- PLAN TOP - AREA 2
144	S306	--- PLAN TOP - AREA 3
145	S307	--- SECTIONS AND DETAILS
146	S308	--- SECTIONS AND DETAILS
147	S309	--- WALL REINFORCING ELEVATIONS
148	S310	--- SECTIONS AND DETAILS
149	S311	--- SECTIONS AND DETAILS

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FOR CONTINUATION, SEE DRAWING INDEX - 2

BC Brown and Caldwell Consultants
Phoenix, Arizona

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE: 5870
DRAWN: RDM
DESIGNED:
CHECKED:
CHECKED:

SUBMITTED: *Steph R King* DATE: 5/12/93
APPROVED: *Allen J Schuff* DATE: 5/15/93
APPROVED: _____ DATE: _____

73696 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
B/5	1	ADDED SHTS 17.1-17.7 AS PER ADDENDUM #2	JA	4/93	SK

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

INDEX - 1

DRAWING INDEX

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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STRUCTURAL CON'T

BLOWER BUILDING:

150	S351	--- FOUNDATION PLAN AND UPPER LEVEL - FRAMING PLAN
151	S352	--- ROOF FRAMING PLAN AND SECTIONS
152	S353	--- FOUNDATION SECTIONS
153	S354	--- ROOF SECTIONS
154	S355	--- SECTIONS AND DETAILS

SECONDARY CLARIFIERS:

155	S401	--- FOUNDATION PLAN
156	S402	--- FOUNDATION PLAN
157	S403	--- PLAN TOP
158	S404	--- PLAN TOP
159	S405	--- SECTIONS AND DETAILS
160	S406	--- SECTIONS AND DETAILS
161	S407	--- TANK DRAIN PUMP STATION - PLAN AND SECTION
162	S408	--- PLAN AND SECTIONS
163	S409	--- SECTIONS AND DETAILS
164	S410	--- NEW AERATED CHANNEL PLAN - SECTIONS AND DETAILS
165	S411	--- SECTIONS AND DETAILS
166	S412	--- SECTIONS AND DETAILS

EFFLUENT FILTERS:

167	S501	--- FOUNDATION PLAN AND SECTIONS
168	S502	--- PLAN TOP AND SECTIONS
169	S503	--- SECTIONS AND DETAILS
170	S504	--- SECTIONS
171	S505	--- SECTIONS
172	S506	--- SECTIONS
173	S507	--- BACKWASH PUMPING STATION - PLAN AND SECTIONS

SLUDGE THICKENING BUILDING:

174	S601	--- FOUNDATION PLAN AND SECTIONS
175	S602	--- ROOF FRAMING PLAN AND SECTIONS
176	S603	--- SLUDGE STORAGE AND DAFT TANKS - FOUNDATION PLANS
177	S604	--- SECTIONS AND DETAILS
178	S605	--- WALL SECTIONS
179	S606	--- SECTIONS AND DETAILS
180	S607	--- SECTIONS AND DETAILS
181	S608	--- SECTIONS AND DETAILS
182	S609	--- SECTIONS AND DETAILS

SLUDGE DEWATERING BUILDING:

183	S651	--- FOUNDATION PLAN
184	S652	--- SECOND FLOOR FRAMING PLAN
185	S653	--- ROOF FRAMING PLAN
186	S654	--- SECTIONS AND DETAILS
187	S655	--- SECTIONS AND DETAILS
188	S656	--- SECTIONS AND DETAILS
189	S657	--- SECTIONS AND DETAILS
190	S658	--- SECTIONS AND DETAILS

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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STRUCTURAL CON'T

ODOR CONTROL FACILITY:

191	S701	--- CHEMICAL BUILDING - FOUNDATION AND ROOF FRAMING PLANS
192	S702	--- CHEMICAL BUILDING SECTIONS
193	S703	--- FOUNDATION SECTIONS AND DETAILS
194	S704	--- ROOF SECTIONS AND DETAILS
195	S705	--- SITE FOUNDATION PLAN AND DETAILS

ULTRA VIOLET DISINFECTION:

196	S801	--- FOUNDATION PLAN
197	S802	--- SECTIONS AND DETAILS
198	S803	--- PLAN TOP
199	S804	--- ROOF FRAMING PLAN AND SECTIONS
200	S805	--- HYDROPNEUMATIC TANKS - PART FOUNDATION PLAN AND SECTIONS
201	S806	--- SECTIONS AND DETAILS
202	S807	--- PLAN, SECTIONS AND DETAILS
203	S808	--- SECTIONS AND DETAILS

REARATION CHANNEL:

204	S851	--- FOUNDATION PLAN AND SECTIONS
205	S852	--- PLAN AND SECTIONS
206	S853	--- SECTIONS AND DETAILS
207	S854	--- SECTIONS AND DETAILS

ADMINISTRATION BUILDING:

208	S1001	--- FOUNDATION PLAN AND SECTIONS
209	S1002	--- ROOF FRAMING PLAN AND SECTIONS

EXISTING STORAGE BUNKERS:

210	S1101	--- ROOF FRAMING PLAN AND SECTIONS
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JUNCTION STRUCTURES:

211	S2001	--- PLAN AND SECTIONS
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SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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VOLUME V

MECHANICAL:

212 THRU 303

HVAC:

304 THRU 341

ELECTRICAL:

342 THRU 421

INSTRUMENTATION:

422 THRU 427

"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

FOR VOLUME VI, SEE DRAWING INDEX - 3

5870-240 04-28-92 GJM

BC Brown and Caldwell
Consultants
Phoenix, Arizona

PROJECT MANAGER: *Robert S. Schulz* DATE: 11/21/92
DESIGNED: *Gal*
APPROVED: *Samuel A. Edmondson* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE	5870
DRAWN	RDM
DESIGNED	Gal
CHECKED	Gal
CHECKED	Gal

STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER

Samuel A. Edmondson 68551 11-20-92

STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER

Robert S. Schulz 52769 11/21/92

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

INDEX - 2

DRAWING INDEX

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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VOLUME IV

GENERAL:

1 THRU 6

CIVIL:

7 THRU 23

LANDSCAPING:

24 THRU 26

PROCESS AND INSTRUMENTATION DIAGRAMS:

27 THRU 81

ARCHITECTURAL:

82 THRU 117

STRUCTURAL:

118 THRU 212

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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VOLUME V

MECHANICAL:

GENERAL:

212	M1	--- STANDARD DETAILS
213	M2	--- PIPE SUPPORT SYSTEM
214	M3	--- STRUCTURAL ATTACHMENTS AND PIPE GUIDES
215	M4	--- PIPE PENETRATIONS
216	M5	--- DRAINAGE DETAILS AND CLEANOUTS
217	M6	--- MISCELLANEOUS DETAILS - 1
218	M7	--- MISCELLANEOUS DETAILS - 2
219	M8	--- MISCELLANEOUS DETAILS - 3

HEADWORKS:

220	M101	--- FIRST FLOOR PLAN
221	M102	--- BAR SCREEN AREA - PART PLAN
222	M103	--- DISTRIBUTION AREA - PART PLAN AND SECTION
223	M104	--- GRIT REMOVAL - PART PLAN
224	M105	--- GRIT PUMPING ROOM - PART PLAN
225	M106	--- SECTION
226	M107	--- SECTION
227	M108	--- MEZZANINE - PART PLAN AND SECTION
228	M109	--- SECTION
229	M110	--- SECTIONS
230	M111	--- SECTION AND DETAIL

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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MECHANICAL: CON'T

AERATION TANKS:

231	M301	--- PLAN
232	M302	--- PART PLAN
233	M303	--- PART PLAN AND SECTION
234	M304	--- SECTIONS
235	M305	--- PART PLAN AND SECTION
236	M306	--- SECTIONS AND DETAILS
237	M307	--- HCL GAS CLEANING - PART PLAN AND DETAIL

BLOWER BUILDING:

238	M351	--- PLAN
239	M352	--- BLOWER AREA - PART PLAN
240	M353	--- SECTION
241	M354	--- SECTION
242	M355	--- SECTION
243	M356	--- SECTION
244	M357	--- LUBE OIL SYSTEM - PART PLAN AND SECTIONS
245	M358	--- AIR COMPRESSOR ROOM - PLAN AND SECTION
246	M359	--- PLUMBING PLAN

SECONDARY CLARIFIERS:

247	M401	--- PLAN
248	M402	--- REMOVAL PLAN
249	M403	--- MODIFICATIONS - PLAN
250	M404	--- TYPICAL SECTION AND DETAIL
251	M405	--- PART PLAN AND SECTION
252	M406	--- PART PLAN AND SECTION
253	M407	--- PART PLAN AND SECTION
254	M408	--- PLANS, SECTIONS, AND DETAILS
255	M409	--- R.A.S. PUMP ROOM - PLANS
256	M410	--- SECTION AND DETAIL
257	M411	--- CLARIFIER NO. 5 - DUCT PLAN

EFFLUENT FILTERS:

258	M501	--- PLAN
259	M502	--- SECTIONS
260	M503	--- SECTIONS
261	M504	--- BACKWASH PUMPING STATION - PLAN AND SECTION

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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MECHANICAL: CON'T

SLUDGE THICKENING BUILDING:

262	M601	--- PLAN
263	M602	--- ROOF PLAN
264	M603	--- DAFT - PART PLAN
265	M604	--- SLUDGE STORAGE AREA - PART PLAN
266	M605	--- DAFT - TYPICAL SECTION
267	M606	--- DAFT - SECTION
268	M607	--- DAFT - SECTION
269	M608	--- SLUDGE STORAGE AREA - SECTION
270	M609	--- SLUDGE STORAGE AREA - SECTIONS
271	M610	--- DAFT - DETAILS
272	M611	--- DAFT - DETAILS
273	M612	--- COMPRESSED AIR ISOMETRIC
274	M613	--- PLUMBING PLAN

SLUDGE DEWATERING BUILDING AND EXISTING ADMINISTRATION BUILDING:

275	M651	--- REMOVALS - LOWER LEVEL PLAN
276	M652	--- REMOVALS - UPPER LEVEL PLAN
277	M653	--- REMOVAL - LOWER LEVEL PLAN
278	M654	--- NOT USED
279	M655	--- LOWER LEVEL - POLYMER FEED MODIFICATIONS - PLAN
280	M656	--- LOWER LEVEL - POLYMER FEED MODIFICATIONS SECTIONS AND DETAIL
281	M657	--- BELT FILTER PRESS - PLAN
282	M658	--- BELT FILTER PRESS - SECTION
283	M659	--- BELT FILTER PRESS - SECTIONS
284	M660	--- SLUDGE STABILIZATION - PART PLAN
285	M661	--- SLUDGE STABILIZATION - SECTION
286	M662	--- SLUDGE STABILIZATION - SECTION
287	M663	--- SLUDGE STABILIZATION - LOWER LEVEL - PLAN
288	M664	--- LOWER LEVEL - MECHANICAL AND PLUMBING PLAN
289	M665	--- WAS PUMP ROOM - REMOVAL PLAN AND SECTION
290	M666	--- WAS PUMP ROOM - MODIFICATION PLAN

EXISTING HEADWORKS:

291	M675	--- REMOVAL AND MODIFICATION - PLAN
292	M676	--- REMOVAL AND MODIFICATION - SECTIONS

ODOR CONTROL FACILITY:

293	M701	--- PLAN
294	M702	--- CHEMICAL BUILDING - PLAN
295	M703	--- SECTION AND DETAILS
296	M704	--- SECTIONS

ULTRA VIOLET DISINFECTION:

297	M801	--- PLAN
298	M802	--- SECTION
299	M803	--- SECTIONS AND DETAIL
300	M804	--- HYDROPNEUMATIC TANK - PLAN AND SECTION

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FOR CONTINUATION, SEE DRAWING INDEX - 3

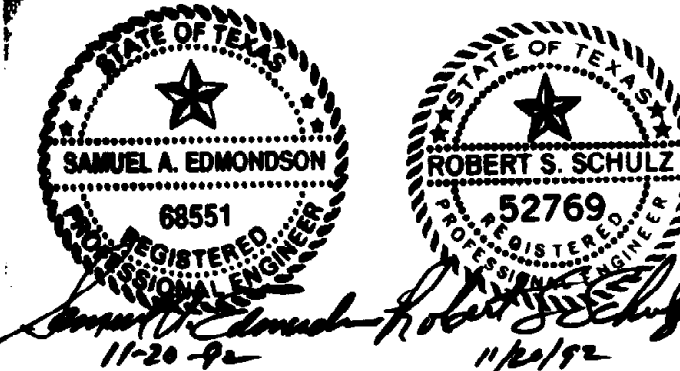
5870-488 11-20-92 CSM/RLG

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *Robert Schulz* DATE: 11/20/92
APPROVED: *Samuel A. Edmondson* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2"=SCALE ACCORDINGLY)

FILE: 5870
DRAWN: RDM/GLG
DESIGNED: GLG
CHECKED: *RA*
CHECKED: *GLG*



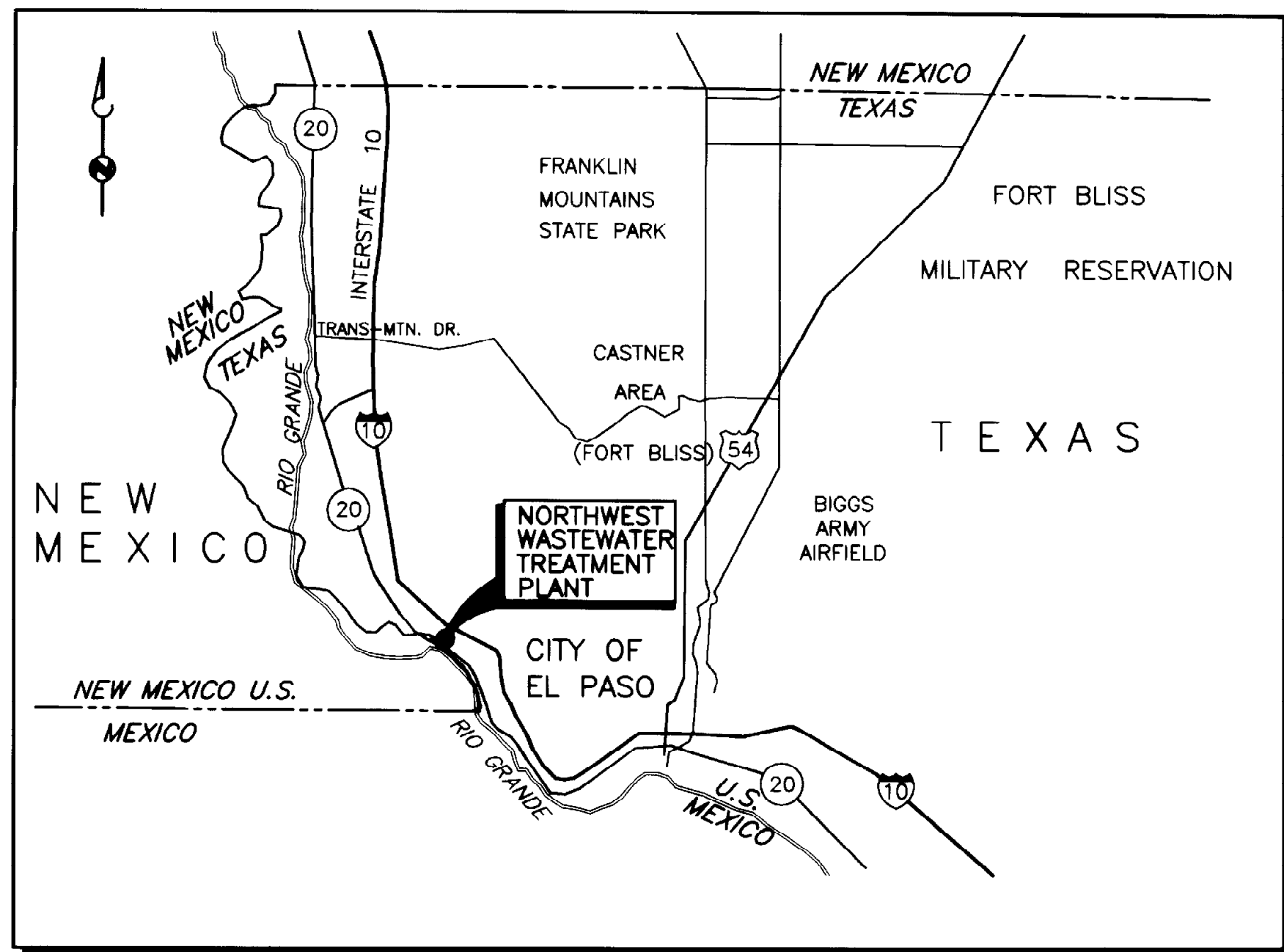
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



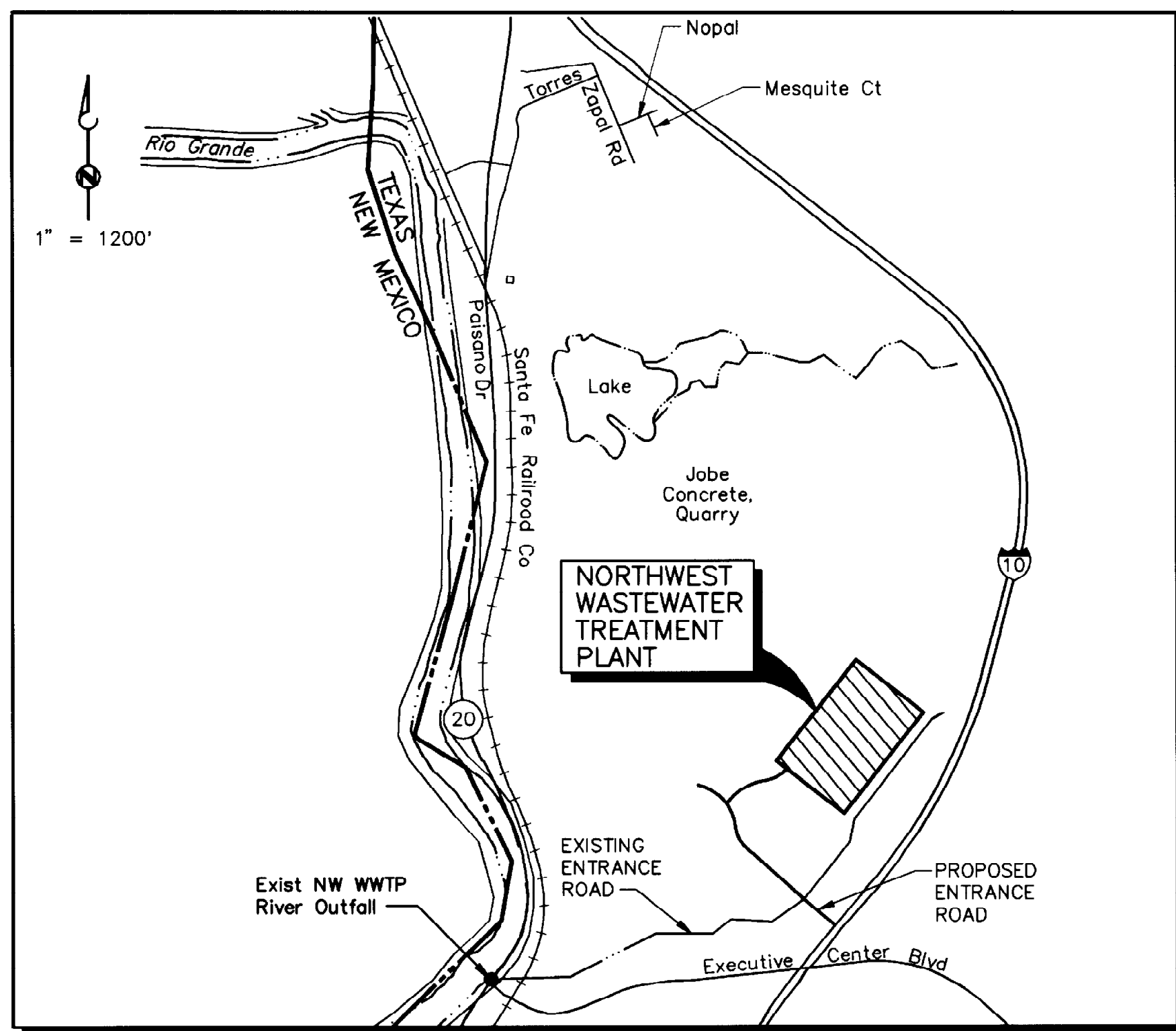
**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

INDEX - 3

VICINITY MAP:



LOCATION MAP:



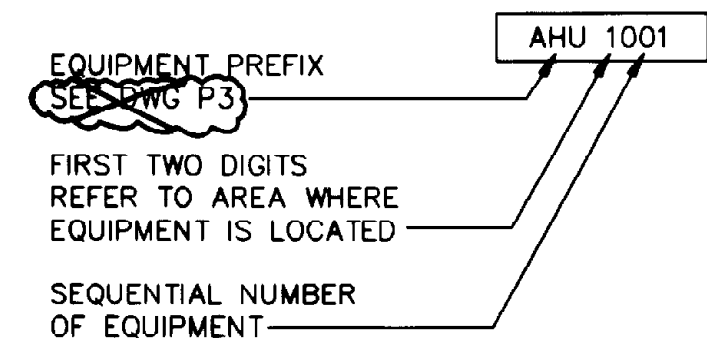
TYPICAL SECTION AND DETAIL DESIGNATION SYSTEM:*

- (1) SECTION CUT ON DWG M151
- (2) ON DWG M152 THIS SECTION IS IDENTIFIED
- (3) DETAILS ARE CROSS-REFERENCED IN A SIMILAR MANNER, EXCEPT THAT DETAILS ARE IDENTIFIED BY LETTER RATHER THAN BY NUMBER.

* SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR SEPARATE DESIGNATIONS

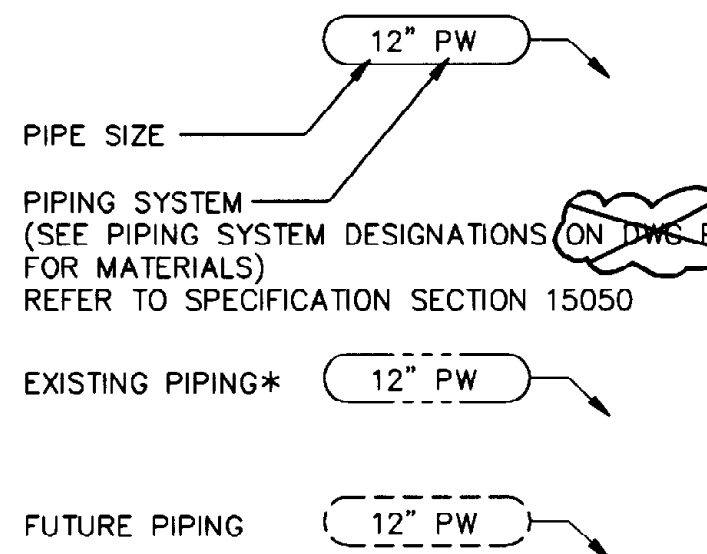
EQUIPMENT DESIGNATIONS:

EQUIPMENT IS CALLED OUT BY ITS PREFIX FOLLOWED BY A NUMBER, ENCLOSED AS SHOWN:



PIPING DESIGNATIONS:

PIPING IS CALLED OUT BY SIZE FOLLOWED BY PIPING SYSTEM, ENCLOSED AS SHOWN:



* PIPING SYSTEM DESIGNATIONS FOR EXISTING PIPE INDICATE TYPE OF SERVICE ONLY AND DO NOT IMPLY PIPE MATERIALS USED.

DRAWING NUMBERING SYSTEM:

- (1) THE DRAWINGS ARE SUBDIVIDED BY GENERAL TYPE AS FOLLOWS:
 - G GENERAL
 - C CIVIL
 - CP CATHODIC PROTECTION
 - P PROCESS AND INSTRUMENTATION DIAGRAMS
 - A ARCHITECTURAL
 - S STRUCTURAL
 - M MECHANICAL
 - H HEATING, VENTILATION, AIR CONDITIONING
 - E ELECTRICAL
- (2) DRAWINGS ARE NUMBERED IN ACCORDANCE WITH A PROCESS AREA CODE EXCEPT THAT THREE DIGIT NUMBERS ARE EMPLOYED:

100-199	HEADWORKS
300-349	AERATION BASINS
350-399	BLOWER BUILDING
400-499	SECONDARY CLARIFIERS
500-599	FILTERS
600-649	SLUDGE THICKENING BUILDING
650-699	SLUDGE DEWATERING BUILDING
700-799	ODOR CONTROL FACILITY
800-849	ULTRA VIOLET DISINFECTION
850-899	RE-AERATION CHANNEL
900-999	CHLORINATION FACILITIES
1000-1099	ADMINISTRATION BUILDING

EQUIPMENT DESIGNATION PREFIXES:

A	AERATOR	MAU	MAKE-UP AIR UNIT
ACC	AIR CONDITIONING COIL	M	MOTOR
AD	AIR CONDITIONING UNIT	MCC	MOTOR CONTROL CENTER
AD	AIR DRYER	MEE	MISCELLANEOUS ELECTRICAL EQUIPMENT
AF	AIR FILTER	MIE	MISCELLANEOUS INSTRUMENTATION EQUIPMENT
AHC	AIR HANDLING UNIT, WITH COIL	MME	MISCELLANEOUS MECHANICAL EQUIPMENT
AHU	AIR HANDLING UNIT	MOP	MOTOR OPERATOR
ASC	ADJUSTABLE SPEED CONTROL	MSP	MOTOR STARTER PANEL
ASD	ADJUSTABLE SPEED DRIVE	MUX	MULTIPLEXER
ATS	AUTOMATIC TRANSFER SWITCH	MX	MIXER
BD	BALANCING DAMPER	ORT	ODOR REDUCTION TOWER
B	BLOWER	P	PUMP
BA	BIN ACTIVATOR	PBD	PANEL BOARD
BFP	BELT FILTER PRESS	PC	PROCESS OR PERSONAL COMPUTER
BP	BACKFLOW PREVENTER	PCU	PURGE CONTROL UNIT
BSN	BAR SCREEN	PEJ	PNEUMATIC EJECTOR
C	COIL	PLC	PROGRAMMABLE LOGIC CONTROLLER
CDR	CONDENSER	PNL	PANEL
CFR	CHEMICAL FEEDER	POP	PNEUMATIC OPERATOR
CHR	CHILLER	PRV	PRESSURE REGULATING VALVE
COL	COLLECTOR	PVL	PRESSURE VESSEL
CON	CONVEYOR	REC	RECEIVER
CP	COMPRESSOR	RV	RECEIVING VESSEL
CRN	CRANE	SCR	SCRUBBER
CV	CONTROL VALVE	SEP	SEPARATOR
CYL	CYLINDER	SH	SLUDGE HOPPER
DAFT	DISSOLVED AIR FLOTATION THICKENER	SLR	SILENCER
DIS	DISTRIBUTOR	SLP	SAMPLER
DOM	DOME	ST	SOUND TRAP
DS	DISCONNECT SWITCH	SUB	SUBSTATION
DU	DRIVE UNIT	SV	SOLINOID VALVE
ECP	ELECTRICAL CONTROL PANEL	SWBD	SWITCHBOARD
EG	ENGINE-GENERATOR MODULE	SWGR	SWITCHGEAR
EPR	EVAPORATOR	T	TANK
F	FAN	TBN	TURBINE
FLT	FILTER	TCV	TEMPERATURE CONTROL VALVE
GEN	GENERATOR	TV	THROTTLING VALVE
GDR	GRINDER	TFR	TRANSFORMER
GT	GATE	TRS	TRANSFER SWITCH
H	HOIST	TM	TIMER
HEX	HEAT EXCHANGER	UH	UNIT HEATER
HP	HEAT PUMP	UV	ULTRA VIOLET
HTR	HEATER	VEN	VENTILATOR
HTT	HEAT TRACER TAPE	WH	WATER HEATER
HV	HAND-OPERATED VALVE	WHR	WASHER
HPR	HOPPER	WSU	WATER SOFTENER UNIT
INU	INJECTOR	STP	STOP PLATE
LVR	LOUVER		

PIPING SYSTEM DESIGNATIONS:

A	AERATION AIR
AA	AGITATION AIR
AFE	AIR FLOTATION EFFLUENT
AR	AIR RELEASE
BW	BACKWASH WATER
CD	CHEMICAL DRAIN
CHS	CHEMICAL SOLUTION
CLG	CHLORINE GAS
CLL	CHLORINE LIQUID
CLS	CHLORINE SOLUTION
CLV	CHLORINE VACUUM
CSO	CAUSTIC SODA
D	DRAIN
EE	ENGINE EXHAUST
FA	FOUL AIR
FE	FINAL EFFLUENT
FLT	FILTRATE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
GR	GRIT
HOCL	SODIUM HYPOCHLORITE
HW	POTABLE HOT WATER
IA	INSTRUMENT AIR
LF	LIME FEED
LOR	LUBE OIL RETURN
LOS	LUBE OIL SUPPLY
LOW	LUBE OIL WASTE
ML	MIXED LIQUOR
MS	MIXED SLUDGE
NG	NATURAL GAS
OF	OVERFLOW
PD	PUMPED DRAINAGE
POL	POLYELECTROLYTE
RAS	RETURN ACTIVATED SLUDGE
RCE	RECARBONATED EFFLUENT
RS	RAW SEWAGE
RWP	RAINWATER PIPE
RWR	RECLAIMED WATER
SA	SERVICE AIR
SCN	SCREENINGS
SD	SANITARY DRAIN
SE	SECONDARY EFFLUENT
SSC	SECONDARY SCUM
STA	STARTING AIR
STD	STORM DRAIN
TD	TANK DRAIN
THS	THICKENED SLUDGE
TWAS	THICKENED WASTE ACTIVATED SLUDGE
V	VENT
VC	CHEMICAL VENT
WAS	WASTE ACTIVATED SLUDGE
1W	POTABLE WATER
2W	NONPOTABLE CITY WATER
2WL	LANDSCAPE IRRIGATION
2WS	SOFTENED NONPOTABLE CITY WATER
3W	NO. 3 WATER (FINAL EFFLUENT)
3WS	NO. 3 SPRAY WATER
3WR	NO. 3 WATER RETURN

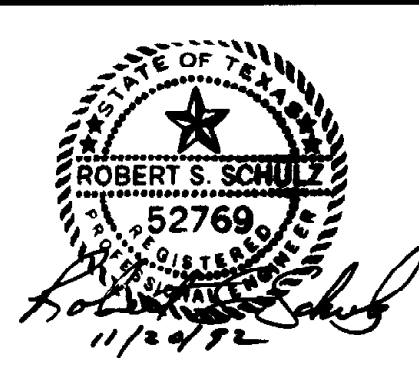
"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/20/92
APPROVED: *Samuel W. Anderson* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE	5870
DRAWN	PMG
DESIGNED	PMG,GG
CHECKED	BS
CHECKED	NRW



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
G/6	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK
H/3	1	DELETED AS PER APS	JA	4/93	APS

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

VICINITY AND LOCATION MAPS, AND DRAWING DESIGNATION SYSTEMS

PROJECT NUMBER	1
DRAWING NUMBER	G1
SHEET NUMBER	1

GENERAL SYMBOLS

	NATURAL GROUND OR GRADE		REINFORCEMENT PLAN OR ELEVATION		RAILROAD		8" S SANITARY SEWER		GATE VALVE
	ROCK		BATT INSULATION		GUARD RAIL		18" SD STORM DRAIN		GLOBE VALVE
	CONCRETE		METAL STUD WITH LATH AND PLASTER PARTITION		TREE		48" CS COMBINED SEWER		PLUG VALVE (NORMALLY OPEN)
	EXISTING CONCRETE		JOINT FILLER		BUSH OR HEDGE		48" CSO COMBINED SEWER OUTFALL		PLUG VALVE (NOMALLY CLOSED)
	PRECAST CONCRETE		PVC WATER STOP		EXISTING		T TELEPHONE		KNIFE GATE VALVE
	MORTAR, GROUT OR PLASTER		SLIDE GATE OPENING AND DESIGNATION		MATCH LINE OR PROPERTY LINE		E ELECTRIC		
	CONCRETE BLOCK		HOSE RACK		CENTER LINE		4" G GAS		
	BRICK OR CAST IRON		101 DOOR NUMBER		HIDDEN LINE OR FUTURE		8" W WATER		
	TERRAZZO OR ARTIFICIAL STONE		101 ROOM NUMBER		FENCE		PAVEMENT MARKING		
	TILE		UTILITY STATION		HANDRAIL		EASEMENT BOUNDARY		
	GRATING COVER		HOISTING HOOK		CONCRETE CURB AND GUTTER		18" SD CULVERT		
	CHECKER PLATE		FIRE EXTINGUISHER		CONCRETE VALLEY GUTTER		BALL VALVE, (NORMALLY OPEN)		
	STEEL OR STAINLESS STEEL		HYDRANT		RETAINING WALL		BALL VALVE, (NORMALLY CLOSED)		
	ALUMINUM		FREEZELESS YARD HYDRANT		EDGE OF AC PAVEMENT (PLAN)		BUTTERFLY VALVE		
	WOOD		BUIRED VALVE		EXISTING GRADE CONTOURS		SWING CHECK VALVE		
	RIGID INSULATION		WM WATER METER		FINISH GRADE CONTOURS		PINCH VALVE		
	NEOPRENE RUBBER OR GASKET		MH MANHOLE		CONTOUR (HIDDEN)		FLEXIBLE BOLT CONSTRUCTION PIPE COUPLING		
	OPENING OR DEPRESSION IN SLAB OR WALL		89 SOIL BORING AND DESIGNATION		EDGE OF GRAVEL AREA (PLAN)		REDUCER W/ SIZE INDICATION		
	OPENING WITH GRATING COVER		B1 PERMANENT BENCH MARK		SWALE, DITCH OR DEPRESSION		MECHANICAL JOINT CONNECTION		
	OPENING WITH CHECKER PLATE COVER		△ SURVEY TRIANGULATION POINT		EDGE OF WATER OR FLOWLINE		GROOVED END FLEXIBLE COUPLING CONNECTION		
	EXISTING EQUIPMENT OR MATERIALS TO BE REMOVED		SECTION CORNER		EMBANKMENT		GROOVED END RIGID COUPLING CONNECTION		
	TO BE BUILT FOR FUTURE REMOVAL		QUARTER CORNER		AC PAVEMENT (SECTION) EXIST		GROOVED END FLANGE ADAPTER CONNECTION		
	REINFORCEMENT IN SECTION		○ SURVEY MONUMENT		AC PAVEMENT (SECTION) NEW		FLANGE CONNECTION		
			○ STREET LIGHT		GRANULAR SURFACING (SECTION)		BLIND FLANGE		
			☀ TRAFFIC LIGHT		3:1 SLOPE (3 HORIZ. TO 1 VERT.)		TYPICAL PIPE CUT AWAY		
			○ UTILITY POLE		125.0 EXISTING SPOT ELEVATION		TYPICAL STACKED PIPE CUT AWAY		
			○ UTILITY POLE W/ANCHOR		130.0 FINISH GRADE SPOT ELEVATION				
			□ CATCH BASIN OR INLET		112.5 TOP OF CURB ELEVATION GUTTER ELEVATION				
			□ CATCH BASIN		N 0000.0000 E 0000.0000 COORDINATES				
			○ S SIGN		EL 4537.84 FIRST FLOOR ELEVATION MARKER (SECTION) WITH DESCRIPTION				
			□ M MAILBOX						
			• V MANUFACTURER SUPPLIED PACKAGE						

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/21/92
APPROVED: *Samuel J. Compadre* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE 5870
DRAWN PGM
DESIGNED GCB
CHECKED GCB
CHECKED DA

STATE OF TEXAS
ROBERT S. SCHULZ
52769
11/21/92

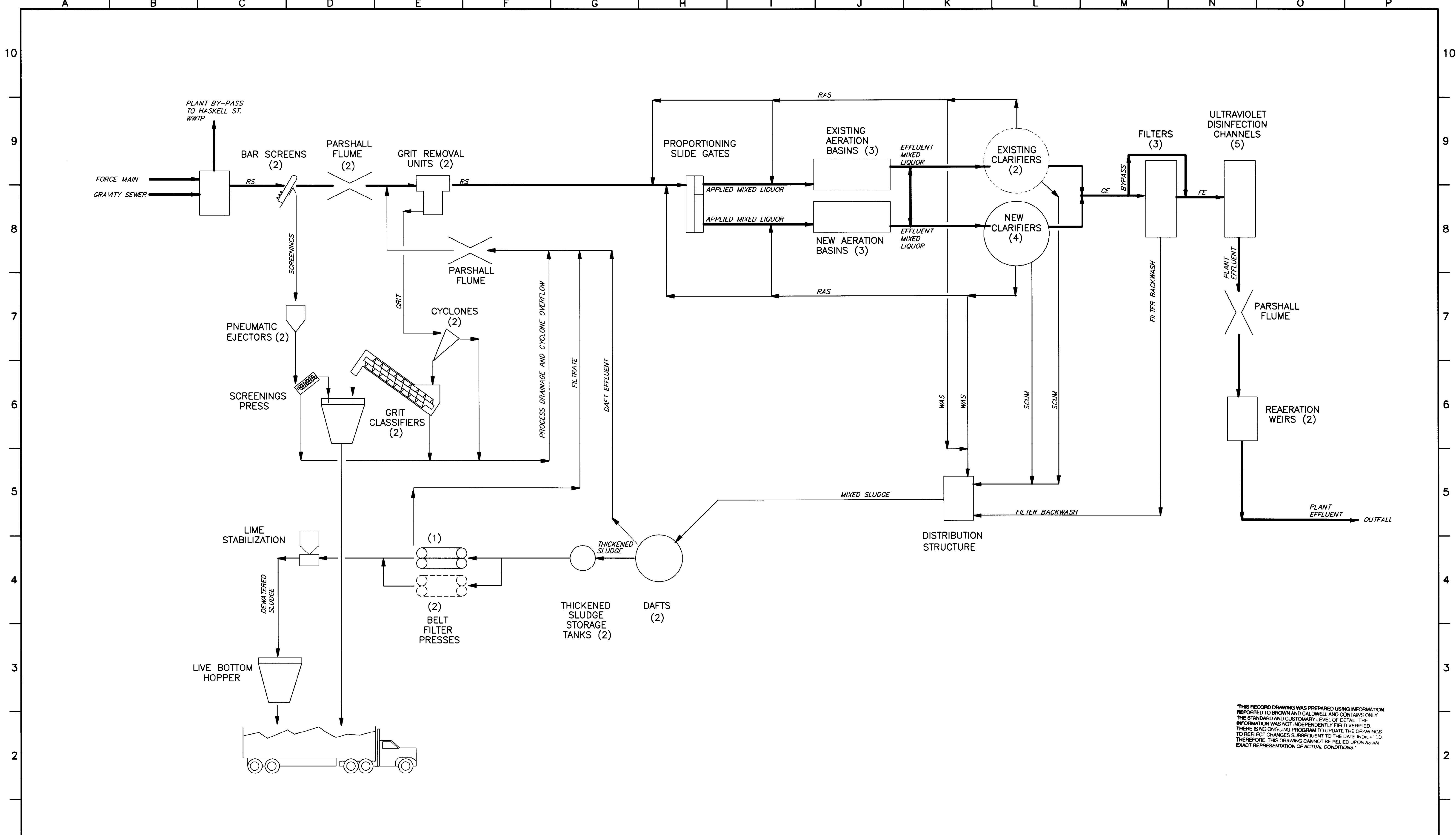
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

GENERAL SYMBOLS

PROJECT NUMBER	
DRAWING NUMBER	G2
SHEET NUMBER	2



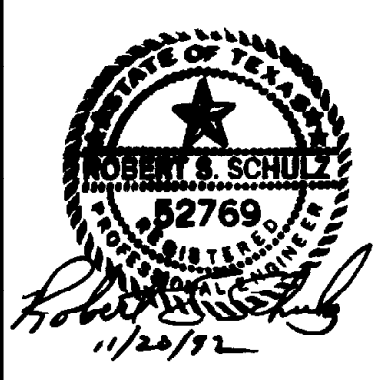
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BC Brown and Caldwell
 Consultants
 Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/20/12
 PROJECT MANAGER
 APPROVED: *Samuel A. Stander* DATE: 11-20-12
 BROWN AND CALDWELL
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2"=SCALE, ACCORDINGLY)

FILE: 5870
 DRAWN: PMG
 DESIGNED: JWW
 CHECKED: GLG
 CHECKED: JAW



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

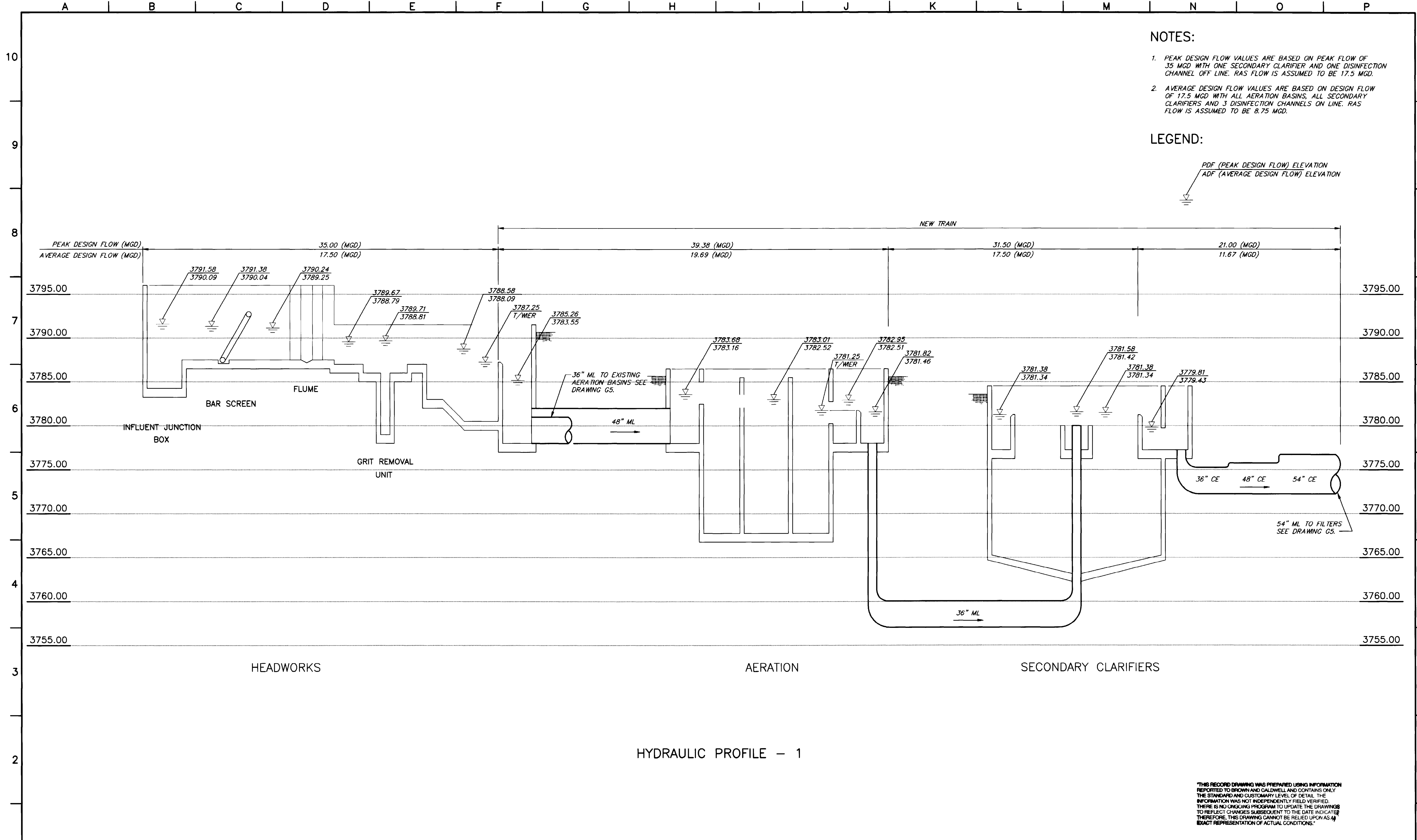
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PLANT FLOW SCHEMATIC

PROJECT NUMBER
 DRAWING NUMBER
G3
 SHEET NUMBER
3

5870-067 11-22-91 PMG



"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

BC Brown and Caldwell Consultants
Phoenix, Arizona

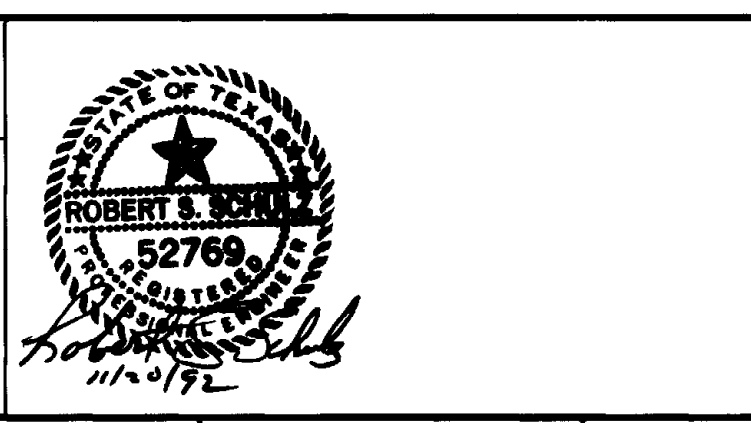
PROJECT MANAGER: *Robert K. Schulz*
DATE: 11/20/12

APPROVED: *Samuel A. Edmondson*
DATE: 11-20-12

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE	5870
DRAWN	RDM
DESIGNED	JLW
CHECKED	GLG
CHECKED	RNW



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

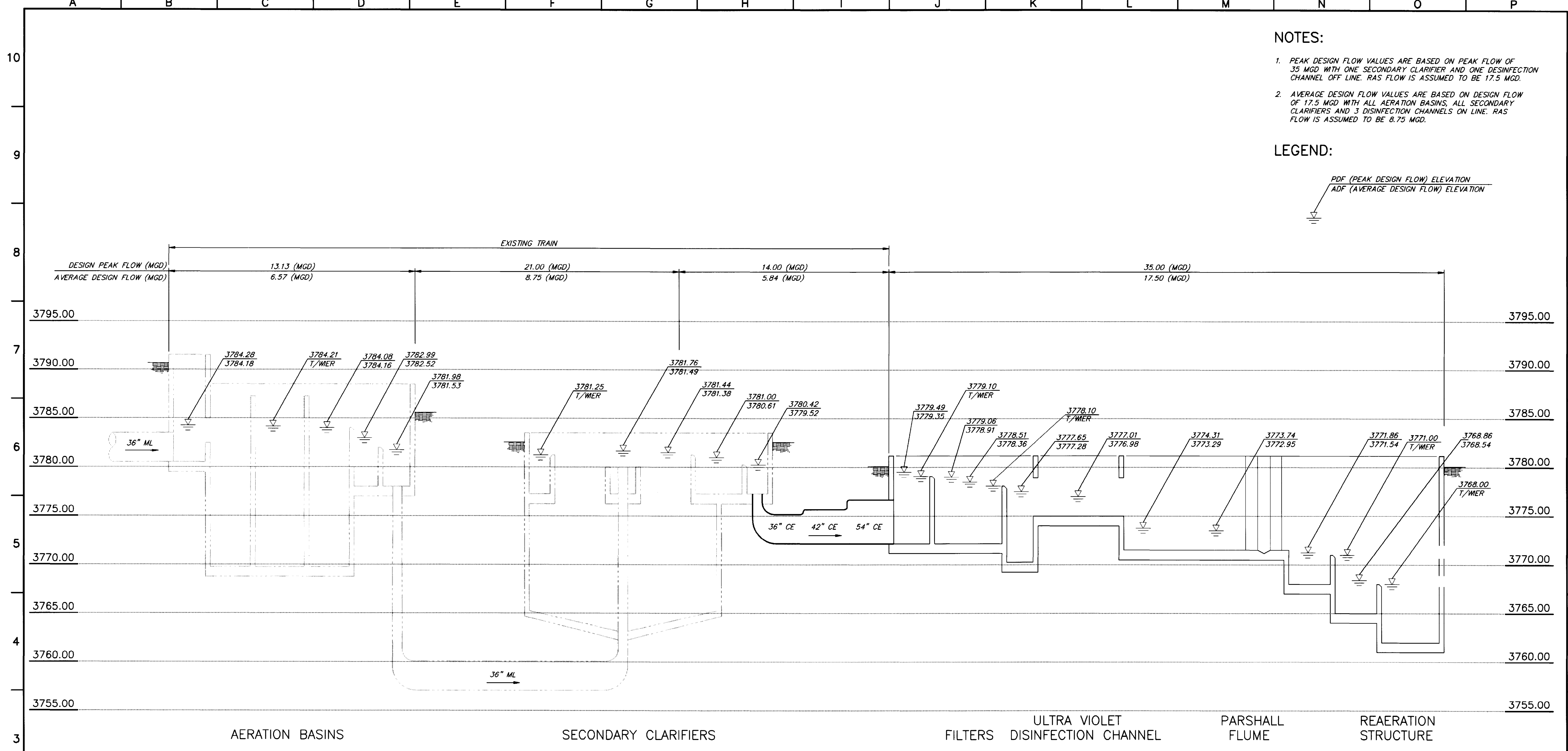
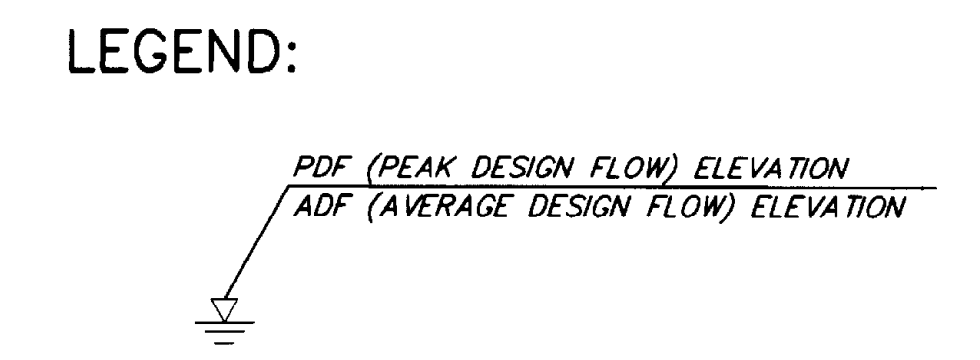
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HYDAULIC PROFILE - 1

PROJECT NUMBER	1
DRAWING NUMBER	G4
SHEET NUMBER	4

5870-037 11-08-12 PNG

- NOTES:**
1. PEAK DESIGN FLOW VALUES ARE BASED ON PEAK FLOW OF 35 MGD WITH ONE SECONDARY CLARIFIER AND ONE DISINFECTION CHANNEL OFF LINE. RAS FLOW IS ASSUMED TO BE 17.5 MGD.
 2. AVERAGE DESIGN FLOW VALUES ARE BASED ON DESIGN FLOW OF 17.5 MGD WITH ALL AERATION BASINS, ALL SECONDARY CLARIFIERS AND 3 DISINFECTION CHANNELS ON LINE. RAS FLOW IS ASSUMED TO BE 8.75 MGD.



HYDRAULIC PROFILE - 2

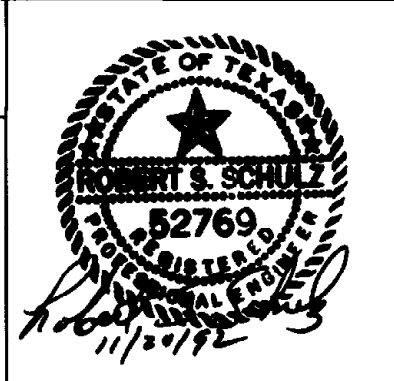
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BC Brown and Caldwell Consultants
 Phoenix, Arizona

PROF. MANAGER: *Robert S. Schulz* DATE: 11/20/92
 APPROVED: *Samuel W. Brown* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE	5870
DRAWN	RDM
DESIGNED	JW
CHECKED	<i>[Signature]</i>
CHECKED	<i>[Signature]</i>

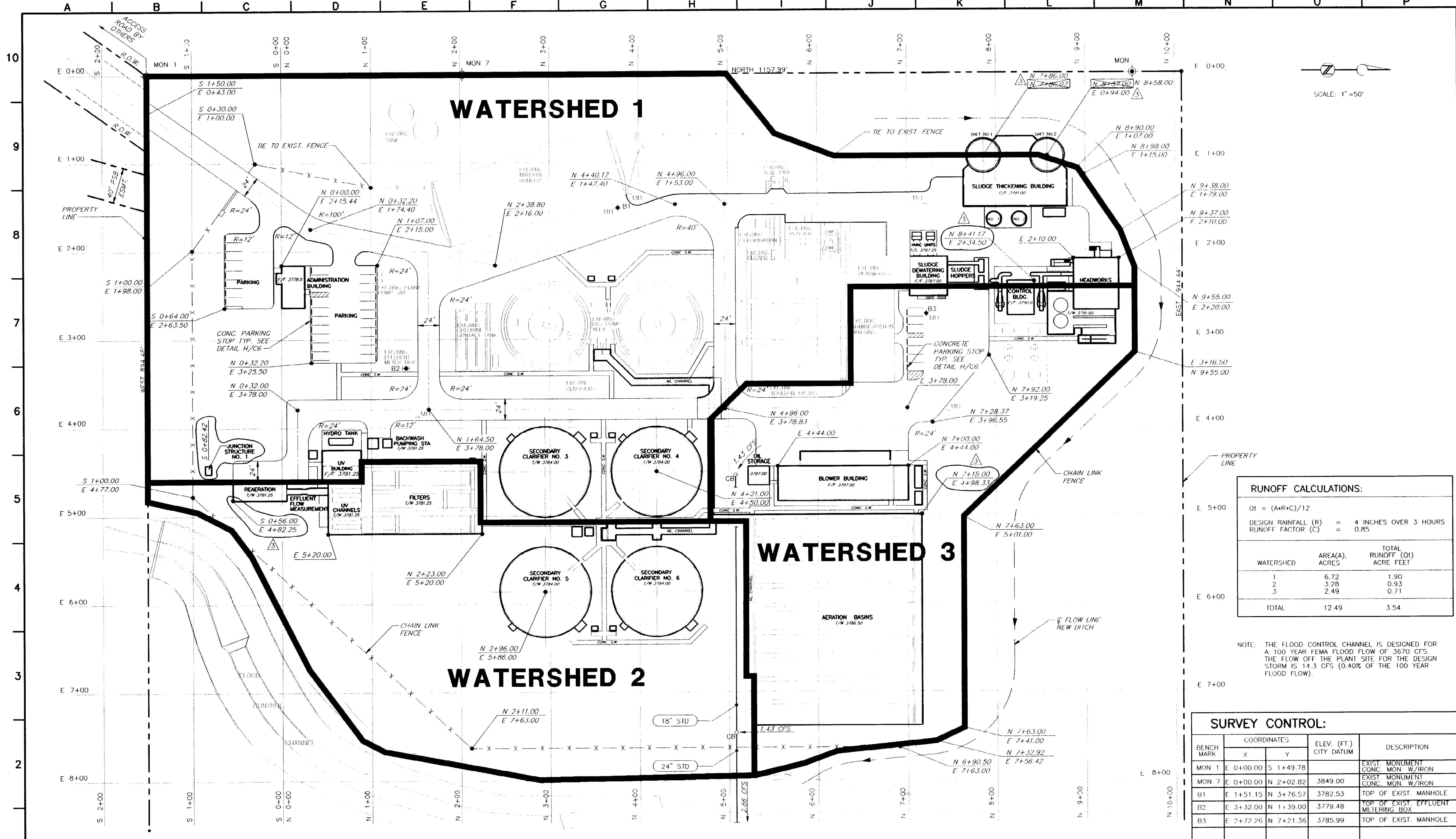


REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PROJECT NUMBER	
DRAWING NUMBER	G5
SHEET NUMBER	5



SCALE: 1"=50'

RUNOFF CALCULATIONS:

$Q_t = (A+R+C)/12$

DESIGN RAINFALL (R) = 4 INCHES OVER 3 HOURS
 RUNOFF FACTOR (C) = 0.85

WATERSHED	AREA(A), ACRES	TOTAL RUNOFF (Qt) ACRE FEET
1	6.72	1.90
2	3.28	0.93
3	2.49	0.71
TOTAL	12.49	3.54

NOTE: THE FLOOD CONTROL CHANNEL IS DESIGNED FOR A 100 YEAR FEMA FLOOD FLOW OF 3670 CFS. THE FLOW OFF THE PLANT SITE FOR THE DESIGN STORM IS 14.3 CFS (0.40% OF THE 100 YEAR FLOOD FLOW).

SURVEY CONTROL:

BENCH MARK	COORDINATES		ELEV. (FT.) CITY DATUM	DESCRIPTION
	X	Y		
MON 1	E 0+00.00	S 1+49.78	3849.00	EXIST. MONUMENT CONC. MON. W/IRON
MON 7	E 0+00.00	N 2+02.82	3849.00	EXIST. MONUMENT CONC. MON. W/IRON
B1	E 1+51.15	N 3+76.57	3782.53	TOP OF EXIST. MANHOLE
B2	E 3+32.00	N 1+39.00	3779.48	TOP OF EXIST. EFFLUENT MEETING BOX
B3	E 2+72.26	N 7+21.36	3785.99	TOP OF EXIST. MANHOLE

BC Brown and Caldwell Consultants
 Phoenix, Arizona

PROJECT MANAGER: _____ DATE: _____
 APPROVED: _____ DATE: _____
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870

DRAWN: DRH & PMC
 DESIGNED: _____
 CHECKED: _____
 CHECKED: _____

THIS RECORD DRAWING WAS PREPARED USING INFORMATION FURNISHED TO BROWN AND CALDWELL AND CERTAIN ONLY THE STANDARD AND CUSTOMARY LEVEL OF DESIGN. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED THEREON. THE DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

REVISIONS

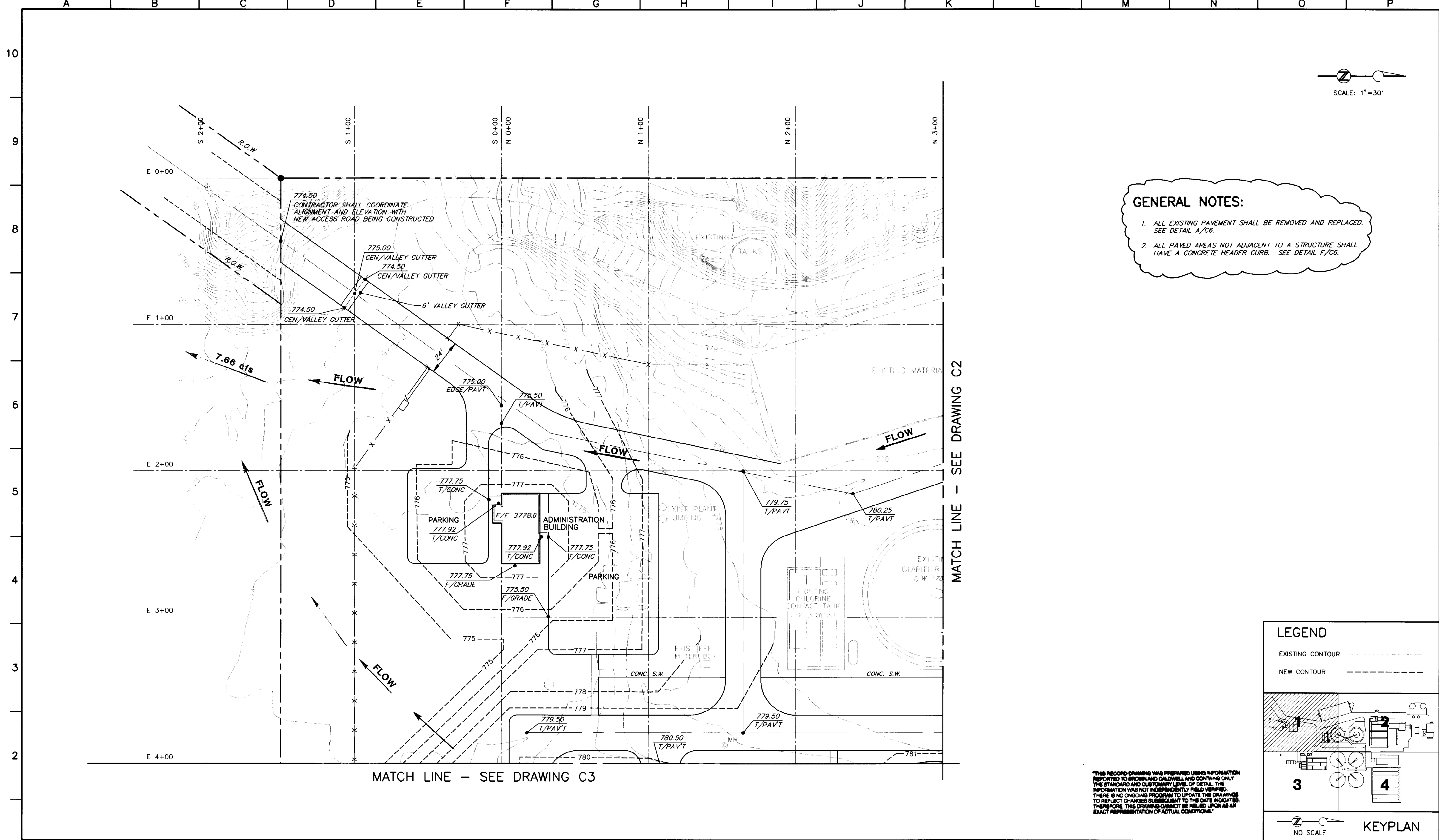
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	THIS SHIT. SUPERCEDES PREVIOUS DWG C6	JA	3/93	SK
N/A	2	ADDED WATERSHED BDRY'S AND STD FLOWS	JA	4/93	APS
N/A	3	REVISED COORDINATES	JA	1/96	SK

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

SITE PLAN AND SURVEY CONTROL

PROJECT NUMBER: _____
 ADDENDUM #2
 DRAWING NUMBER: **G6**
 SHEET NUMBER: **6**

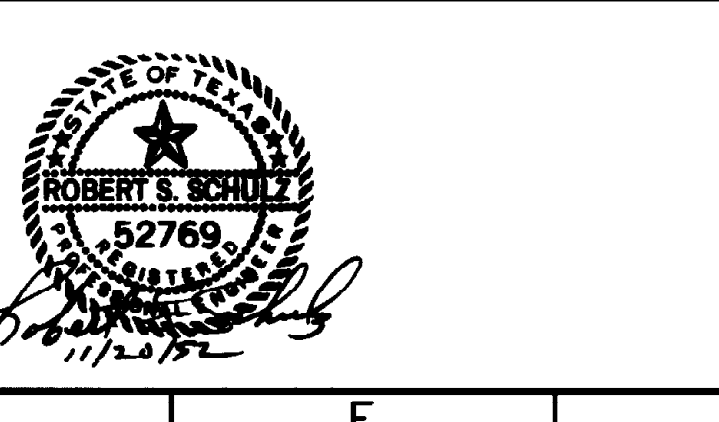


BC Brown and Caldwell Consultants
 Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/20/92
 APPROVED: *Samuel Crowder* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE 5870
 DRAWN GLG & DRH
 DESIGNED GLG
 CHECKED RM
 CHECKED CG



REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK
N/A	2	ADDED RUNOFF FLOW ARROWS	JA	4/93	APS

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PAVING AND GRADING - 1

C1

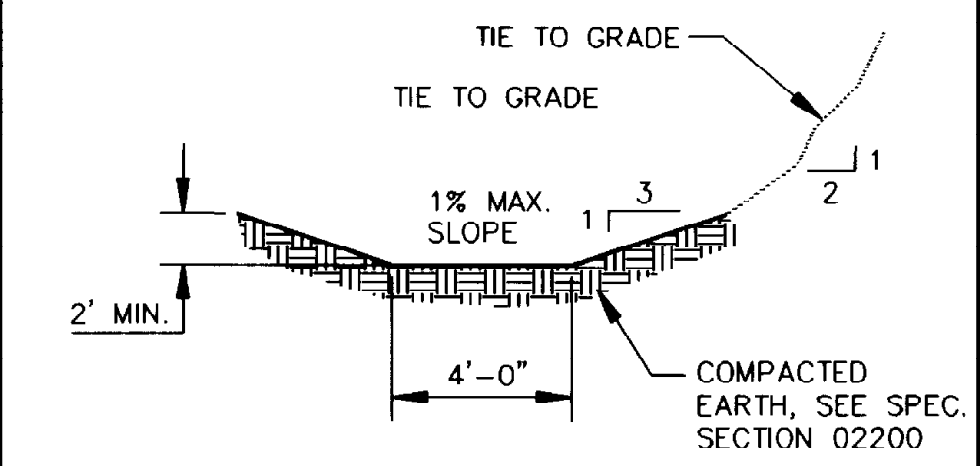
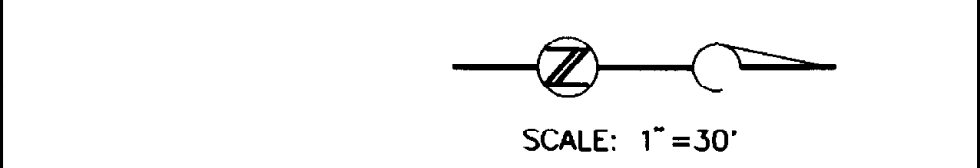
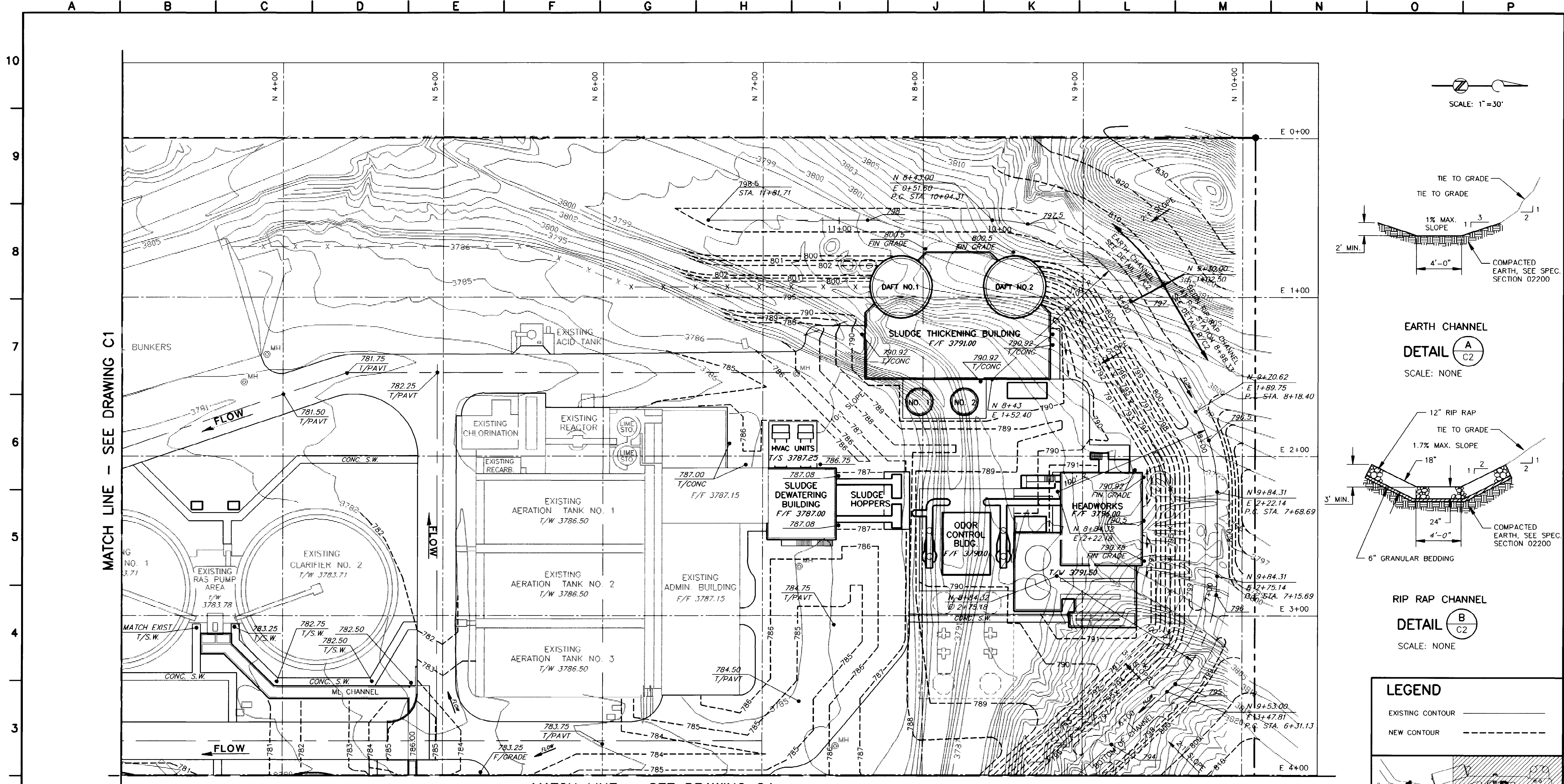
SHEET NUMBER 7

PROJECT NUMBER

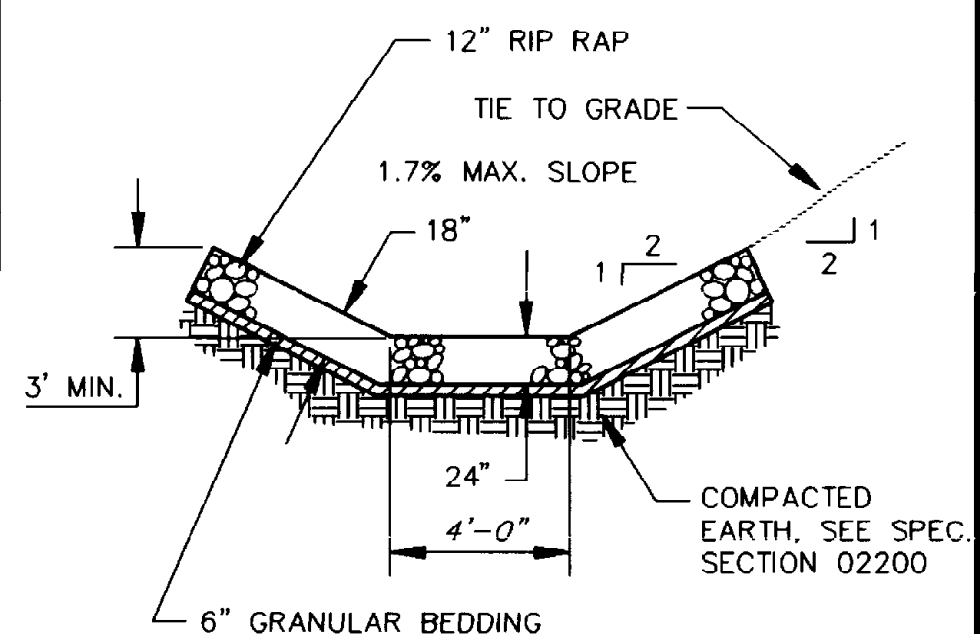
DRAWING NUMBER

SHEET NUMBER

5870-236 10-08-92 DRH



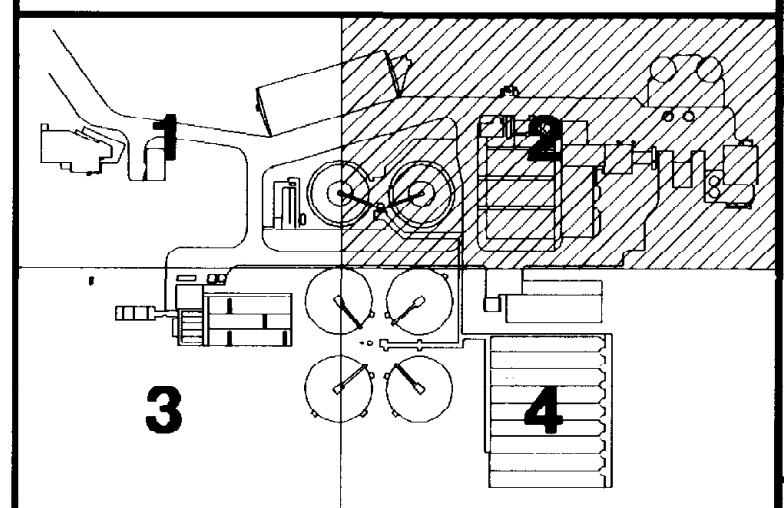
**EARTH CHANNEL
DETAIL A**
SCALE: NONE



**RIP RAP CHANNEL
DETAIL B**
SCALE: NONE

LEGEND

EXISTING CONTOUR	—————
NEW CONTOUR	- - - - -



KEYPLAN
NO SCALE

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

BC Brown and Caldwell Consultants
Phoenix, Arizona

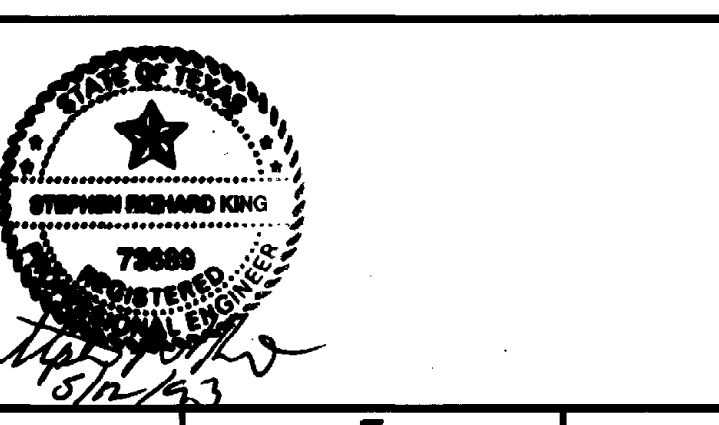
5870-238 03-03-93 JA

SUBMITTED: *[Signature]* DATE: 5/12/93
 APPROVED: *[Signature]* DATE: 5/13/93
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE: 5870

DRAWN: GLG & DRH
 DESIGNED: GLG
 CHECKED: _____
 CHECKED: _____



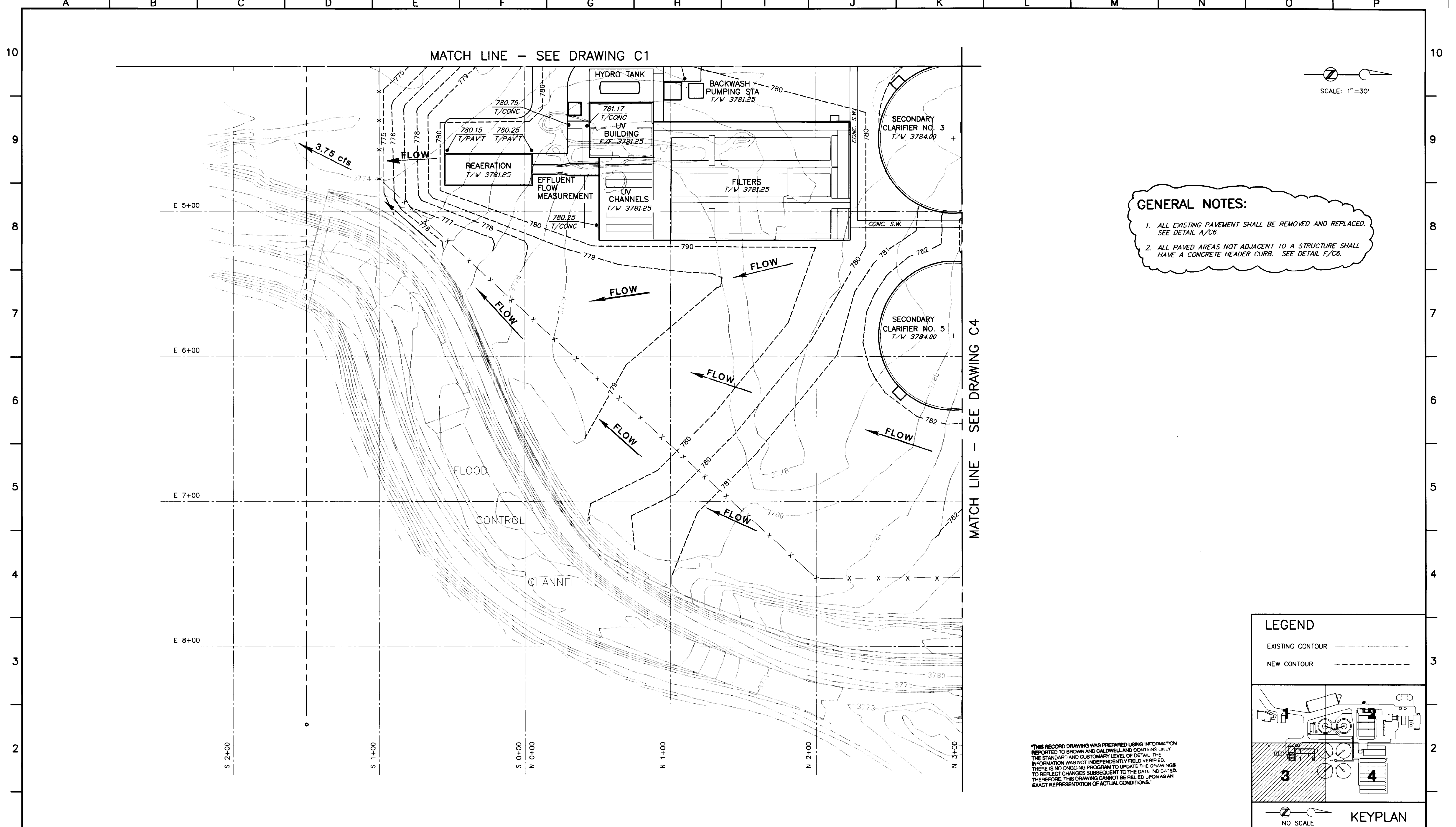
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	THIS SHT. SUPERCEDES PREVIOUS DWG C2	JA	2/93	SK
N/A	2	ADDED RUNOFF FLOW ARROWS	JA	4/93	APS

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PAVING AND GRADING - 2

PROJECT NUMBER: ADDENDUM #2
 DRAWING NUMBER: C2
 SHEET NUMBER: 8

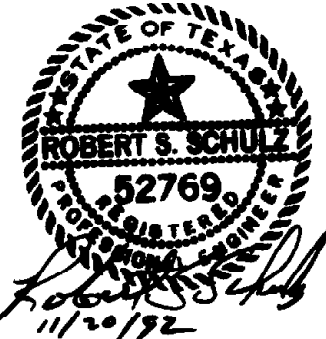


BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/20/92
 APPROVED: *Samuel P. Schneider* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE	5870
DRAWN	GLG & DRH
DESIGNED	GLG
CHECKED	RM
CHECKED	GLG



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/B	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK
N/A	2	ADDED RUNOFF FLOW ARROWS	JA	4/93	APS

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PAVING AND GRADING - 3

PROJECT NUMBER _____
 DRAWING NUMBER **C3**
 SHEET NUMBER **9**

LEGEND

EXISTING CONTOUR _____
 NEW CONTOUR - - - - -

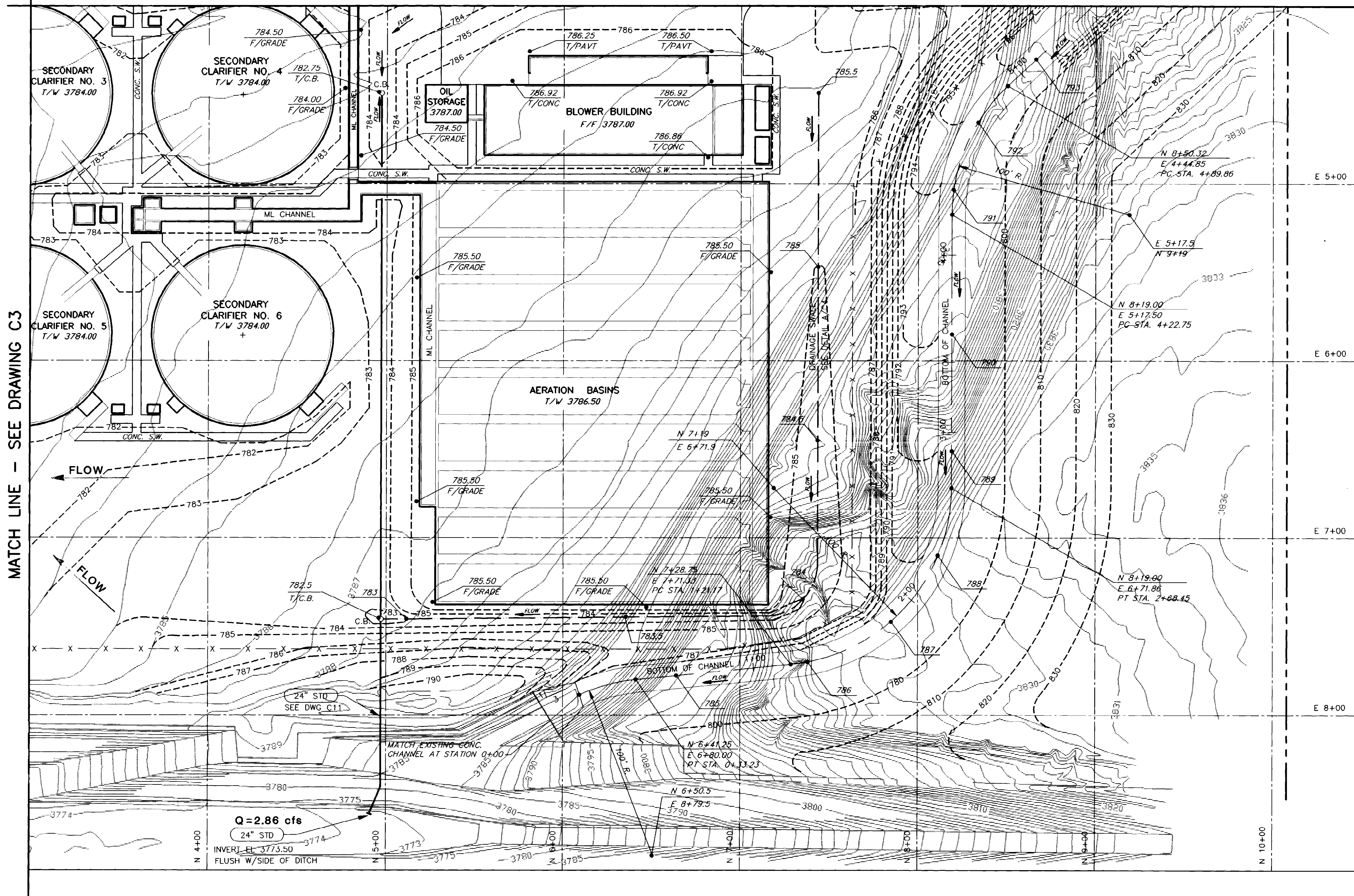
KEYPLAN

NO SCALE

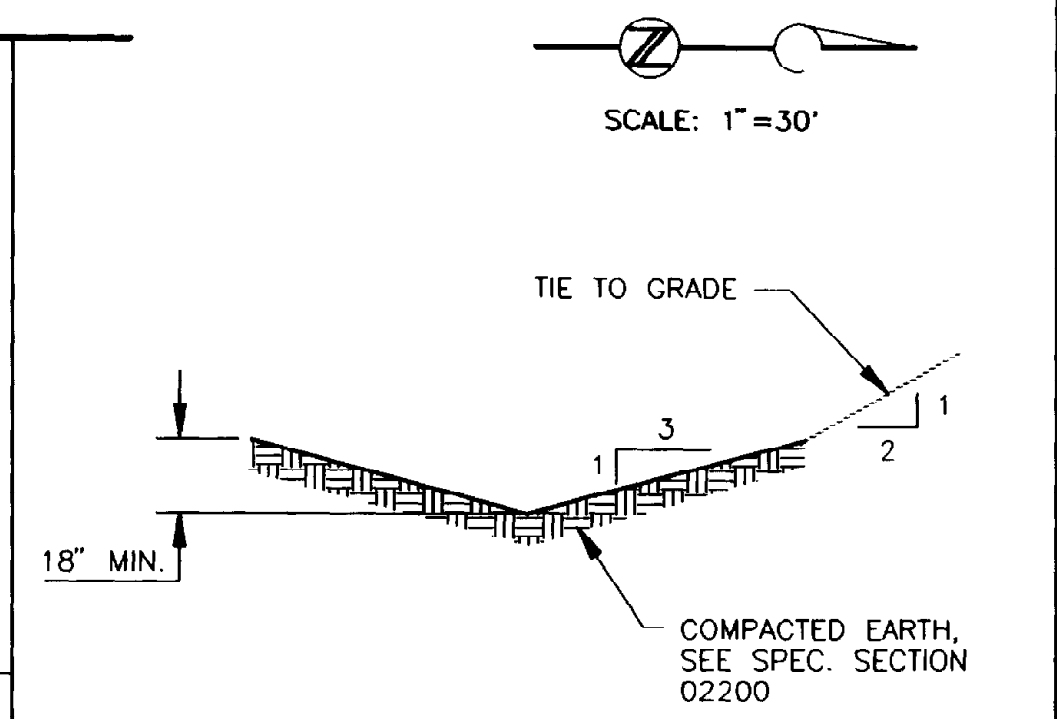
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5870-238 10-08-92 DRH

MATCH LINE - SEE DRAWING C2



MATCH LINE - SEE DRAWING C3



LOCAL DRAINAGE SWALE
DETAIL A/C4
SCALE: NONE

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

LEGEND

EXISTING CONTOUR ———

NEW CONTOUR - - - - -

KEYPLAN

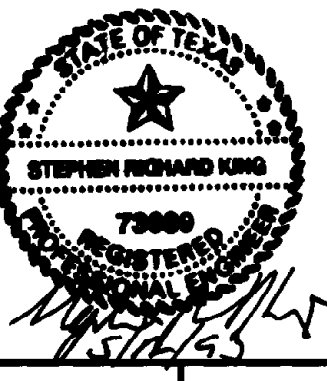
NO SCALE

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 5/12/93
APPROVED: *[Signature]* DATE: 5/13/93

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE 5870
DRAWN GLG & DRH
DESIGNED GLG
CHECKED
CHECKED



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	THIS SHT. SUPERCEDES PREVIOUS DWG C2	JA	2/93	SK
N/A	2	ADDED RUNOFF FLOW ARROWS	JA	4/93	APS

EL PASO WATER UTILITIES

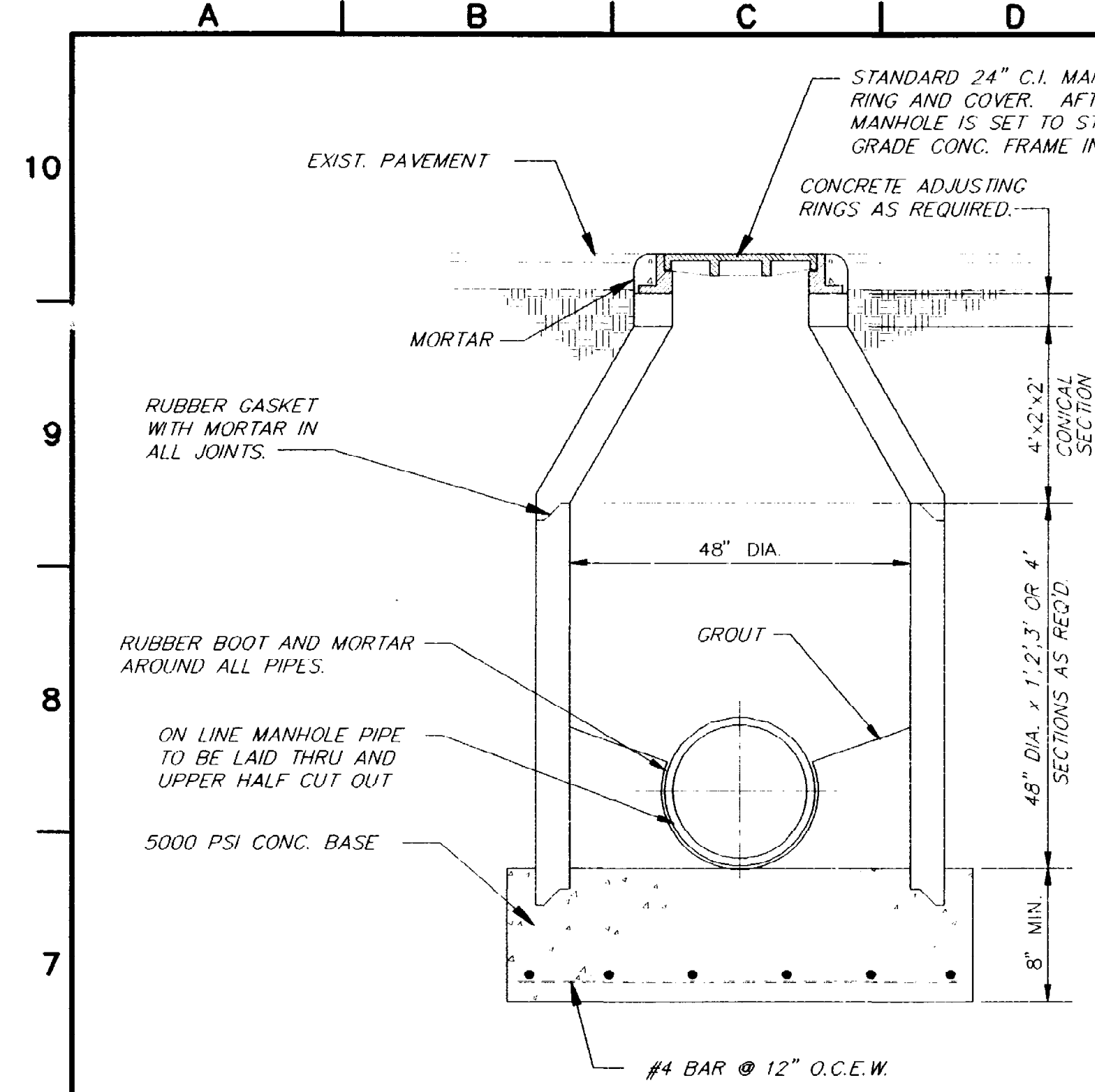
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PAVING AND GRADING - 4

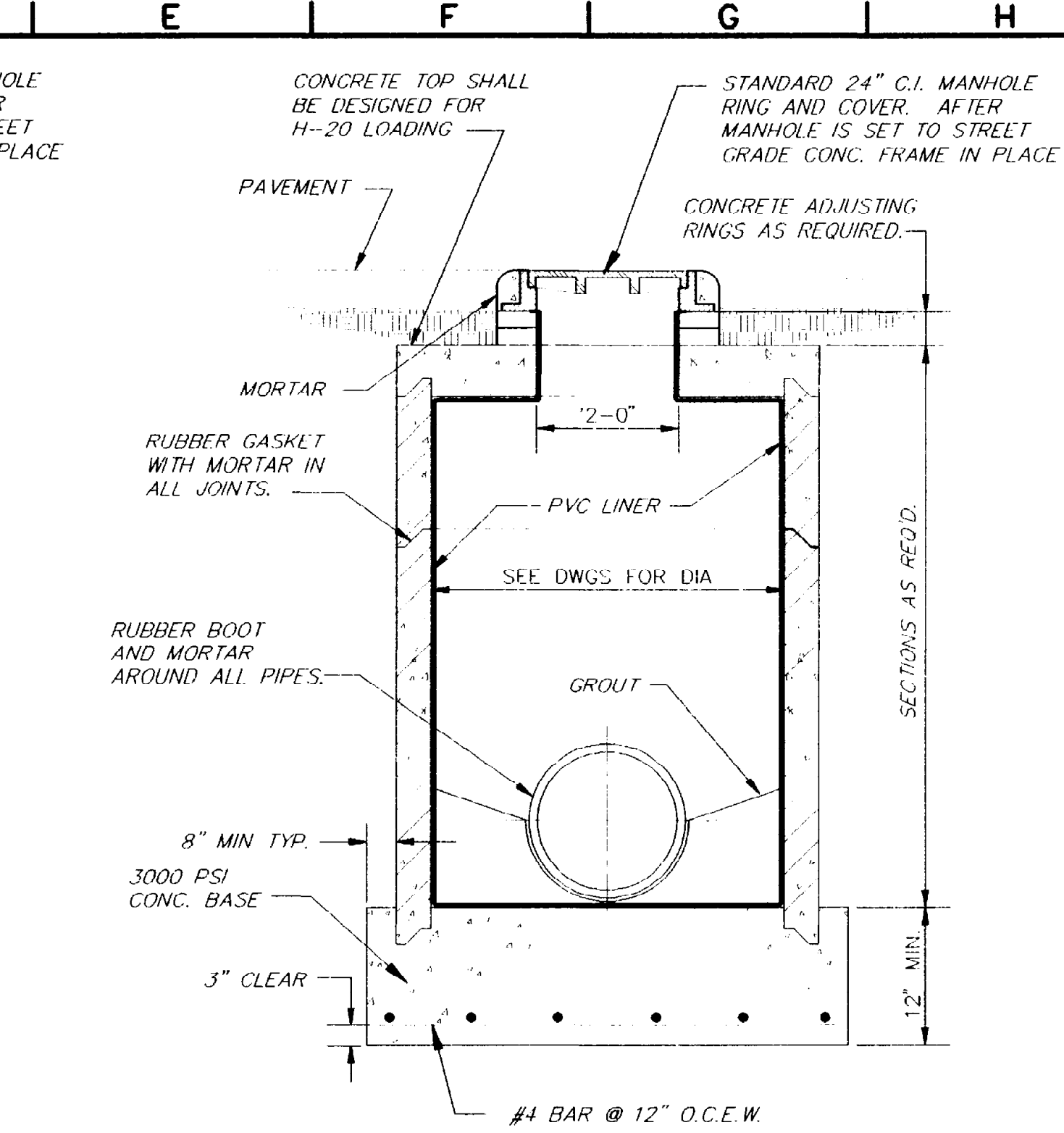
PROJECT NUMBER
ADDENDUM #2

DRAWING NUMBER
C4

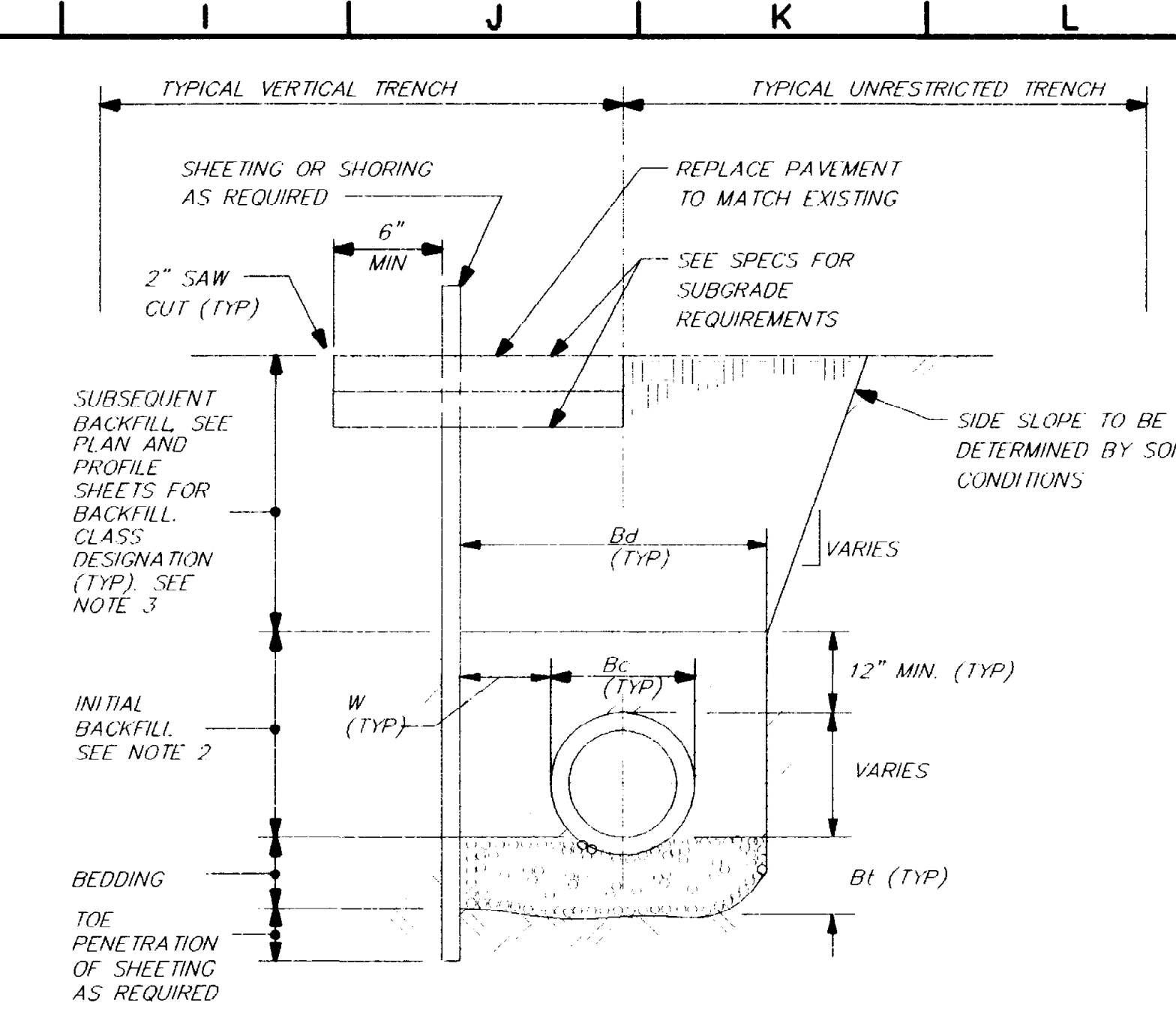
SHEET NUMBER
10



60" DIA AND SMALLER

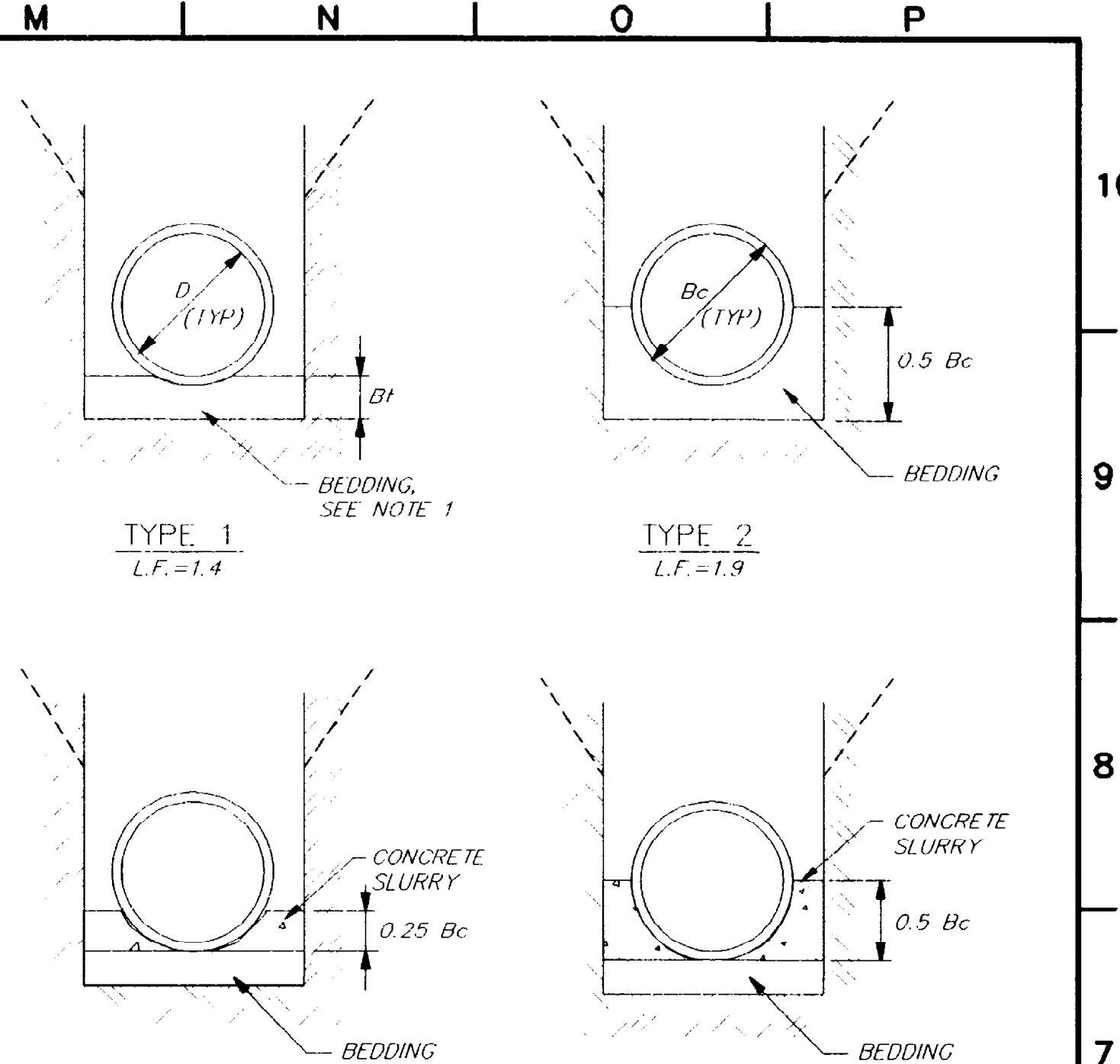


72" DIA AND LARGER



NOTES:
 1. FOR BEDDING TYPES, SEE DETAIL C/C5.
 2. INITIAL BACKFILL: SEE TABLE A, SEC. 02200.
 3. SUBSEQUENT BACKFILL: SEE TABLE A, SEC. 02200.

D, IN.	W MIN. IN.	Bd MAX. IN.	Bt MIN. IN.
0-6	6	Bc+24	3
8-24	8	Bc+24	6
27-60	12	Bc+36	12
OVER 60	18	Bc+42	12



NOTES:
 1. BEDDING: SEE TABLE A, SEC. 02200 FOR MATERIAL PER PIPE TYPE. CONTRACTOR MAY USE MIN. 3 SACK CONCRETE AS AN ALTERNATIVE.
 2. CONCRETE SLURRY IS CLASS E CONCRETE. SEE PARAGRAPH 03300-2.02A.
 3. BEDDING/BACKFILL TYPE (L.F.) SHALL BE USED WHERE SPECIFIED ON LAYOUT DRAWINGS.
 4. BEDDING SHALL BE BLOCKED OUT OR EXCAVATED AT BELLS.

NOTES:
 1. THE PRE-CAST MANHOLE RISER AND CONICAL SECTIONS SHALL BE 48" OR 72" DIAMETER OF REINFORCED CONCRETE AND SHALL CONFORM TO ASTM SPECIFICATION C-478.
 2. THE CONICAL SECTIONS CAN BE CONCENTRIC OR ECCENTRIC AND SHALL BE ADAPTED TO THE 48" RING AT ONE END AND THE CITY OF EL PASO STANDARD CAST IRON FRAME AT THE OTHER. ECCENTRIC WHEREVER STEPS ARE REQUIRED.
 3. THE FLAT SLABS OPENING SHALL BE CONCENTRIC WHERE NO LADDER RUNGS ARE REQUIRED, AND SHALL BE ADAPTED TO THE 48" OR 72" RING AT ONE END, AND TO THE CITY OF EL PASO STANDARD CAST IRON FRAME AT THE OTHER.

NOTES:
 1. THE PRE-CAST CONCRETE SHALL HAVE A MINIMUM ALLOWABLE COMPRESSIVE STRENGTH AT 28 DAYS OF 4000 POUNDS/SQ. INCH FOR THE RISER SECTIONS AND FOR THE CONICAL SECTIONS.
 2. THE RISER SECTIONS SHALL BE REINFORCED WITH STEEL WIRE MESH 6x6x10x10 AND THE CONICAL SECTION SHALL HAVE 6x6x10x10 STEEL WIRE MESH REINFORCEMENT AND 3/8" ROD AT TOP AND BOTTOM. (SEE ASTM STANDARDS PART 16-C-478).
 3. THE BASE SHALL BE 3000 PSI CONCRETE POURED ON UNDISTURBED OR THOROUGHLY COMPACTED SUB-BASE.

TYPICAL TRENCH LIMITATIONS:
 Bd=WIDTH FROM BOTTOM TO 12" ABOVE PIPE
 W=CLEARANCE TO WALL, EXCLUDING SHEETING, I.E. TO AERTH
 D=PIPE INSIDE DIAMETER, I.E. NOMINAL PIPE SIZE
 Bc=PIPE OUTSIDE DIAMETER
 Bt=DEPTH OF BEDDING FROM INVERT OF PIPE TO BOTTOM OF TRENCH

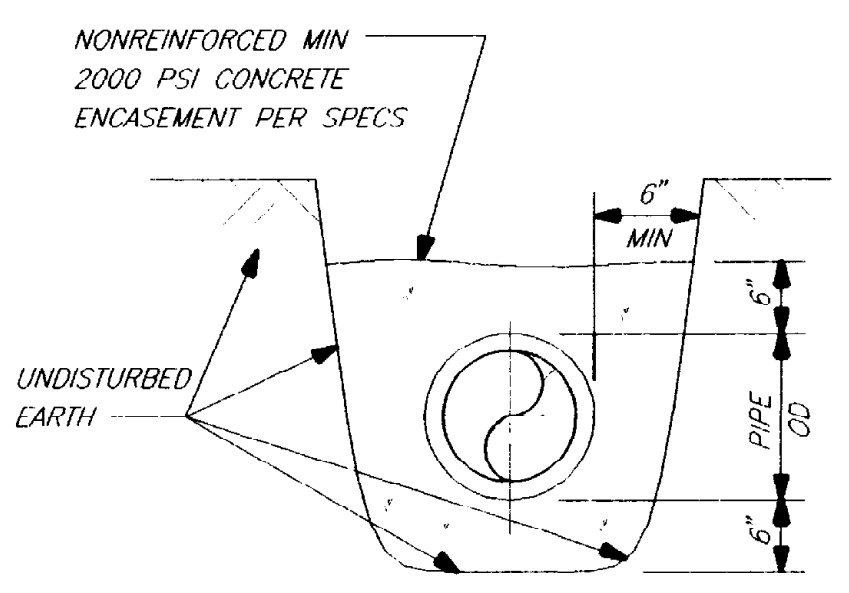
TYPICAL TRENCH SECTION

BEDDING TYPES

STANDARD MANHOLE DETAIL

DETAIL A TYP

SCALE: NONE



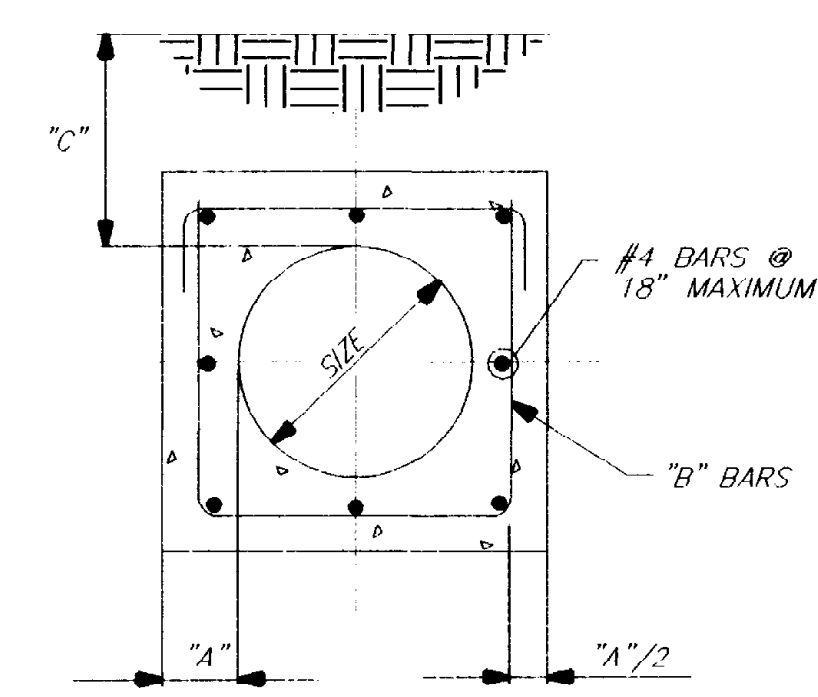
BURIED CONCRETE ENCASEMENT

DETAIL F TYP

SCALE: NONE

DETAIL B TYP

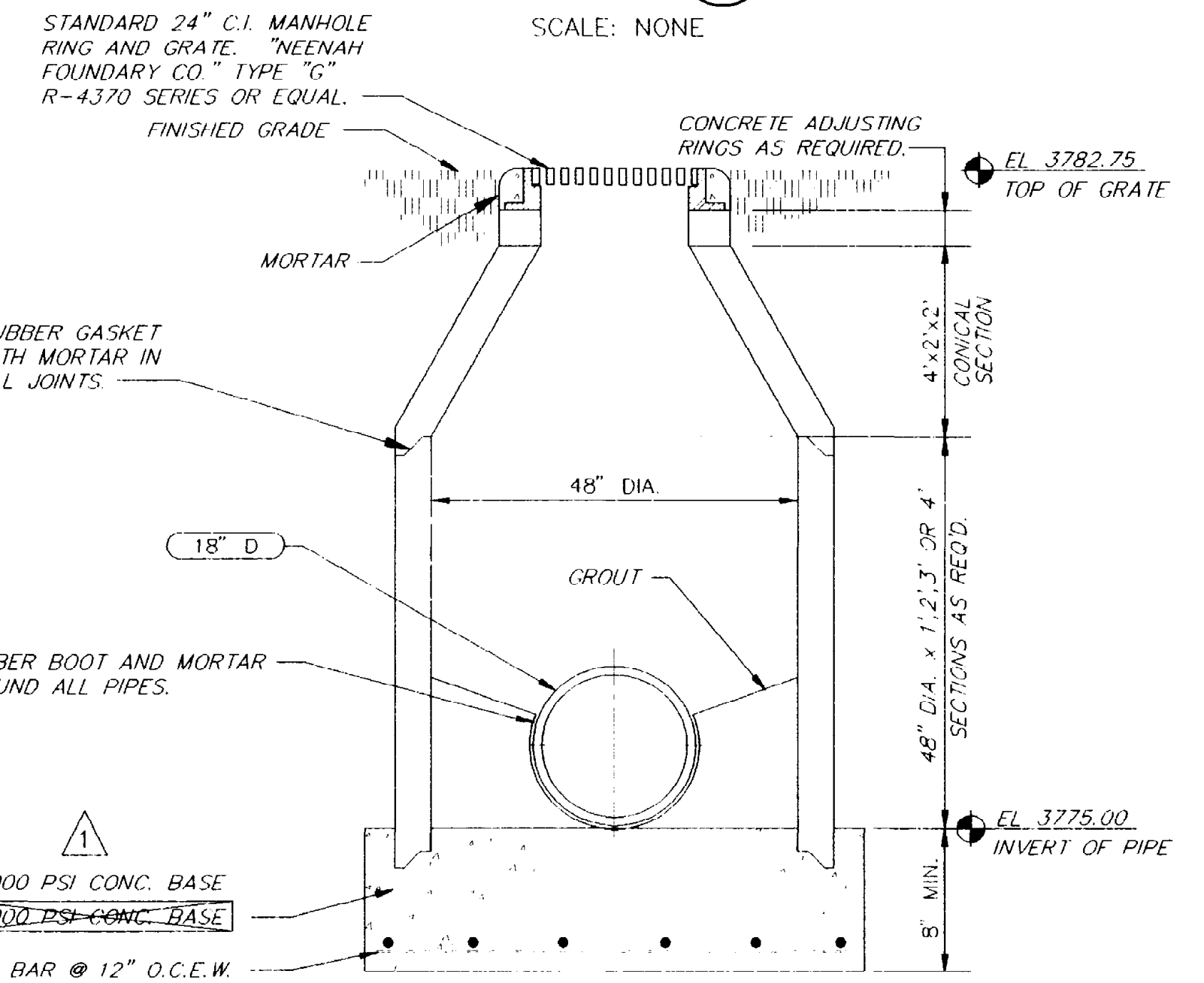
SCALE: NONE



REINFORCED CONCRETE ENCASEMENT

DETAIL E TYP

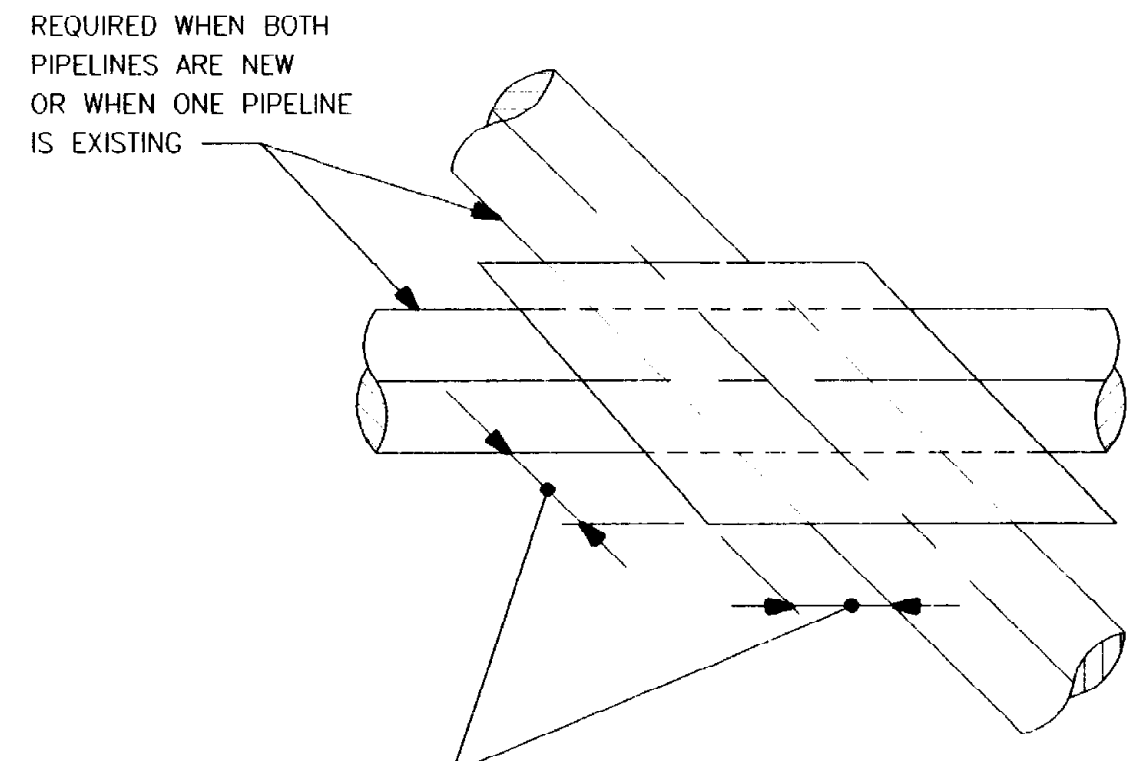
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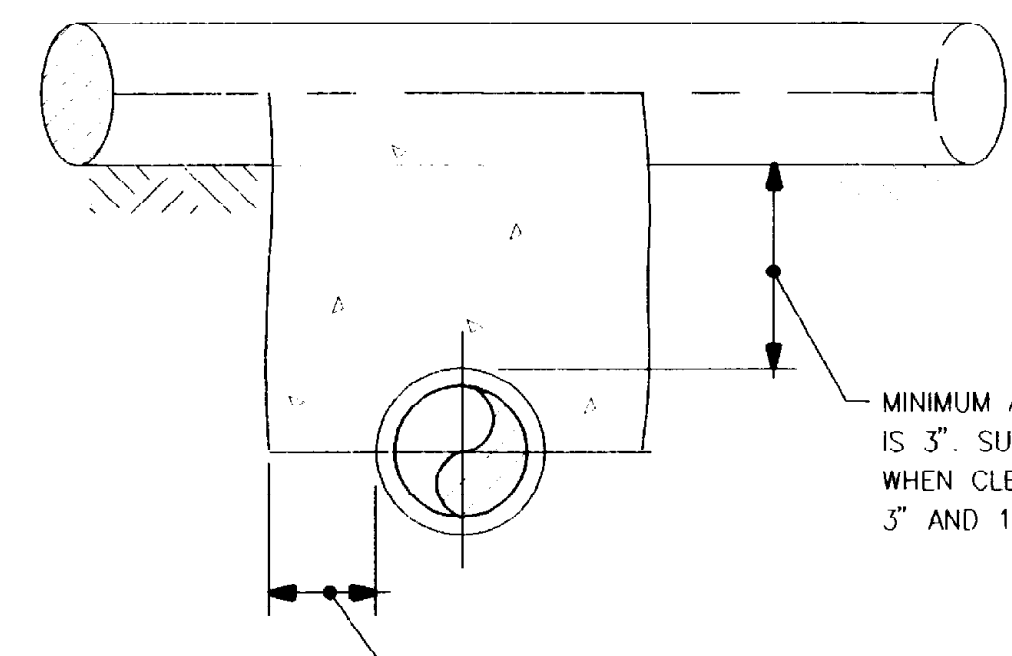
CATCH BASIN

DETAIL G TYP

SCALE: NONE



PLAN



CONCRETE SUPPORT FOR PIPE CROSSINGS

DETAIL D TYP

SCALE: NONE

LARGEST PIPELINE SIZE	TYPICAL DIMENSION
SMALLER THAN 2'-1/2"	3'
2'-1/2" TO 12"	6'
LARGER THAN 12"	12'

BC Brown and Caldwell Consultants
 Phoenix, Arizona

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
 DRAWN: PMG
 DESIGNED: BC
 CHECKED: GLC
 CHECKED: RNW

SUBMITTED: _____ DATE: _____
 PROJECT MANAGER: _____
 APPROVED: _____ DATE: _____
 BROWN AND CALDWELL

"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE
M/2	1	AS PER AS BUILT INFORMATION	JA	1/96

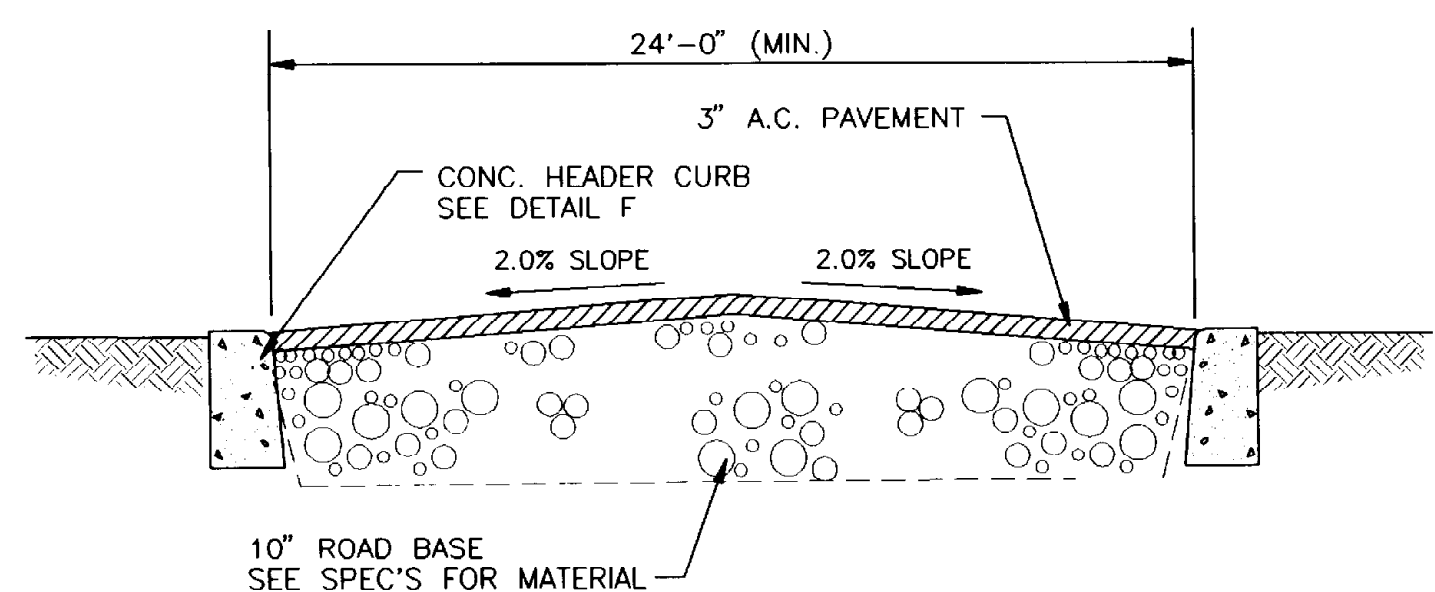
DATE	APP.
1/96	SK

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

MANHOLE AND TRENCHING DETAILS

PROJECT NUMBER: _____
 DRAWING NUMBER: **C5**
 SHEET NUMBER: 11

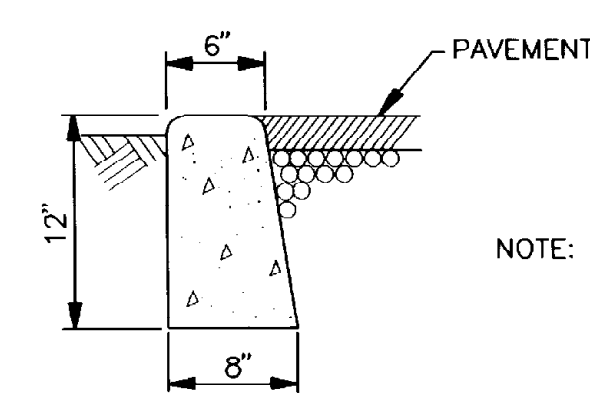


NOTE: SLOPE & WIDTH OF PAVEMENT VARY, SEE GRADING AND PAVING PLANS.

ROAD PAVEMENT

DETAIL A
TYP

SCALE: NONE

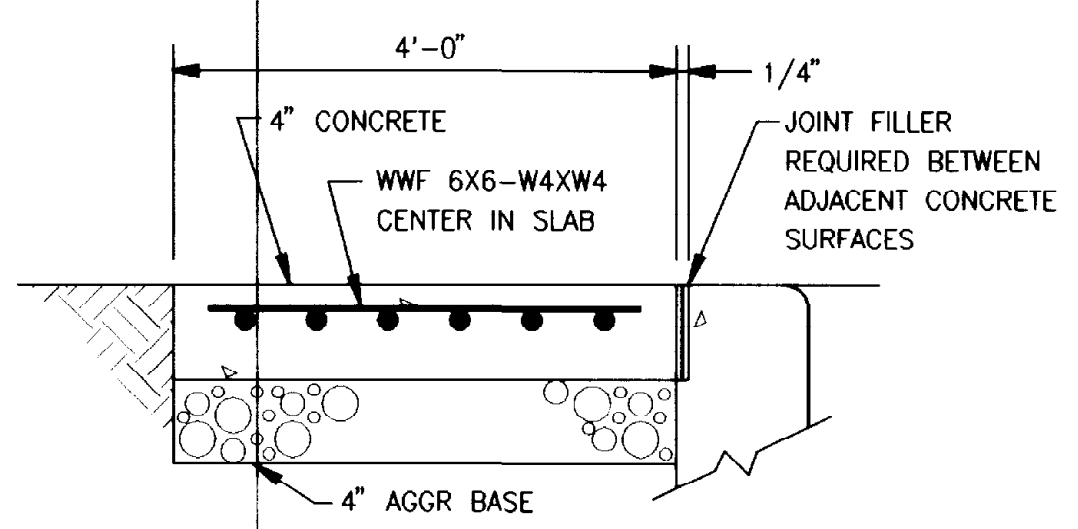


HEADER CURB

DETAIL F
TYP

SCALE: NONE

NOTE: PROVIDE 1/8" X 1/2" DEEP JOINT EVERY 4 FEET AND FULL JOINT WITH PREFORMED JOINT FILLER EVERY 20 FEET.

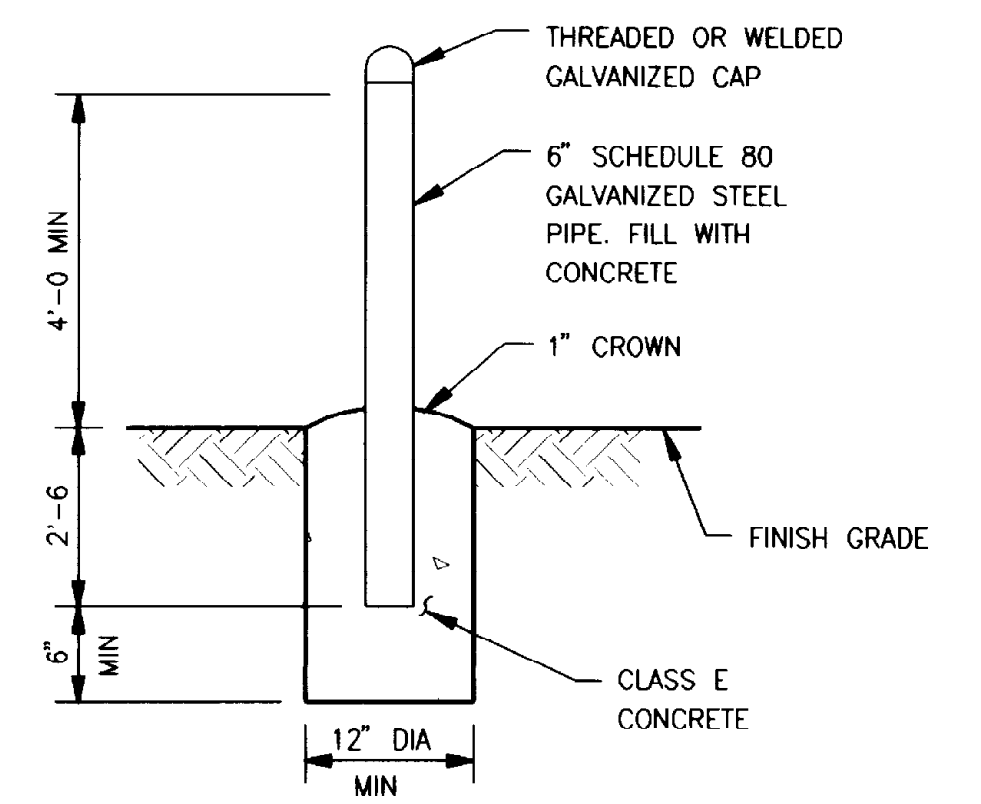


NOTES:
1. PROVIDE 1/8" X 1/2" DEEP JOINT EVERY 4 FT AND FULL JOINT WITH PREFORMED JOINT FILLER EVERY 20 FT.
2. PROVIDE 2% CROSS SLOPE.

CONCRETE WALK

DETAIL C
TYP

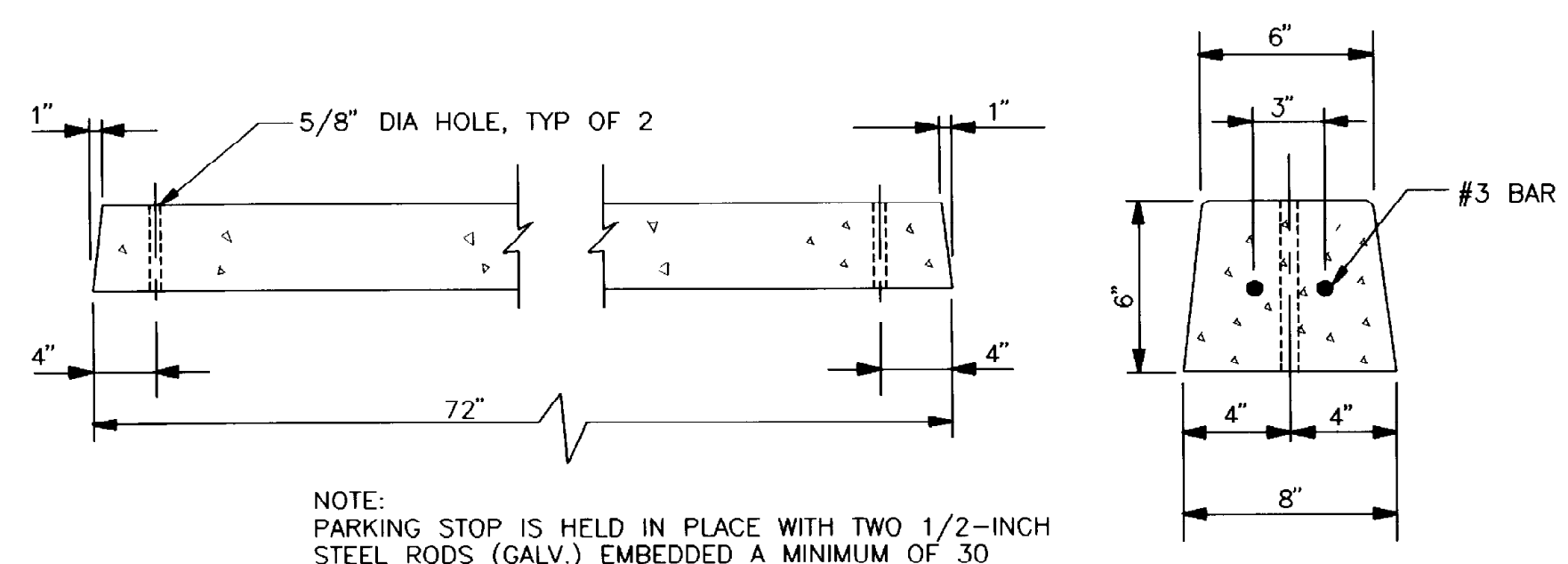
SCALE: NONE



GUARD POST

DETAIL D
TYP

SCALE: NONE

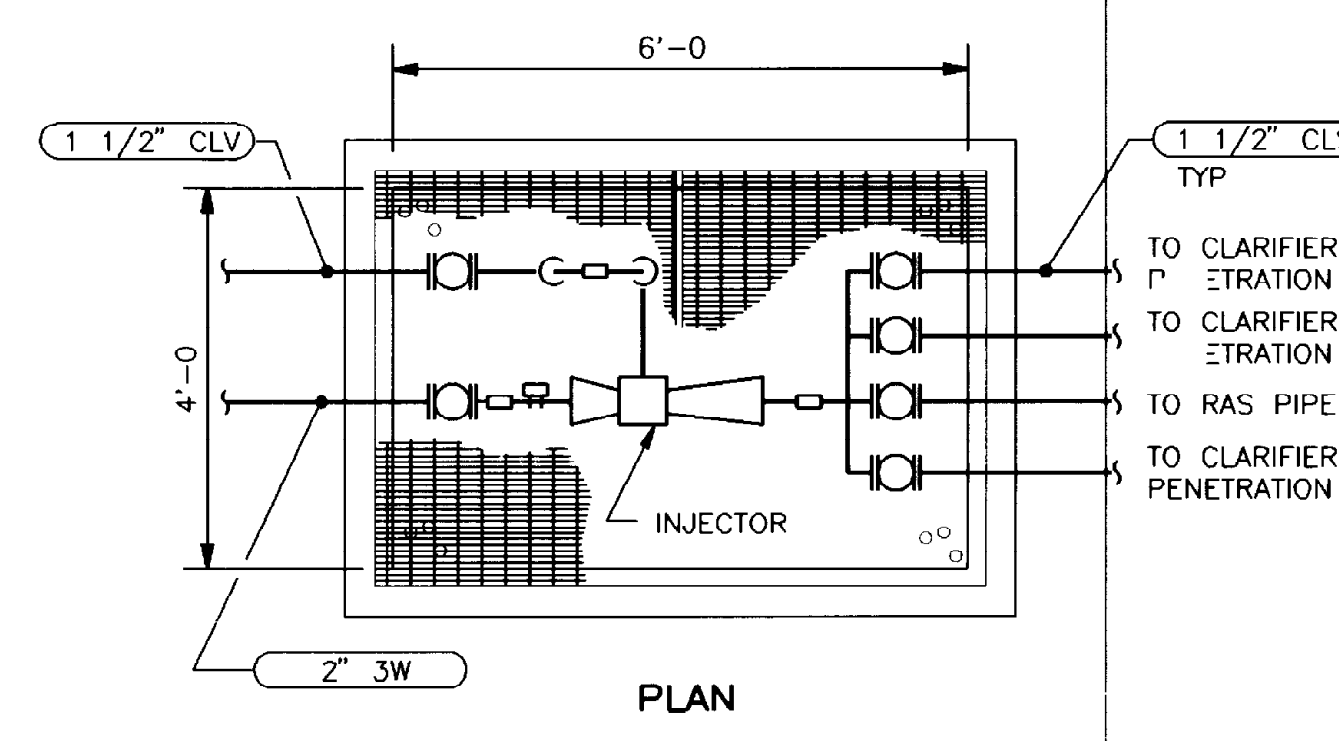


NOTE: PARKING STOP IS HELD IN PLACE WITH TWO 1/2-INCH STEEL RODS (GALV.) EMBEDDED A MINIMUM OF 30 INCHES AND PROJECTING A MAXIMUM OF 6-INCHES ABOVE PAVEMENT.

PARKING STOP

DETAIL E
TYP

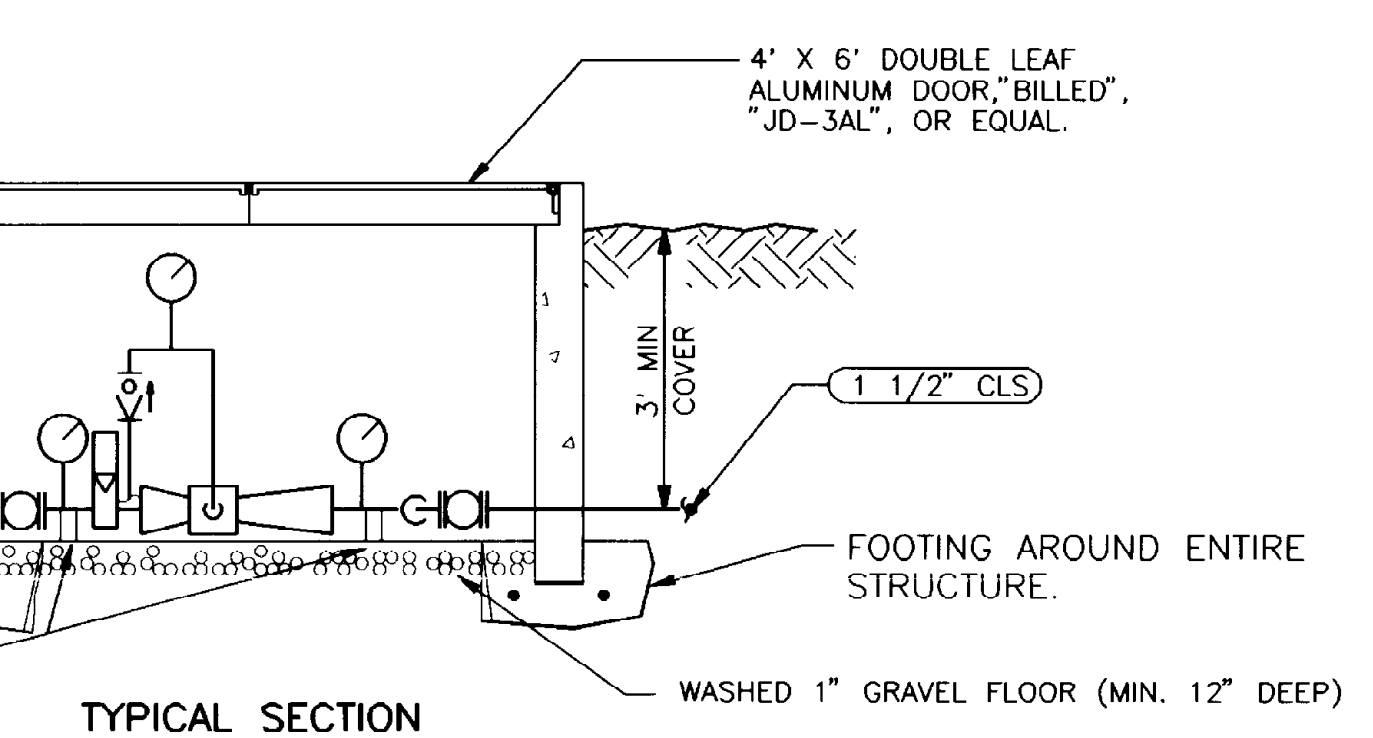
SCALE: NONE



TYPICAL CHLORINE INJECTOR STATION

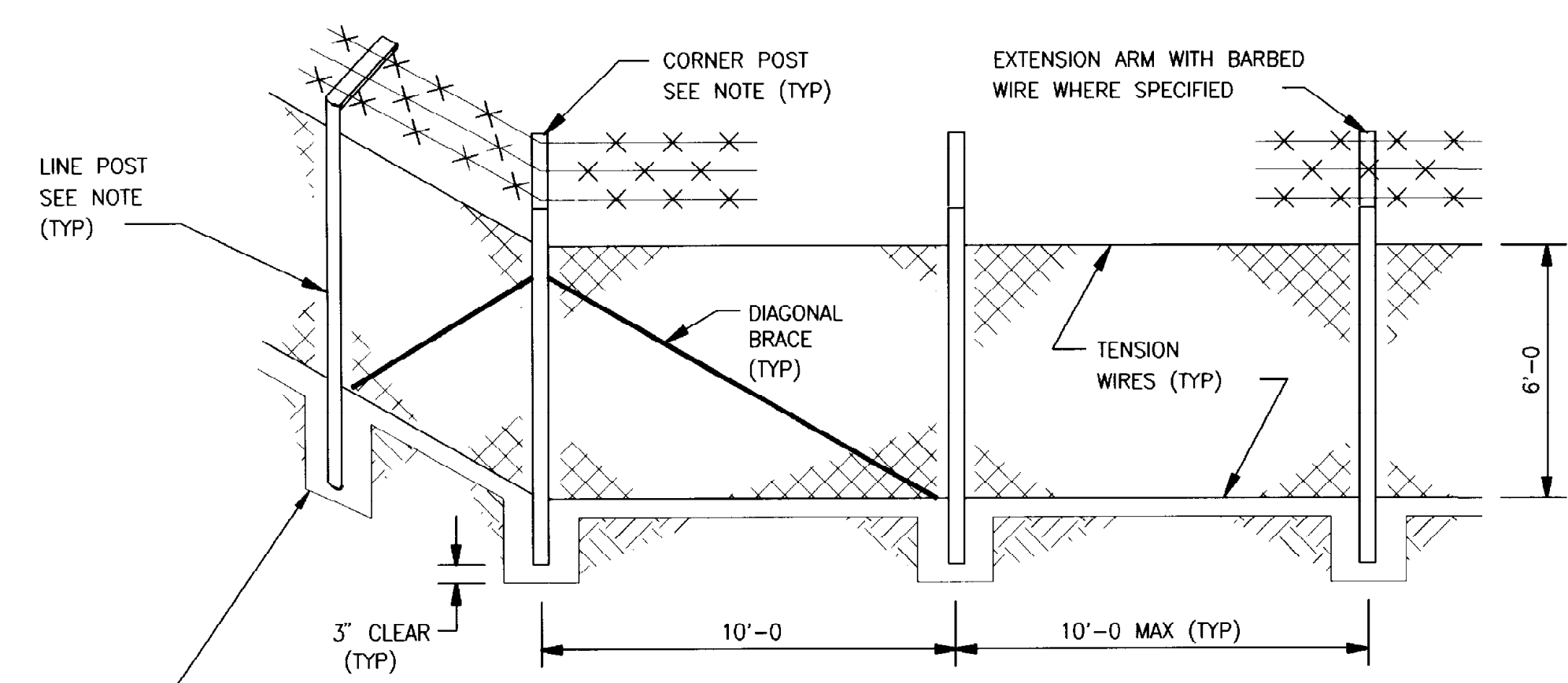
DETAIL G
TYP

SCALE: NONE



TYPICAL SECTION

NOTE: SEE OUTSIDE PIPING DRAWING FOR ORIENTATION AND NUMBER OF CLS LINES.



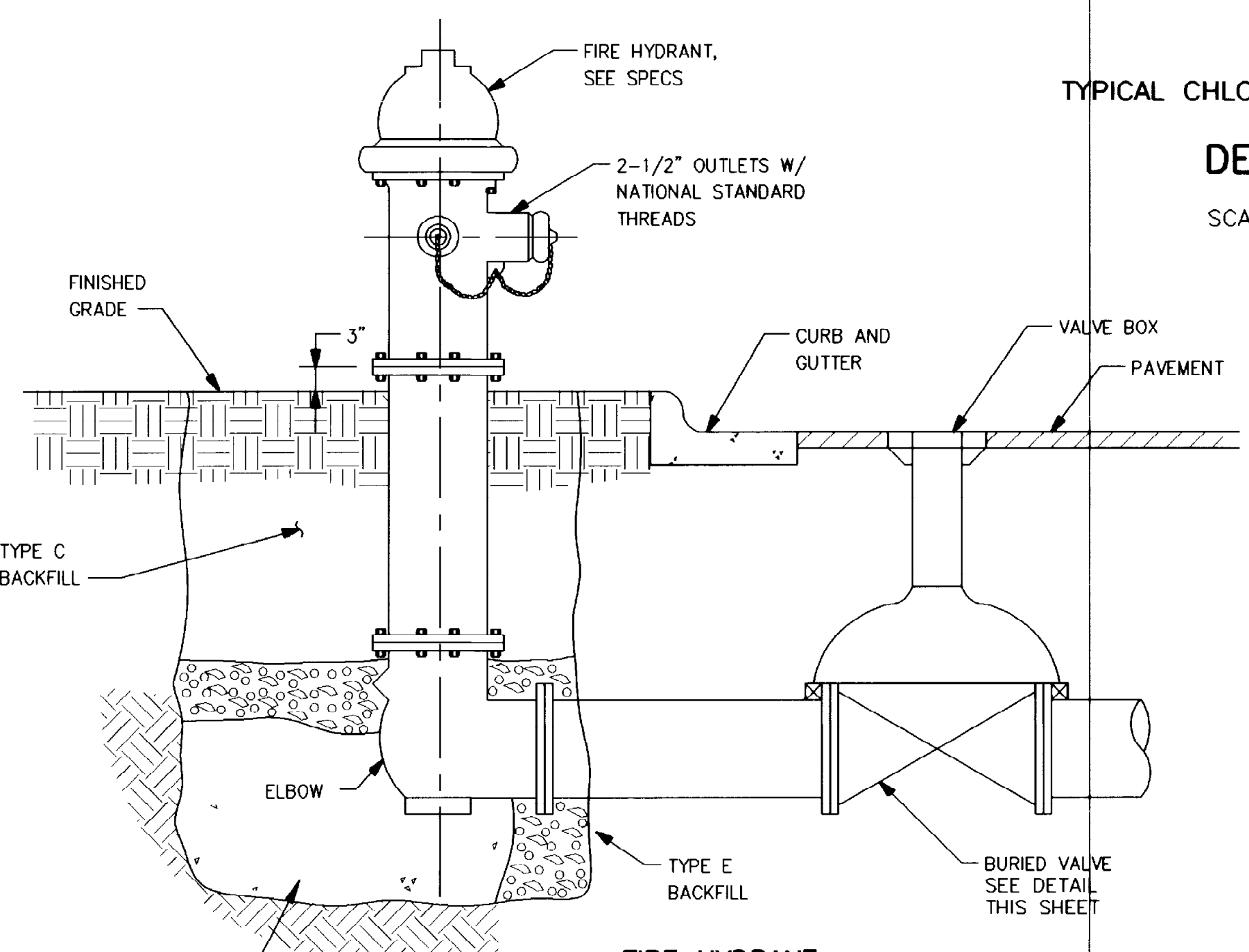
CHAIN LINK FENCE

DETAIL H
TYP

SCALE: NONE

CONCRETE ENCASUREMENT, ALL ENCASUREMENT SHALL HAVE A 1" CROWN ABOVE GROUND LEVEL. MINIMUM DEPTH 36" AND MINIMUM DIAMETER 8" FOR LINE, END, AND CORNER POST HOLES.

NOTE: PROVIDE POST CAP WHERE EXTENSION ARM WITH BARBED WIRE IS NOT SPECIFIED.

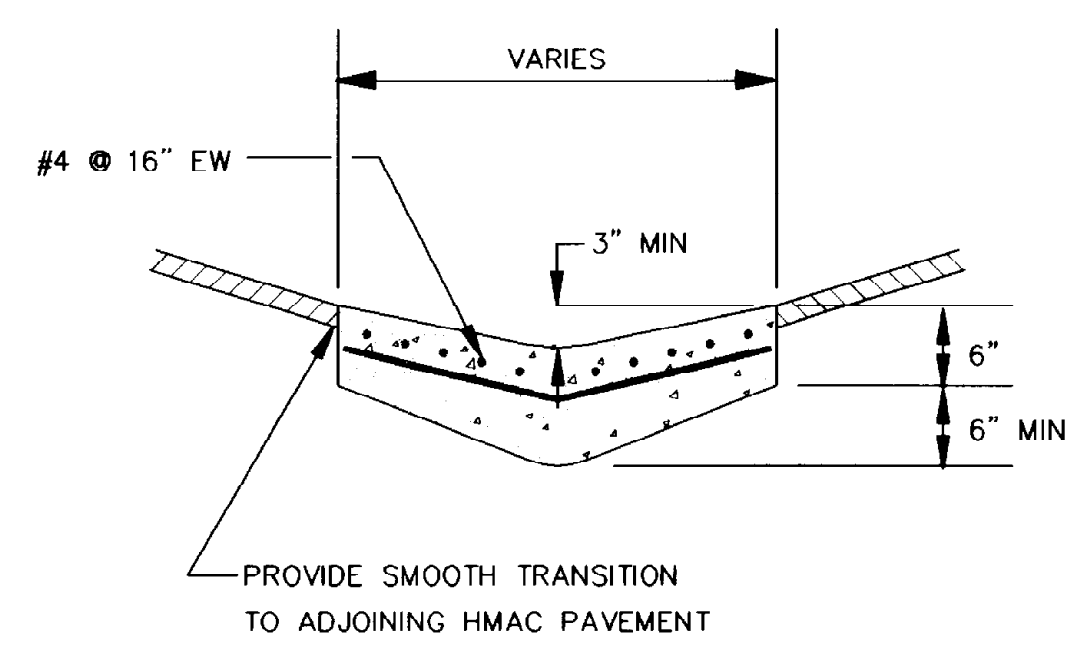


FIRE HYDRANT

DETAIL J
TYP

SCALE: NONE

8 SQ FT BEARING CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH. THRUST BLOCK SHALL NOT COVER DRAIN HOLES ON DRY BARREL HYDRANTS.



VALLEY GUTTER

DETAIL K
TYP

SCALE: NONE

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BC Brown and Caldwell Consultants
Phoenix, Arizona

PROJECT MANAGER: *Steph...*
DATE: 5/12/93

APPROVED: *Al...*
DATE: 5/13/93

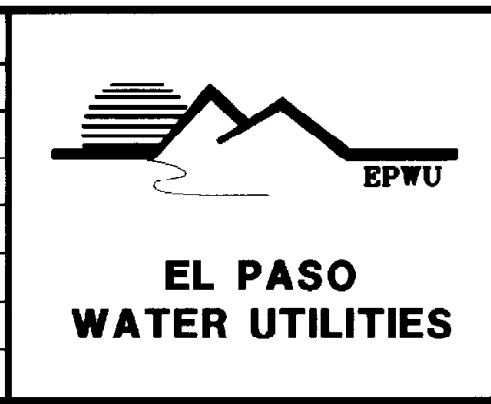
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE	5870
DRAWN	PMG
DESIGNED	PMG/GLG
CHECKED	
CHECKED	



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE
N/A	1	THIS SHIT. REPLACES PREVIOUS DWG. C6	JA	4/93



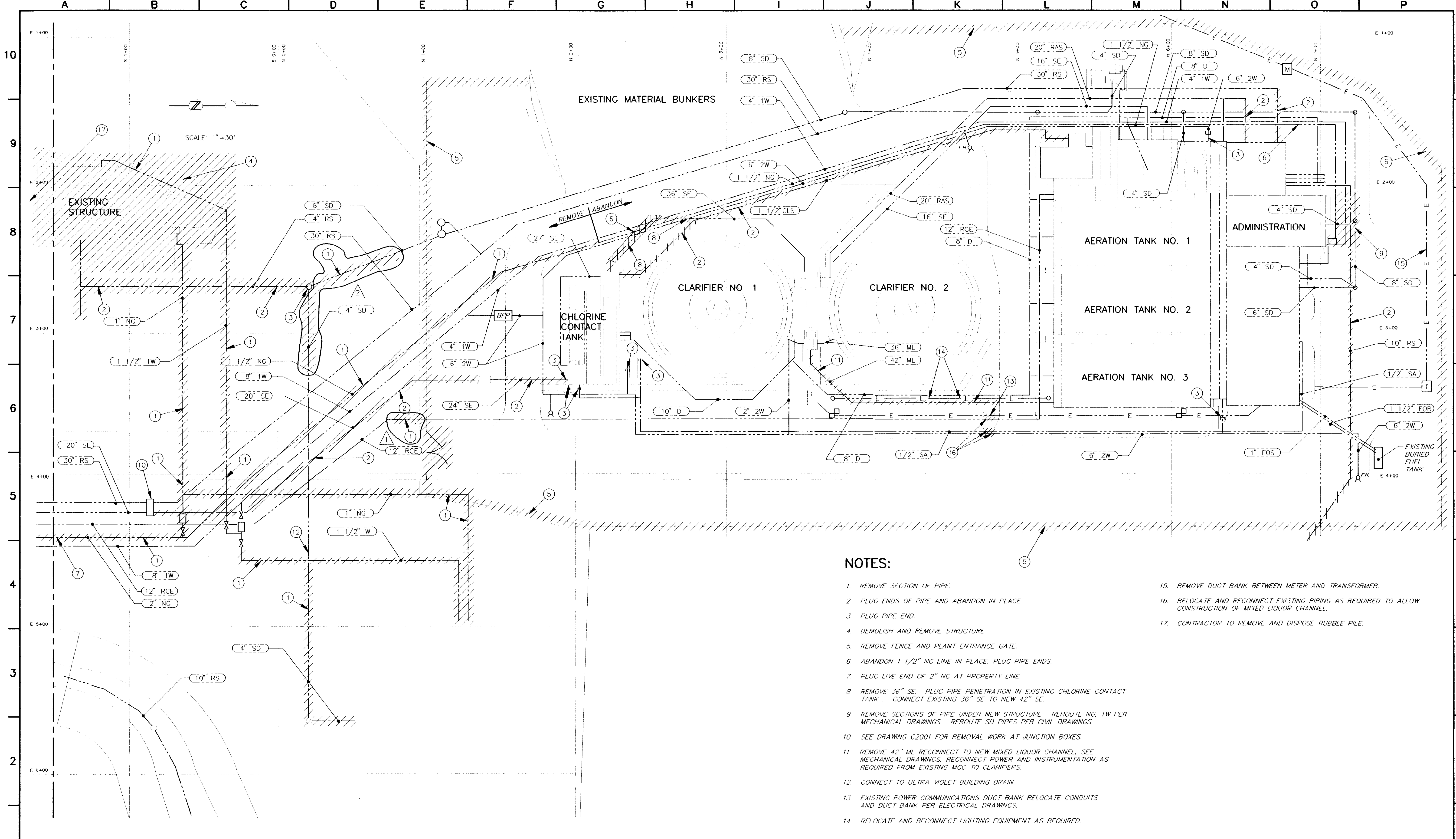
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS DETAILS

C6

SHEET NUMBER 12

PROJECT NUMBER	
DRAWING NUMBER	C6
SHEET NUMBER	12



NOTES:

1. REMOVE SECTION OF PIPE.
2. PLUG ENDS OF PIPE AND ABANDON IN PLACE
3. PLUG PIPE END.
4. DEMOLISH AND REMOVE STRUCTURE.
5. REMOVE FENCE AND PLANT ENTRANCE GATE.
6. ABANDON 1 1/2" NG LINE IN PLACE. PLUG PIPE ENDS.
7. PLUG LIVE END OF 2" NG AT PROPERTY LINE.
8. REMOVE 36" SE. PLUG PIPE PENETRATION IN EXISTING CHLORINE CONTACT TANK. CONNECT EXISTING 36" SE TO NEW 42" SE.
9. REMOVE SECTIONS OF PIPE UNDER NEW STRUCTURE. REROUTE NG, 1W PER MECHANICAL DRAWINGS. REROUTE SD PIPES PER CIVIL DRAWINGS.
10. SEE DRAWING C2001 FOR REMOVAL WORK AT JUNCTION BOXES.
11. REMOVE 42" ML RECONNECT TO NEW MIXED LIQUOR CHANNEL. SEE MECHANICAL DRAWINGS. RECONNECT POWER AND INSTRUMENTATION AS REQUIRED FROM EXISTING MCC TO CLARIFIERS.
12. CONNECT TO ULTRA VIOLET BUILDING DRAIN.
13. EXISTING POWER COMMUNICATIONS DUCT BANK RELOCATE CONDUITS AND DUCT BANK PER ELECTRICAL DRAWINGS.
14. RELOCATE AND RECONNECT LIGHTING EQUIPMENT AS REQUIRED.
15. REMOVE DUCT BANK BETWEEN METER AND TRANSFORMER.
16. RELOCATE AND RECONNECT EXISTING PIPING AS REQUIRED TO ALLOW CONSTRUCTION OF MIXED LIQUOR CHANNEL.
17. CONTRACTOR TO REMOVE AND DISPOSE RUBBLE PILE.

BC Brown and Caldwell
Consultants
Phoenix, Arizona

PROJECT MANAGER: _____ DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
DRAWN: PMG
DESIGNED: GLG/PMG
CHECKED: _____
CHECKED: _____

"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED BY THE OWN AND DESIGNER AND CONTRACTOR. UNLESS THE STANDARD AND CERTAINLY LEVEL OF CARE. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO GUARANTEE, PROGRAM TO UPDASH THE DRAWING, TO REFLECT CHANGES, SINCE 1996 TO THE DATE INDICATED THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
E/6	1	DELETED PORTION OF PIPE	JA	4/93	SK
D/7	2	DELETED PORTION OF PIPE	JA	1/96	SK

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

YARD

REMOVAL PLAN

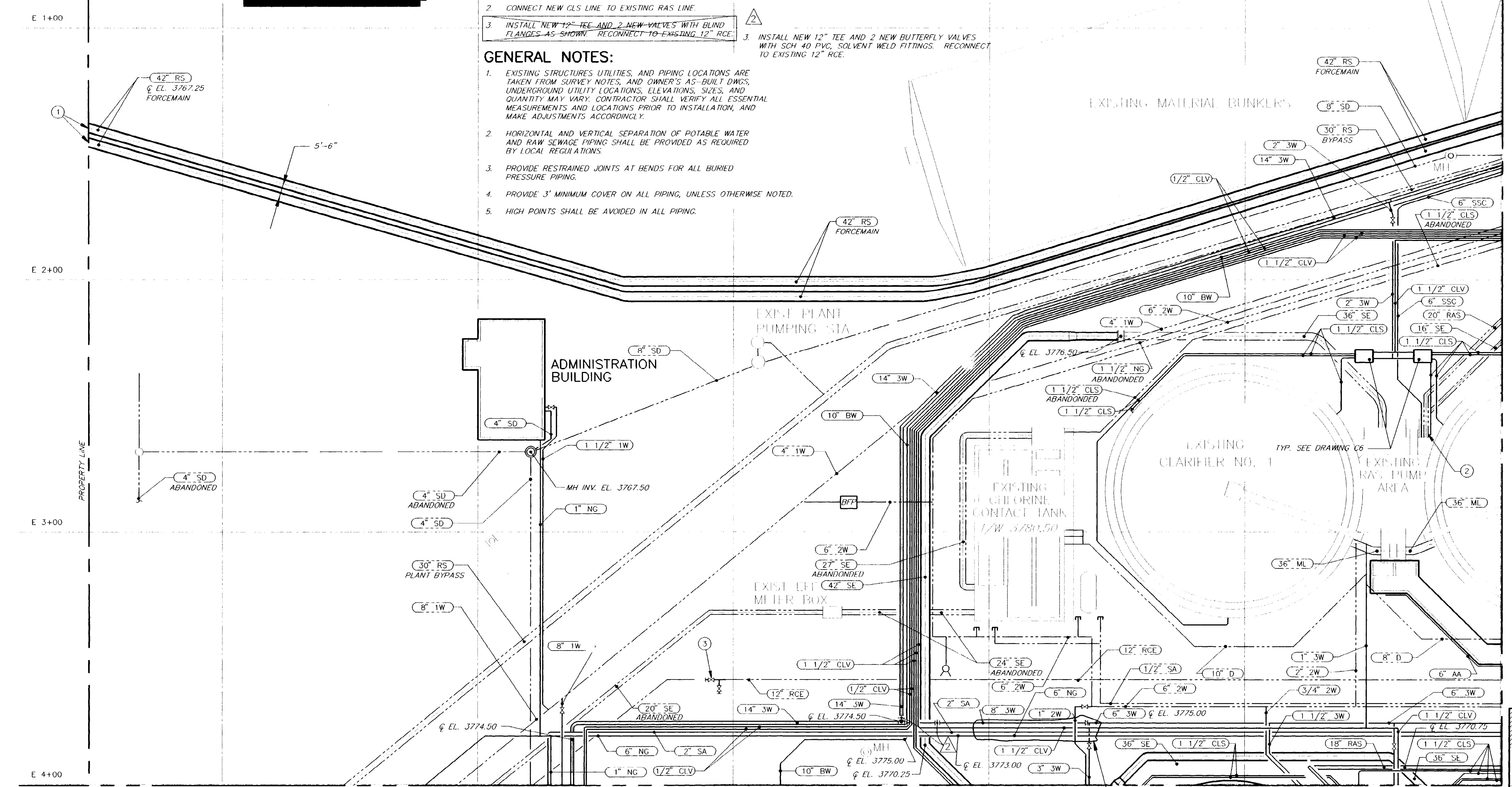
PROJECT NUMBER	1
DRAWING NUMBER	C7
SHEET NUMBER	13

5870-283 0.4-25-92 RDM

NOTE:
 THE PIPE SPACING ON THIS DRAWING IS SHOWN FOR PIPE ROUTING CLARITY. SEE EACH STRUCTURE FOR ACTUAL SPACING AND LOCATIONS.

- KEY NOTE:**
1. MAKE CONNECTION AT PROPERTY LINE. IF FORCEMAIN IS NOT INSTALLED PRIOR TO INSTALLATION CONTRACTOR SHALL CAP PIPE AT PROPERTY LINE.
 2. CONNECT NEW CLS LINE TO EXISTING RAS LINE.
 3. INSTALL NEW 12" TEE AND 2 NEW VALVES WITH BLIND FLANGES AS SHOWN. RECONNECT TO EXISTING 12" RCE.
 3. INSTALL NEW 12" TEE AND 2 NEW BUTTERFLY VALVES WITH SCH 40 PVC, SOLVENT WELD FITTINGS. RECONNECT TO EXISTING 12" RCE.

- GENERAL NOTES:**
1. EXISTING STRUCTURES UTILITIES, AND PIPING LOCATIONS ARE TAKEN FROM SURVEY NOTES, AND OWNER'S AS-BUILT DWGS, UNDERGROUND UTILITY LOCATIONS, ELEVATIONS, SIZES, AND QUANTITY MAY VARY. CONTRACTOR SHALL VERIFY ALL ESSENTIAL MEASUREMENTS AND LOCATIONS PRIOR TO INSTALLATION, AND MAKE ADJUSTMENTS ACCORDINGLY.
 2. HORIZONTAL AND VERTICAL SEPARATION OF POTABLE WATER AND RAW SEWAGE PIPING SHALL BE PROVIDED AS REQUIRED BY LOCAL REGULATIONS.
 3. PROVIDE RESTRAINED JOINTS AT BENDS FOR ALL BURIED PRESSURE PIPING.
 4. PROVIDE 3' MINIMUM COVER ON ALL PIPING, UNLESS OTHERWISE NOTED.
 5. HIGH POINTS SHALL BE AVOIDED IN ALL PIPING.



MATCH LINE - SEE DRAWING C9

MATCH LINE - SEE DRAWING C10

KEY PLAN

BC Brown and Caldwell Consultants
 Phoenix, Arizona

PROJECT MANAGER: _____ DATE: _____
 APPROVED: _____ DATE: _____
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
 DRAWN: PMG/CLG
 DESIGNED: _____
 CHECKED: _____
 CHECKED: _____

"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	THIS SH. SUPERCEDES PREVIOUS DWG C8	JA	3/93	SK
N/A	2	PER AS BUILT INFORMATION	JA	1/96	SK

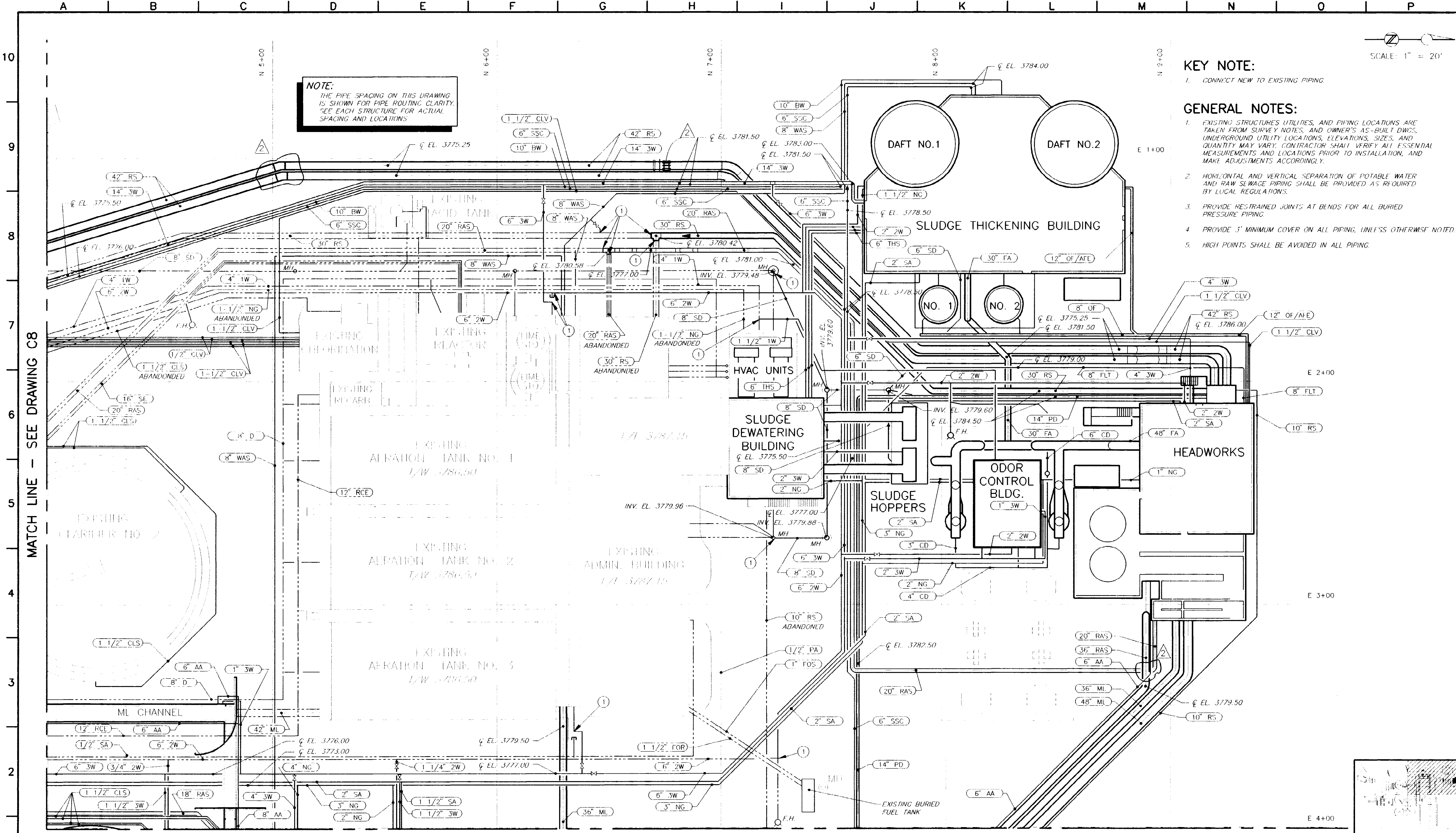
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

OUTSIDE PIPING - 1

PROJECT NUMBER: **ADDENDUM #2**
 DRAWING NUMBER: **C8**
 SHEET NUMBER: **14**

5870-049 02-06-96 JA



NOTE:
THE PIPE SPACING ON THIS DRAWING IS SHOWN FOR PIPE ROUTING CLARITY. SEE EACH STRUCTURE FOR ACTUAL SPACING AND LOCATIONS.

SCALE: 1" = 20'

KEY NOTE:

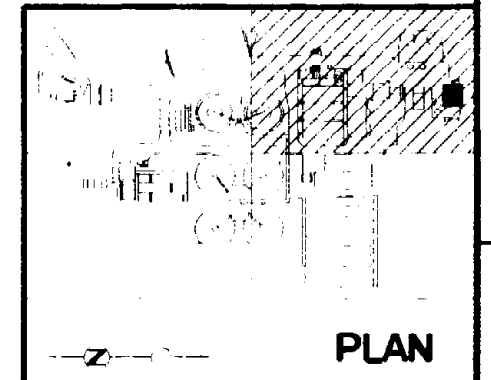
1. CONNECT NEW TO EXISTING PIPING.

GENERAL NOTES:

1. EXISTING STRUCTURES UTILITIES, AND PIPING LOCATIONS ARE TAKEN FROM SURVEY NOTES, AND OWNER'S AS-BUILT DWGS. UNDERGROUND UTILITY LOCATIONS, ELEVATIONS, SIZES, AND QUANTITY MAY VARY. CONTRACTOR SHALL VERIFY ALL ESSENTIAL MEASUREMENTS AND LOCATIONS PRIOR TO INSTALLATION, AND MAKE ADJUSTMENTS ACCORDINGLY.
2. HORIZONTAL AND VERTICAL SEPARATION OF POTABLE WATER AND RAW SEWAGE PIPING SHALL BE PROVIDED AS REQUIRED BY LOCAL REGULATIONS.
3. PROVIDE RESTRAINED JOINTS AT BENDS FOR ALL BURIED PRESSURE PIPING.
4. PROVIDE 3' MINIMUM COVER ON ALL PIPING, UNLESS OTHERWISE NOTED.
5. HIGH POINTS SHALL BE AVOIDED IN ALL PIPING.

MATCH LINE - SEE DRAWING C8

MATCH LINE - SEE DRAWING C11



BC Brown and Caldwell Consultants
Phoenix, Arizona

FILE: 5870
DRAWN: PMG/GLG

SUBMITTED: _____ DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: _____
CHECKED: _____
CHECKED: _____

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REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	THIS SHIT. SUPERCEDES PREVIOUS DWG C9	JA	3/93	SK
N/A	2	PER AS BUILT INFORMATION	JA	1/96	SK

EL PASO WATER UTILITIES

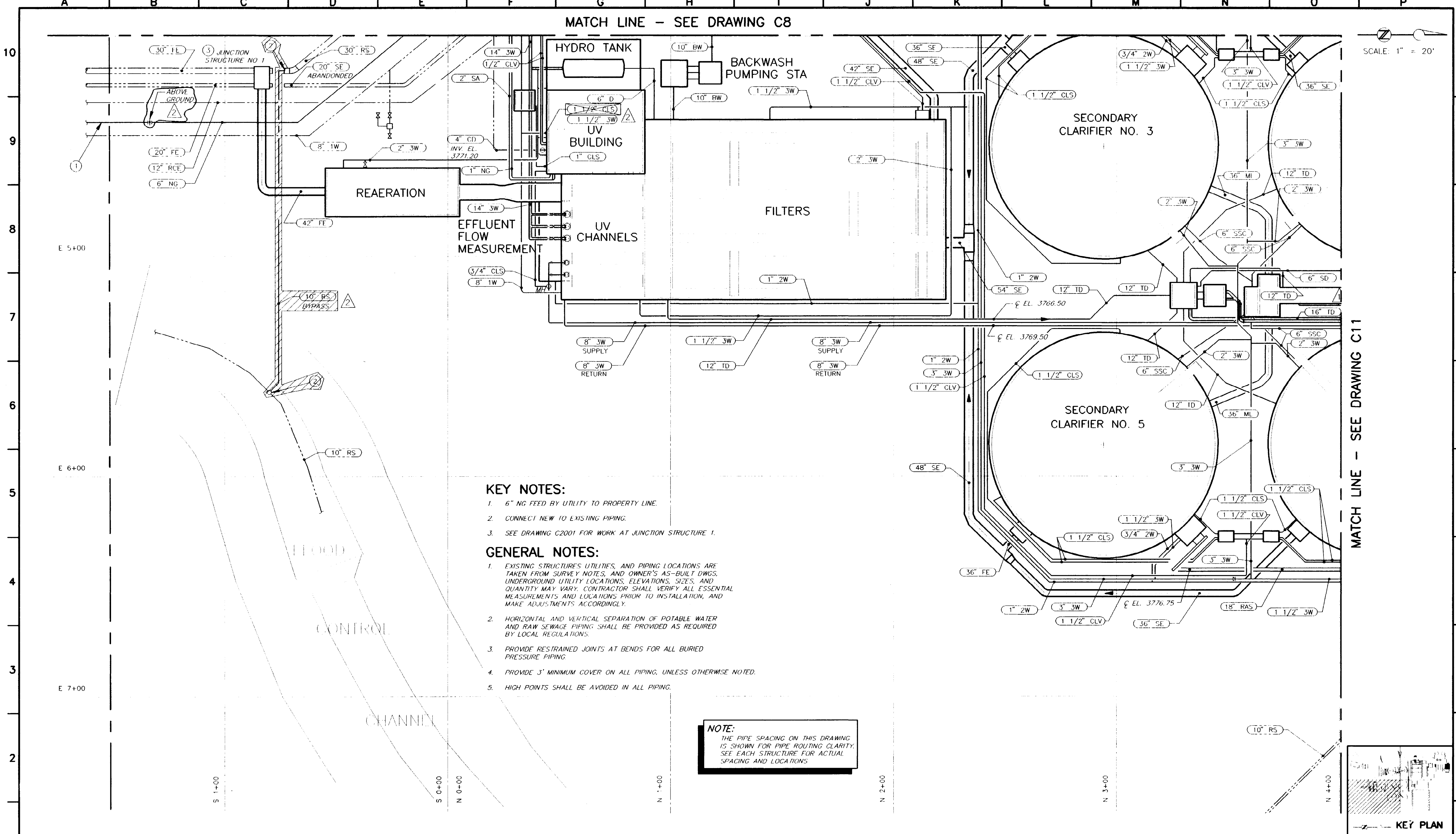
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

OUTSIDE PIPING - 2

PROJECT NUMBER: ADDENDUM #2
DRAWING NUMBER: **C9**
SHEET NUMBER: 15

MATCH LINE - SEE DRAWING C8

SCALE: 1" = 20'



KEY NOTES:

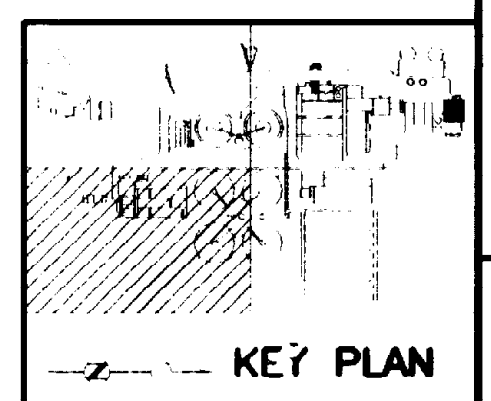
- 6" NG FEED BY UTILITY TO PROPERTY LINE.
- CONNECT NEW TO EXISTING PIPING.
- SEE DRAWING C2001 FOR WORK AT JUNCTION STRUCTURE 1.

GENERAL NOTES:

- EXISTING STRUCTURES UTILITIES, AND PIPING LOCATIONS ARE TAKEN FROM SURVEY NOTES, AND OWNER'S AS-BUILT DWGS. UNDERGROUND UTILITY LOCATIONS, ELEVATIONS, SIZES, AND QUANTITY MAY VARY. CONTRACTOR SHALL VERIFY ALL ESSENTIAL MEASUREMENTS AND LOCATIONS PRIOR TO INSTALLATION, AND MAKE ADJUSTMENTS ACCORDINGLY.
- HORIZONTAL AND VERTICAL SEPARATION OF POTABLE WATER AND RAW SEWAGE PIPING SHALL BE PROVIDED AS REQUIRED BY LOCAL REGULATIONS.
- PROVIDE RESTRAINED JOINTS AT BENDS FOR ALL BURIED PRESSURE PIPING.
- PROVIDE 3' MINIMUM COVER ON ALL PIPING, UNLESS OTHERWISE NOTED.
- HIGH POINTS SHALL BE AVOIDED IN ALL PIPING.

NOTE:
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MATCH LINE - SEE DRAWING C11



BC Brown and Caldwell Consultants
Phoenix, Arizona

FILE: 5870
DRAWN: PMG/GLG
DESIGNED: _____
CHECKED: _____
CHECKED: _____

SUBMITTED: _____ DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

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REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	THIS SH. SUPERCEDES PREVIOUS DWG. C10	JA	3/93	SK
N/A	2	PER AS BUILT INFORMATION	JA	1/96	SK

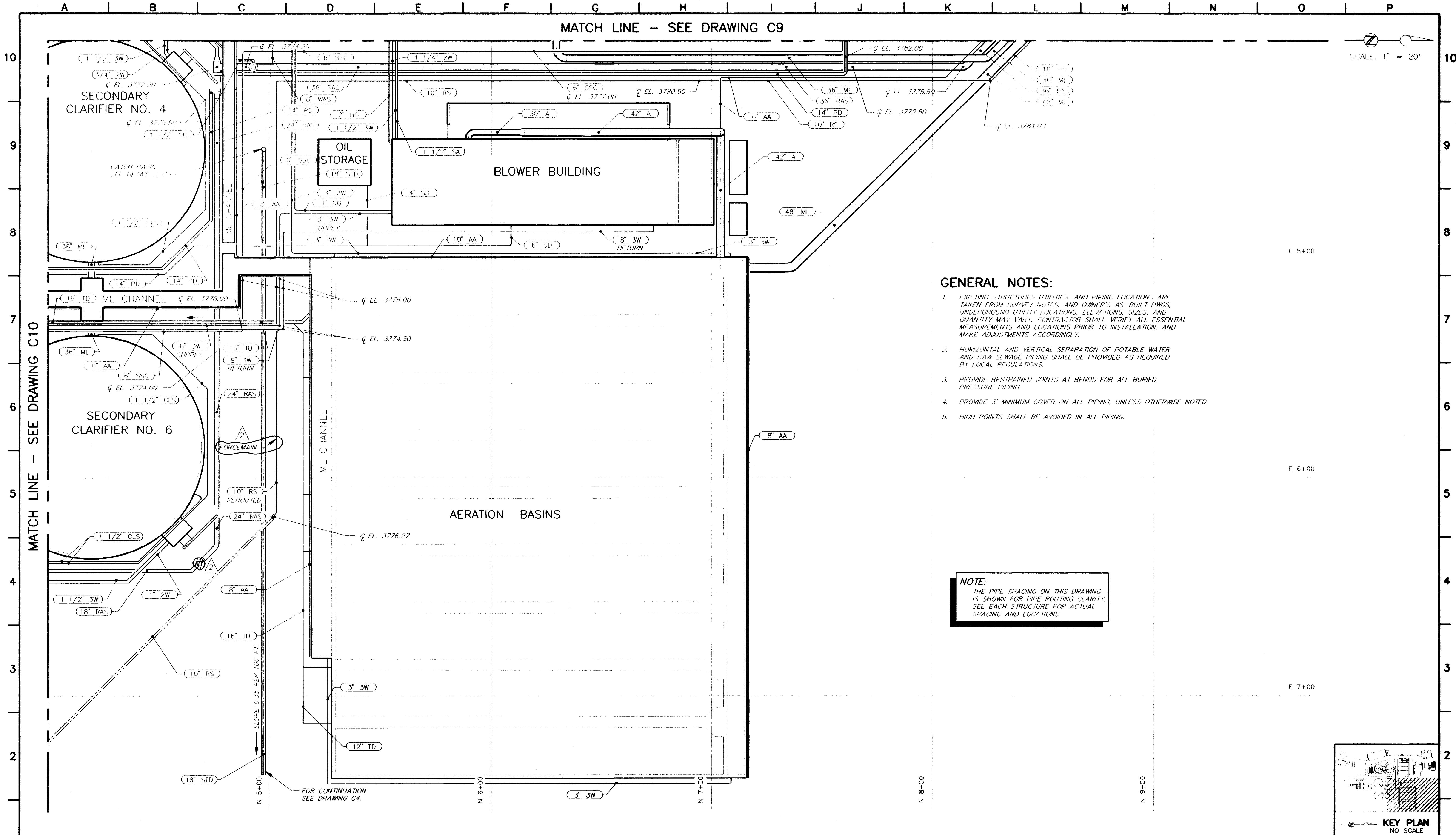
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

OUTSIDE PIPING - 3

PROJECT NUMBER: _____
ADDENDUM #2
DRAWING NUMBER: **C10**
SHEET NUMBER: 16

5870-049 02-06-96 JA



BC Brown and Caldwell Consultants
Phoenix, Arizona

PROJECT MANAGER: _____ DATE: _____
 APPROVED: _____ DATE: _____
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
 DRAWN: PMG/GLG
 DESIGNED: _____
 CHECKED: _____
 CHECKED: _____

"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

REVISIONS						
ZONE	REV.	DESCRIPTION	BY	DATE	APP.	
N/A	1	THIS SHT. SUPERCEDES PREVIOUS DWG C11	JA	3/93	SK	
N/A	2	PER AS BUILT INFORMATION	JA	1/96	SK	

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

OUTSIDE PIPING - 4

PROJECT NUMBER: _____
 ADDENDUM #2
 DRAWING NUMBER: **C11**
 SHEET NUMBER: 17

5870-049 01-18-96 JA

VALVE AND ACTUATOR SYMBOLS:

PIPE LINE DEVICE SYMBOLS:

PROCESS AND SIGNAL LINE SYMBOLS:

DRAWING CROSS REFERENCE SYMBOLOGY:

STANDARD SYMBOLS

N.O. NORMALLY OPEN
N.C. NORMALLY CLOSED

F.O. FAIL OPEN
F.C. FAIL CLOSED

GATE VALVE
GLOBE VALVE
PLUG VALVE
BALL VALVE
BUTTERFLY VALVE
CHECK VALVE
DOUBLE LEAF CHECK VALVE
BALL CHECK VALVE
PINCH VALVE
ANGLE VALVE
DIAPHRAGM VALVE
NEEDLE VALVE
BALANCING COCK
KNIFE GATE VALVE
CIRCUIT BALANCING VALVE
TELESCOPING VALVE
RELIEF VALVE
FLOAT VALVE

THREE WAY VALVE (W/TYPICAL FAIL POSITION)
FOUR WAY VALVE (W/TYPICAL FAIL POSITION)
PRESSURE REDUCING VALVE
BACK PRESSURE REDUCING VALVE
VALVE WITH HAND OPERATOR
SOLENOID OPERATED VALVE
ELECTRICAL MOTOR OPERATED VALVE
PISTON OPERATED VALVE
DIAPHRAGM OPERATED VALVE
ELECTRO-HYDRAULIC OPERATED VALVE
THERMOSTATICALLY CONTROLLED VALVE

PROJECT SPECIFIC SYMBOLS

TRUE UNION BALL VALVE
ANTI-SIPHON VALVE
FOOT VALVE
MUD VALVE

STANDARD SYMBOLS

STRAINER
REDUCER OR INCREASER
TRAP
DRAIN
STEAM VENT
FLAME TRAP
FLAME TRAP WITH THERMO SHUT-OFF
INJECTOR
SEPARATOR
FILTER
CAP OR PLUG
BLIND FLANGE
MANUAL AIR VENT
AUTOMATIC AIR VENT

ADJUSTABLE WEIR GATE
SLUICE GATE (NORMALLY OPEN)
SLUICE GATE (NORMALLY CLOSED)
FLAP GATE
UNION
SEDIMENT TRAP
CALIBRATION CHAMBER
PULSATION DAMPENER
REDUCED PRESSURE BACK FLOW PREVENTOR
FLEX COUPLING
FEMALE QUICK DISCONNECT WITH MALE PLUG
MALE QUICK DISCONNECT WITH FEMALE PLUG
SPRAY NOZZLE
HEAT TRACE
DIFFUSER

PROJECT SPECIFIC SYMBOLS

UTILITY STATION
CONNECTION BETWEEN NEW AND EXISTING PIPING
FABRICATED SLIDE GATE (NORMALLY OPEN)
FABRICATED SLIDE GATE (NORMALLY CLOSED)
BACKDRAFT DAMPER
BALANCING DAMPER
ROTAMETER
FLEXIBLE PIPE
RECOVERY CONE

*V MANUFACTURER SUPPLIED PACKAGE

EQUIPMENT BOUNDARY EXISTING
MAIN PROCESS FLOW (WITH TYPICAL DIRECTION OF FLOW SHOWN)
SECONDARY PROCESS FLOW
INSTRUMENT SUPPLY, PROCESS TAPS
PNEUMATIC SIGNAL (ANALOG)
ELECTRIC SIGNAL (ANALOG)
PNEUMATIC SIGNAL (DISCRETE)
ELECTRIC SIGNAL (DISCRETE)
CAPILARY TUBE OR FILLED SYSTEM
ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)
ELECTROMAGNETIC OR SONIC SIG. (UNGUIDED)
SOFTWARE OR DATA LINK
MECHANICAL LINK
HYDRAULIC
ES ELECTRIC POWER SUPPLY 120VAC 60HZ U.O.N.
SA SERVICE AIR SUPPLY
IA INSTRUMENT QUALITY AIR SUPPLY
WS WATER SUPPLY PLANT WATER U.O.N.
U.O.N. = UNLESS OTHERWISE NOTED

LINE CROSS REFERENCE SYMBOL LOCATION IDENTIFICATION LETTERS

FROM TO
TO FROM

TO/FROM SYMBOL EXAMPLE

(DWG P2) (TO) (DWG P3) (FROM)
P3 P2
DEFINES A LINE CONTINUING FROM DRAWING "P2", RIGHT TO DRAWING "P3"

MISCELLANEOUS MECHANICAL EQUIPMENT SYMBOLS:

MECHANICAL EQUIPMENT IDENTIFICATION:

STANDARD SYMBOLS

CENTRIFUGAL PUMP
SUBMERSIBLE SUMP PUMP
VERTICAL PUMP
GEAR PUMP
ROTARY LOBE PUMP
PROGRESSIVE CAVITY PUMP
METERING PUMP

BLOWER OR FAN
COMPRESSOR
ROTARY LOBE BLOWER OR COMPRESSOR
LIQUID RING BLOWER OR COMPRESSOR
SILENCER
INLET AIR FILTER-SILENCER

MIXER
GRINDER
PLATE TYPE HEAT EXCHANGER
SPIRAL HEAT EXCHANGER
SHELL AND TUBE TYPE HEAT EXCHANGER

PROJECT SPECIFIC SYMBOLS

RIGHT ANGLE GEAR
HORIZONTAL TANK
WASTE GAS BURNER
ENGINE
ADJUSTABLE SPEED CONTROL (ELEC)
VARIABLE SPEED DRIVE (MECH)
GENERATOR

HORIZONTAL SURFACE MIXER
SIGHT GLASS
DIAPHRAGM PUMP
BOILER
DRIVE UNIT
FAN

MOTOR
INLINE STATIC MIXER
VERTICAL TANK
MECHANICAL BAR SCREEN
RECIRCULATION HEATER

FILTRATE SUMP PUMPS NO. 1, 2 } EQUIPMENT NAME

P XXXX } EQUIPMENT NUMBERS
P XXXX

SPEC: 11365 = SPECIFICATION REFERENCE
TYPE: LOBE = EQUIPMENT TYPE
Q: 240 GPM = CAPACITY
HEAD: 50 PSIG = DISCHARGE RATING PRESSURE
HP: 5 = MOTOR POWER

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BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/17/92
APPROVED: *[Signature]* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE 5870
DRAWN PMG
DESIGNED BC
CHECKED CG
CHECKED RNW

STATE OF TEXAS
ROBERT & SCHULY
52769
ROBERT AUSTIN MARTIN
58234

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

SYMBOLS AND ABBREVIATIONS

PROJECT NUMBER
DRAWING NUMBER
P1
SHEET NUMBER
27

INSTRUMENTATION SYMBOLS

SPECIAL OR INSTRUMENT FUNCTION DESIGNATIONS

STANDARD SYMBOLS	
Σ	ALGEBRAIC ADDITION
±, +, -	BIAS
AVG	AVERAGE
x	MULTIPLY
÷	DIVIDE
√	EXTRACT SQUARE ROOT
x ⁿ OR 1/n	RAISE TO POWER
f(x)	CHARACTERIZE
1:1	BOOST AND ISOLATE
⊃	HIGHEST VALUE SELECTION
⊂	LOWEST VALUE SELECTION
REV	REVERSE
GAF	GAP ACTION FLOATING
S & H	SAMPLE AND HOLD
SRG	SPLIT-RANGING
E/P,I/P (TYPICAL)	FOR INPUT/OUTPUT CONVERTERS USING FOLLOWING SIGNALS: E - VOLTS H - HYDRAULIC I - CURRENT O - ELECTROMAGNETIC OR SONIC P - PNEUMATIC R - RESISTANCE A - ANALOG D - DIGITAL
% OR P	PROPORTIONAL CONTROL ACTION
∫ OR I	INTEGRAL CONTROL ACTION
d/dt OR D	DERIVATIVE CONTROL ACTION
1 - 0	ON - OFF CONTROL ACTION
Δ1 - 0	DIFFERENTIAL GAP CONTROL ACTION
1:3, 2:1 (TYPICAL)	GAIN OR ATTENUATE
HA	HAND-AUTO SELECTION
HOA	HAND-OFF-AUTO SELECTION
HOR	HAND-OFF-REMOTE SELECTION
JOA	JOG-OFF-AUTO SELECTION
SS	START-STOP
LF	LEAD-FOLLOW SELECTION
RES CL ₂	RESIDUAL CHLORINE
SO ₂	SULFUR DIOXIDE
COMB	COMBUSTER GAS
DO	DISSOLVED OXYGEN
H ₂ S	HYDROGEN SULFIDE
pH	pH
SP	SET POINT

PRIMARY ELEMENT SYMBOLS

STANDARD SYMBOLS	
	ORIFICE PLATE
	VENTURI OR FLOW TUBE
	AVERAGING PITOT TUBE
	PROPELLER OR TURBINE METER
	MAGNETIC FLOW ELEMENT
	FLUME
	WEIR
	VARIABLE AREA FLOW METER (ROTAMETER)
	RUPTURE DISC PRESSURE RELIEF
	RUPTURE DISC VACUUM RELIEF
	FLOW STRAIGHTENING VANES
	CHEMICAL SEAL
	CONCENTRIC CHEMICAL SEAL
	TEMPERATURE WELL
	FLOW ELEMENT THERMAL
	ROTAMETER

MISCELLANEOUS

STANDARD SYMBOLS	
	HEAT TRANSFER TAPE
	RESET FOR LATCH-TYPE OPERATOR
	QUICK-CONNECT FITTING
	3-WAY PNEUMATIC PILOT VALVE
	PISTON OPERATOR W/SOLENOID PILOT
	SEAL WATER PURGE CONTROL UNIT, SEE DWG M6
	PURGE OR FLUSHING DEVICE
	LEVEL, FLOAT
	LEVEL, DISPLACEMENT

PROJECT SPECIFIC SYMBOLS	
	BUBBLER PANEL
	LEVEL, ULTRASONIC
	LEVEL, PROBE
	RF LEVEL PROBE

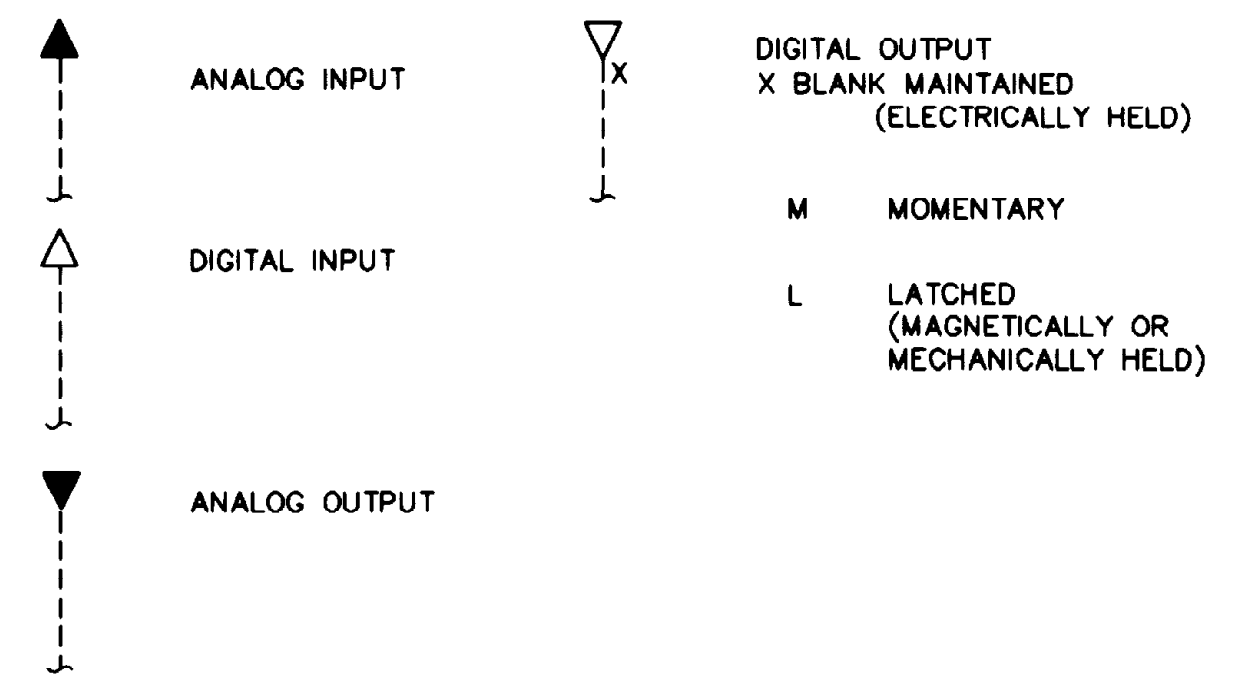
FUNCTION IDENTIFICATION

FIRST LETTER(S)		SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS	DIFFERENTIAL	ALARM	CONTROL	HIGH
B BURNER (FLAME)				
C CONDUCTIVITY	RATIO	PRIMARY ELEMENT	CONTROL STATION	LOW MIDDLE NORMAL
D DENSITY				
E VOLTAGE	SCAN	INDICATE	CONTROL STATION	LOW MIDDLE NORMAL
F FLOW RATE				
G GAUGE	TIME RATE CHANGE	PILOT LIGHT	CONTROL STATION	LOW MIDDLE NORMAL
H HAND				
I CURRENT (ELEC)	MOMENTARY	ORIFICE TEST CONNECTION	SWITCH TRANSMIT	MULTIFUNCTION
J POWER				
K TIME	INTEGRATE	RECORD	MULTIFUNCTION VALVE, DAMPER	MULTIFUNCTION
L LEVEL				
M MOTION	SAFETY	WELL UNCLASSIFIED	UNCLASSIFIED RELAY, COMPUTE MISC. ACTUATOR	UNCLASSIFIED
N INTRUSION				
O TORQUE	X AXIS Y AXIS Z AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
P PRESSURE, VACUUM				
Q QUANTITY				
R RADIATION				
S SPEED, FREQUENCY				
T TEMPERATURE				
U MULTIVARIABLE				
V VIBRATION				
W WEIGHT, FORCE				
X UNCLASSIFIED				
Y EVENT, STATUS				
Z POSITION				

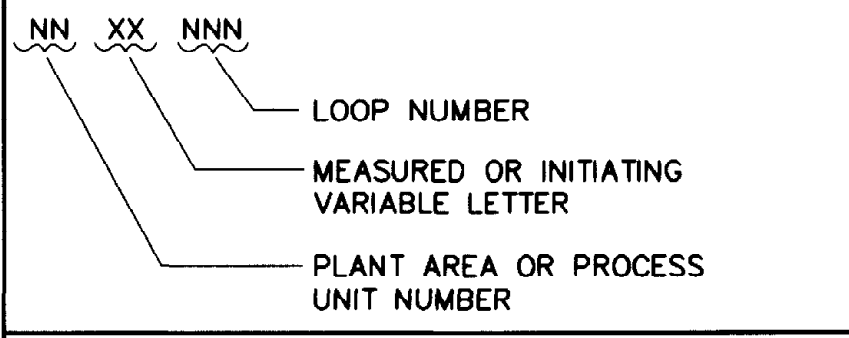
GENERAL NOTES:

1. PROCESS AND INSTRUMENTATION DIAGRAMS (P&IDs) ARE PROCESS FLOW AND CONTROL GUIDES. THEY DO NOT NECESSARILY REFLECT THE ACTUAL SPACE RELATIONSHIP OR ORIENTATION OF SOME ITEMS. P&IDs ARE NOT TO BE INTERPRETED AS PLUMBING SCHEMATICS.
2. PLANT AREA OR PROCESS UNIT PREFIX MAY BE OMITTED FROM DRAWINGS AND COVERED BY NOTE WHEN ALL INSTRUMENTS ON DRAWING HAVE SAME PREFIX.
3. *V INDICATES VENDOR SUPPLIED PACKAGE

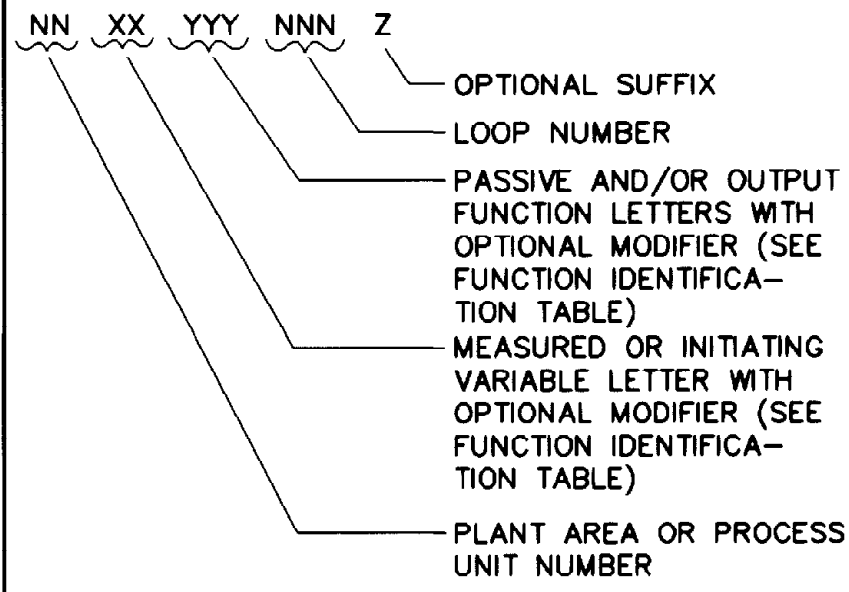
PROGRAMMABLE LOGIC CONTROLLER SIGNAL TYPE DESIGNATION



INSTRUMENT LOOP IDENTIFICATION



INSTRUMENT TAG NUMBERS



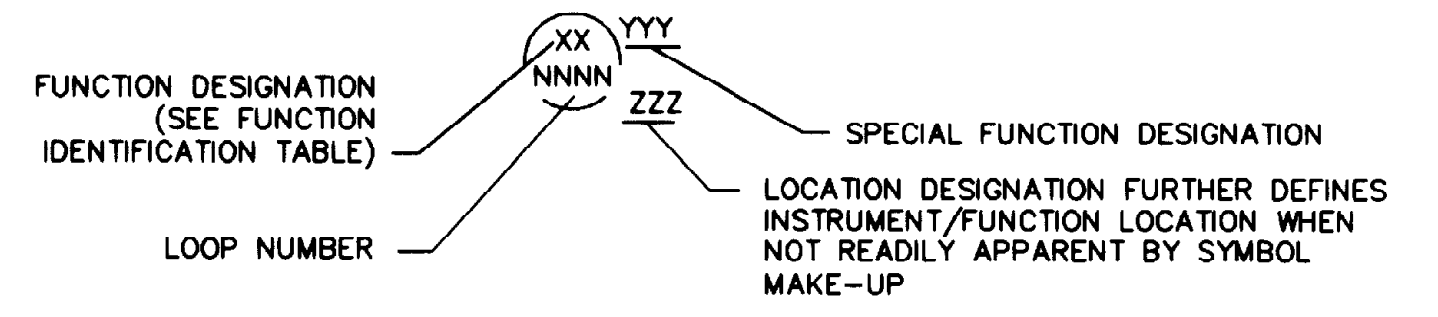
INSTRUMENT LOCATION DESIGNATIONS

ASC	ADJUSTABLE SPEED CONTROLLER
ECP	EQUIPMENT CONTROL PANEL
LCP	LOCAL CONTROL PANEL
MCC	MOTOR CONTROL CENTER

INSTRUMENT AND FUNCTION SYMBOLS

	DISCRETE INSTRUMENT
	SHARED DISPLAY (GRAPHICAL OPERATOR INTERFACE)
	COMPUTER FUNCTION
	INTERLOCKING OR SEQUENTIAL CONTROL FUNCTION. REFER TO INTERLOCK REFERENCE NOTES
	PROGRAMMABLE LOGIC CONTROL
NOTE: ANY OF THE ABOVE SYMBOLS MAY BE SHOWN WITH HORIZONTAL BAR(S) TO INDICATE PANEL MOUNTING AND/OR OPERATOR ACCESSIBLE	
	FACE MOUNTED ON MAIN PANEL OPERATOR ACCESSIBLE
	MOUNTED ON/IN MAIN PANEL OPERATOR INACCESSIBLE
	FACE MOUNTED ON FIELD PANEL OPERATOR ACCESSIBLE
	MOUNTED ON/IN FIELD PANEL OPERATOR INACCESSIBLE

INSTRUMENT SYMBOL DESIGNATION



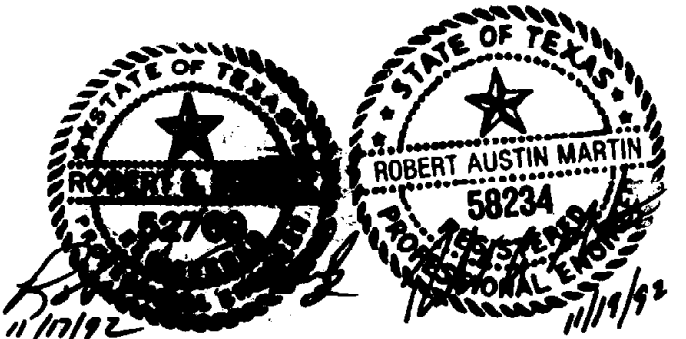
THIS RECORD DRAWING WAS PREPARED USING INFORMATION RECEIVED FROM THE CLIENT AND/OR OTHER SOURCES. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION PROVIDED TO THE ENGINEER. THE ENGINEER'S RESPONSIBILITY IS LIMITED TO THE DESIGN AND CONSTRUCTION OF THE INSTRUMENTATION SYSTEM AS SHOWN ON THIS DRAWING. THE ENGINEER DOES NOT WARRANT THE ACCURACY OF THE INFORMATION PROVIDED TO THE ENGINEER OR THE RESULTS OF THE DESIGN OR CONSTRUCTION OF THE INSTRUMENTATION SYSTEM AS SHOWN ON THIS DRAWING.

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *Robert Schlegel* DATE: 11/17/92
APPROVED: *Robert Austin Martin* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE	5870
DRAWN	RDM
DESIGNED	BC
CHECKED	GG
CHECKED	RNW



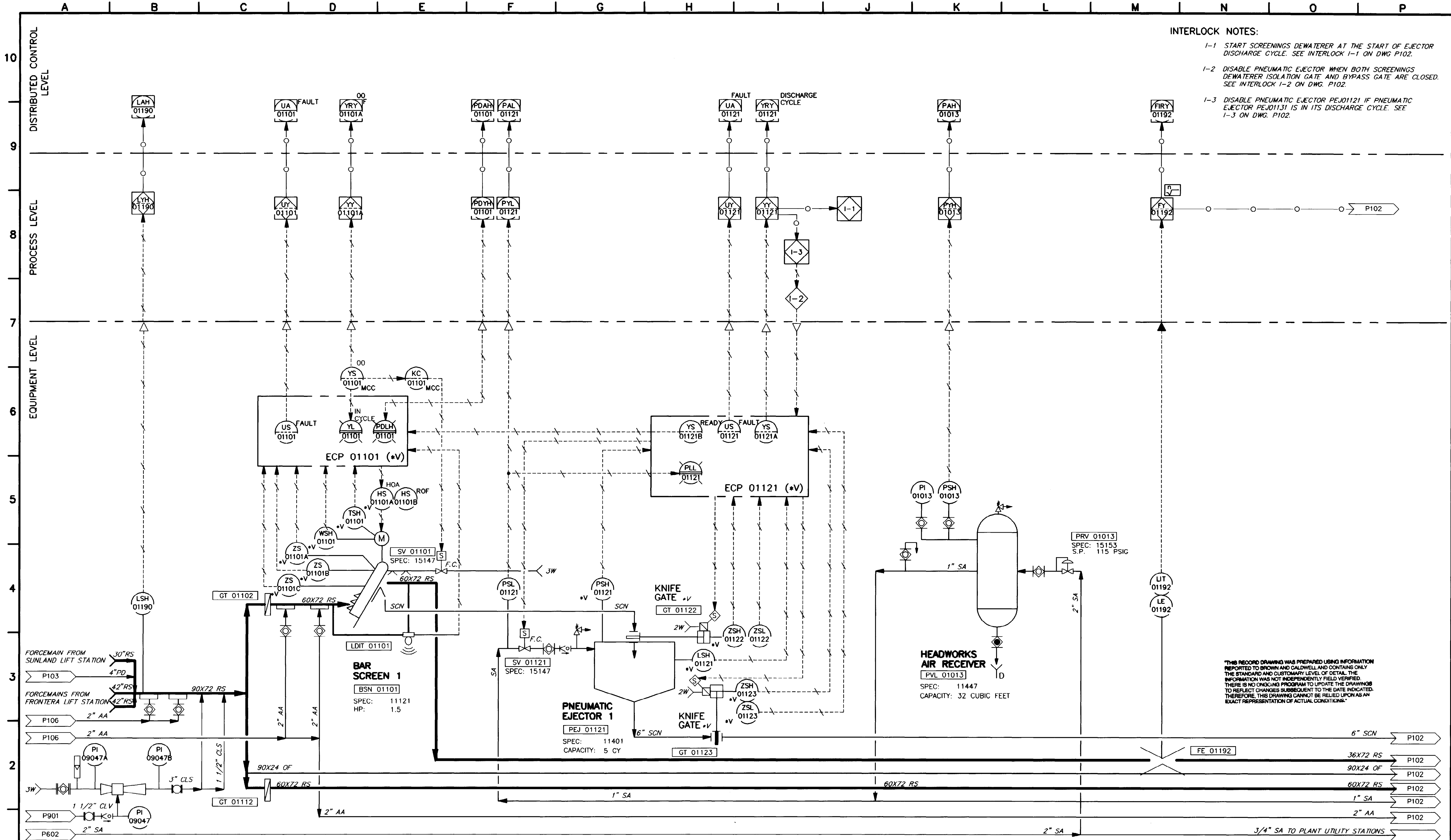
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

IDENTIFICATION SYMBOLS AND IDENTIFICATION SYSTEMS

PROJECT NUMBER	
DRAWING NUMBER	P2
SHEET NUMBER	28



INTERLOCK NOTES:

- 1-1 START SCREENINGS DEWATERER AT THE START OF EJECTOR DISCHARGE CYCLE. SEE INTERLOCK 1-1 ON DWG P102.
- 1-2 DISABLE PNEUMATIC EJECTOR WHEN BOTH SCREENINGS DEWATERER ISOLATION GATE AND BYPASS GATE ARE CLOSED. SEE INTERLOCK 1-2 ON DWG. P102.
- 1-3 DISABLE PNEUMATIC EJECTOR PEJ01121 IF PNEUMATIC EJECTOR PEJ01131 IS IN ITS DISCHARGE CYCLE. SEE 1-3 ON DWG. P102.

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 5/12/93
APPROVED: *[Signature]* DATE: 5/12/93
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE 5870
DRAWN KG, PMG
DESIGNED JW
CHECKED JW
CHECKED RNW



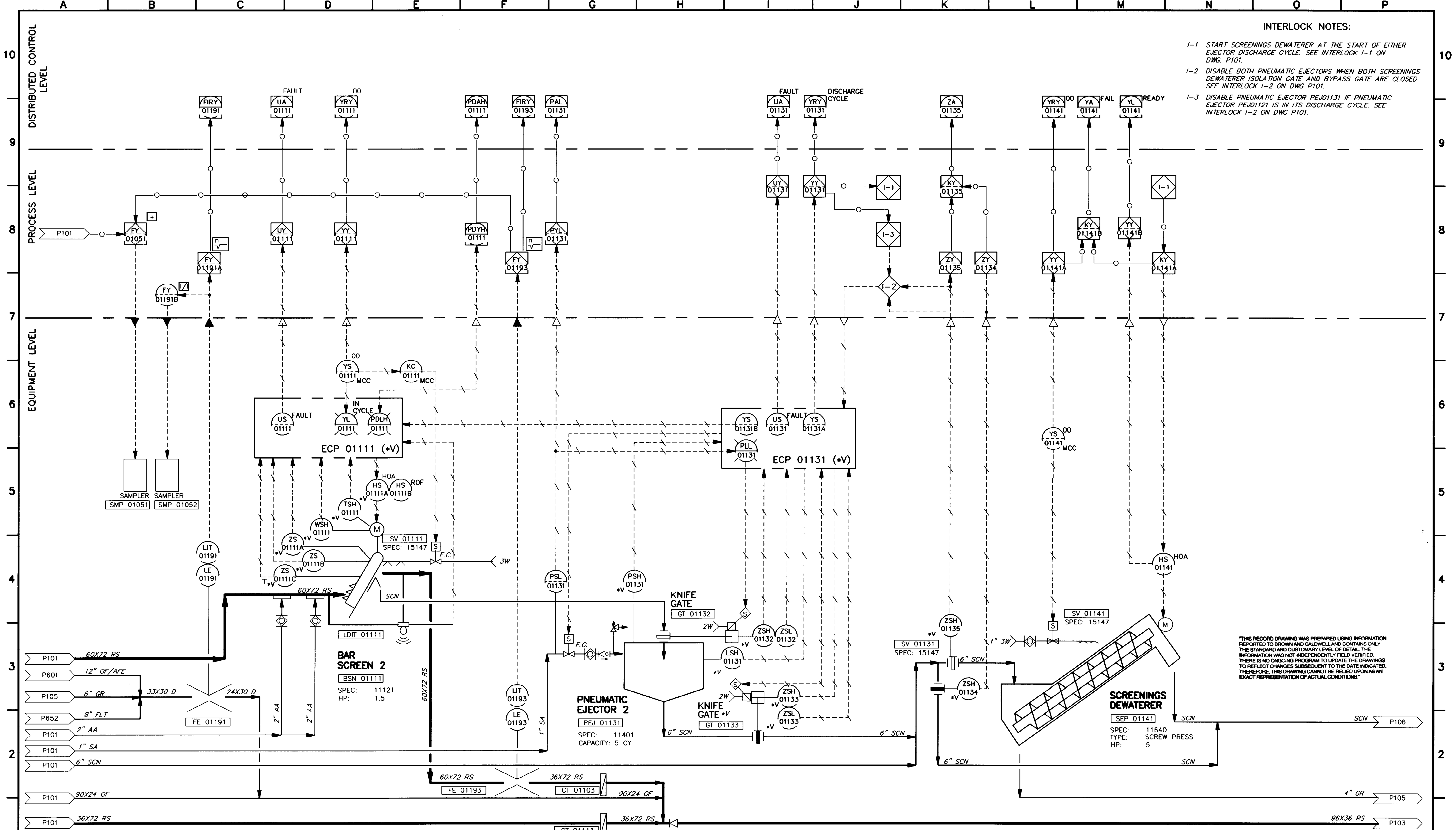
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	THIS SHT. REPLACES PREVIOUS DWG. P101	JA	4/93	SK

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS SCREENINGS AND DEWATERING

PROJECT NUMBER
DRAWING NUMBER
P101
SHEET NUMBER
29



INTERLOCK NOTES:

- I-1 START SCREENINGS DEWATERER AT THE START OF EITHER EJECTOR DISCHARGE CYCLE. SEE INTERLOCK I-1 ON DWG. P101.
- I-2 DISABLE BOTH PNEUMATIC EJECTORS WHEN BOTH SCREENINGS DEWATERER ISOLATION GATE AND BYPASS GATE ARE CLOSED. SEE INTERLOCK I-2 ON DWG. P101.
- I-3 DISABLE PNEUMATIC EJECTOR PEJ01131 IF PNEUMATIC EJECTOR PEJ01121 IS IN ITS DISCHARGE CYCLE. SEE INTERLOCK I-2 ON DWG. P101.

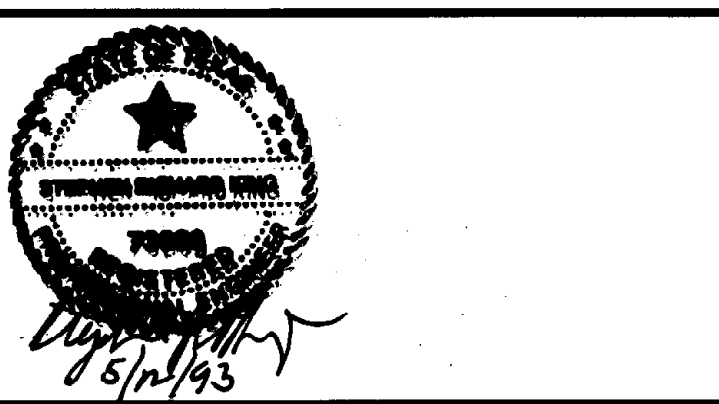
"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 5/12/93
 APPROVED: *[Signature]* DATE: 5/13/93
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE: 5870
 DRAWN: KG
 DESIGNED: JW
 CHECKED: JW
 CHECKED: RNW



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	THIS SHT. REPLACES PREVIOUS DWG. P102	JA	4/93	SK

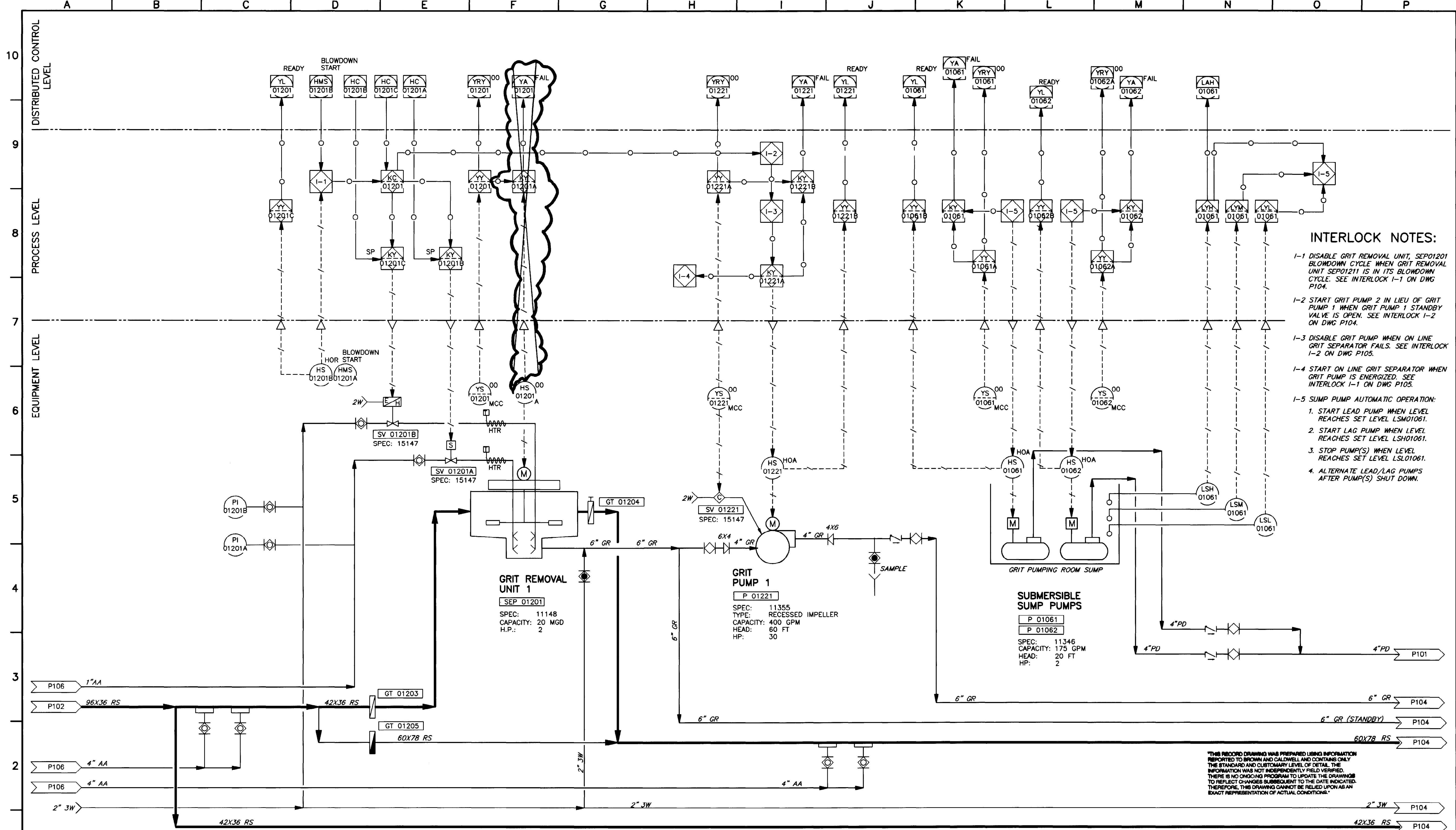
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

EL PASO WATER UTILITIES

HEADWORKS

SCREENINGS AND DEWATERING

PROJECT NUMBER
DRAWING NUMBER
P102
SHEET NUMBER
30



INTERLOCK NOTES:

- I-1 DISABLE GRIT REMOVAL UNIT, SEP01201 BLOWDOWN CYCLE WHEN GRIT REMOVAL UNIT SEP01211 IS IN ITS BLOWDOWN CYCLE. SEE INTERLOCK I-1 ON DWG P104.
- I-2 START GRIT PUMP 2 IN LIEU OF GRIT PUMP 1 WHEN GRIT PUMP 1 STANDBY VALVE IS OPEN. SEE INTERLOCK I-2 ON DWG P104.
- I-3 DISABLE GRIT PUMP WHEN ON LINE GRIT SEPARATOR FAILS. SEE INTERLOCK I-2 ON DWG P105.
- I-4 START ON LINE GRIT SEPARATOR WHEN GRIT PUMP IS ENERGIZED. SEE INTERLOCK I-1 ON DWG P105.
- I-5 SUMP PUMP AUTOMATIC OPERATION:
 1. START LEAD PUMP WHEN LEVEL REACHES SET LEVEL LSM01061.
 2. START LAG PUMP WHEN LEVEL REACHES SET LEVEL LSH01061.
 3. STOP PUMP(S) WHEN LEVEL REACHES SET LEVEL LSL01061.
 4. ALTERNATE LEAD/LAG PUMPS AFTER PUMP(S) SHUT DOWN.

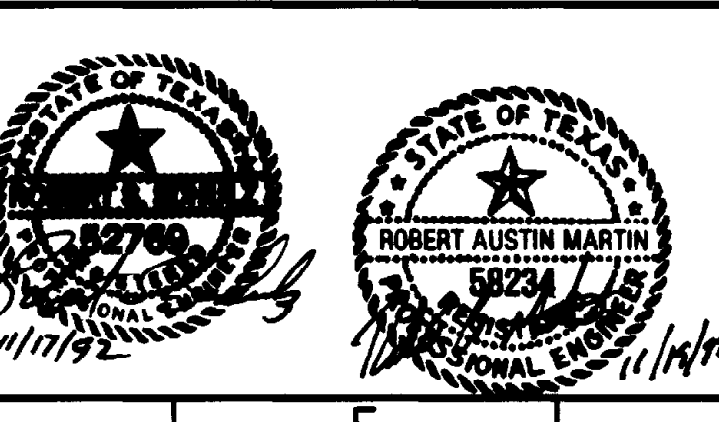
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BC Brown and Caldwell Consultants
Phoenix, Arizona

FILE: 5870
DRAWN: KG
DESIGNED: JW
CHECKED: JW
CHECKED: RNW

SUBMITTED: *[Signature]* DATE: 11/19/92
APPROVED: *[Signature]* DATE: 11/20/92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
F	1	DELETE AS SHOWN PER ADDENDUM #2	JA	4/93	SK

EL PASO WATER UTILITIES

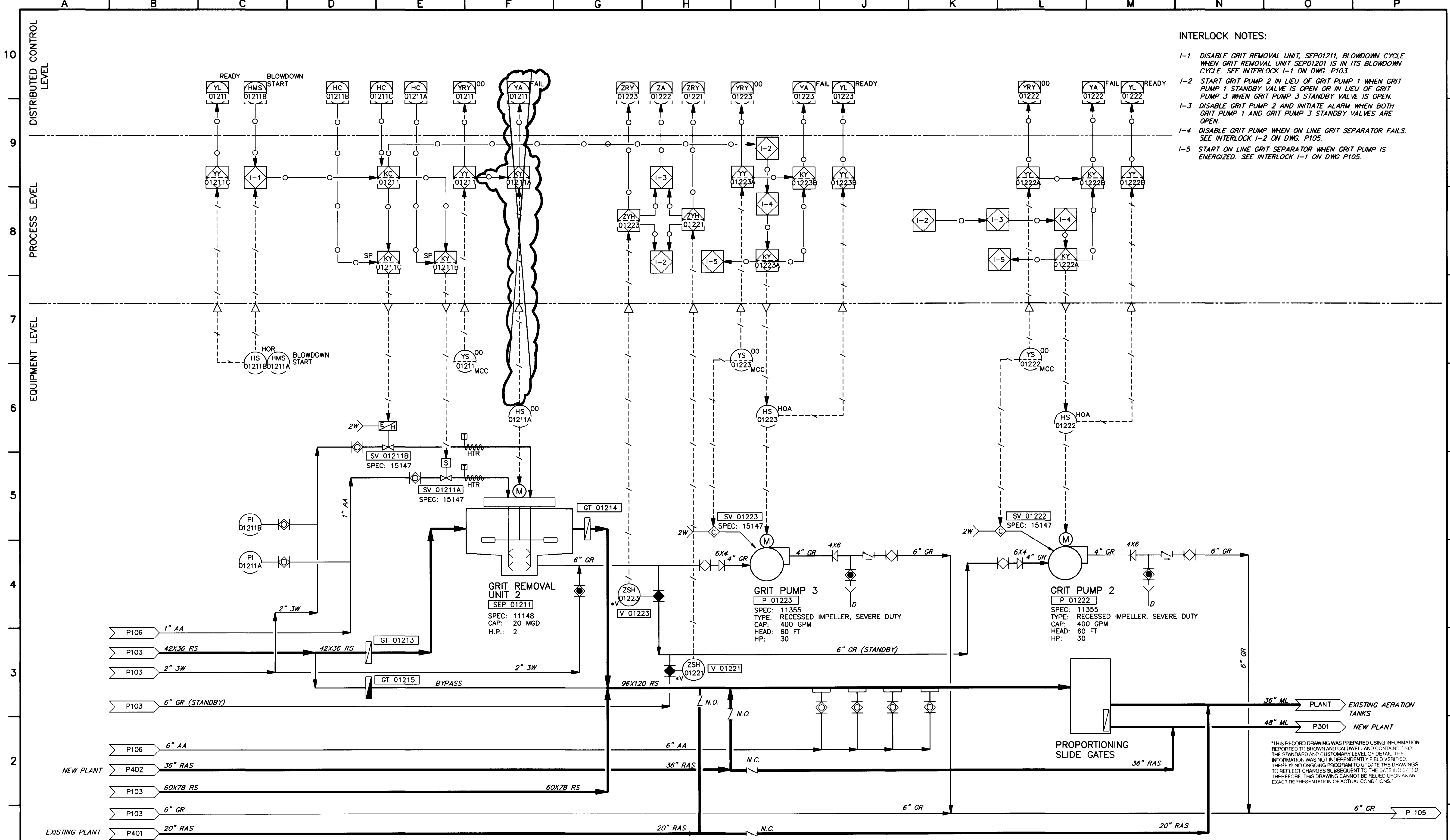
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

GRIT REMOVAL AND PUMPING

PROJECT NUMBER	
DRAWING NUMBER	P103
SHEET NUMBER	31

5870-028 11-11-92 SKT



INTERLOCK NOTES:

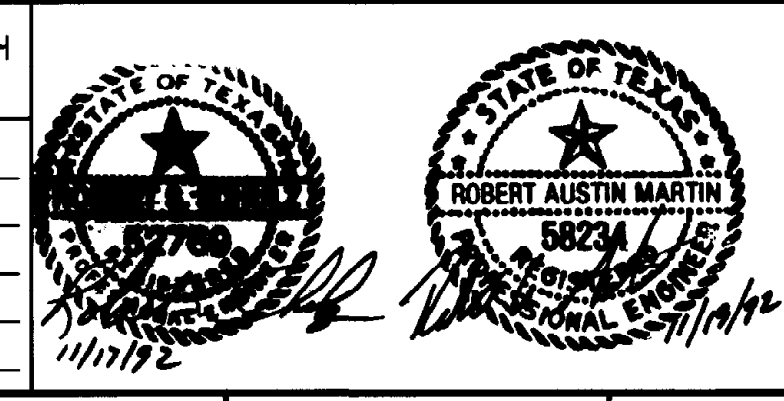
- I-1 DISABLE GRIT REMOVAL UNIT, SEP01211, BLOWDOWN CYCLE WHEN GRIT REMOVAL UNIT SEP01201 IS IN ITS BLOWDOWN CYCLE. SEE INTERLOCK I-1 ON DWG. P103.
- I-2 START GRIT PUMP 2 IN LIEU OF GRIT PUMP 1 WHEN GRIT PUMP 1 STANDBY VALVE IS OPEN OR IN LIEU OF GRIT PUMP 3 WHEN GRIT PUMP 3 STANDBY VALVE IS OPEN.
- I-3 DISABLE GRIT PUMP 2 AND INITIATE ALARM WHEN BOTH GRIT PUMP 1 AND GRIT PUMP 3 STANDBY VALVES ARE OPEN.
- I-4 DISABLE GRIT PUMP WHEN ON LINE GRIT SEPARATOR FAILS. SEE INTERLOCK I-2 ON DWG. P105.
- I-5 START ON LINE GRIT SEPARATOR WHEN GRIT PUMP IS ENERGIZED. SEE INTERLOCK I-1 ON DWG P105.

BG Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/21/92
APPROVED: *[Signature]* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
DRAWN: KG
DESIGNED: JW
CHECKED: JW
CHECKED: RNW



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
F	1	DELETE AS SHOWN PER ADDENDUM #2	JA	4/93	SK

EL PASO WATER UTILITIES

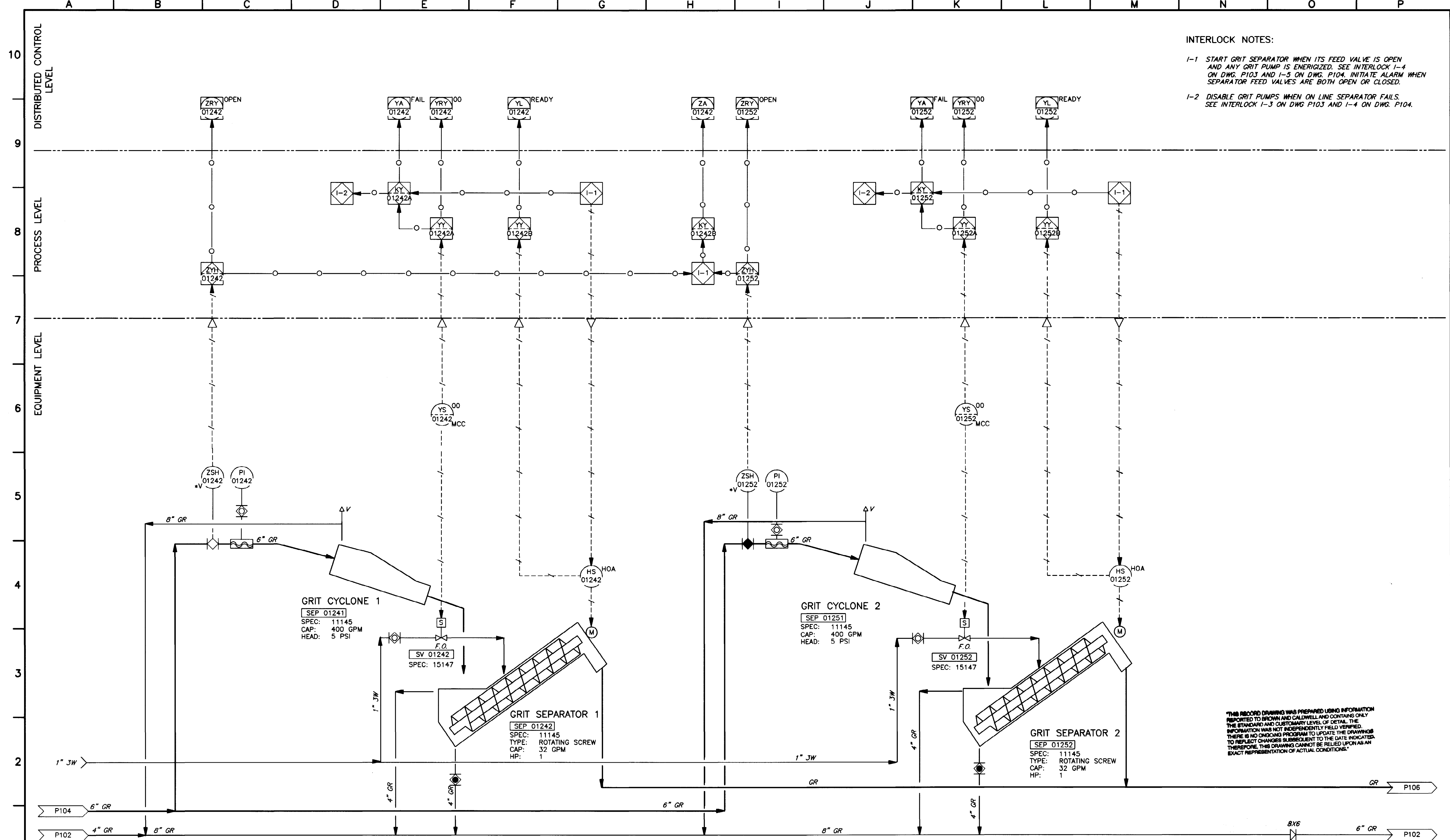
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

GRIT REMOVAL AND PUMPING

PROJECT NUMBER
DRAWING NUMBER
P104
SHEET NUMBER
32

"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED THEREFORE THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."



THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO CHANGING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

BC Brown and Caldwell Consultants
 Phoenix, Arizona

SUBMITTED: *Robert S. Selby* DATE: 11/12/92
 APPROVED: *Robert S. Selby* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

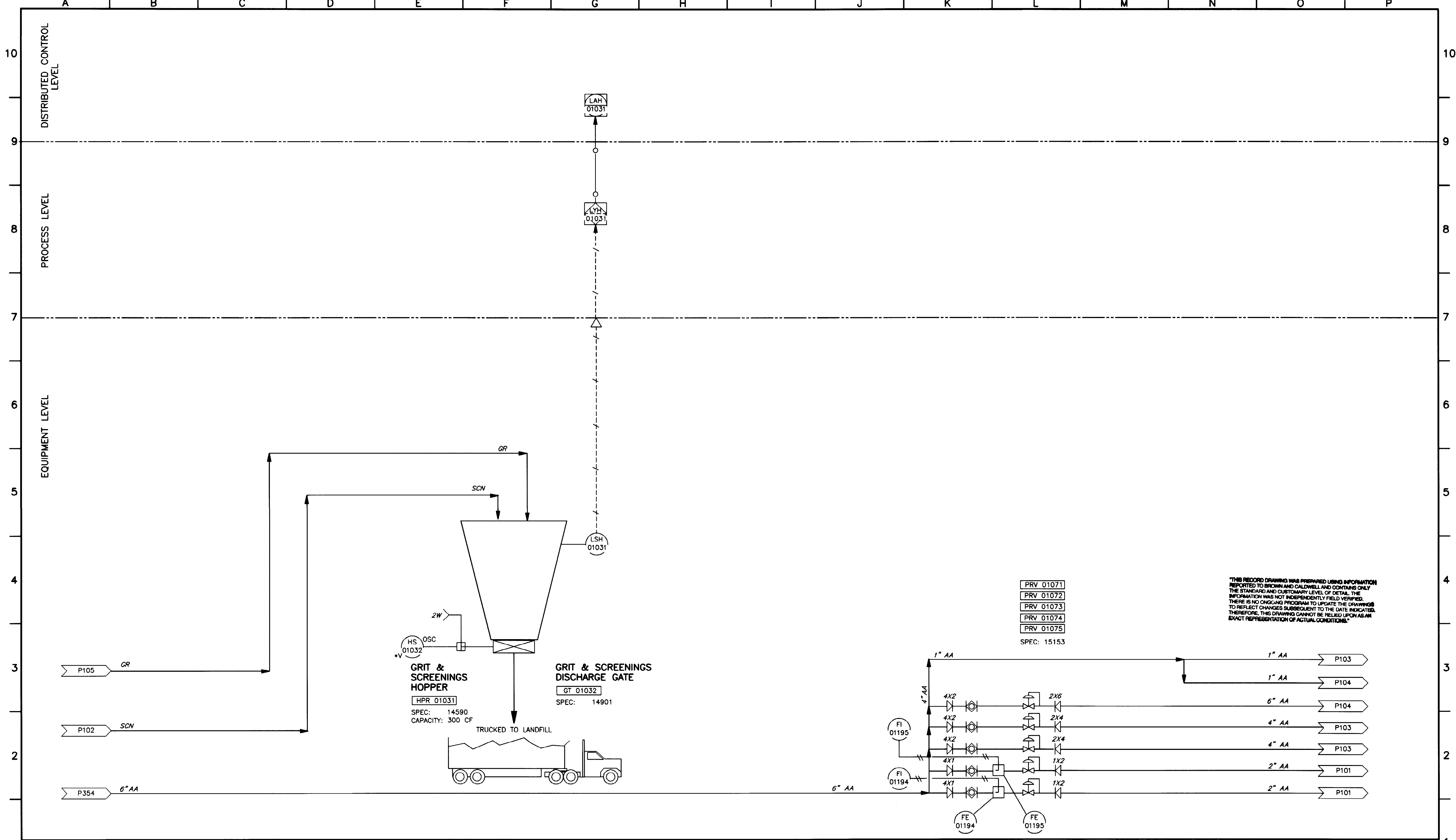
FILE 5870
 DRAWN KCG
 DESIGNED JW
 CHECKED JW
 CHECKED RNW

REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION
 EL PASO WATER UTILITIES

HEADWORKS
GRIT SEPARATION AND WASHING

PROJECT NUMBER
 DRAWING NUMBER
P105
 SHEET NUMBER
33



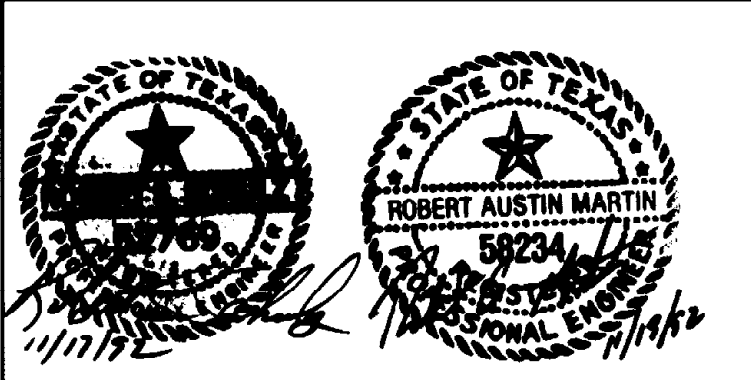
THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

BC Brown and Caldwell
 Consultants
 Phoenix, Arizona

SUBMITTED: *Robert E. Schick* DATE: 11/12/92
 APPROVED: *Robert E. Schick* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE: 5870
 DRAWN: PMG
 DESIGNED: JW
 CHECKED: JW
 CHECKED: RNW



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

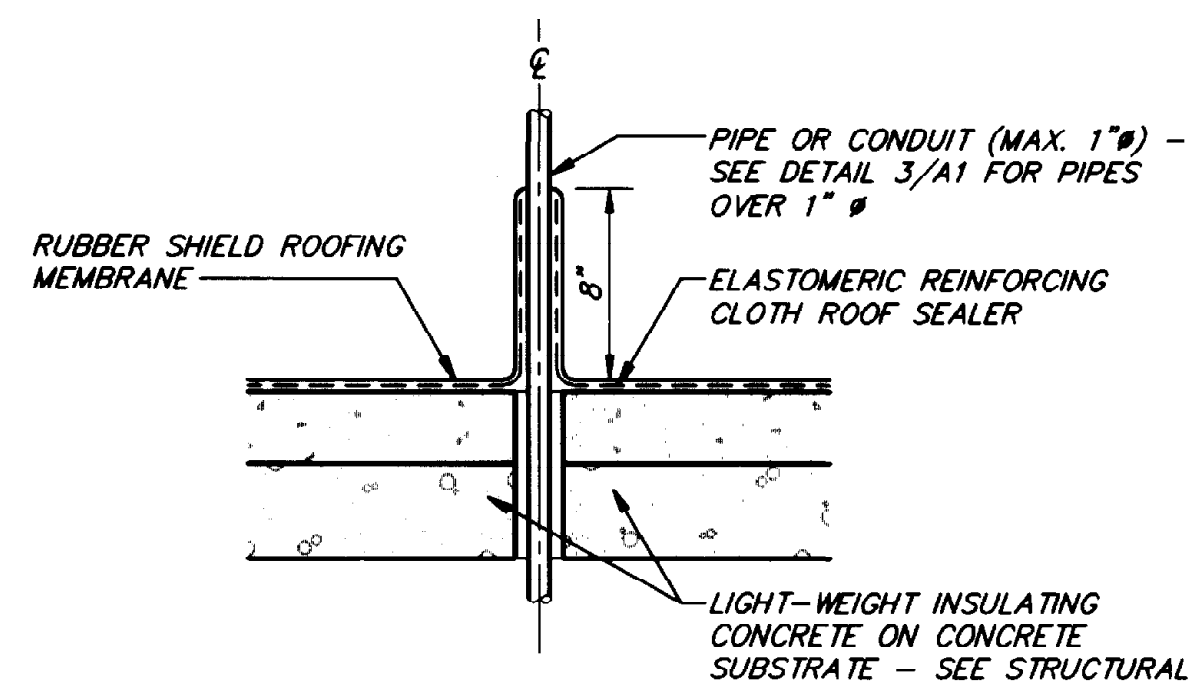
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

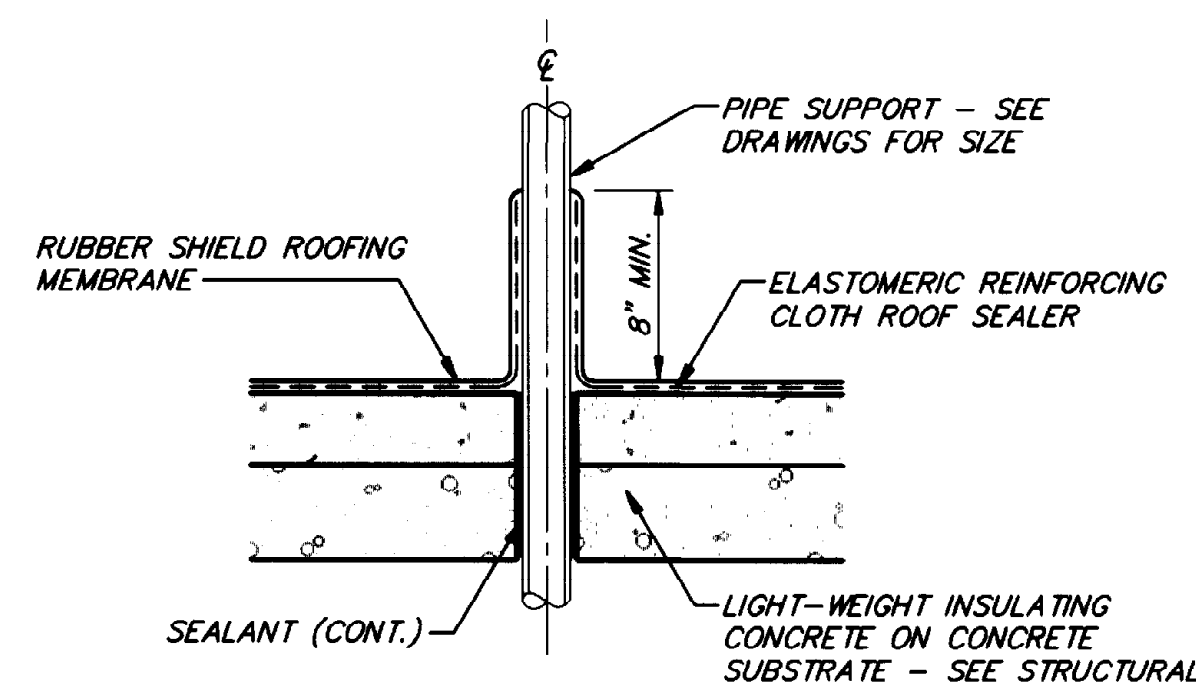
GRIT HOPPER

PROJECT NUMBER	
DRAWING NUMBER	P106
SHEET NUMBER	34

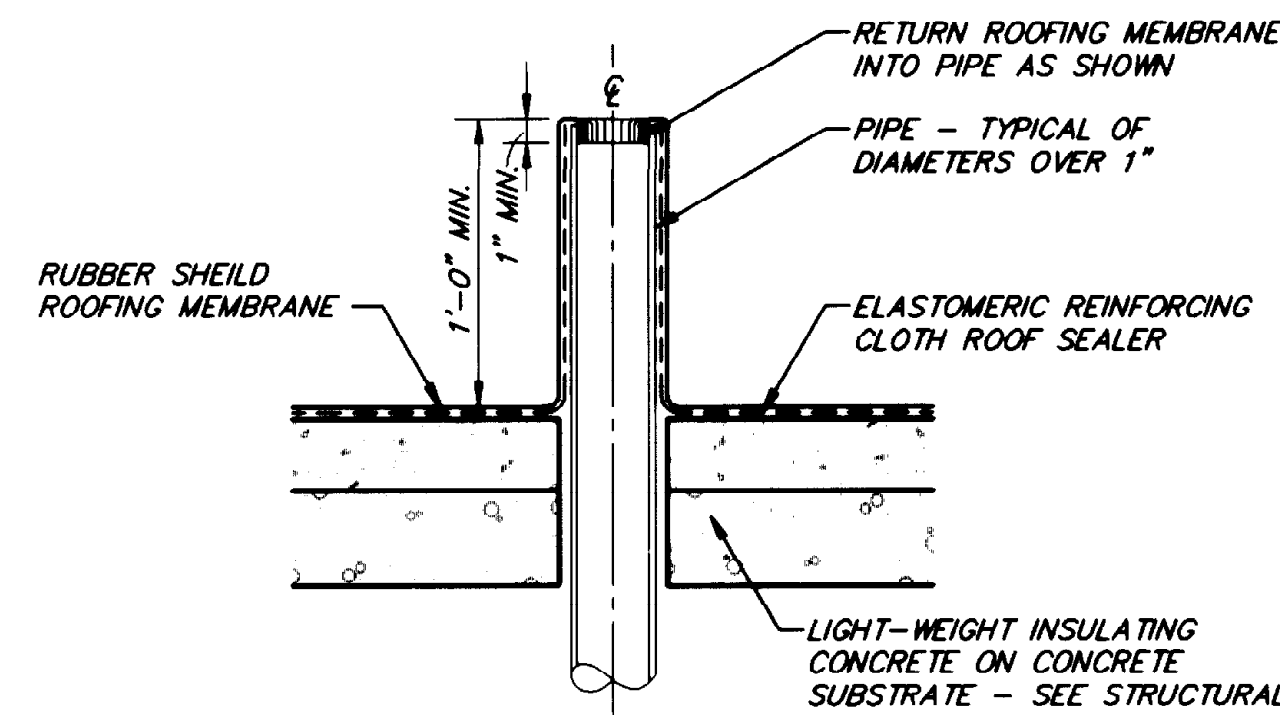
5870-144 11-11-92 PMG



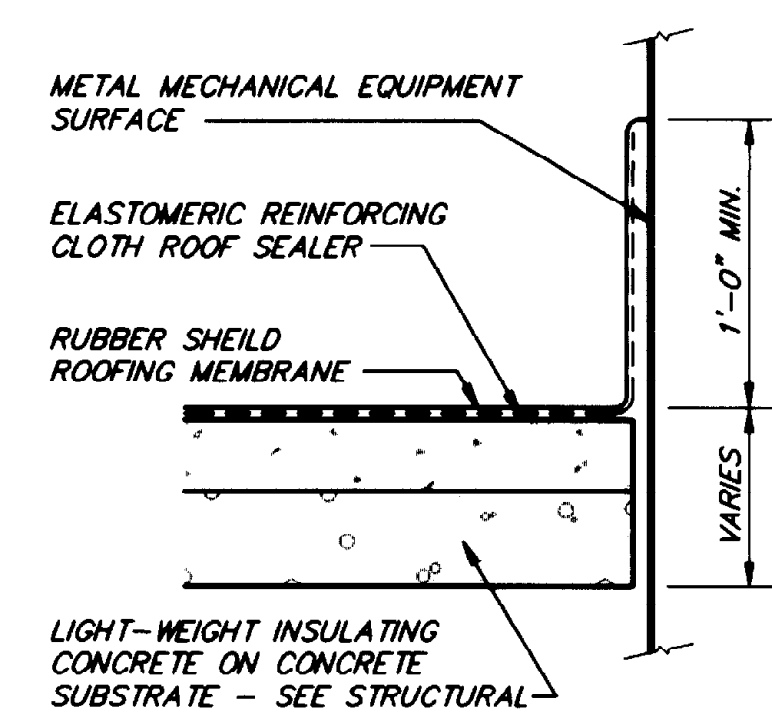
PENETRATION DETAIL 1
SCALE: 1 1/2" = 1'-0"



PENETRATION DETAIL 2
SCALE: 1 1/2" = 1'-0"

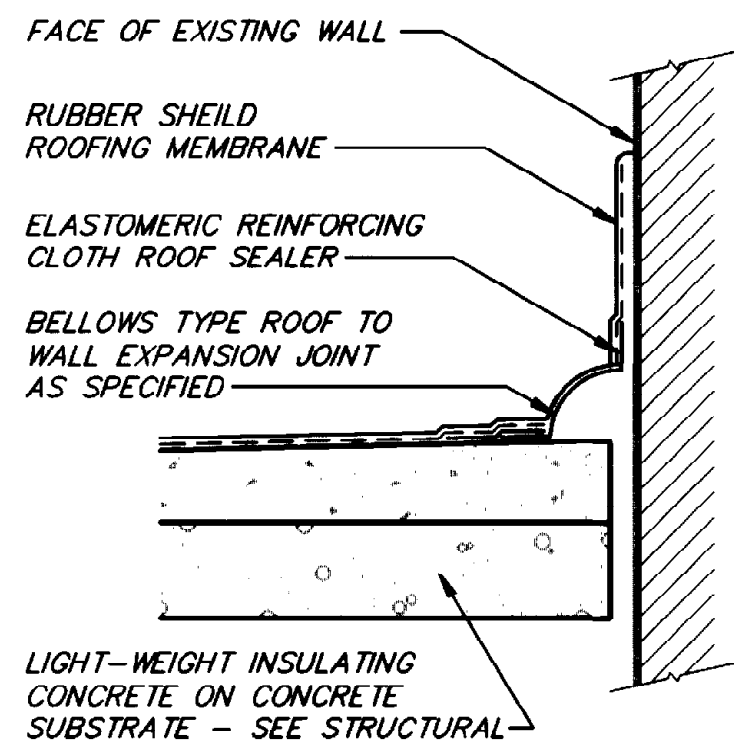


PENETRATION DETAIL 3
SCALE: 1 1/2" = 1'-0"

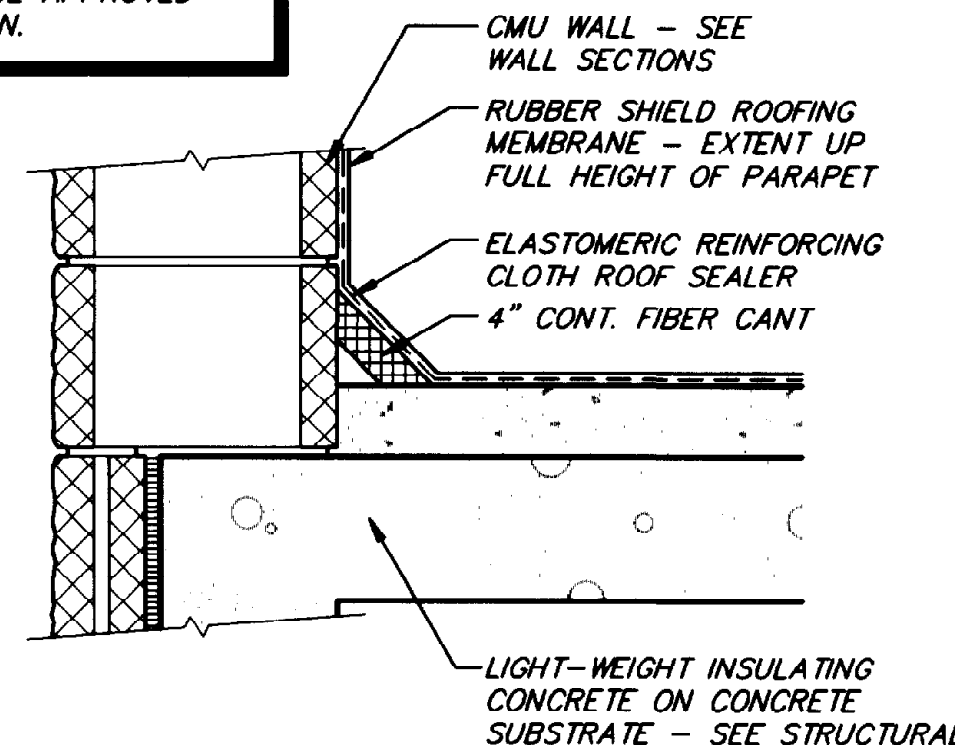


PENETRATION DETAIL 4
SCALE: 1 1/2" = 1'-0"

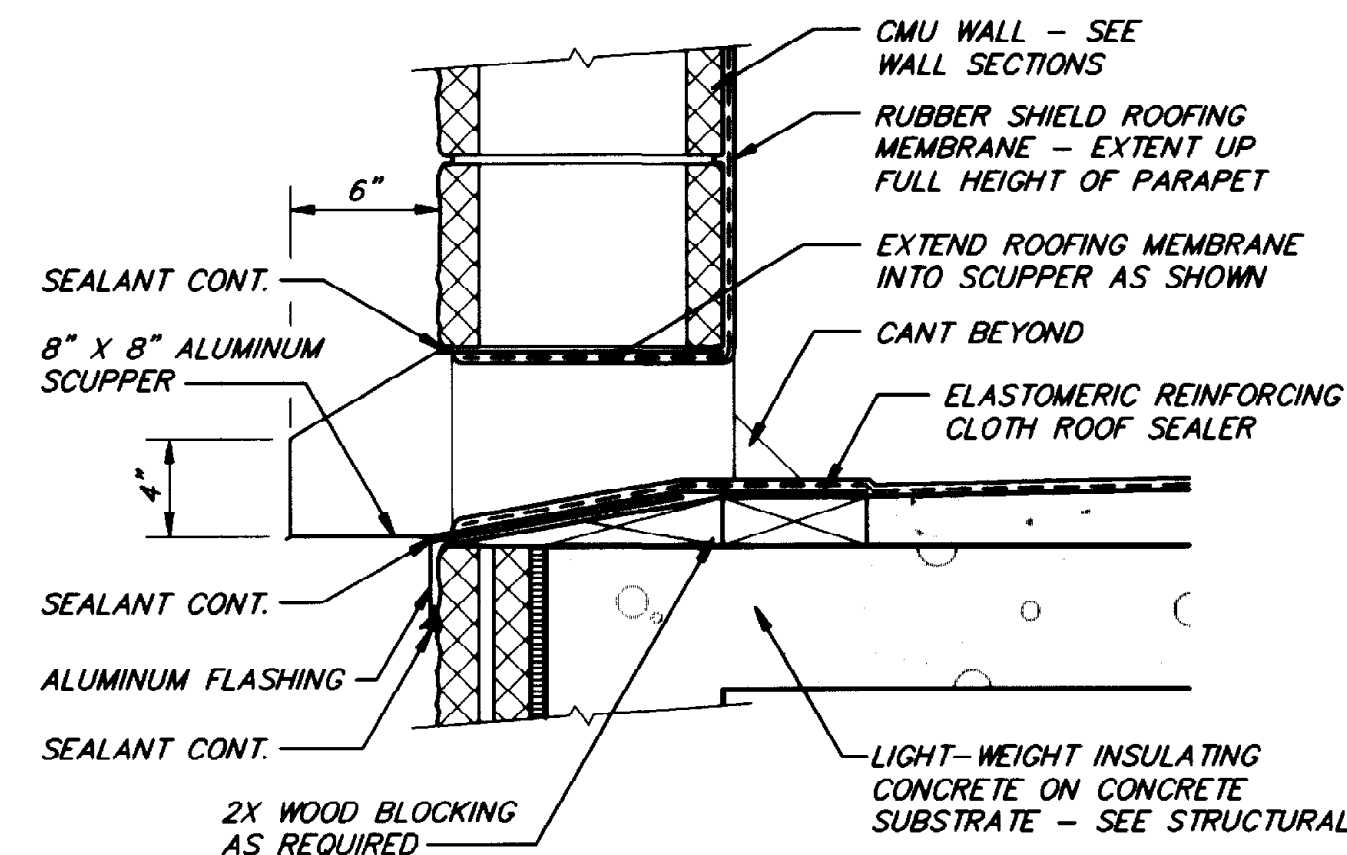
THIS PROJECT WILL UTILIZE A RUBBER SHIELD MEMBRANE OVER ELASTOMERIC REINFORCING IN ROOF SEALER SYSTEM. THE MANUFACTURER'S DETAILS WILL GOVERN TO INSURE WARRANTY COMPLIANCE. ALL DETAILS DIFFERING FROM THOSE SHOWN ON PLANS WILL BE APPROVED BY A/E PRIOR TO CONSTRUCTION.



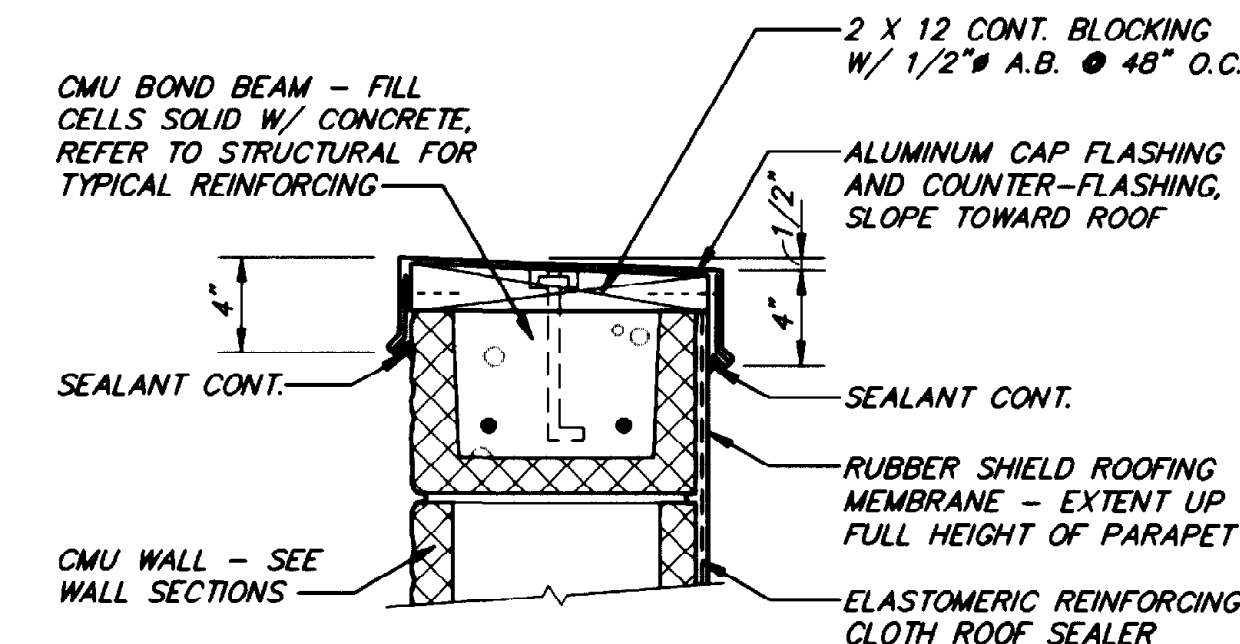
EXPANSION JOINT 5
SCALE: 1 1/2" = 1'-0"



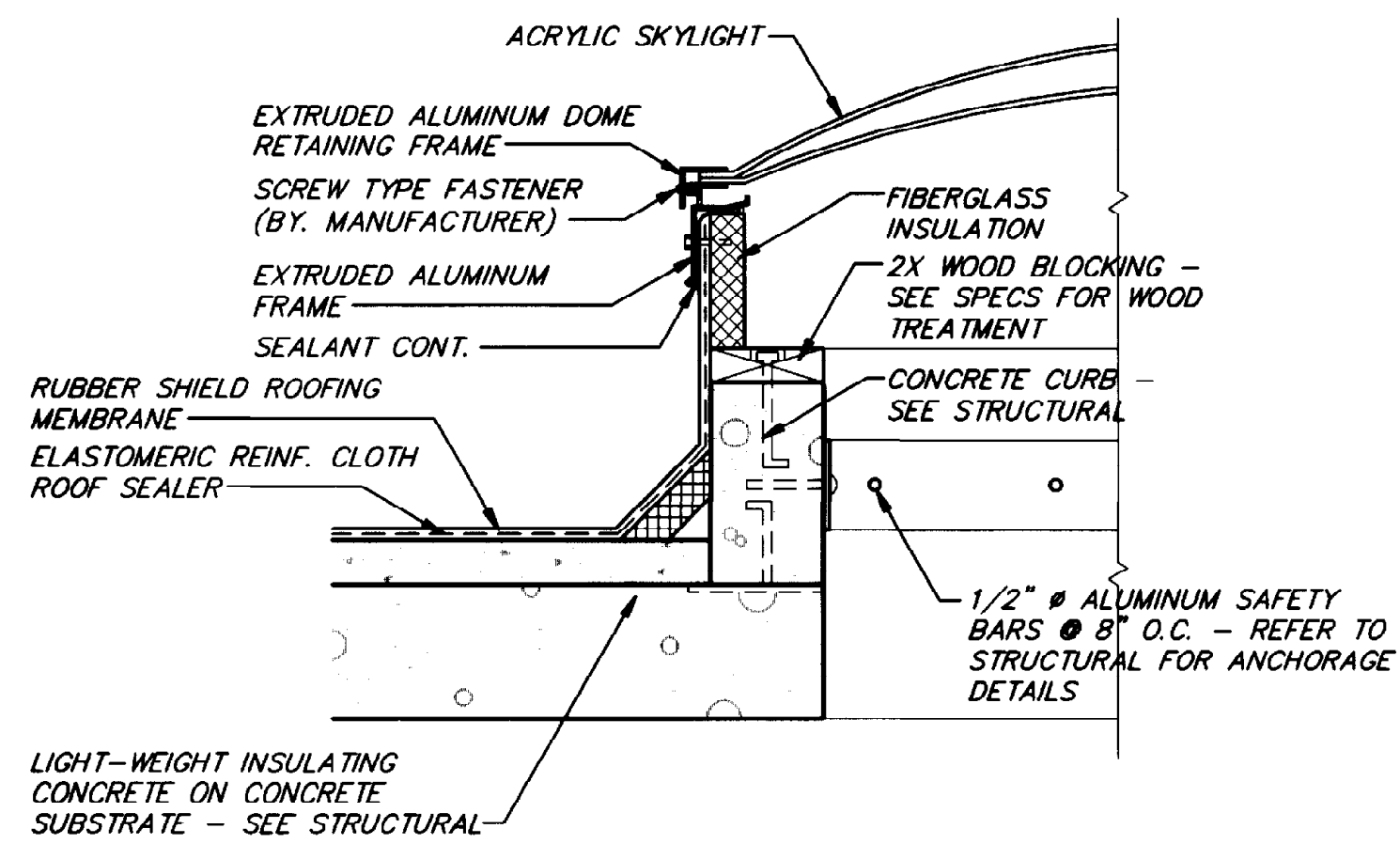
DETAIL @ CANT 6
SCALE: 1 1/2" = 1'-0"



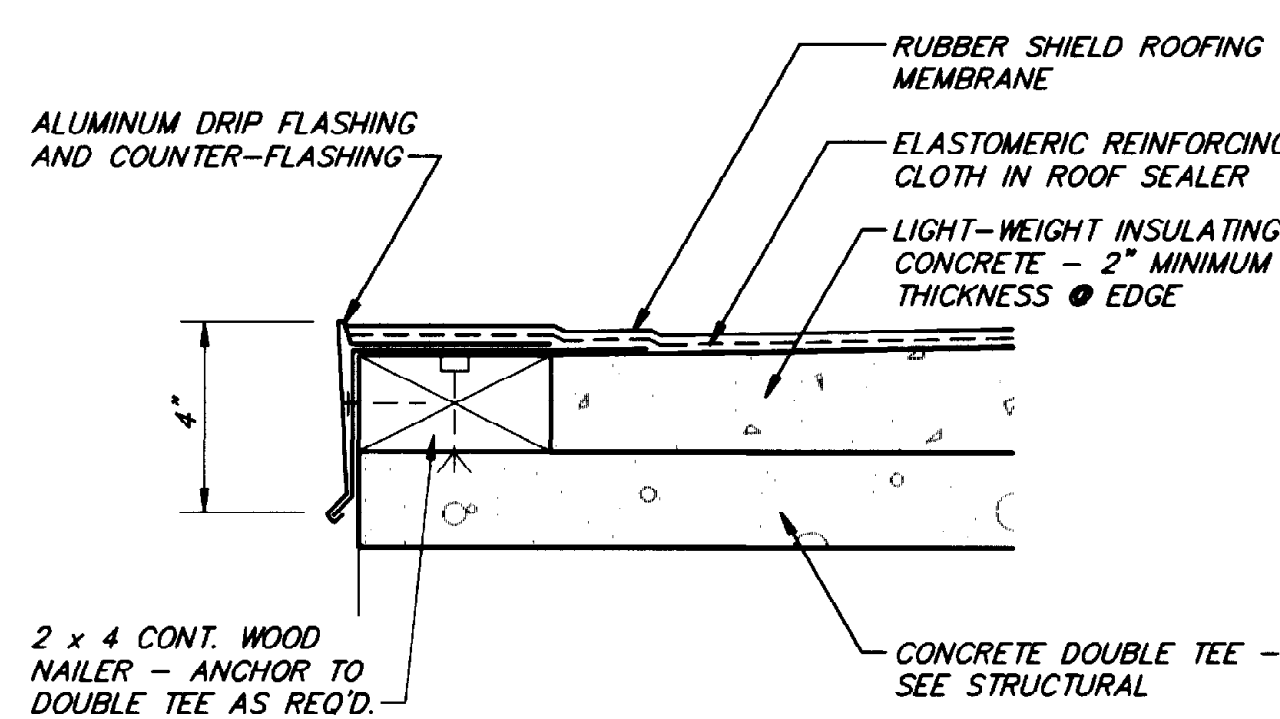
SCUPPER DETAIL 7
SCALE: 1 1/2" = 1'-0"



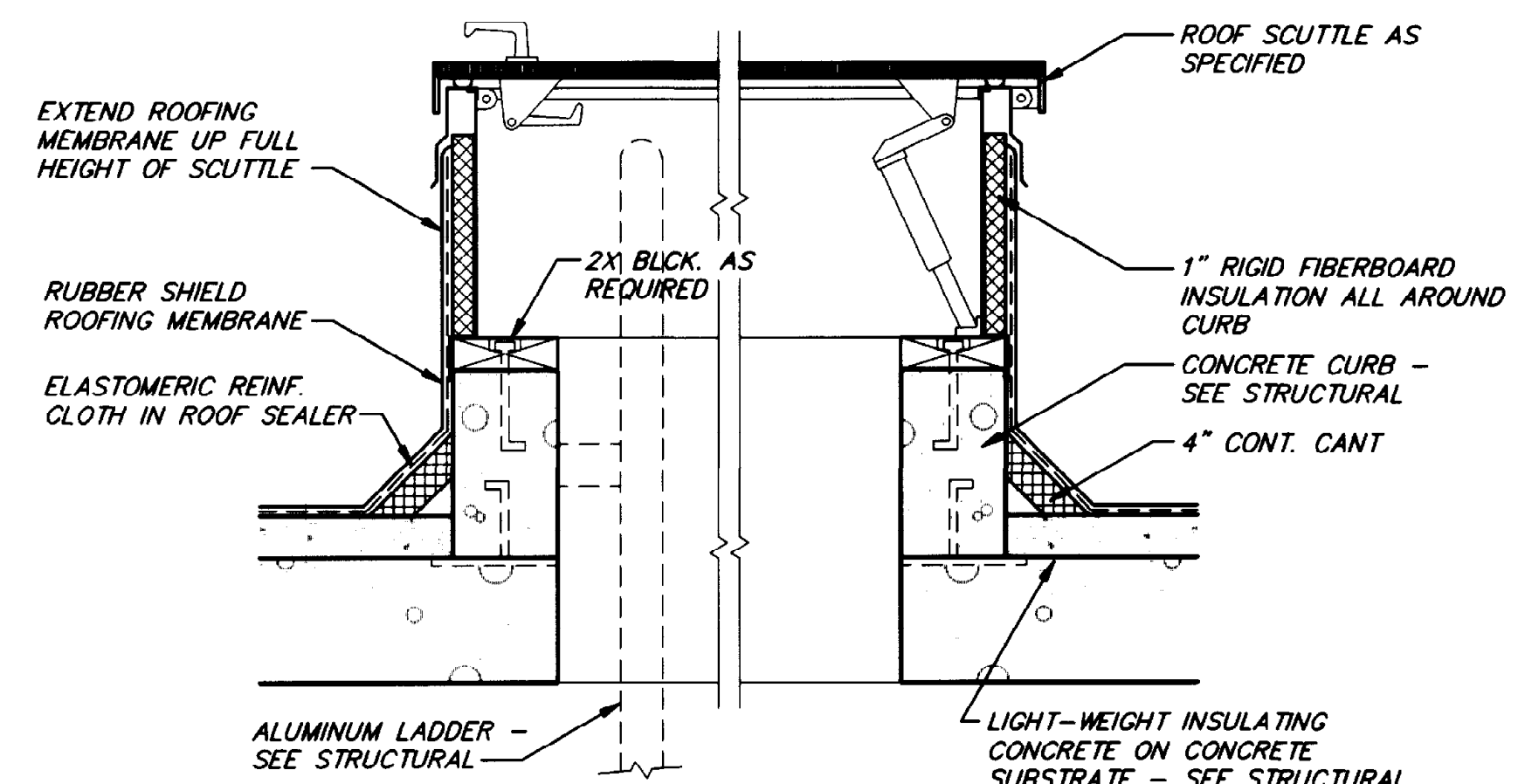
CAP DETAIL 8
SCALE: 1 1/2" = 1'-0"



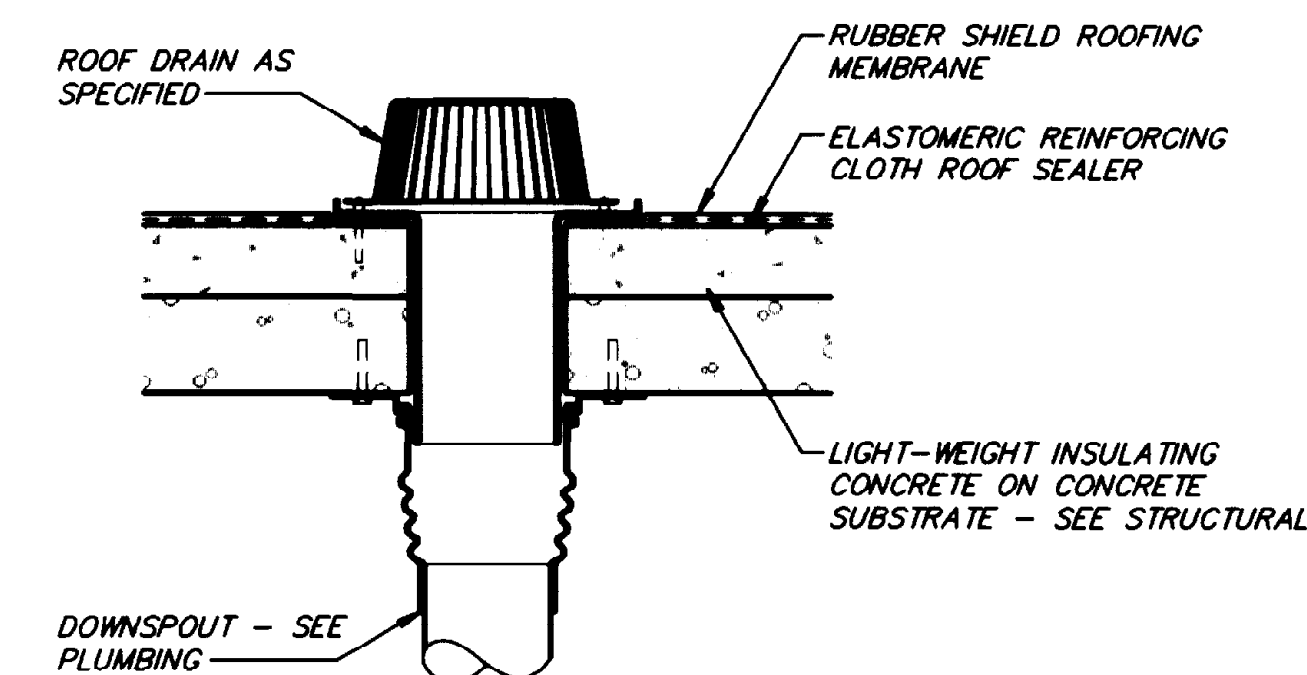
SKYLIGHT CURB 9
SCALE: 1 1/2" = 1'-0"



DRIP DETAIL 10
SCALE: 3" = 1'-0"



SCUTTLE DETAIL 11
SCALE: 1 1/2" = 1'-0"



ROOF DRAIN DETAIL 12
SCALE: 1 1/2" = 1'-0"

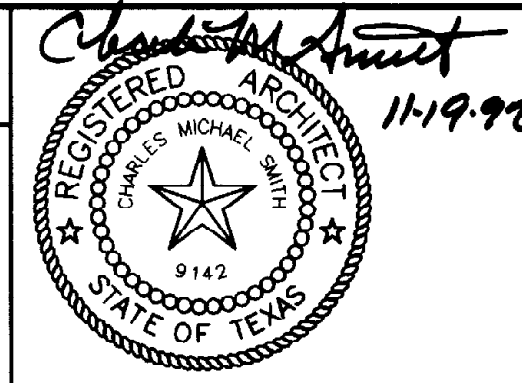
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PSA PRESTIDGE SMITH ARCHITECTS, INC.
600 SUNLAND PARK DRIVE, SUITE 2-300 EL PASO, TEXAS 79906

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/21/92
APPROVED: *James M. Caldwell* DATE: 11-20-92

FILE _____
DRAWN _____
DESIGNED _____
CHECKED _____
CHECKED _____



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

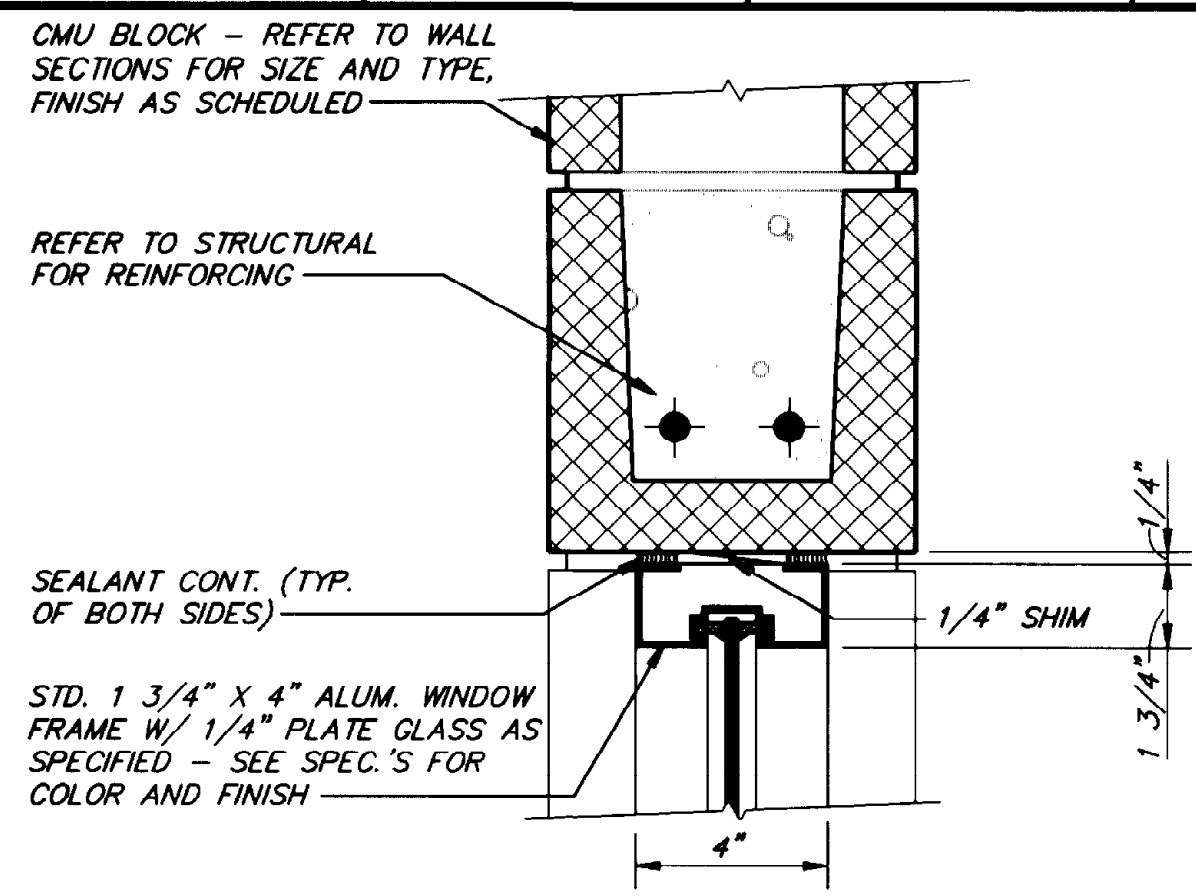
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

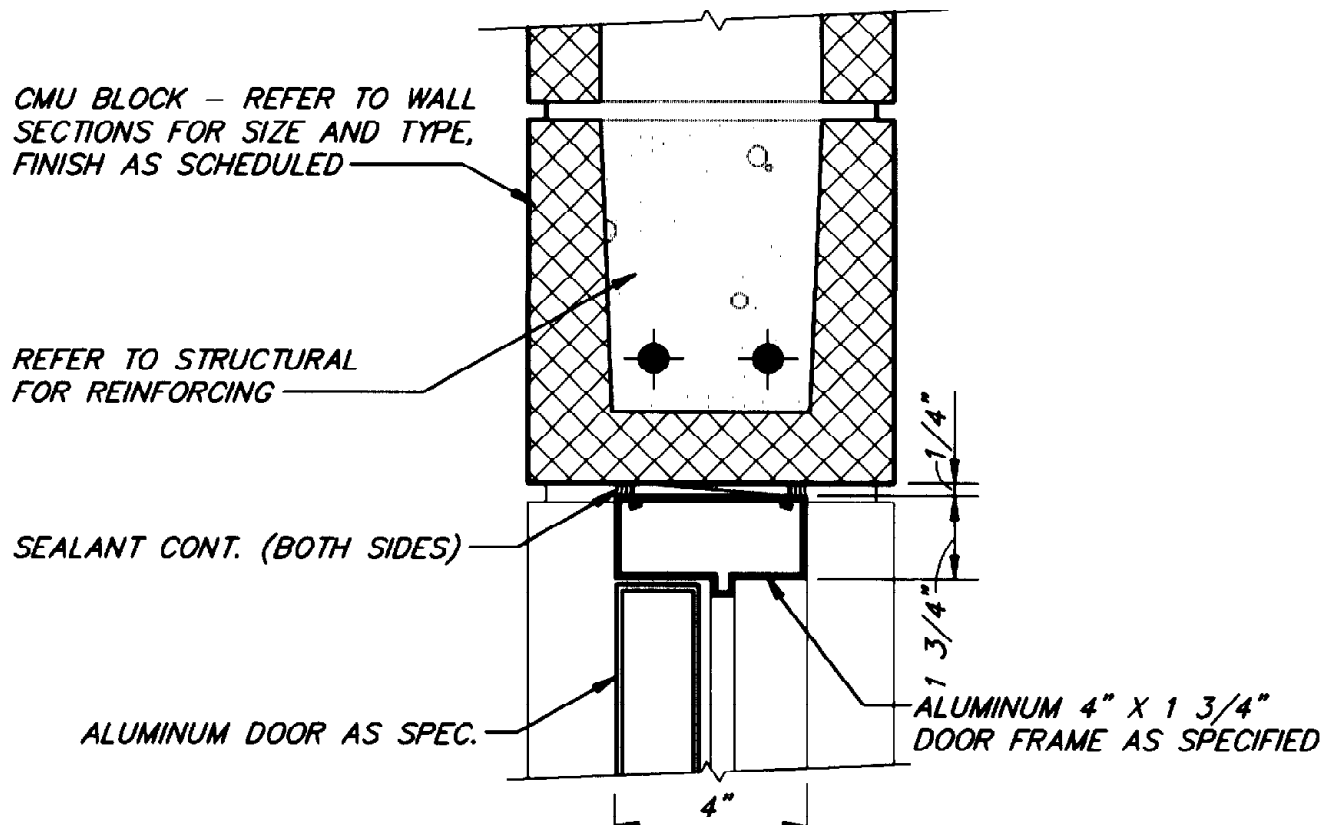
GENERAL DETAILS

PROJECT NUMBER: 1
DRAWING NUMBER: **A1**
SHEET NUMBER: **82**

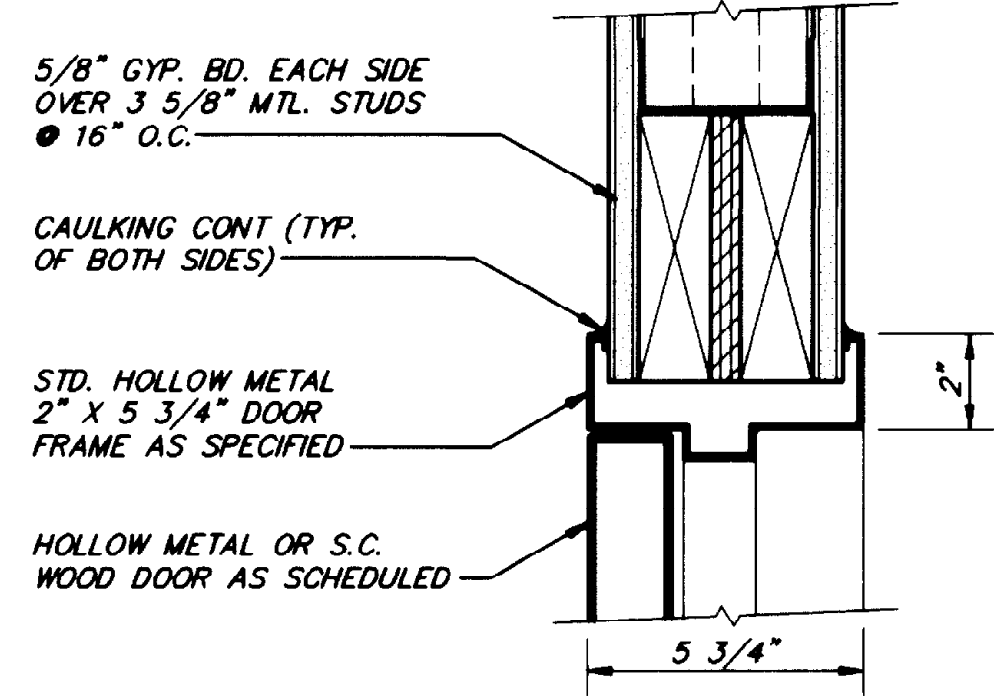
9115DET1 10/15/92 14:17



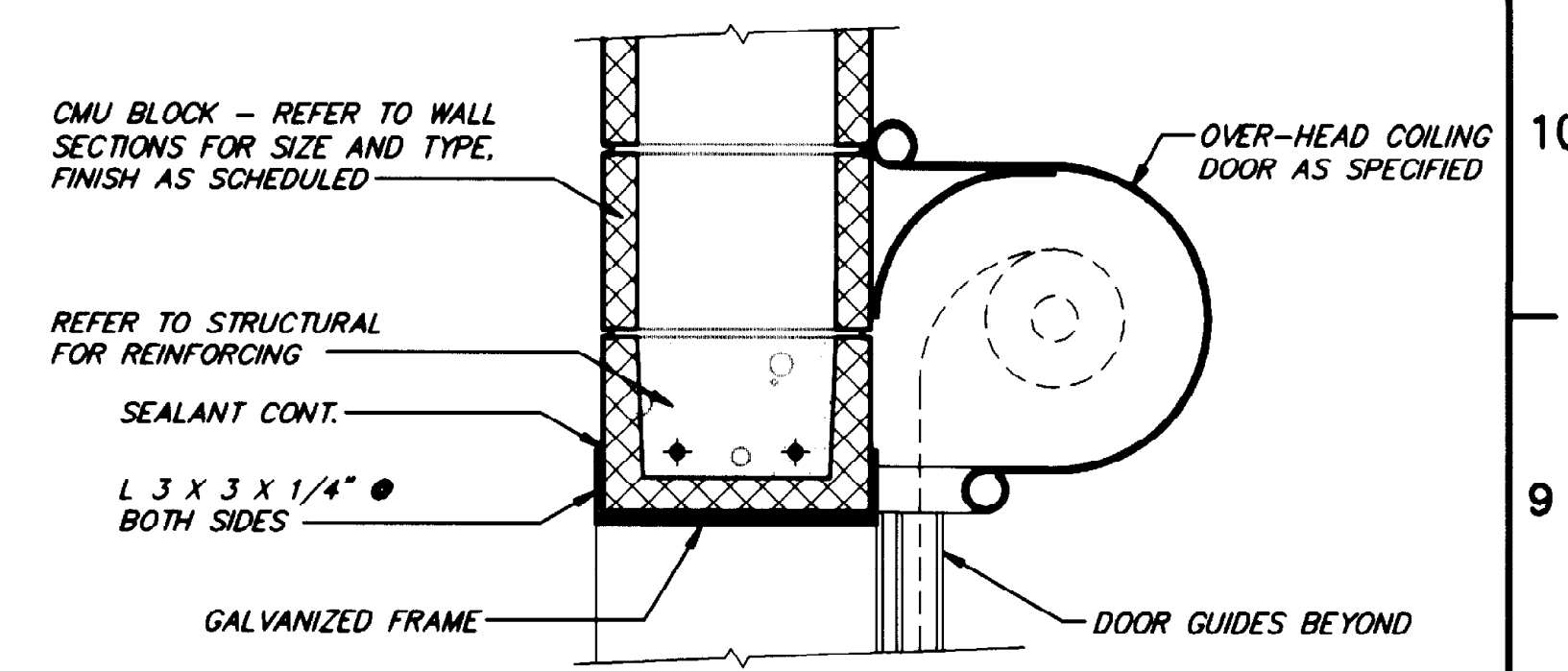
WINDOW HEAD DETAIL (1) A2
SCALE: 3" = 1'-0"



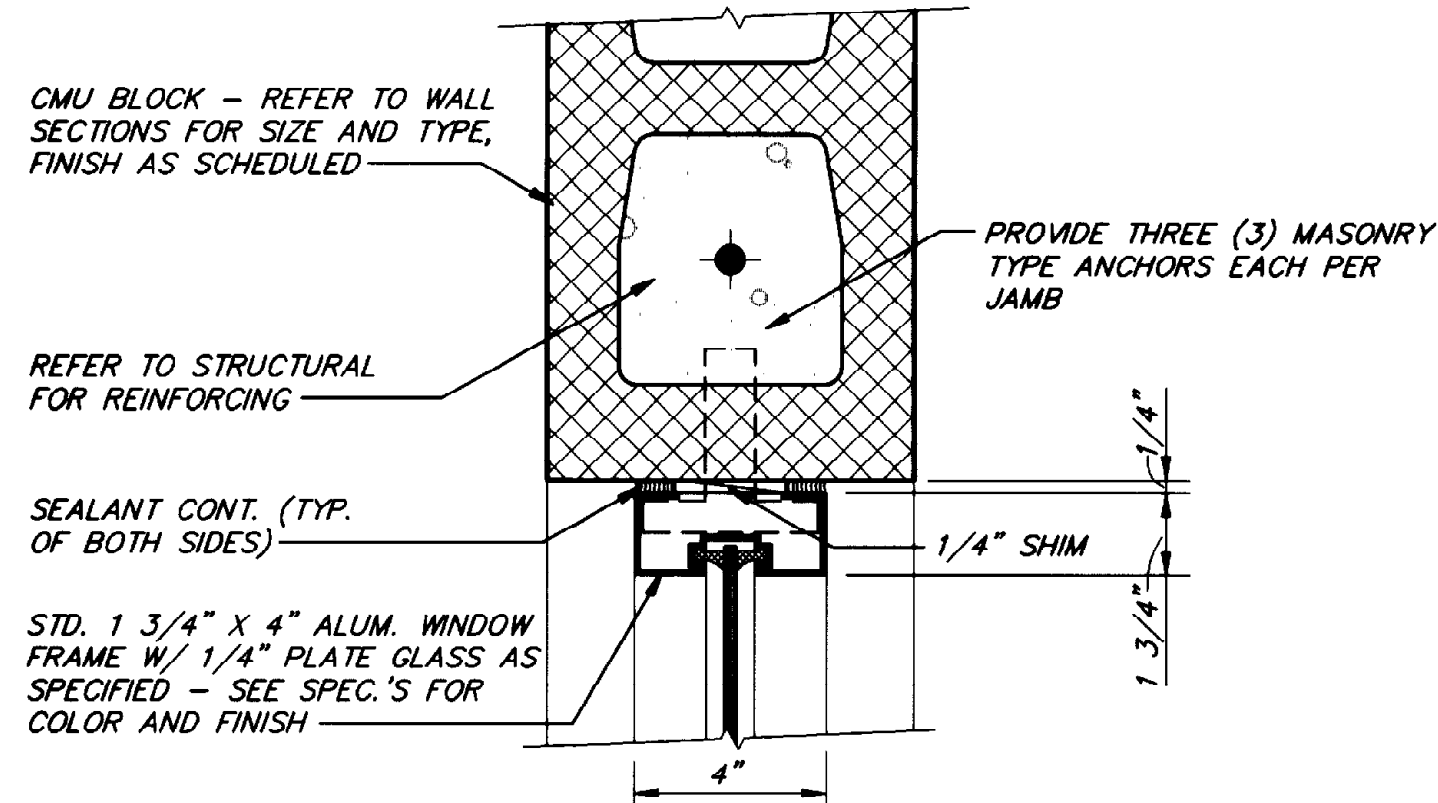
HEAD DETAIL (2) A2
SCALE: 3" = 1'-0"



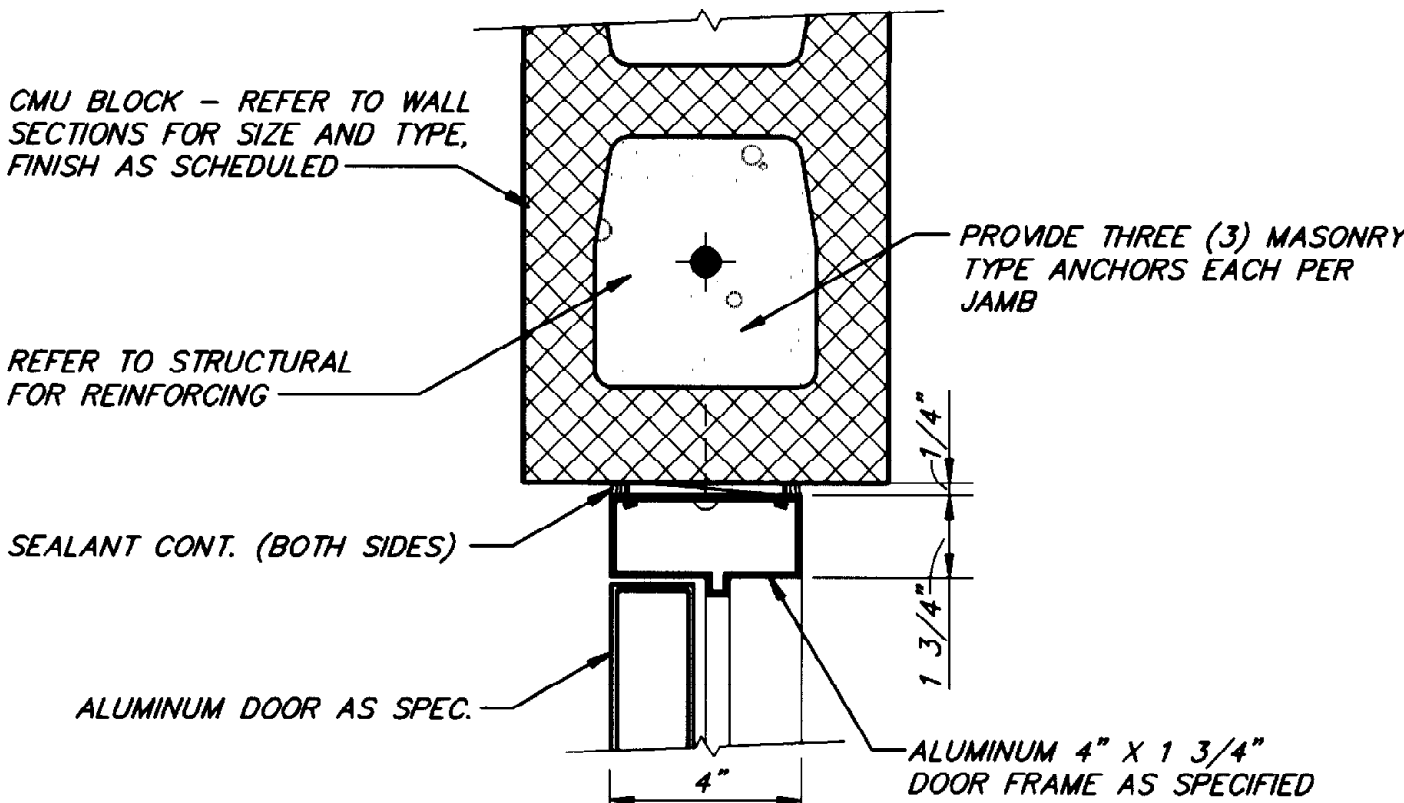
HEAD DETAIL (3) A2
SCALE: 3" = 1'-0"



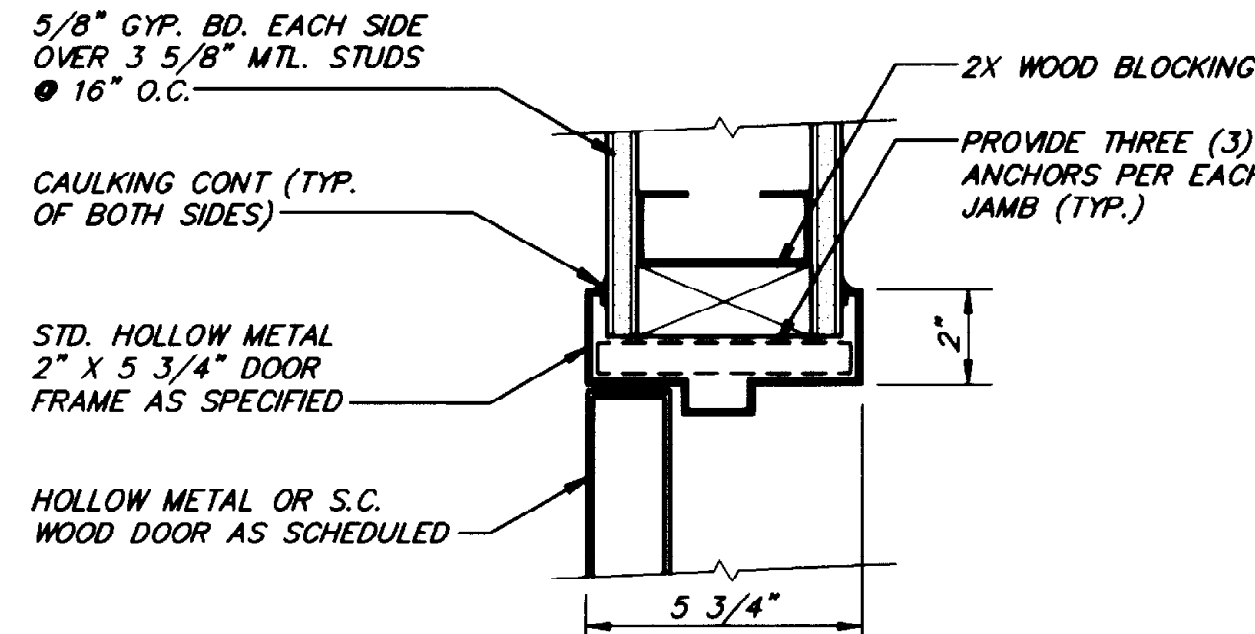
O.H.D. HEAD DETAIL (4) A2
SCALE: 1 1/2" = 1'-0"



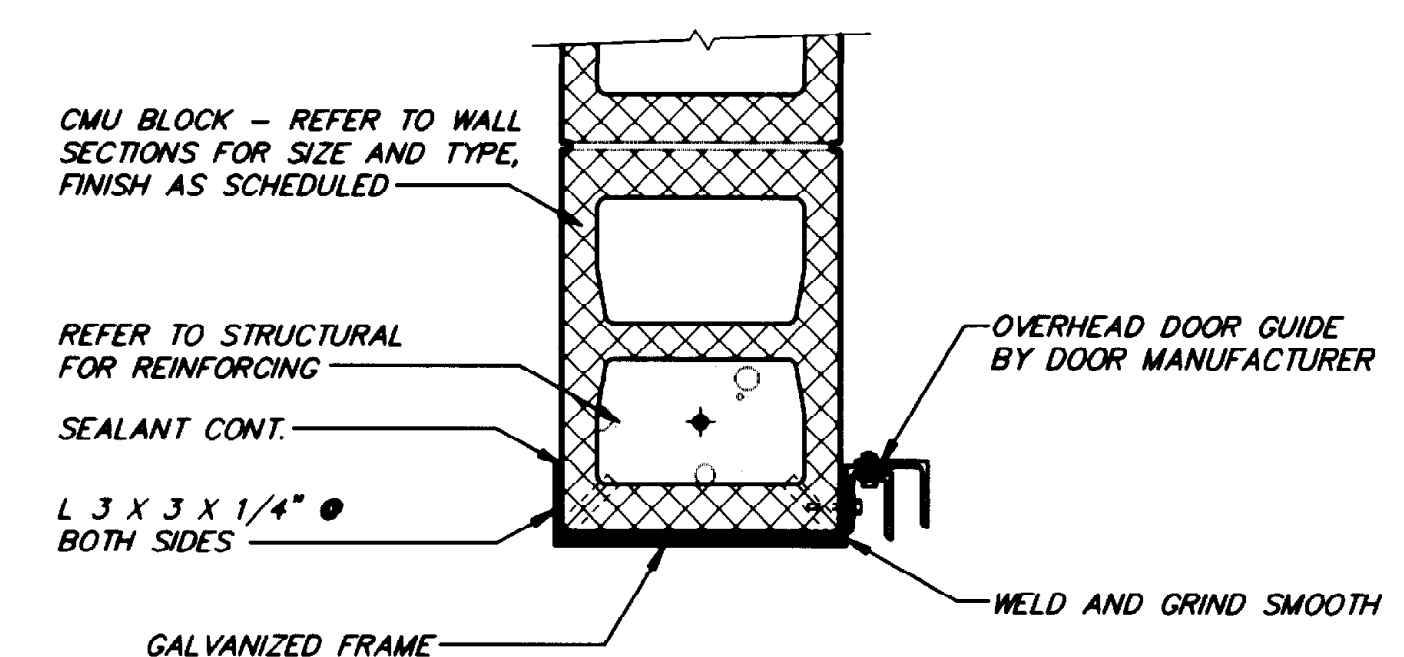
WINDOW JAMB DETAIL (5) A2
SCALE: 3" = 1'-0"



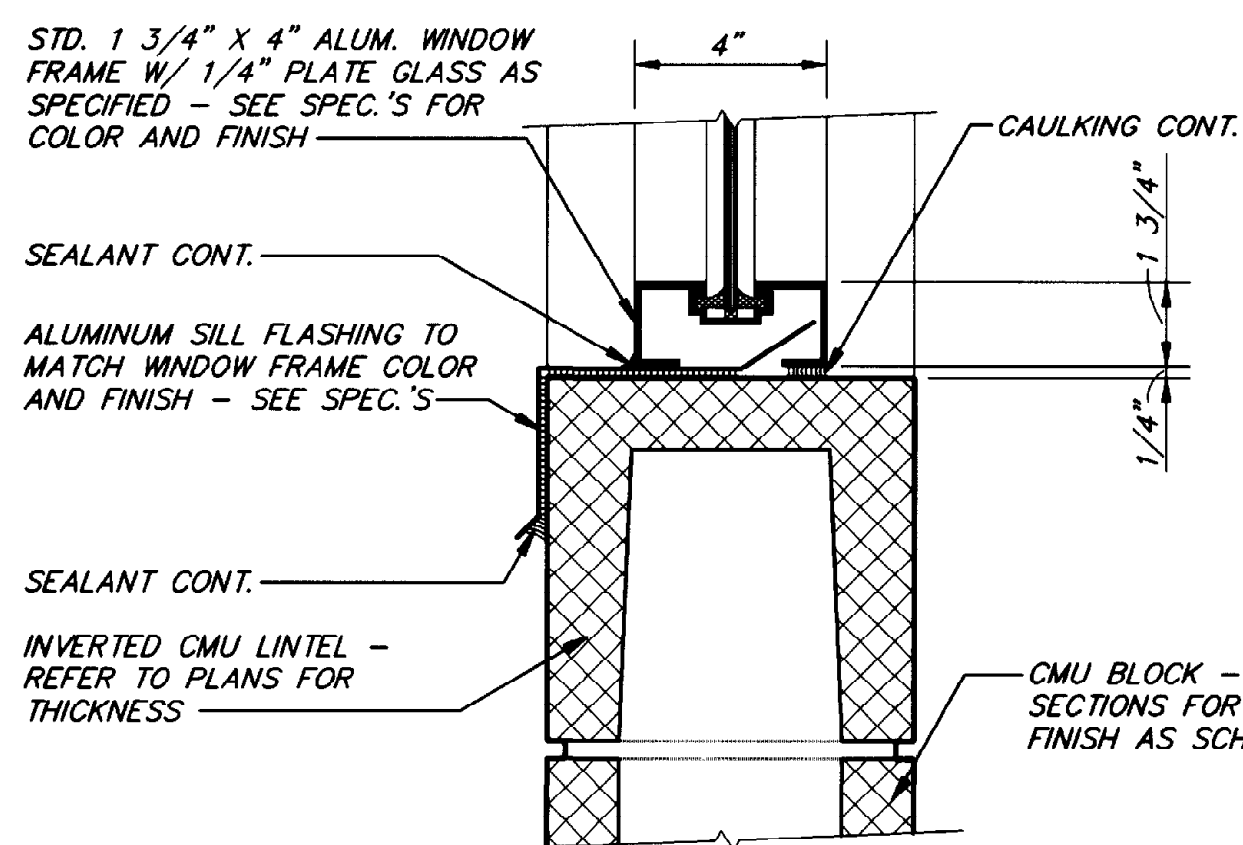
JAMB DETAIL (6) A2
SCALE: 3" = 1'-0"



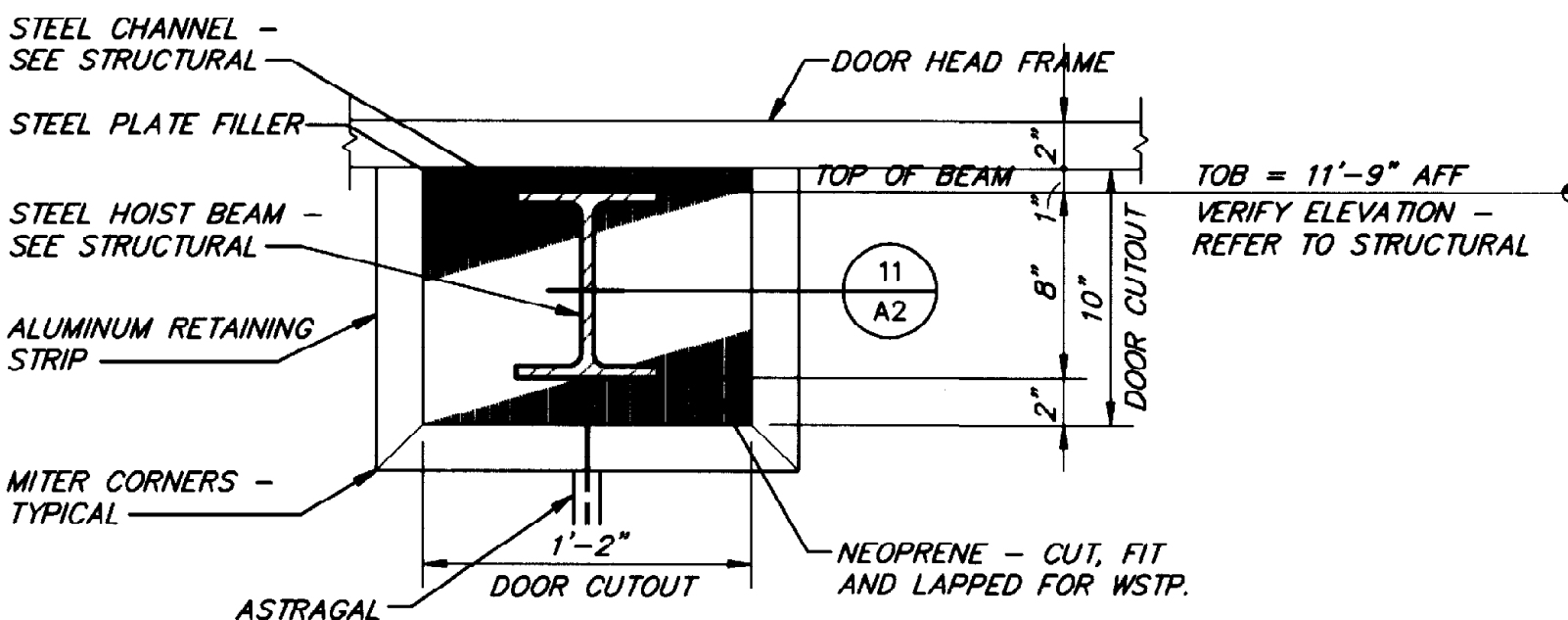
JAMB DETAIL (7) A2
SCALE: 3" = 1'-0"



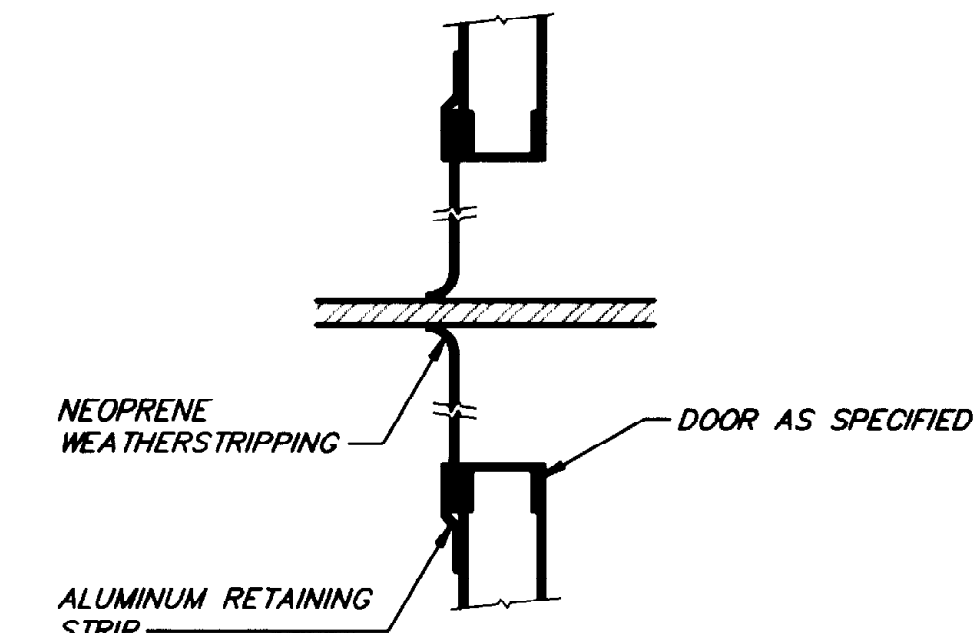
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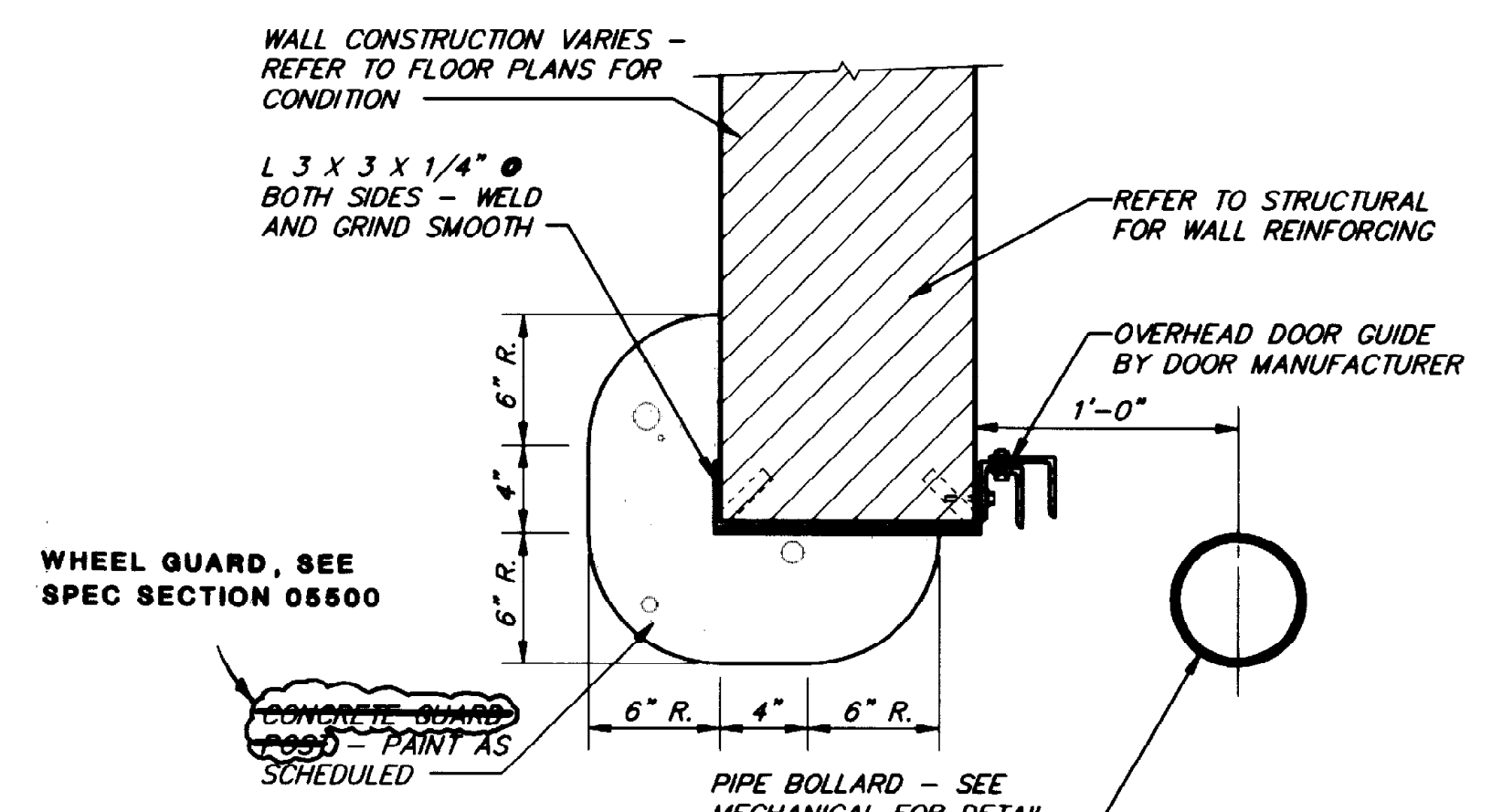
WINDOW SILL DETAIL (9) A2
SCALE: 3" = 1'-0"



SILL DETAIL (10) A2
SCALE: 1 1/2" = 1'-0"



WSTP. DETAIL (11) A2
SCALE: 3" = 1'-0"



WHEEL GUARD DETAIL (12) A2
SCALE: 1 1/2" = 1'-0"

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PSA PRESTIDGE SMITH ARCHITECTS, INC.
600 SUNLAND PARK DRIVE SUITE 3-300
EL PASO, TEXAS 79915-9920

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schell* DATE: 11/20/92
APPROVED: *Charles Michael Smith* DATE: 11-20-92

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE _____
DRAWN _____
DESIGNED _____
CHECKED _____
CHECKED _____

Charles Michael Smith 11-19-92

REGISTERED ARCHITECT
CHARLES MICHAEL SMITH
9143
STATE OF TEXAS

REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE
M/2	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93

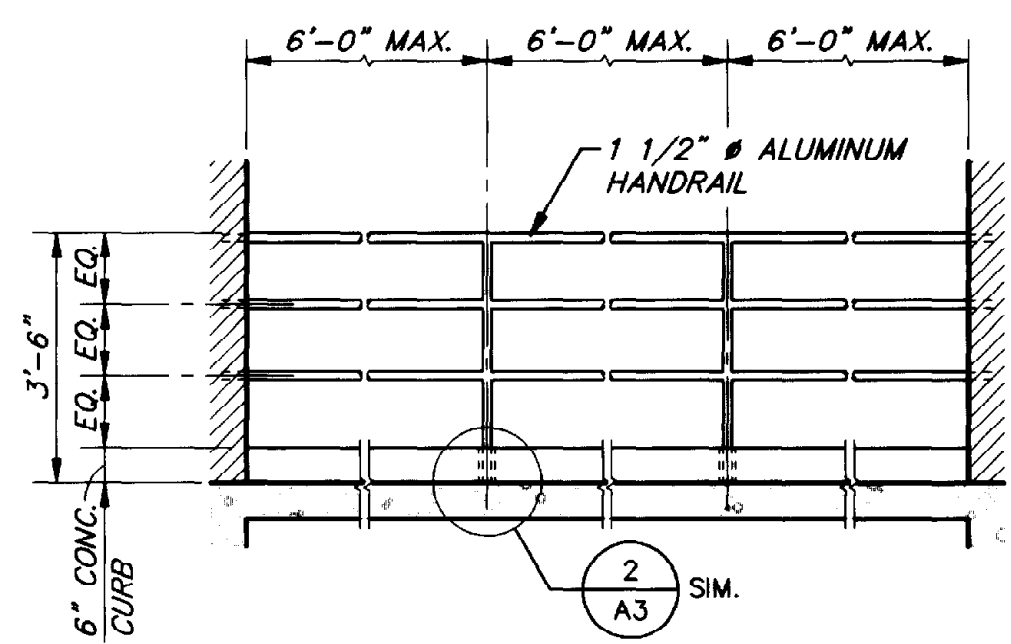
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

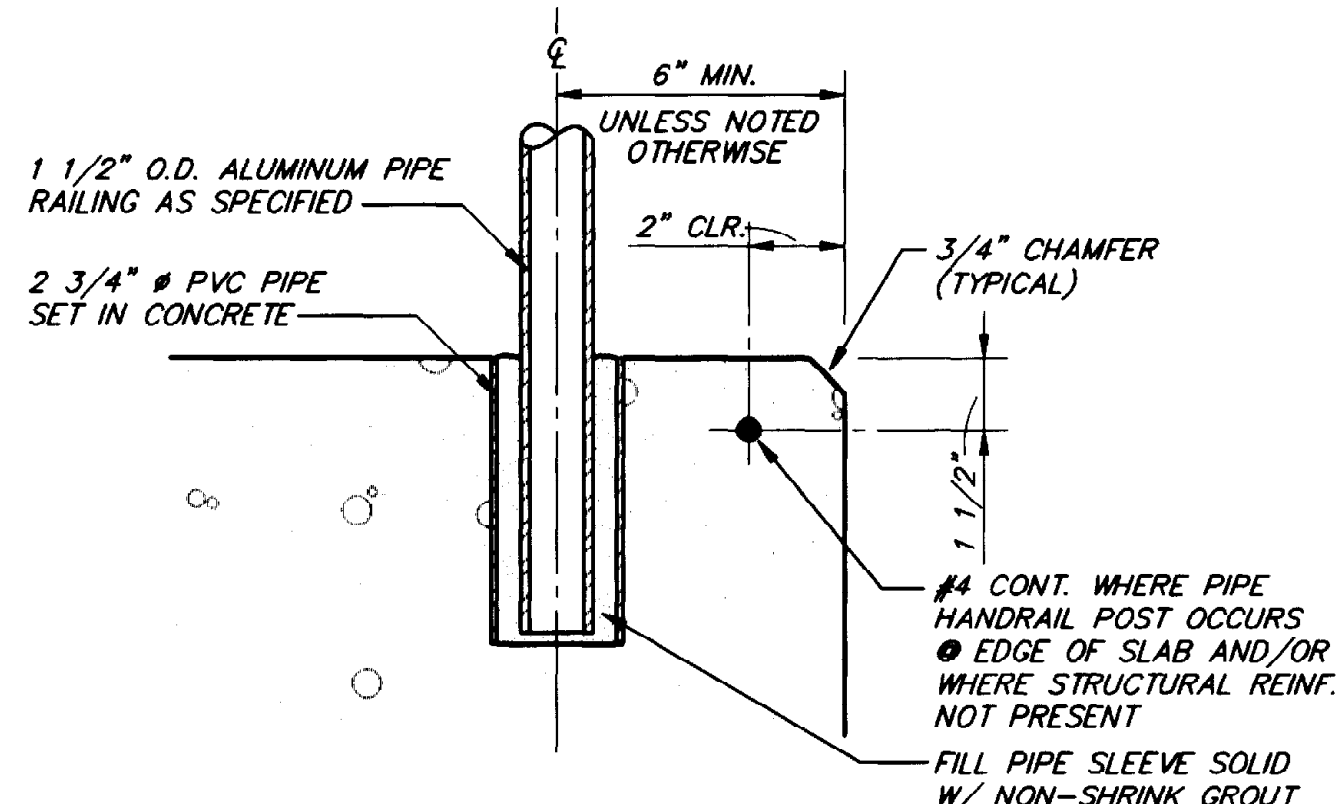
GENERAL DETAILS

PROJECT NUMBER	1
DRAWING NUMBER	A2
SHEET NUMBER	83

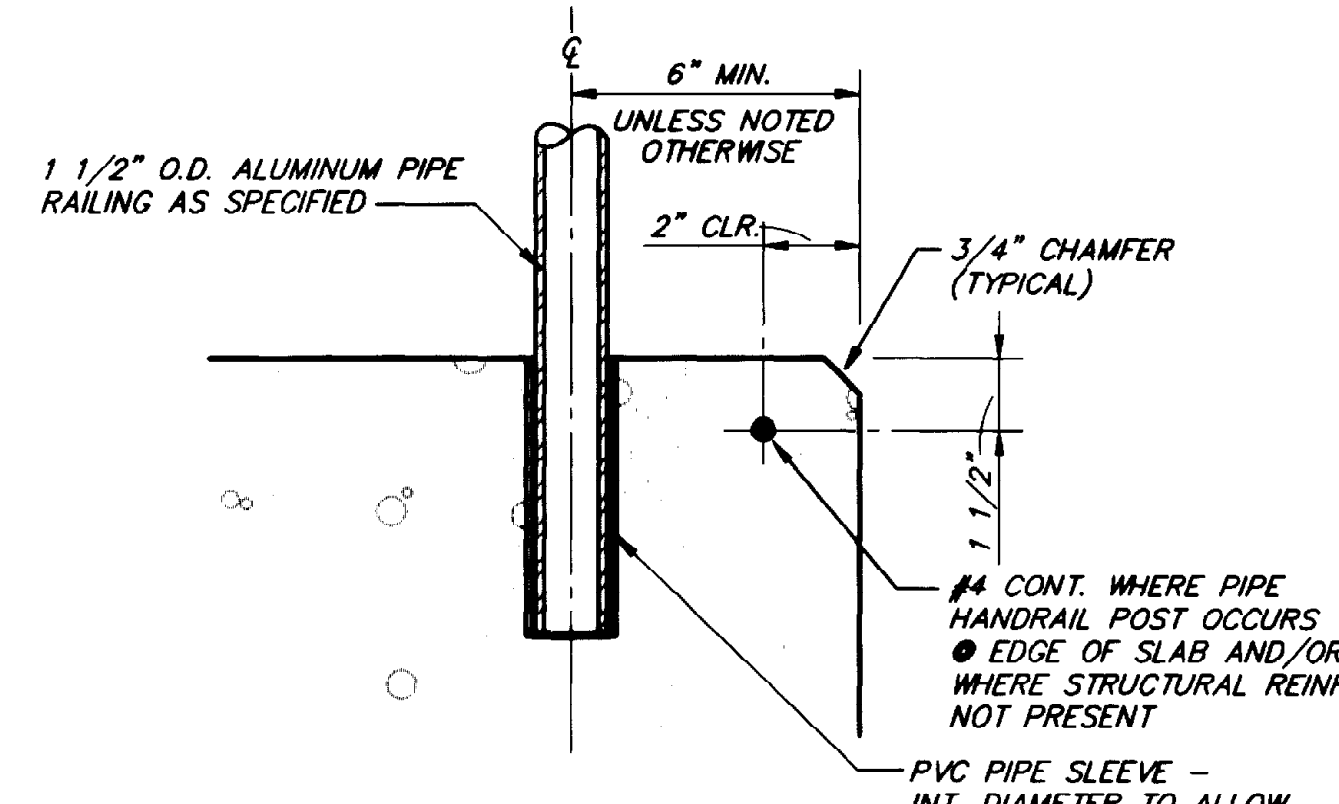
9115DET2 10/15/92 14:28



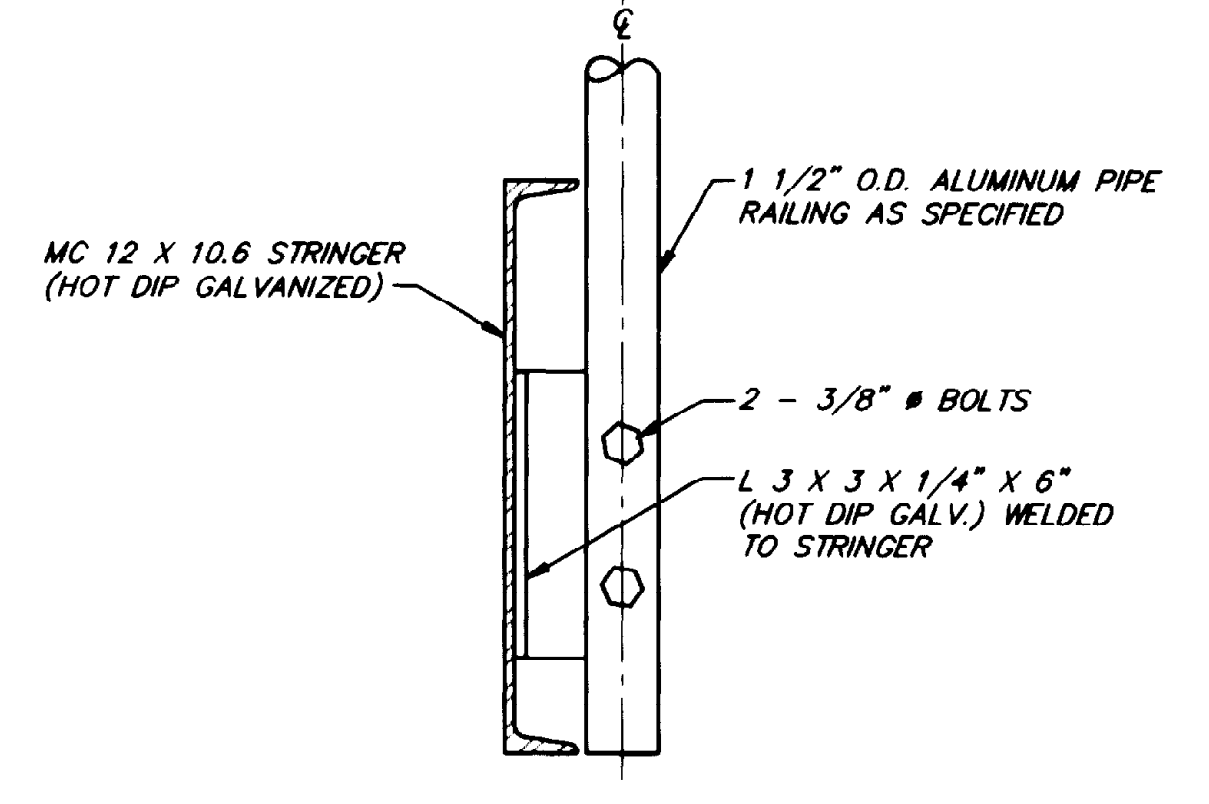
TYP. HANDRAIL SPACING
SCALE: 3/8" = 1'-0" (1/A3)



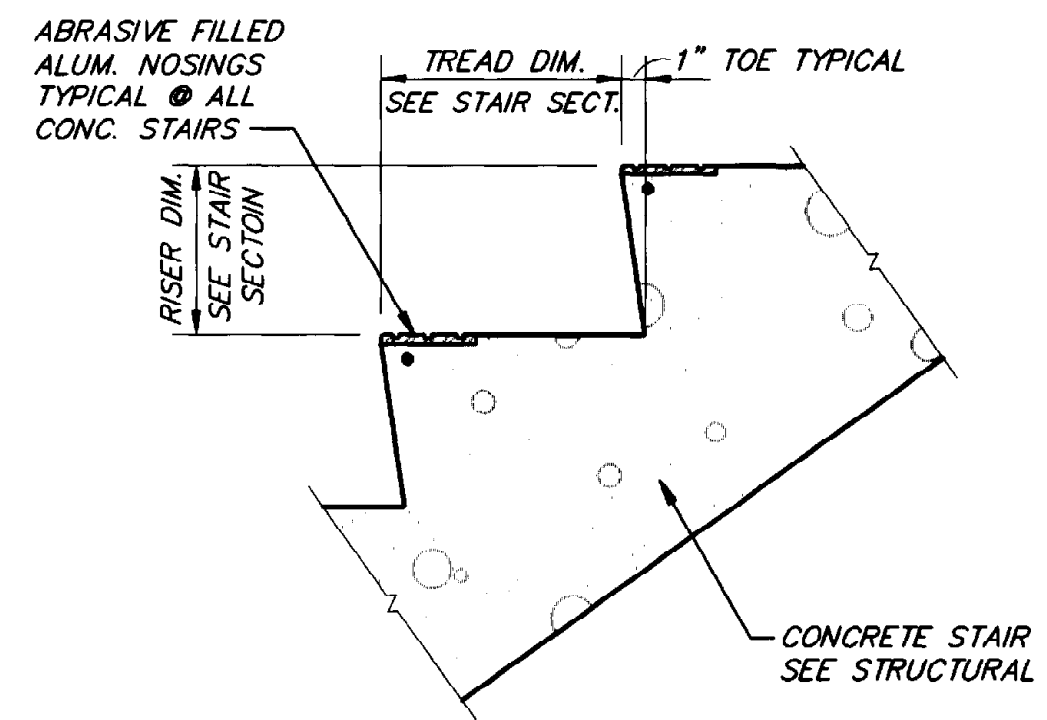
RAIL MOUNTING DETAIL (2/A3)
SCALE: 3" = 1'-0"



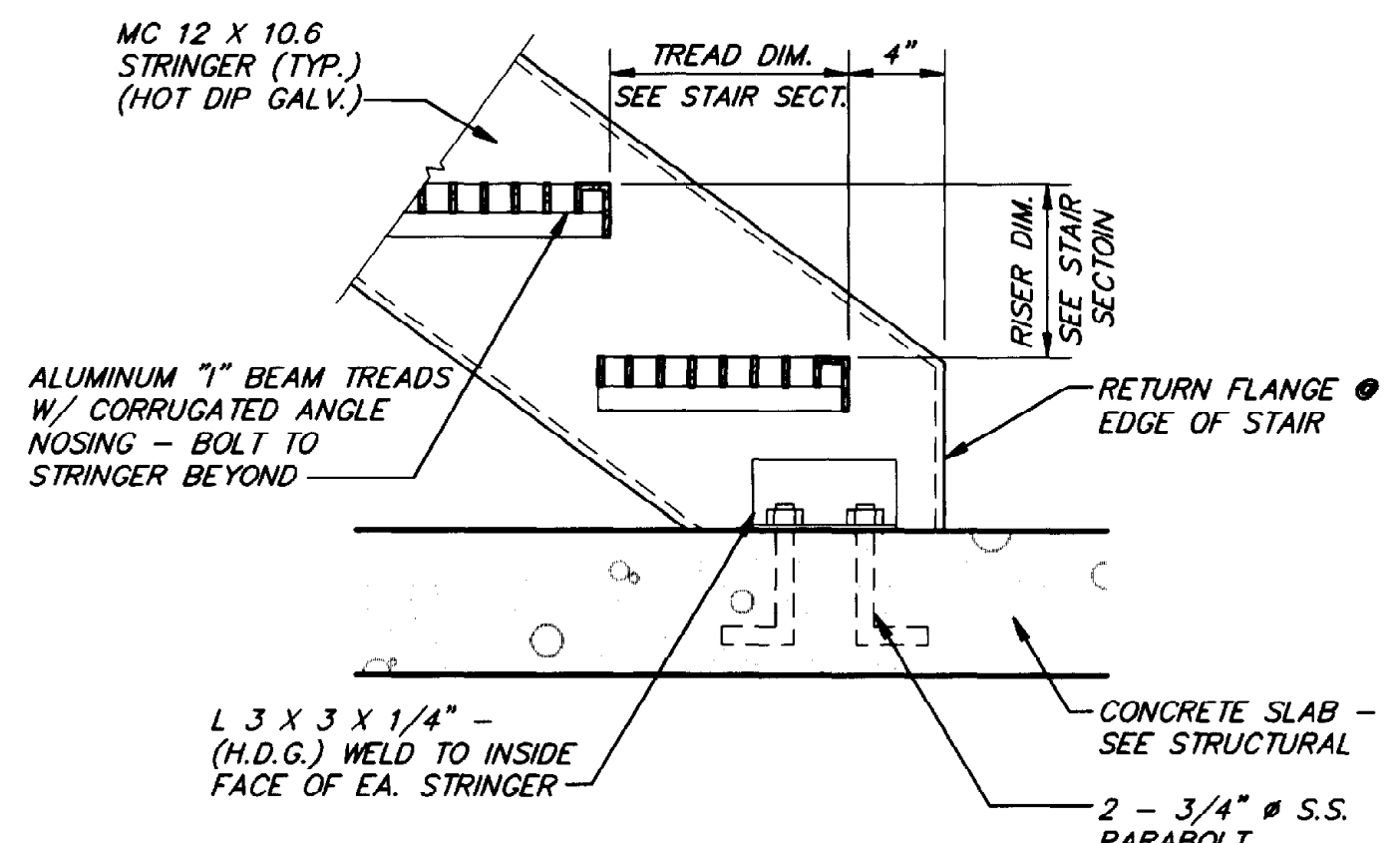
REMOVABLE RAIL MOUNTING DETAIL (3/A3)
SCALE: 1 1/2" = 1'-0"



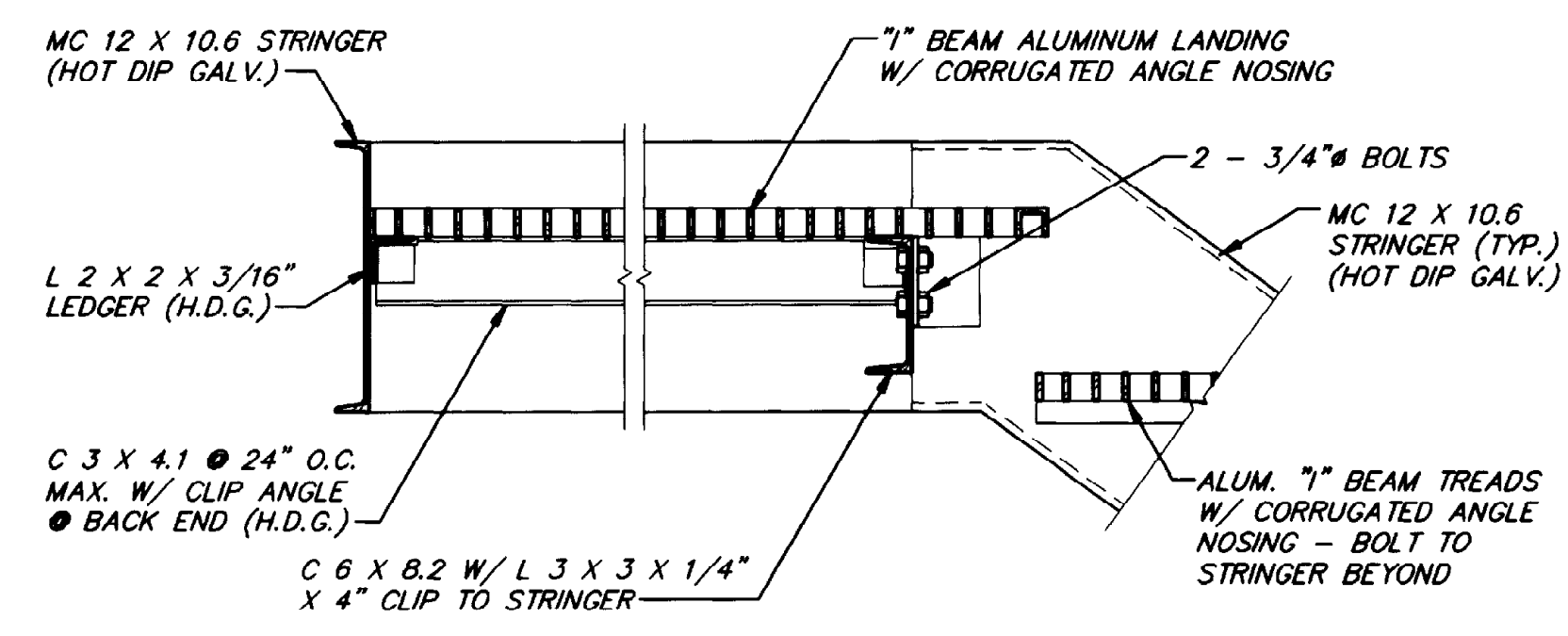
RAIL/STRINGER DETAIL (4/A3)
SCALE: 3" = 1'-0"



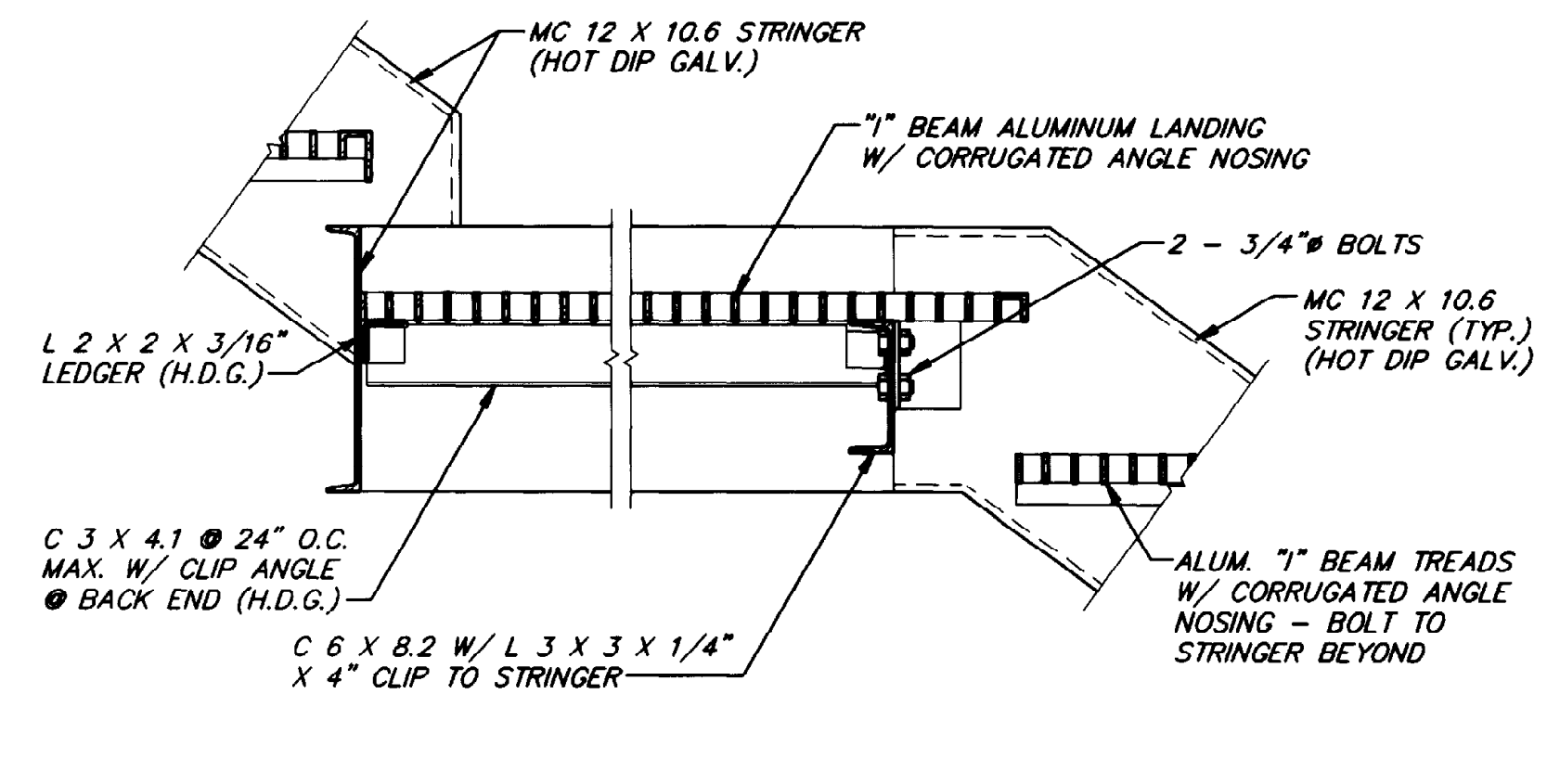
STAIR DETAIL (5/A3)
SCALE: 1 1/2" = 1'-0"



STAIR DETAIL (6/A3)
SCALE: 1 1/2" = 1'-0"

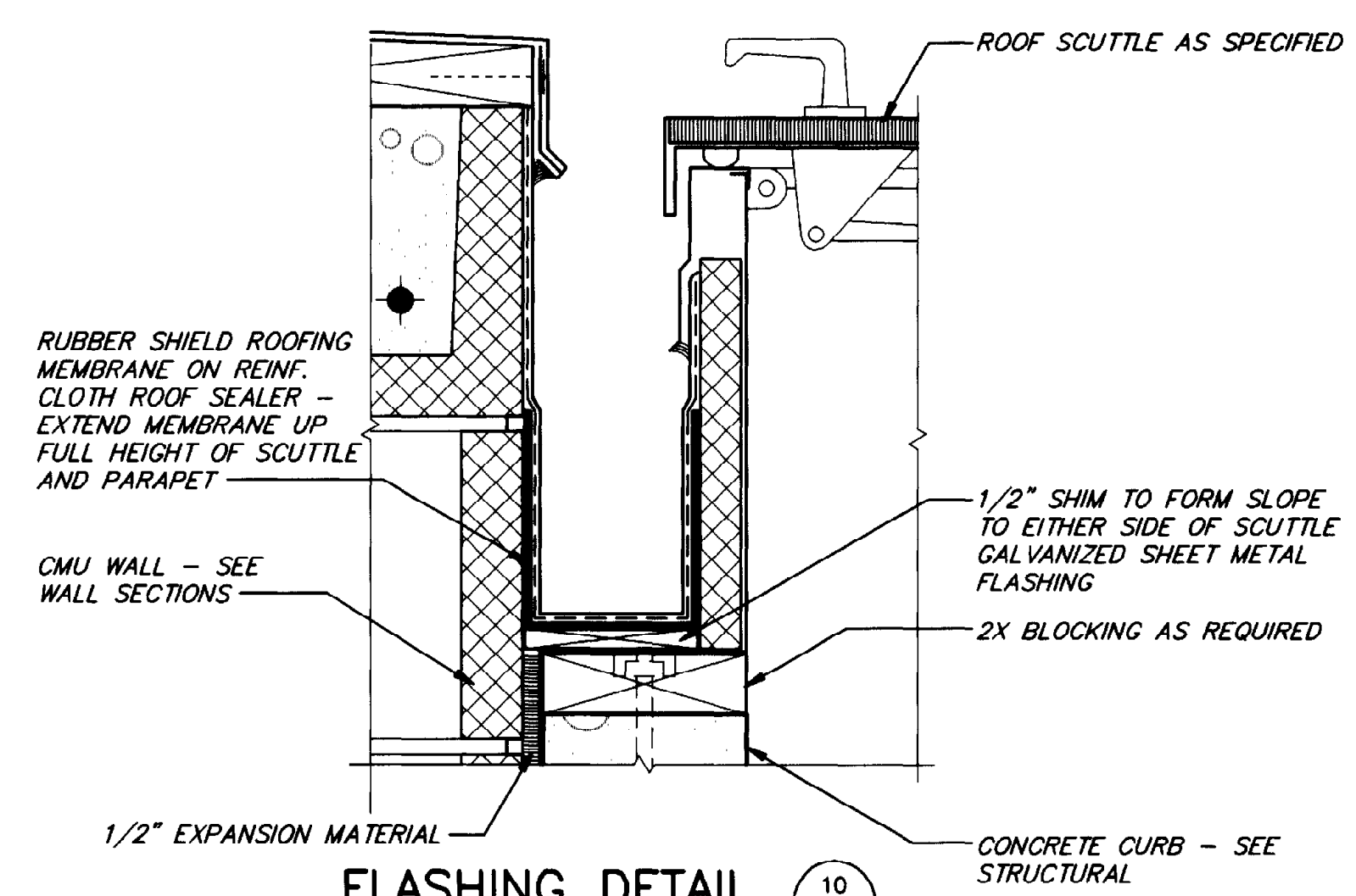


LANDING DETAIL (7/A3)
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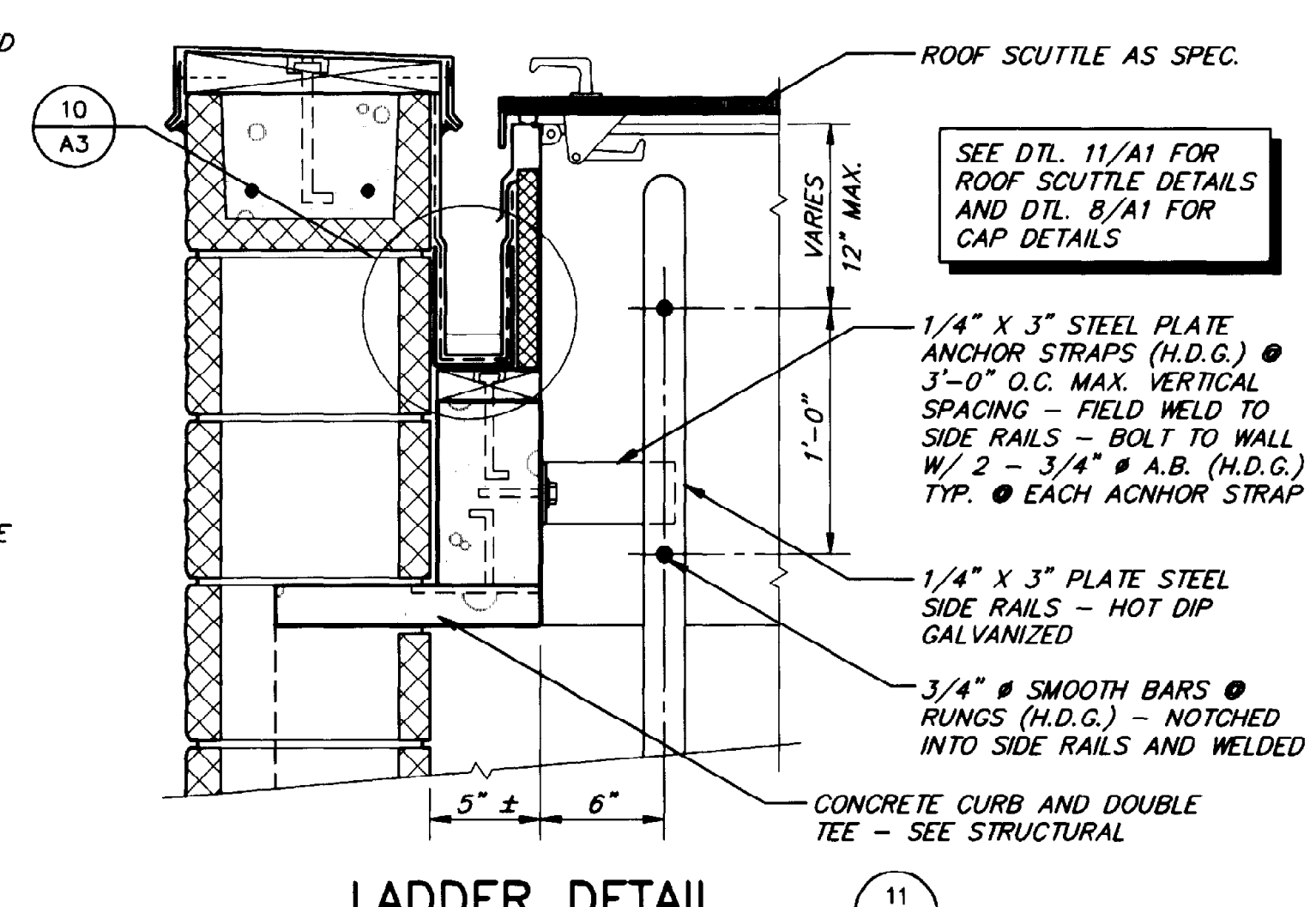


INTERMEDIATE LANDING DETAIL (8/A3)
SCALE: 1 1/2" = 1'-0"

NOT USED



FLASHING DETAIL (10/A3)
SCALE: 3" = 1'-0"



LADDER DETAIL (11/A3)
SCALE: 1 1/2" = 1'-0"

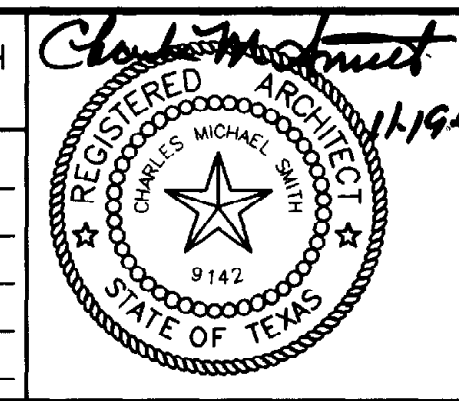
DETAIL (9/A3)
SCALE:

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PSA PRESTIDGE SMITH ARCHITECTS, INC.
600 SUNLAND PARK DRIVE, SUITE 2-300
EL PASO, TEXAS 79915-8331-8026

BC Brown and Caldwell Consultants
Phoenix, Arizona
SUBMITTED: Robert S. Schell DATE: 11/20/92
APPROVED: Samuel W. Hamilton DATE: 11/20/92
APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)
FILE
DRAWN
DESIGNED
CHECKED
CHECKED

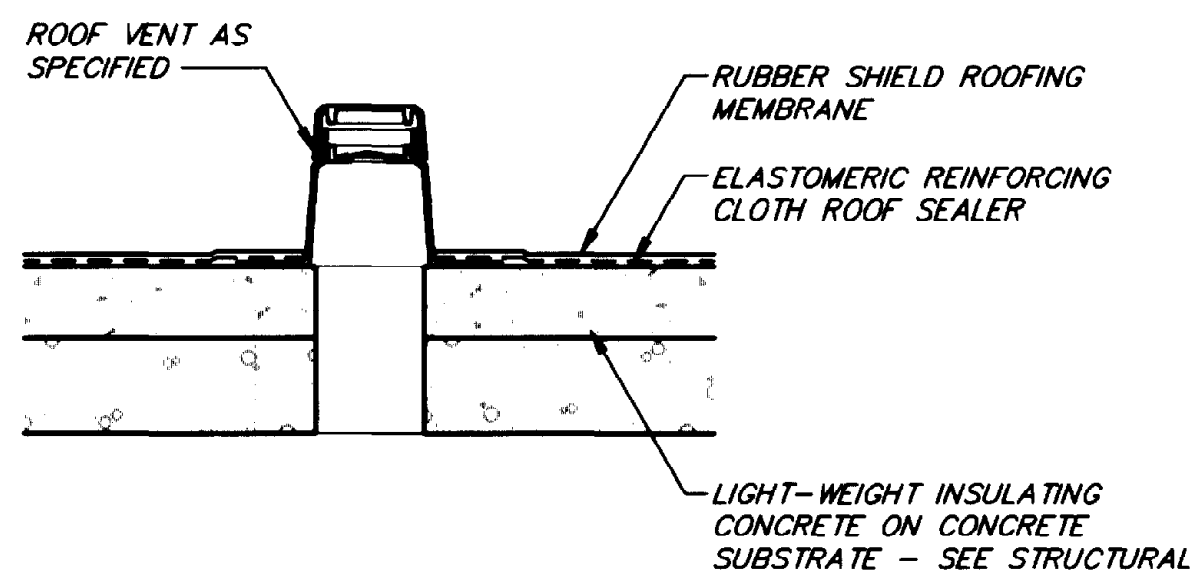


REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

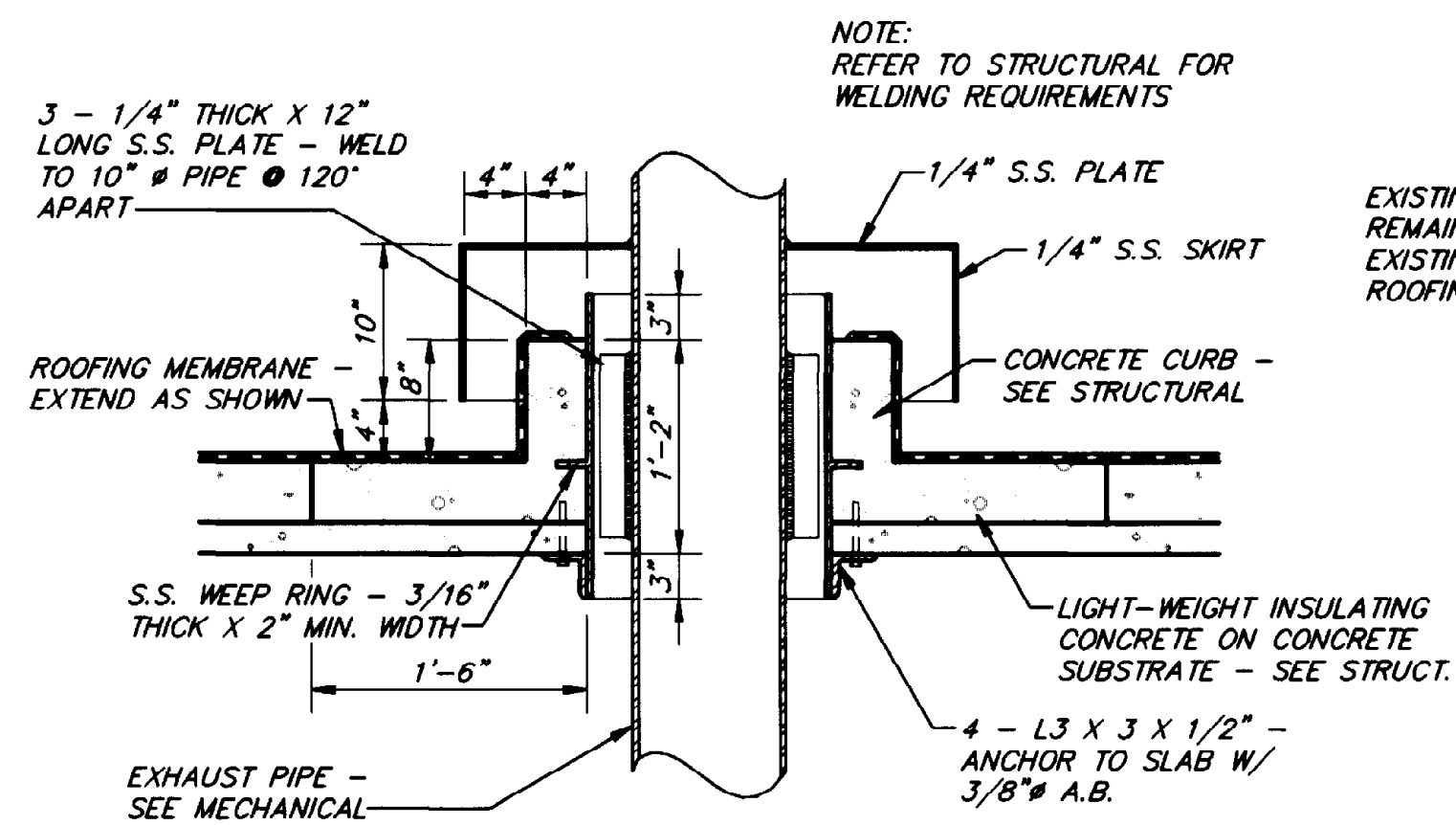
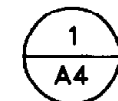
EL PASO WATER UTILITIES
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

GENERAL DETAILS
PROJECT NUMBER
DRAWING NUMBER
A3
SHEET NUMBER
84

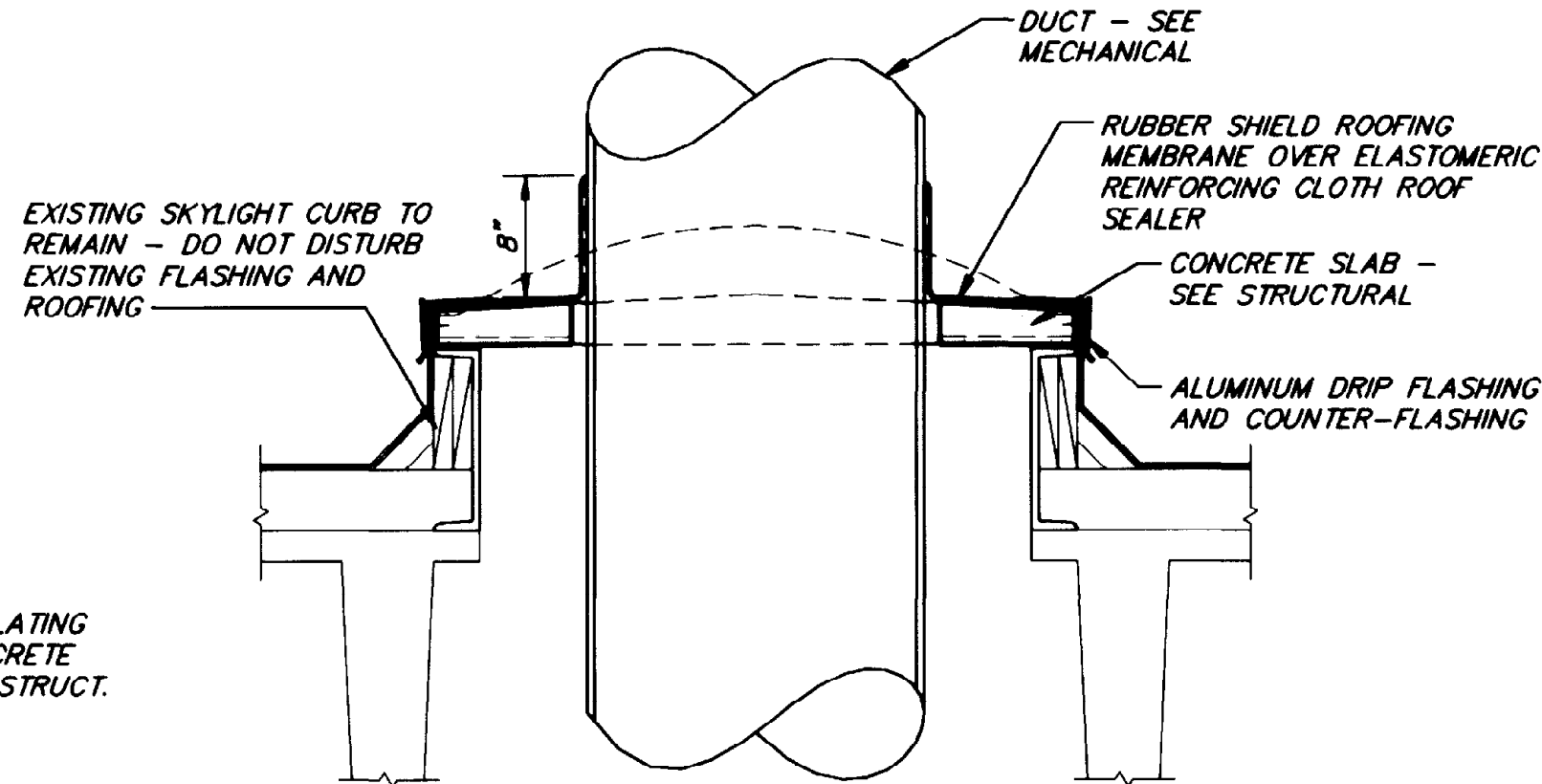
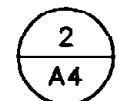
91150ETS 10/15/92 14:56



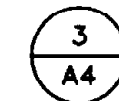
ROOF VENT DETAIL
SCALE: 1 1/2" = 1'-0"



EXHAUST PENETRATION
SCALE: 1" = 1'-0"



**DUCT PENETRATION
SKYLIGHT**
SCALE: 1" = 1'-0"

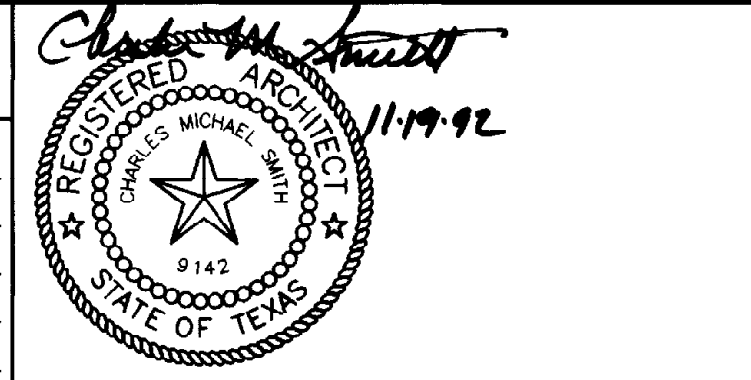


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PSA PRESTIDGE SMITH ARCHITECTS, INC.
600 SUNLAND PARK DRIVE SUITE 2-300
EL PASO, TEXAS 79906

BC Brown and Caldwell Consultants
Phoenix, Arizona
SUBMITTED: *Robert S. Schulz* DATE: 11/20/92
APPROVED: *Michael J. Brown* DATE: 11-30-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)
FILE _____
DRAWN _____
DESIGNED _____
CHECKED _____
CHECKED _____



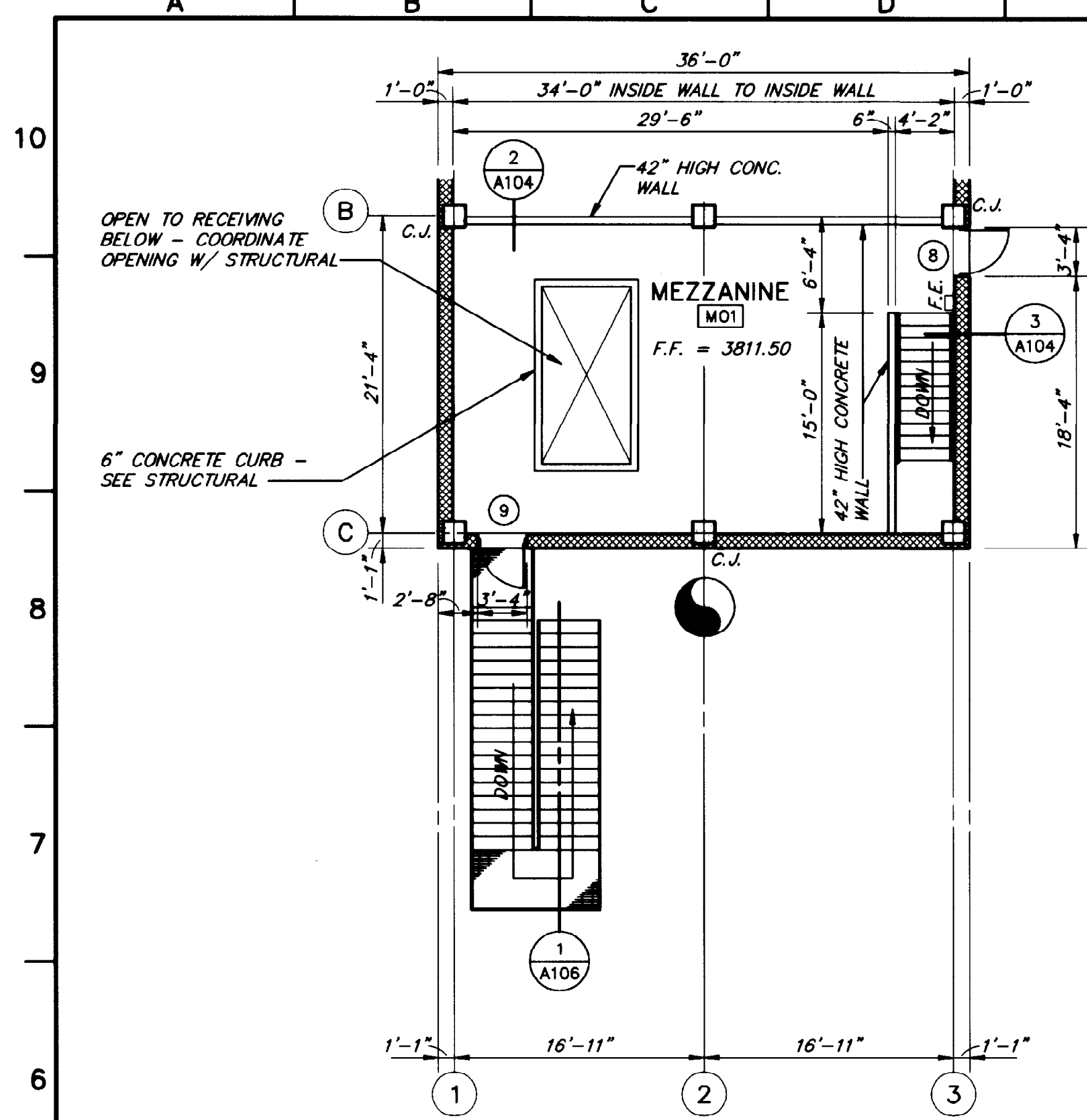
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

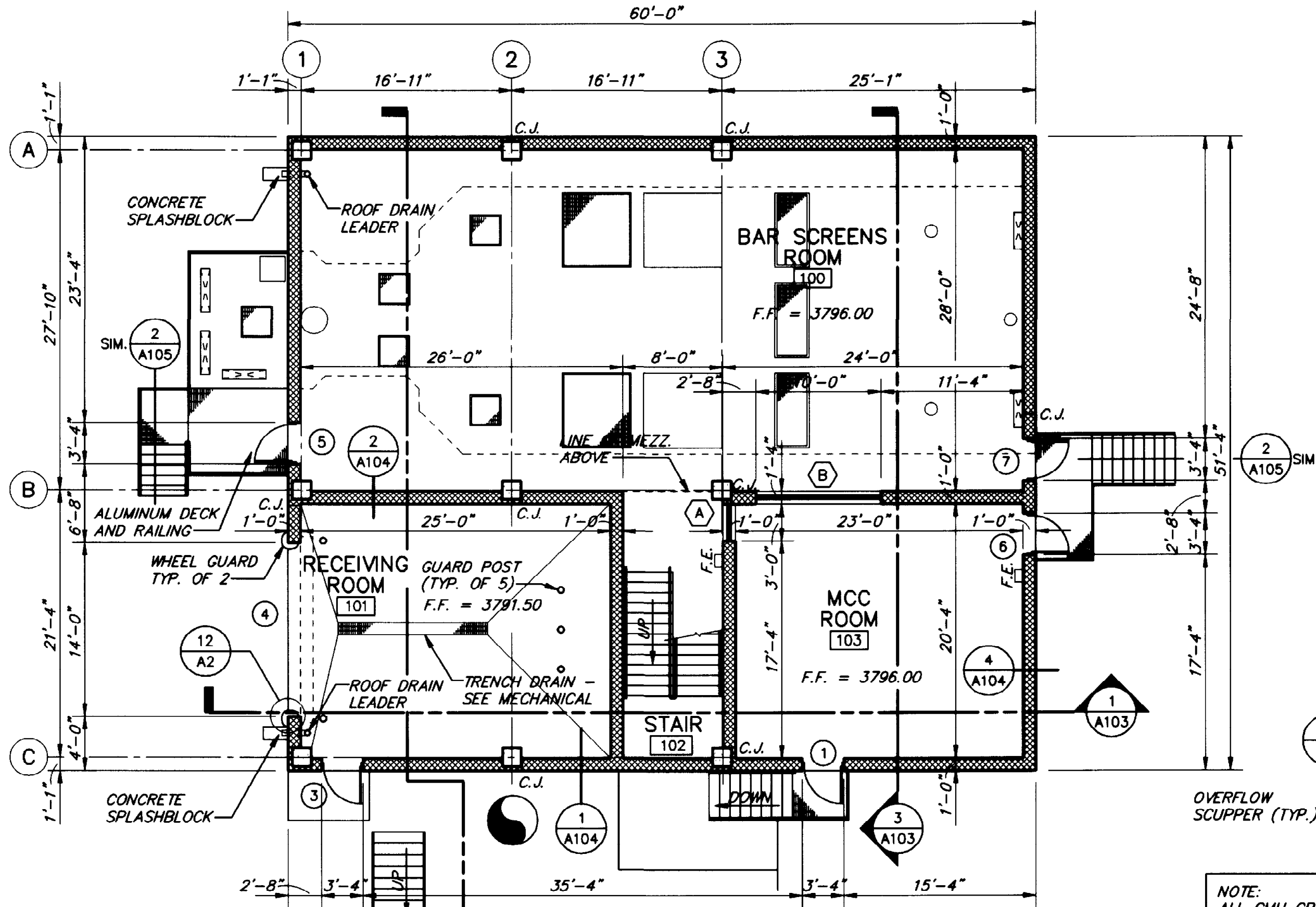
GENERAL DETAILS

PROJECT NUMBER	
DRAWING NUMBER	A4
SHEET NUMBER	85

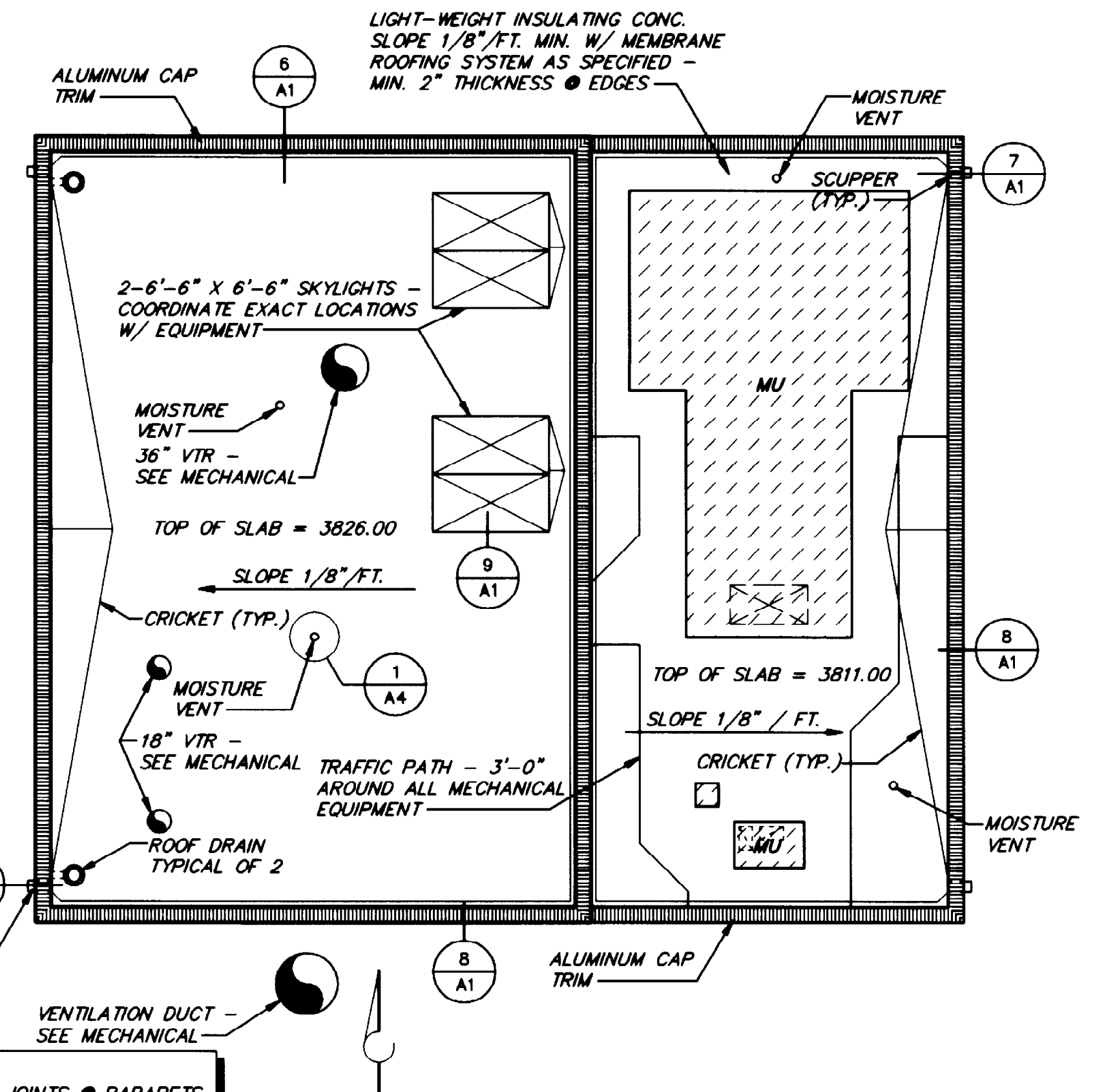
91150DET4 10/15/92 15:01



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



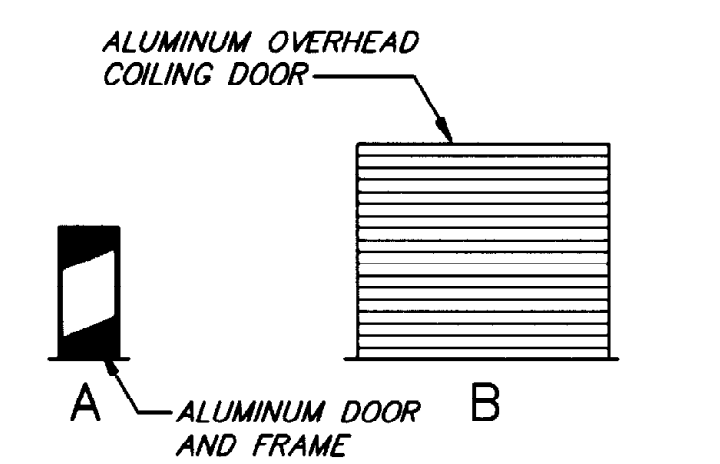
FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"



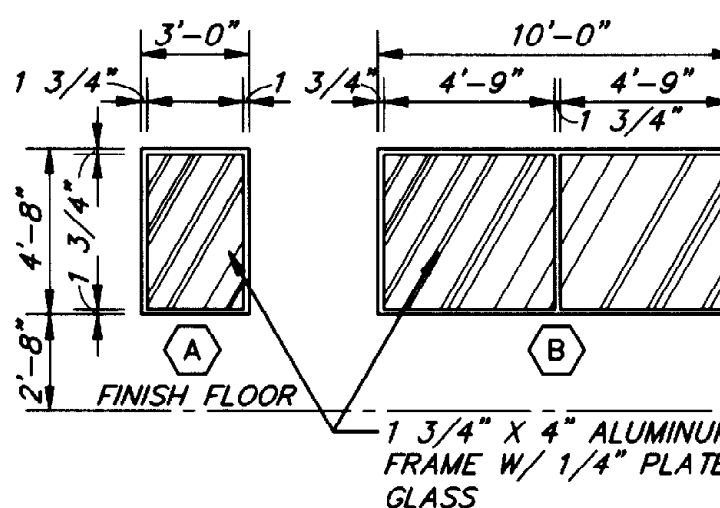
ROOF PLAN
SCALE: 1/8" = 1'-0"

NO.	NAME	FLOOR		BASE		NORTH WALL		EAST WALL		SOUTH WALL		WEST WALL		CEILING		CLG. HT.	REMARKS
		1	2	1	2	1	2	1	2	1	2	1	2	1	2		
100	BAR SCREEN ROOM	2	2	2	2	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	4,5	28'-0"	
101	RECEIVING ROOM	2	2	2	2	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	4,5	28'-0"	
102	STAIRS	2	2	2	2	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	4,5	19'-0"	
103	MCC ROOM	2	2	2	2	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	4,5	8'-0"	
BASEMENT LEVEL																	
B01	GRIT PUMP ROOM	2	2	2	2	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	4,5	12'-0"	
MEZZANINE LEVEL																	
MO1	MEZZANINE	2	2	2	2	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	4,5	12'-0"	

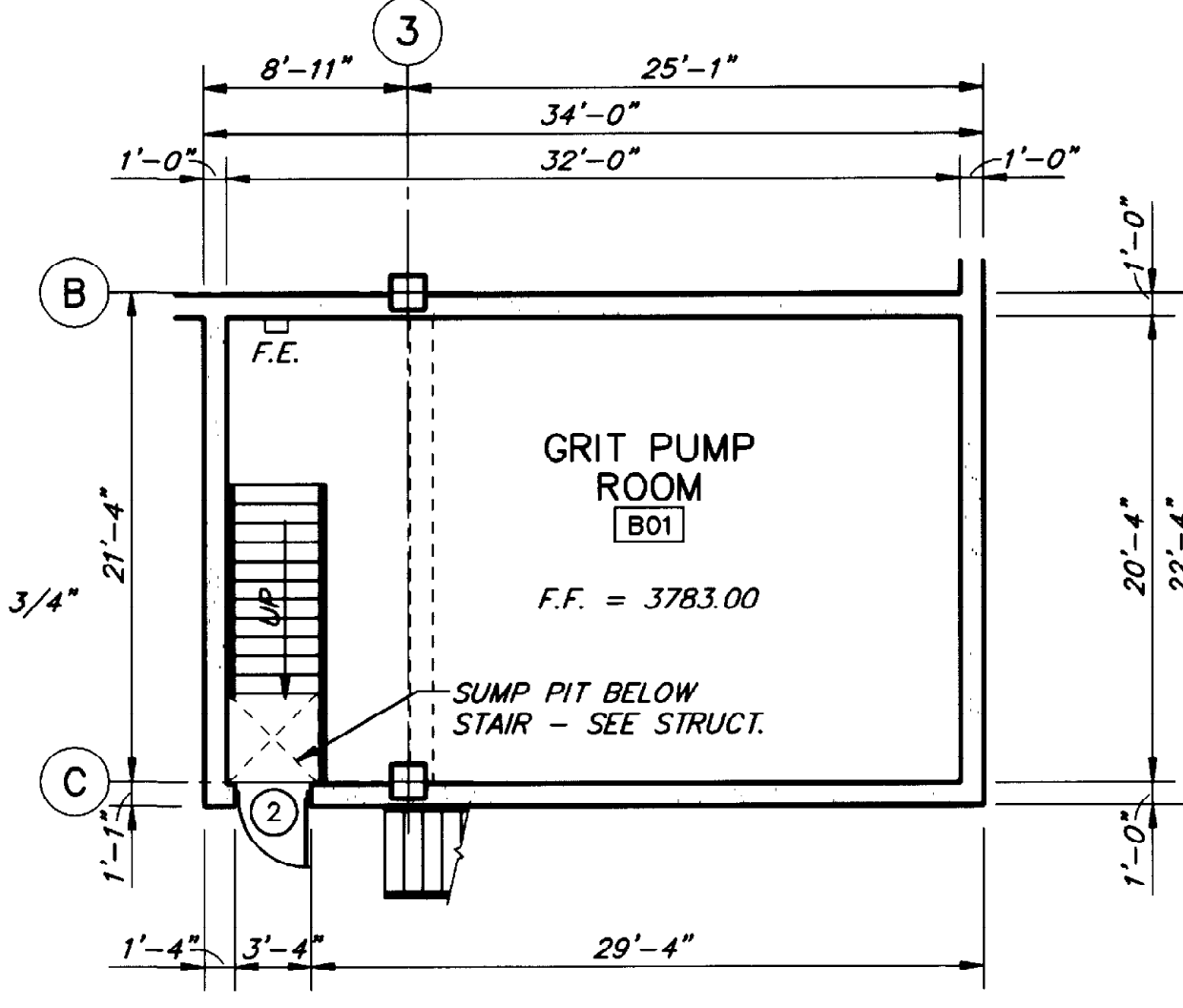
NO.	SIZE	TYPE	DOOR		FRAME		H/W NO.	LABEL	HEAD	JAMB	SILL	REMARKS
			MATERIAL	FINISH	MATERIAL	FINISH						
1	3'-0" X 7'-2" X 1 3/4"	A	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	2		2/A2	6/A2		
2	3'-0" X 7'-2" X 1 3/4"	A	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	2		2/A2	6/A2		
3	3'-0" X 7'-2" X 1 3/4"	A	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	2		2/A2	6/A2		
4	14'-0" X 12'-0" OHOD	B	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	3		4/A2	8/A2		
5	3'-0" X 7'-2" X 1 3/4"	A	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	2		2/A2	6/A2		
6	3'-0" X 7'-2" X 1 3/4"	A	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	2		2/A2	6/A2		
7	3'-0" X 7'-2" X 1 3/4"	A	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	2		2/A2	6/A2		
8	3'-0" X 7'-2" X 1 3/4"	A	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	2		2/A2	6/A2		
9	3'-0" X 7'-2" X 1 3/4"	A	ALUM.	CLR. ANOD.	ALUM.	CLR. ANOD.	2		2/A2	6/A2		



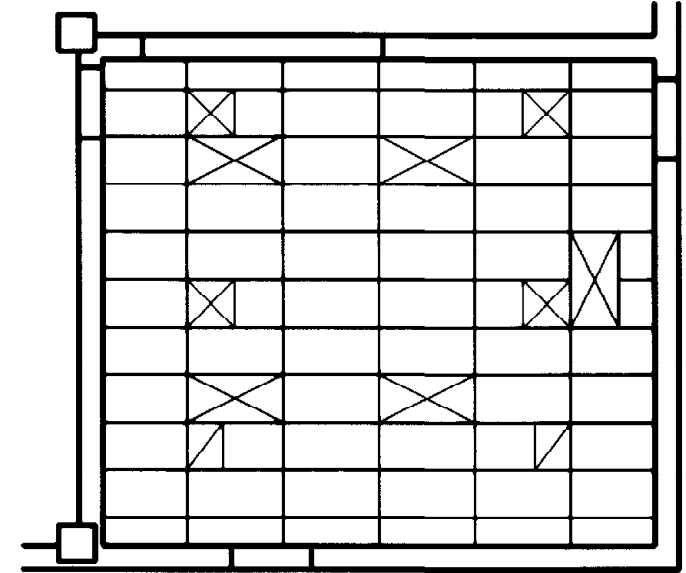
DOOR TYPES
SCALE: NTS



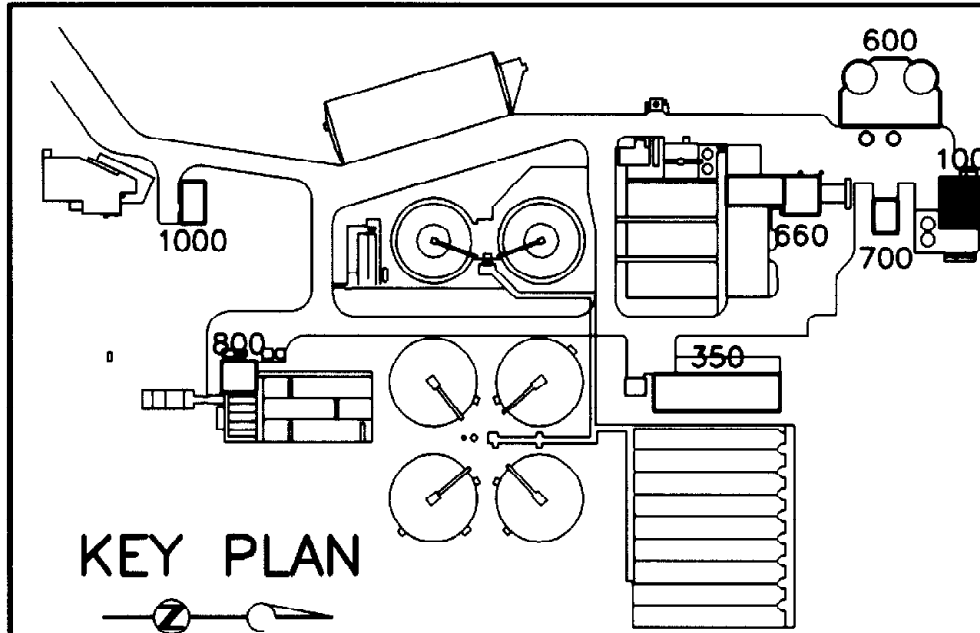
WINDOW TYPES
SCALE: NTS



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



PARTIAL REFLECTED CEILING PLAN @ MCC
SCALE: 1/8" = 1'-0"



KEY PLAN

"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."

9115A101 10/26/92 18:58

PSA PRESTIDGE SMITH ARCHITECTS, INC.
600 SUNLAND PARK DRIVE SUITE 2-300
EL PASO, TEXAS 79915-8389

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: 11-20-92
APPROVED: _____ DATE: _____

FILE _____
DRAWN _____
DESIGNED _____
CHECKED _____
CHECKED _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

REGISTERED ARCHITECT
MICHAEL SWINNEY
STATE OF TEXAS
11.19.92

REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

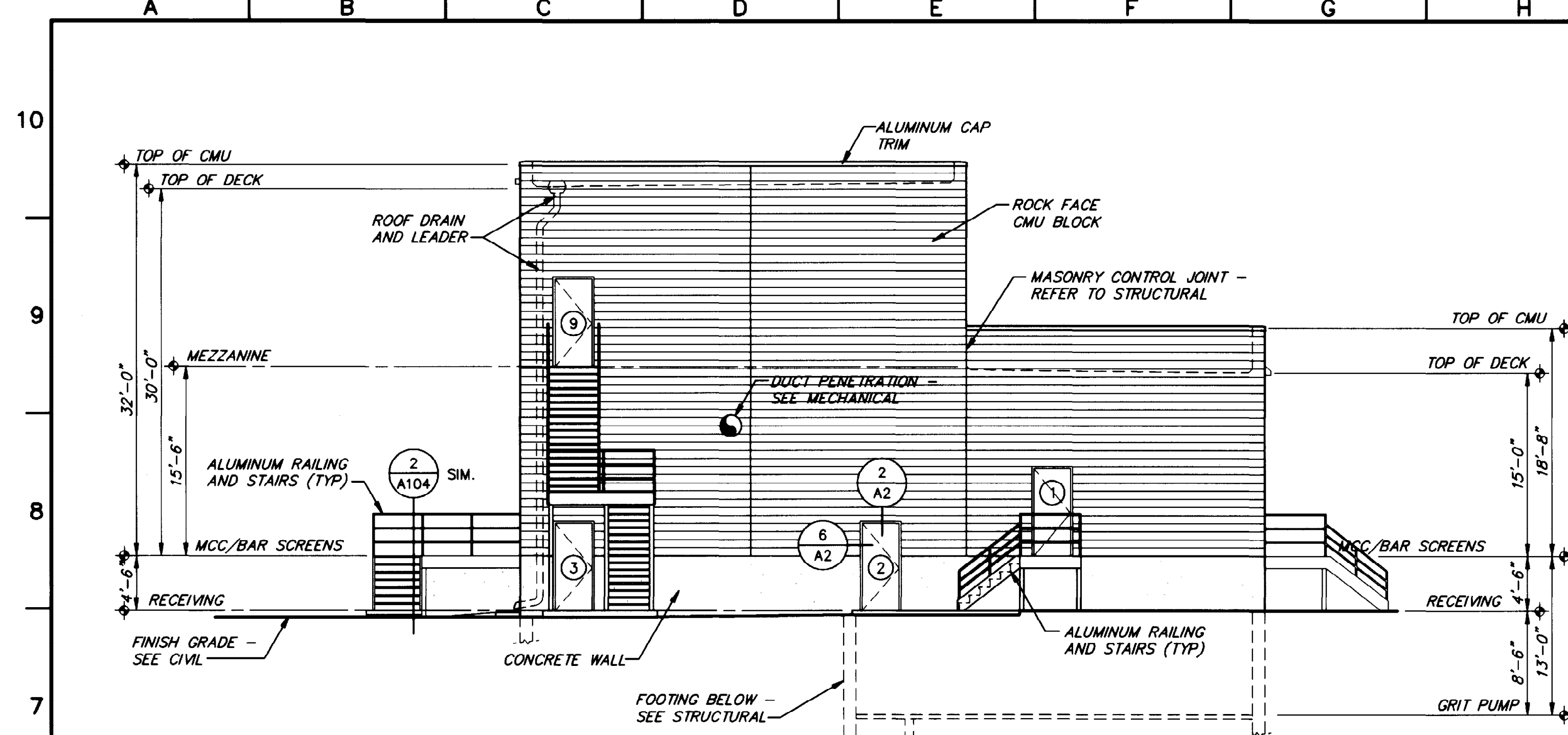
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

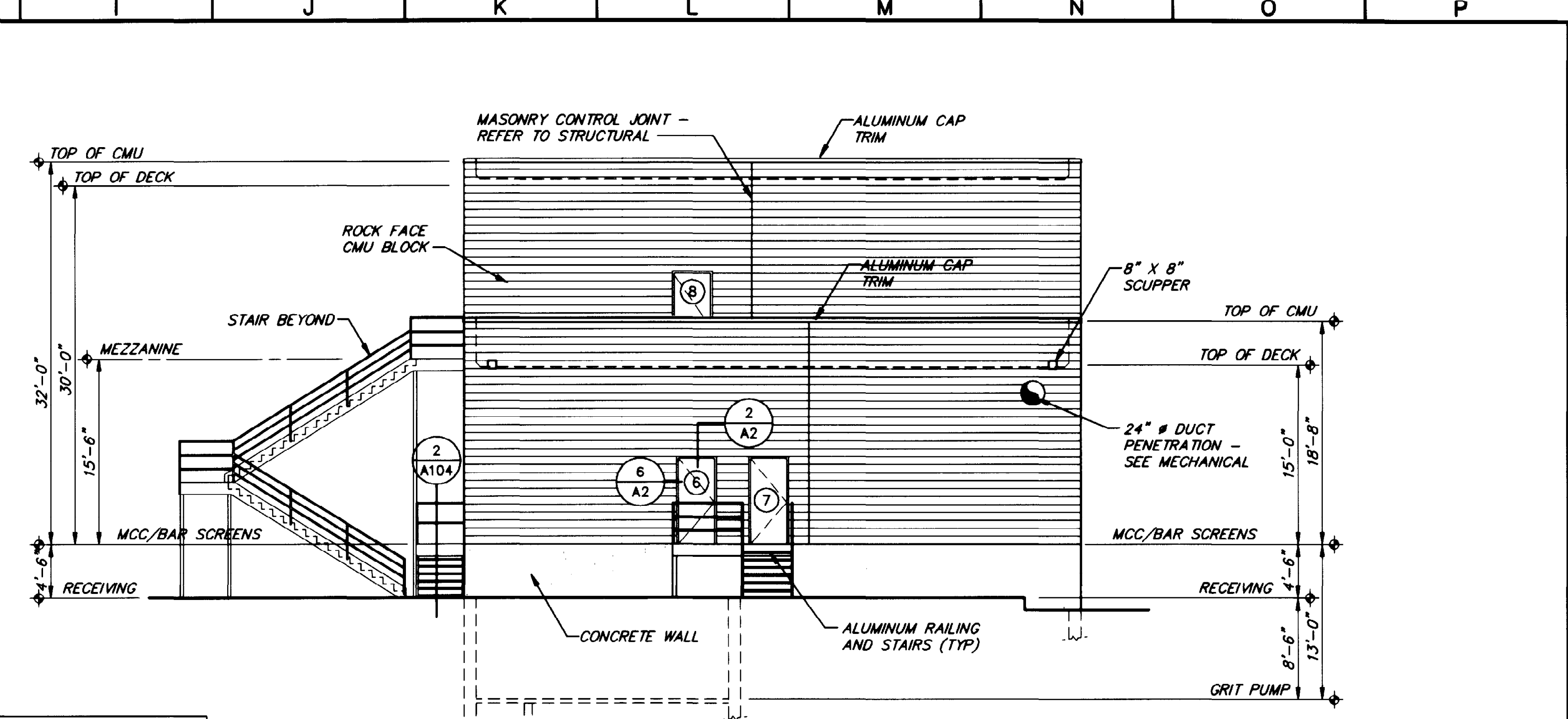
HEADWORKS

FIRST, MEZZ. AND BASEMENT PLANS

PROJECT NUMBER _____
DRAWING NUMBER **A101**
SHEET NUMBER **86**

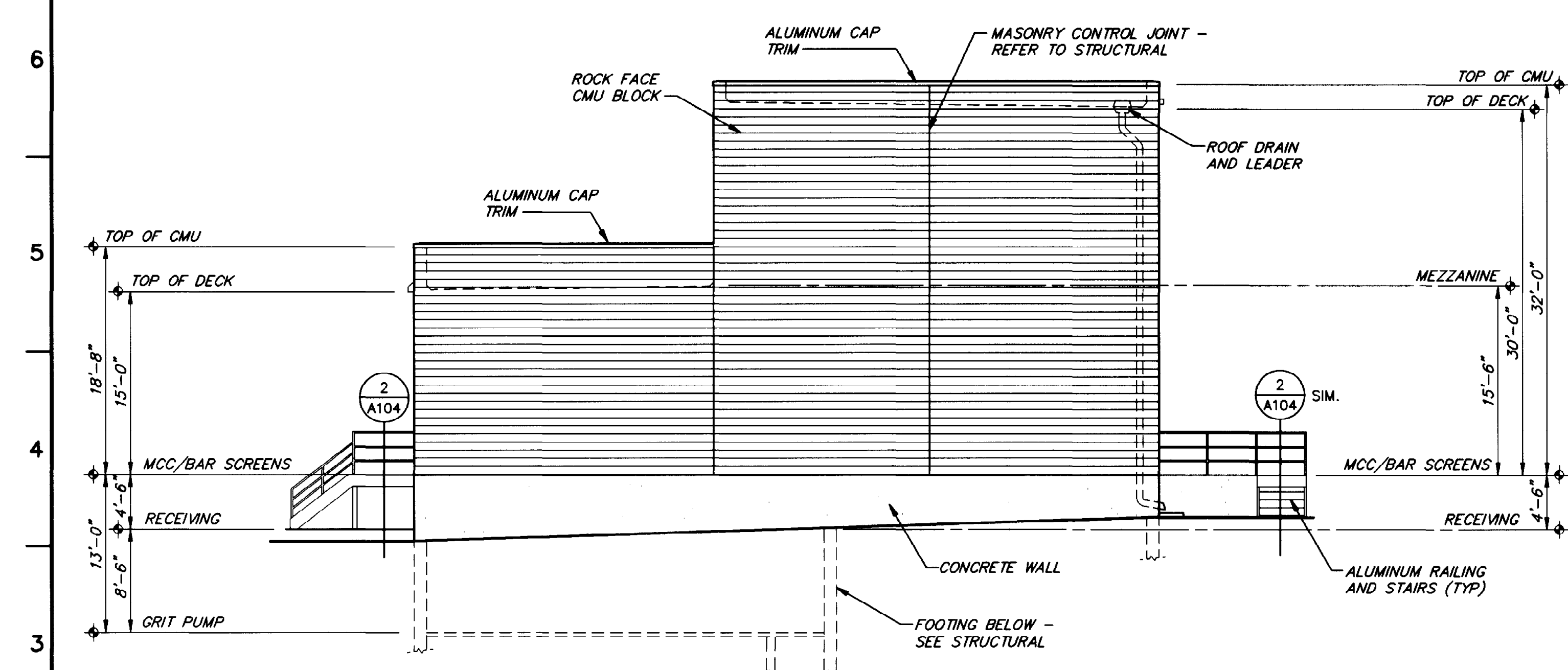


SOUTH ELEVATION (1)
SCALE: 1/8" = 1'-0"

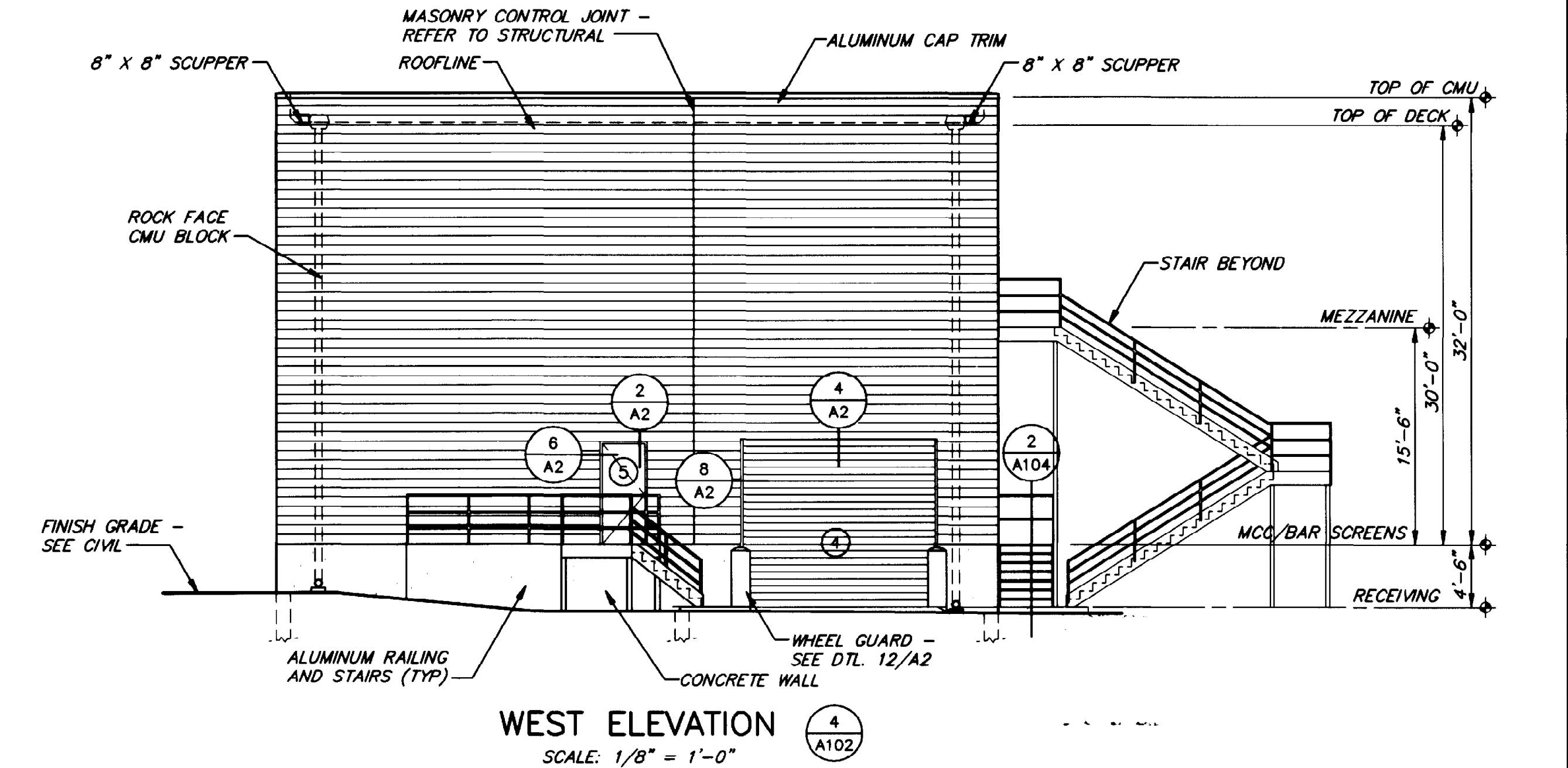


EAST ELEVATION (2)
SCALE: 1/8" = 1'-0"

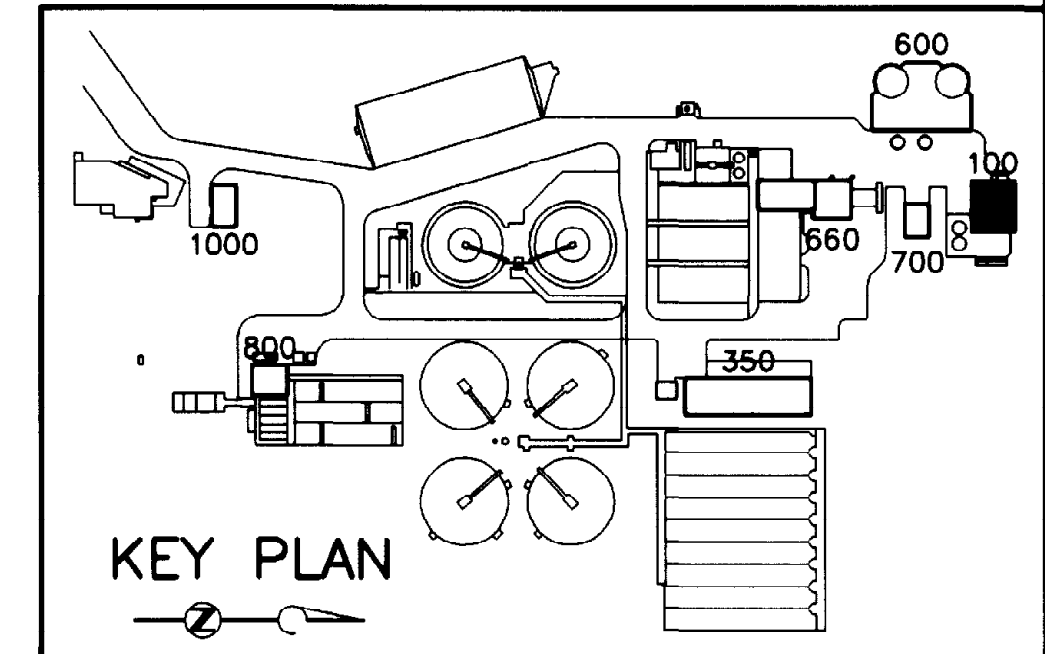
NOTE:
ALL EXTERIOR CMU SHALL RECEIVE CLEAR WATER REPELLANT AS SPECIFIED



NORTH ELEVATION (3)
SCALE: 1/8" = 1'-0"



WEST ELEVATION (4)
SCALE: 1/8" = 1'-0"



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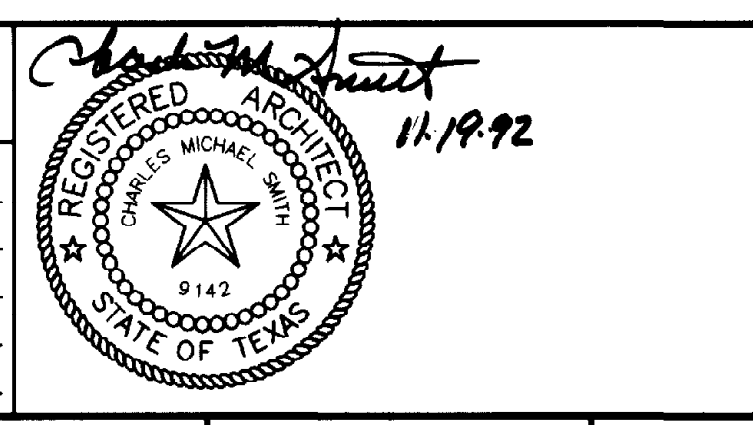
PSA PRESTIDGE SMITH ARCHITECTS, INC.
600 SUNLAND PARK DRIVE, SUITE 2-300
EL PASO, TEXAS 79938-9928

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: 11/20/92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE _____
DRAWN _____
DESIGNED _____
CHECKED _____
CHECKED _____



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

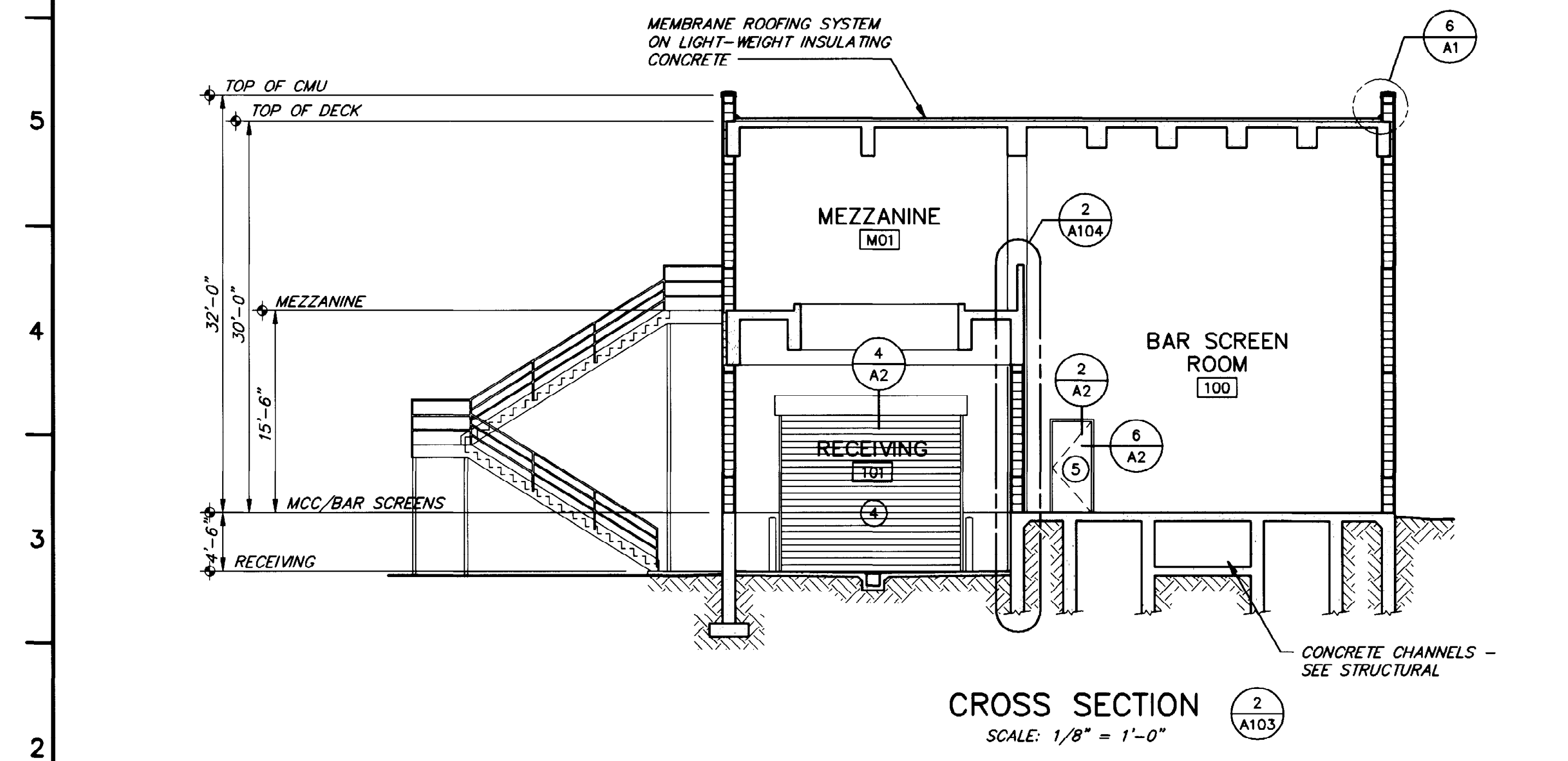
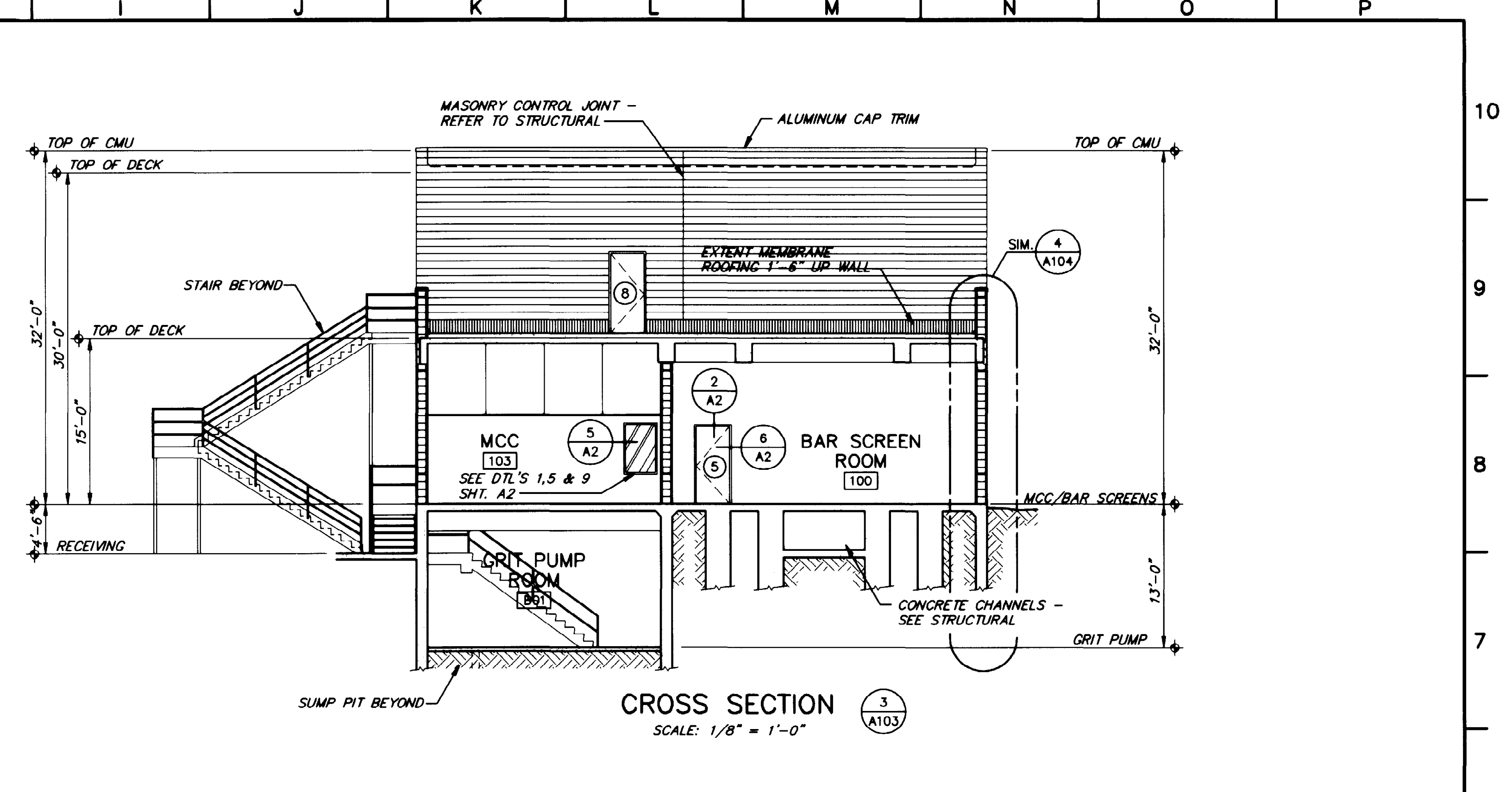
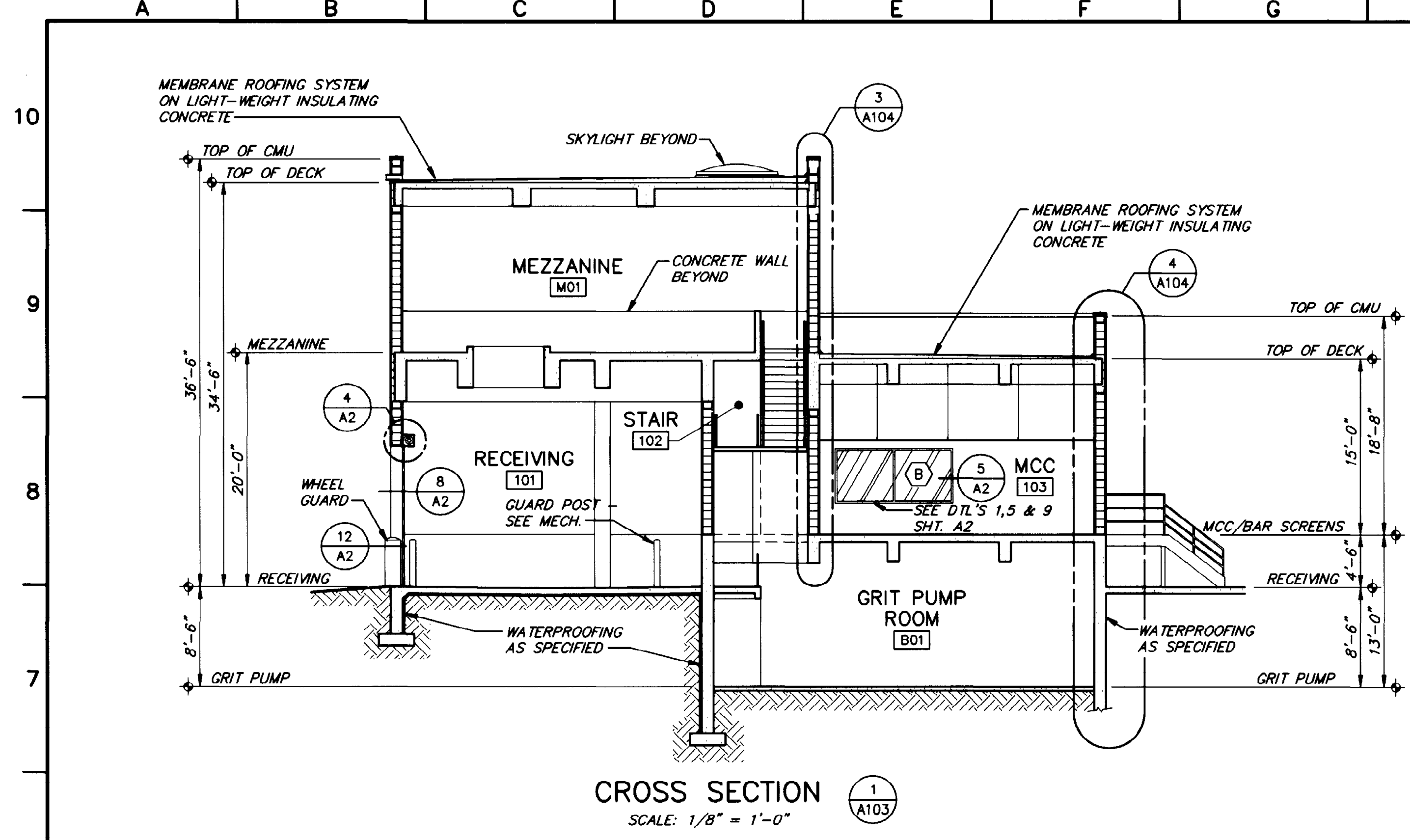
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

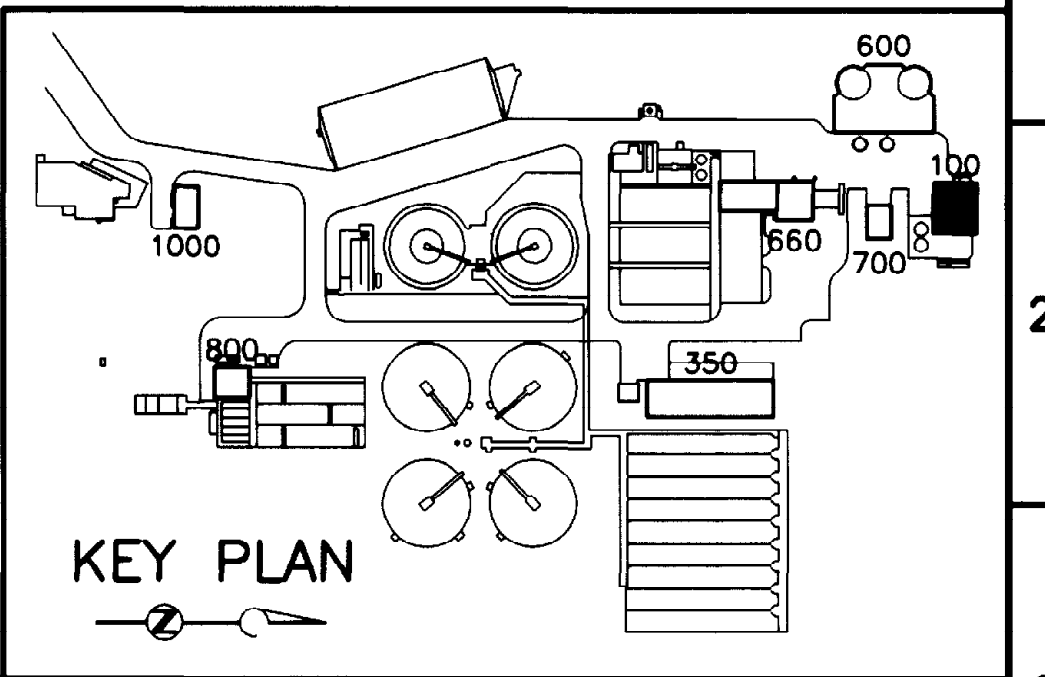
EXTERIOR ELEVATIONS

PROJECT NUMBER	600
DRAWING NUMBER	A102
SHEET NUMBER	87

915A102 10/22/92 10:31



"THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONSULTANTS, INC. THE STAFF AND CUSTOMARY LEVEL OF DETAIL AND INFORMATION WAS NOT INDEPENDENTLY VERIFIED BY BROWN AND CALDWELL AND CONSULTANTS, INC. THERE IS NO ONGOING PROGRAM TO UPDATE THIS DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS."



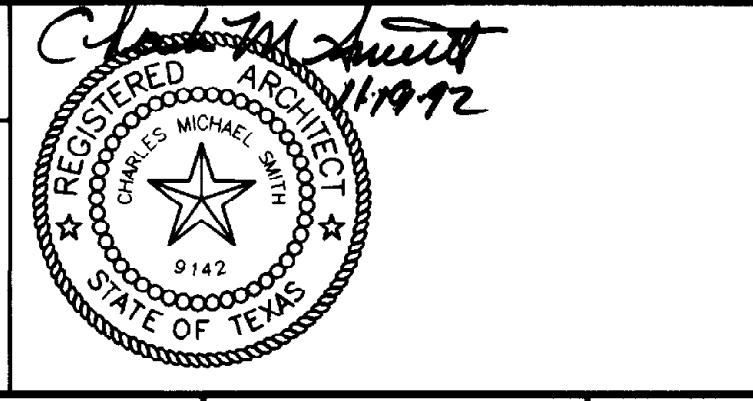
PSA PRESTIDGE SMITH ARCHITECTS, INC.
600 SUNLAND PARK DRIVE, SUITE 2-300
DALLAS, TEXAS 75243-9928

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schlegel* DATE: 11/20/92
APPROVED: *Robert S. Schlegel* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE _____
DRAWN _____
DESIGNED _____
CHECKED _____
CHECKED _____



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

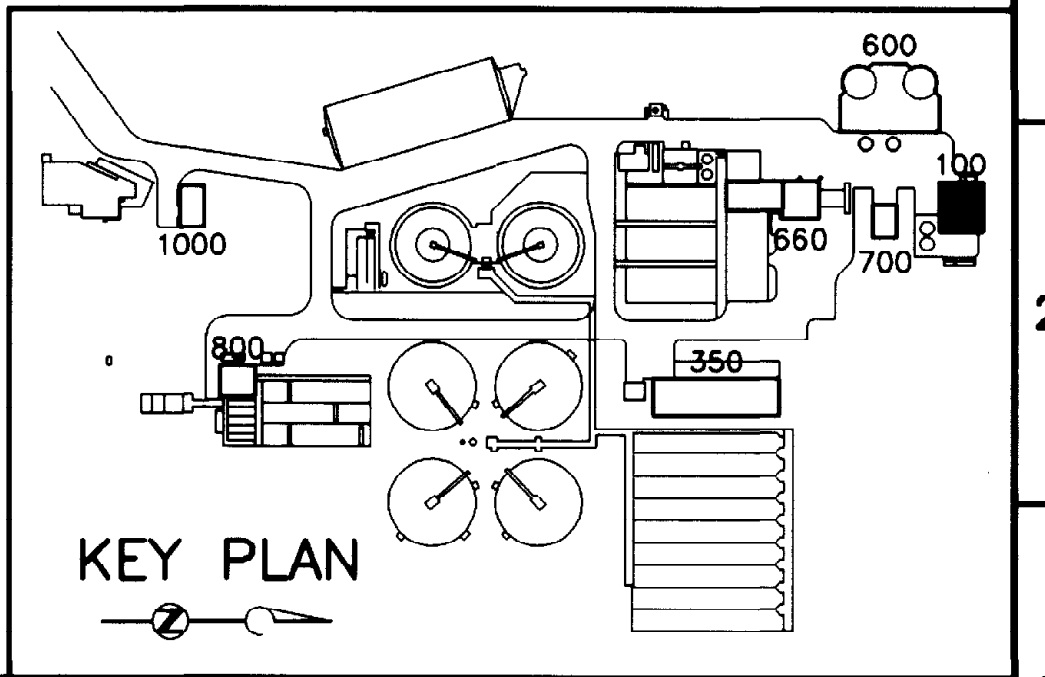
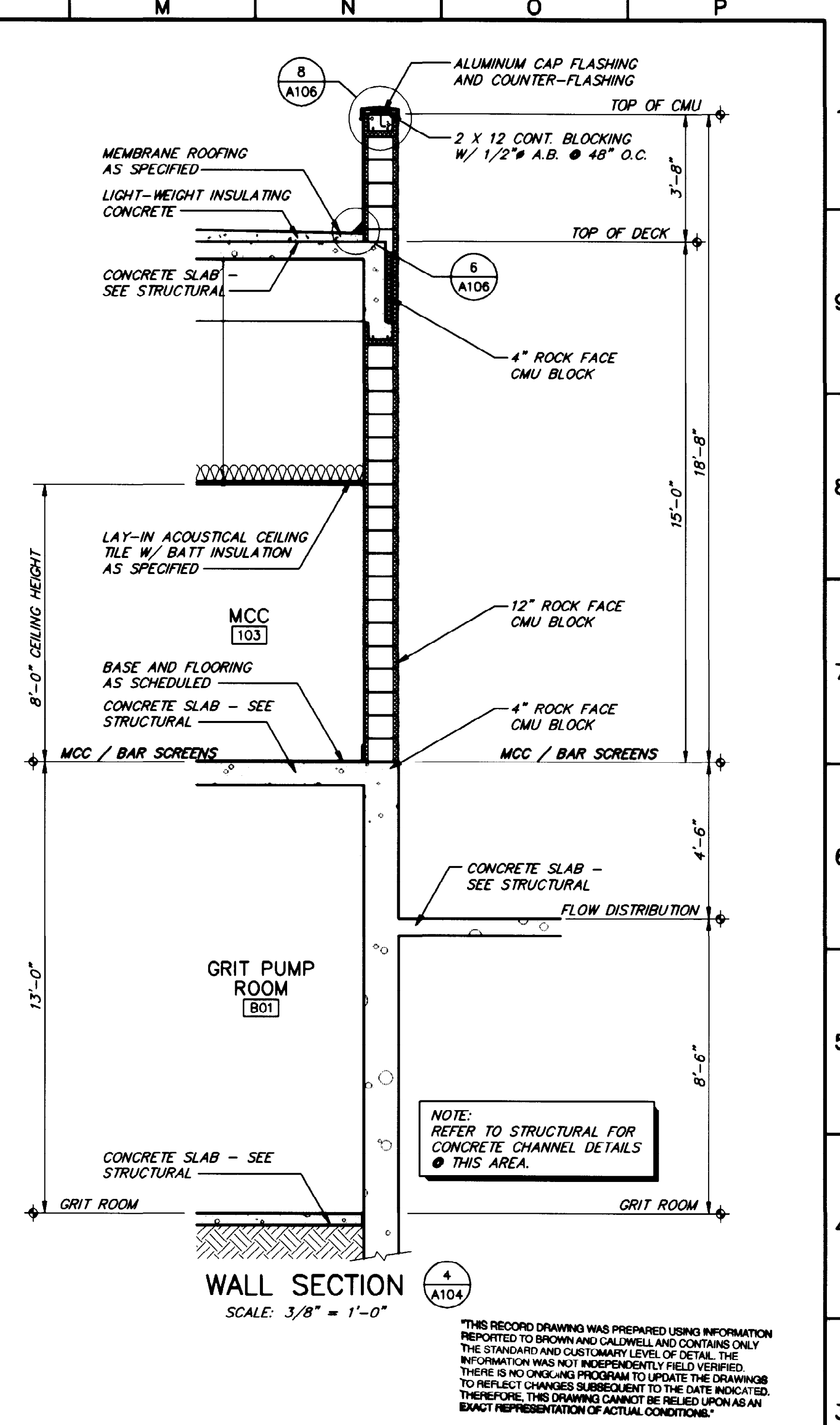
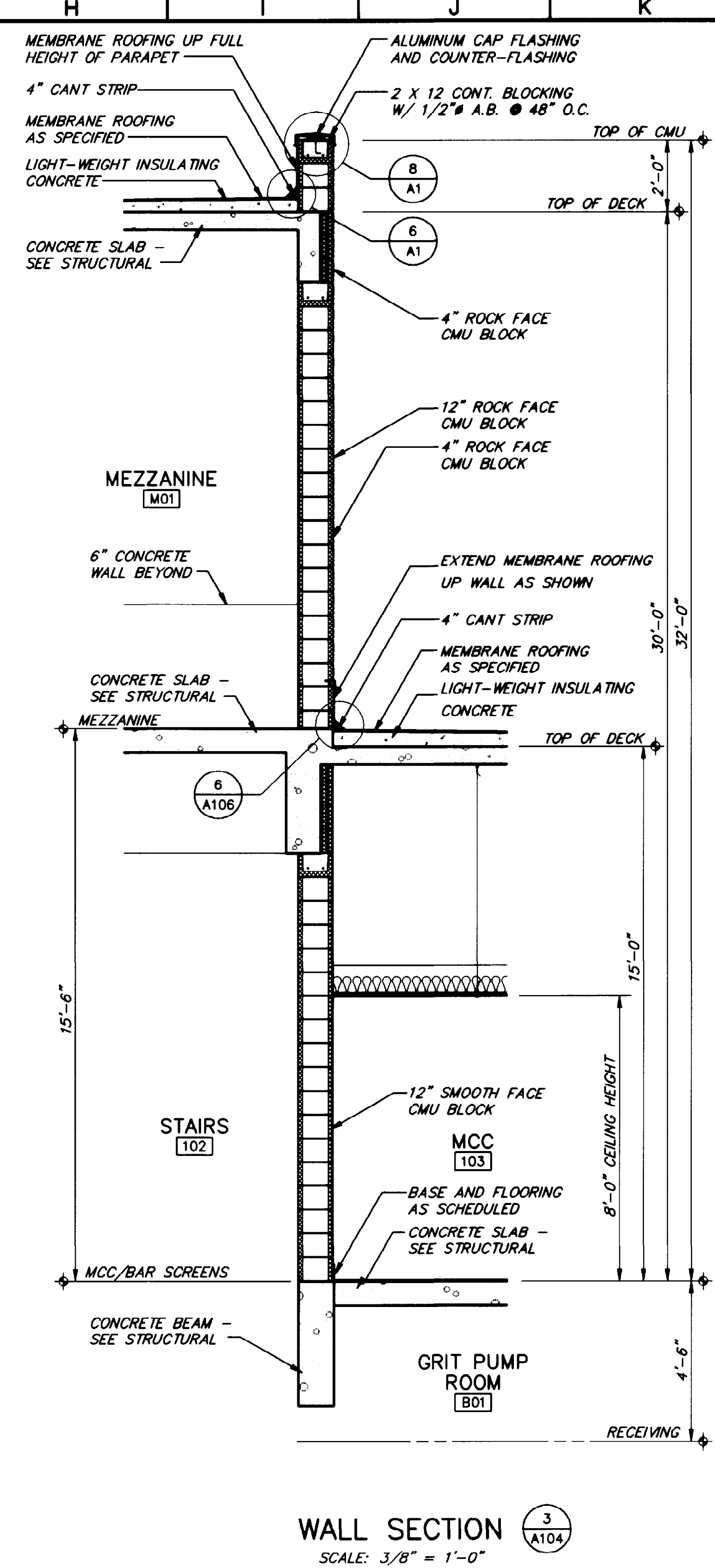
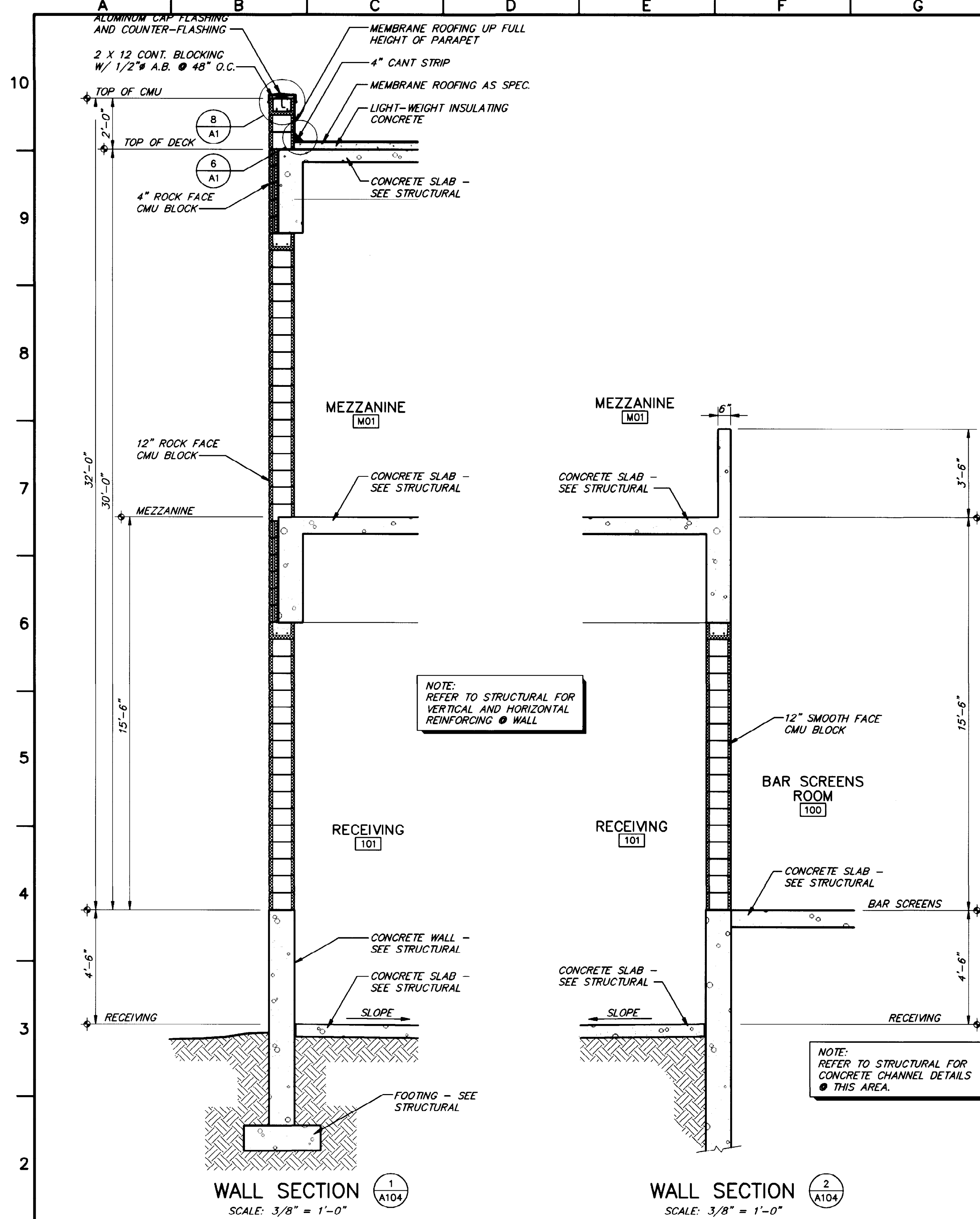
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

CROSS SECTIONS

PROJECT NUMBER _____
DRAWING NUMBER **A103**
SHEET NUMBER **88**



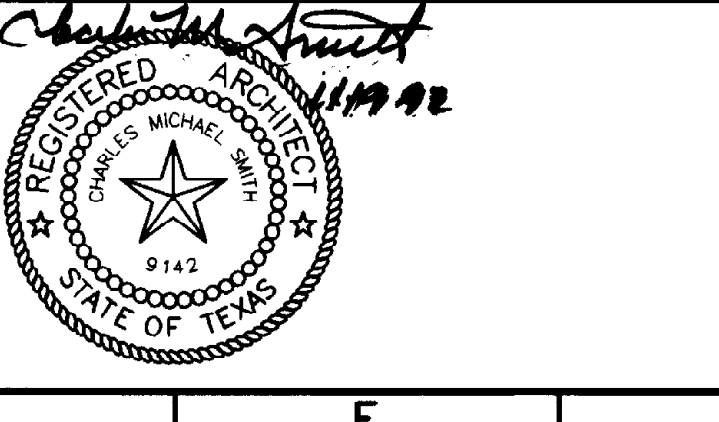
PSA PRESTIDGE SMITH ARCHITECTS, INC.
 600 SUNLAND PARK DRIVE SUITE 2-300
 EL PASO, TEXAS 79912

BC Brown and Caldwell
 Consultants
 Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/21/92
 APPROVED: *[Signature]* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE _____
 DRAWN _____
 DESIGNED _____
 CHECKED _____
 CHECKED _____



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

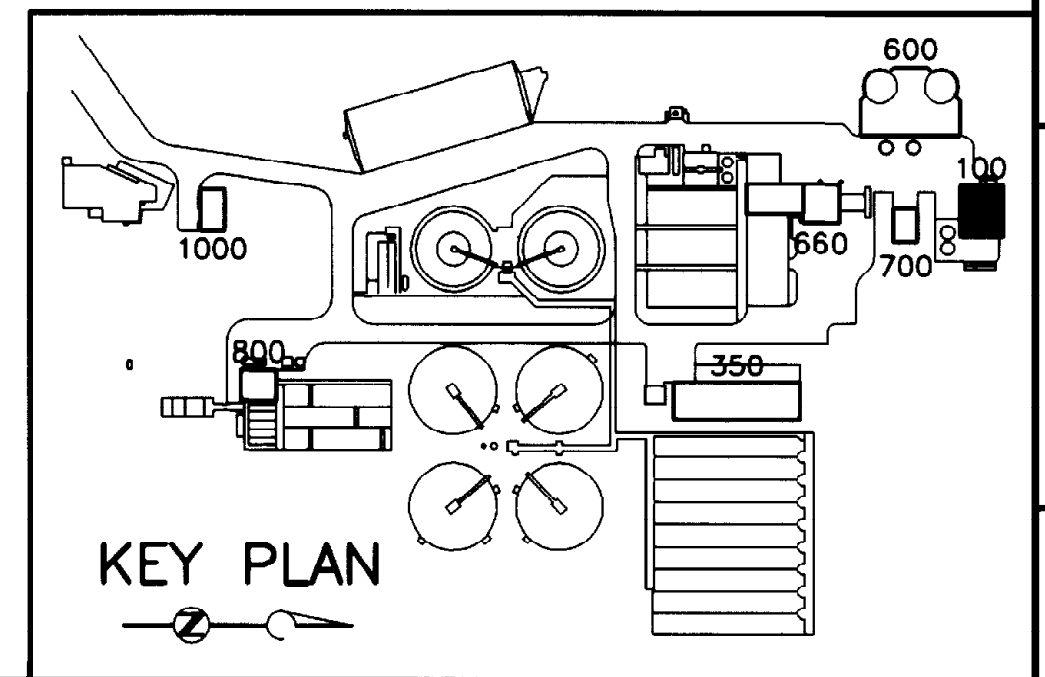
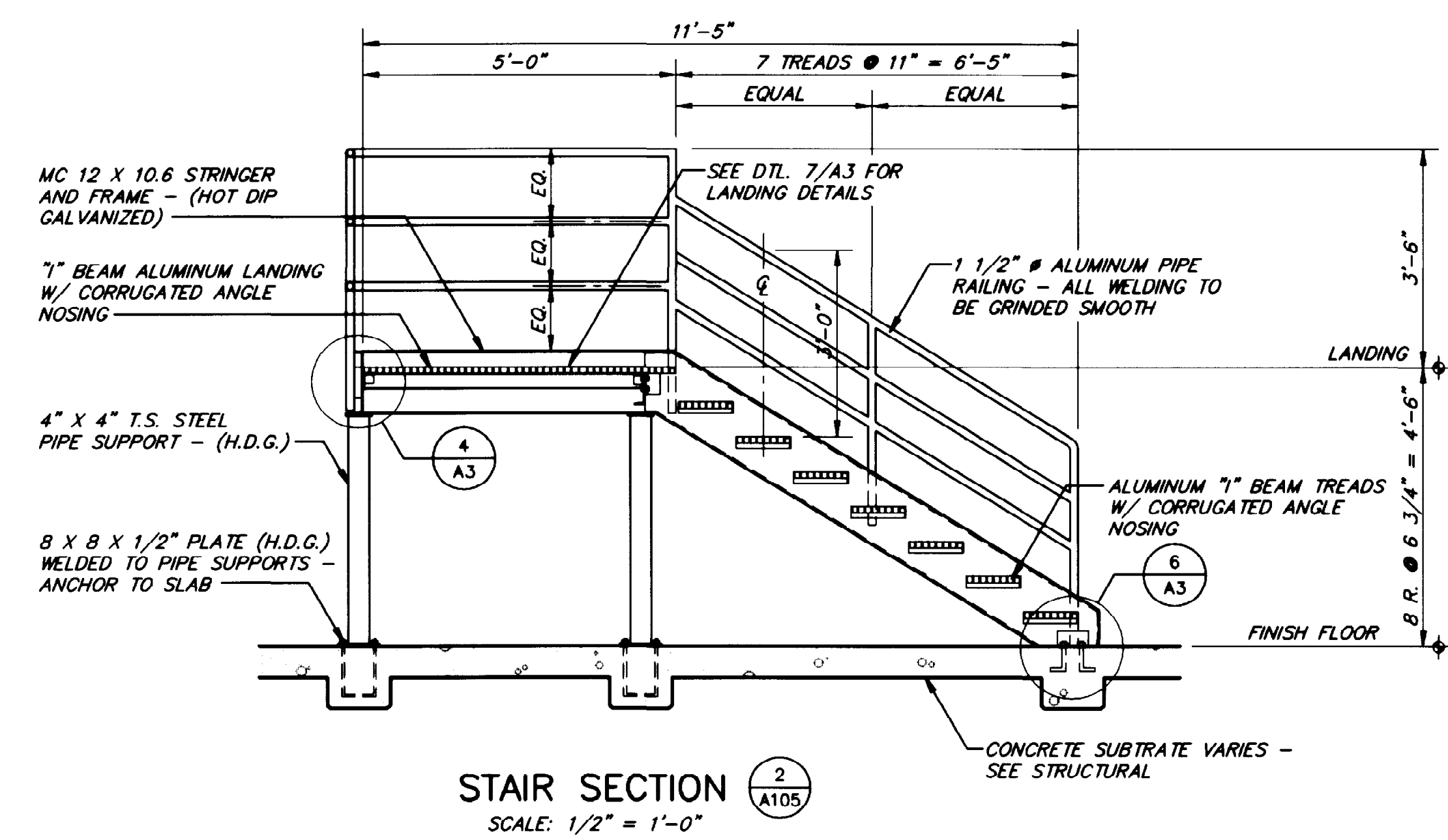
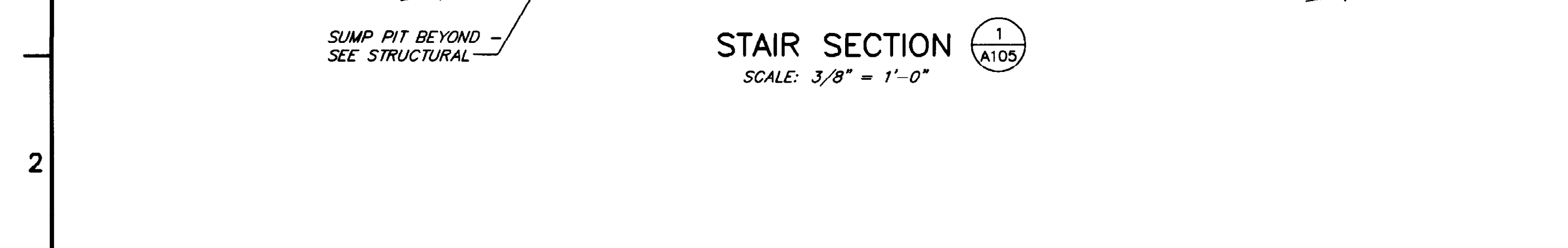
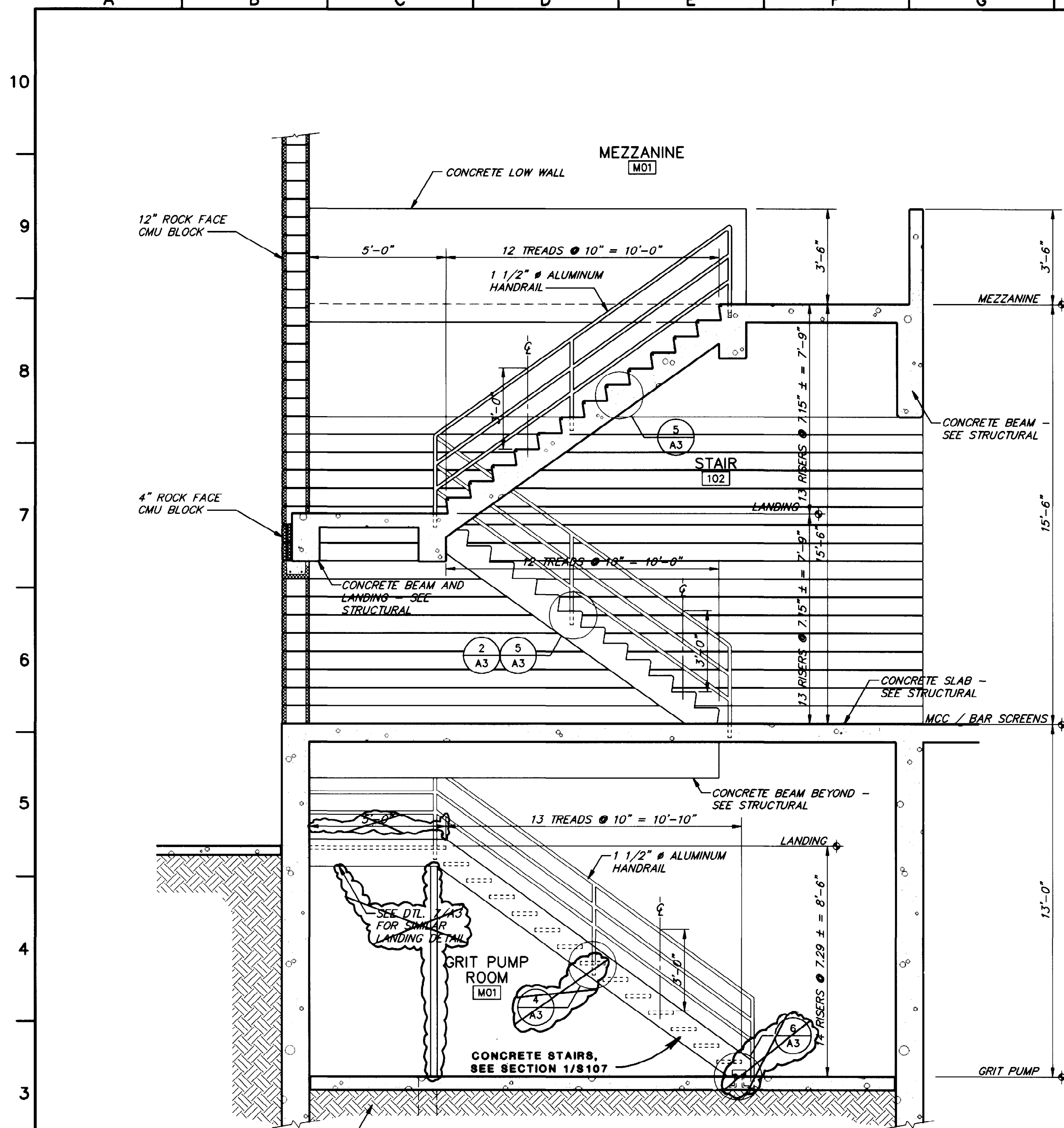
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

WALL SECTIONS

PROJECT NUMBER _____
 DRAWING NUMBER **A104**
 SHEET NUMBER **89**

STANDARD 10/15/92 16:12



THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

PSA PRESTIDGE SMITH ARCHITECTS, INC.
 800 SAILAND PARK DRIVE, SUITE 2-300
 EL PASO, TEXAS 79905-9928

BC Brown and Caldwell Consultants
 Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/20/92
 APPROVED: *Michael J. Smith* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE _____
 DRAWN _____
 DESIGNED _____
 CHECKED _____
 CHECKED _____

Michael J. Smith
 11.19.92

REGISTERED ARCHITECT
 MICHAEL J. SMITH
 9142
 STATE OF TEXAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK

EL PASO WATER UTILITIES

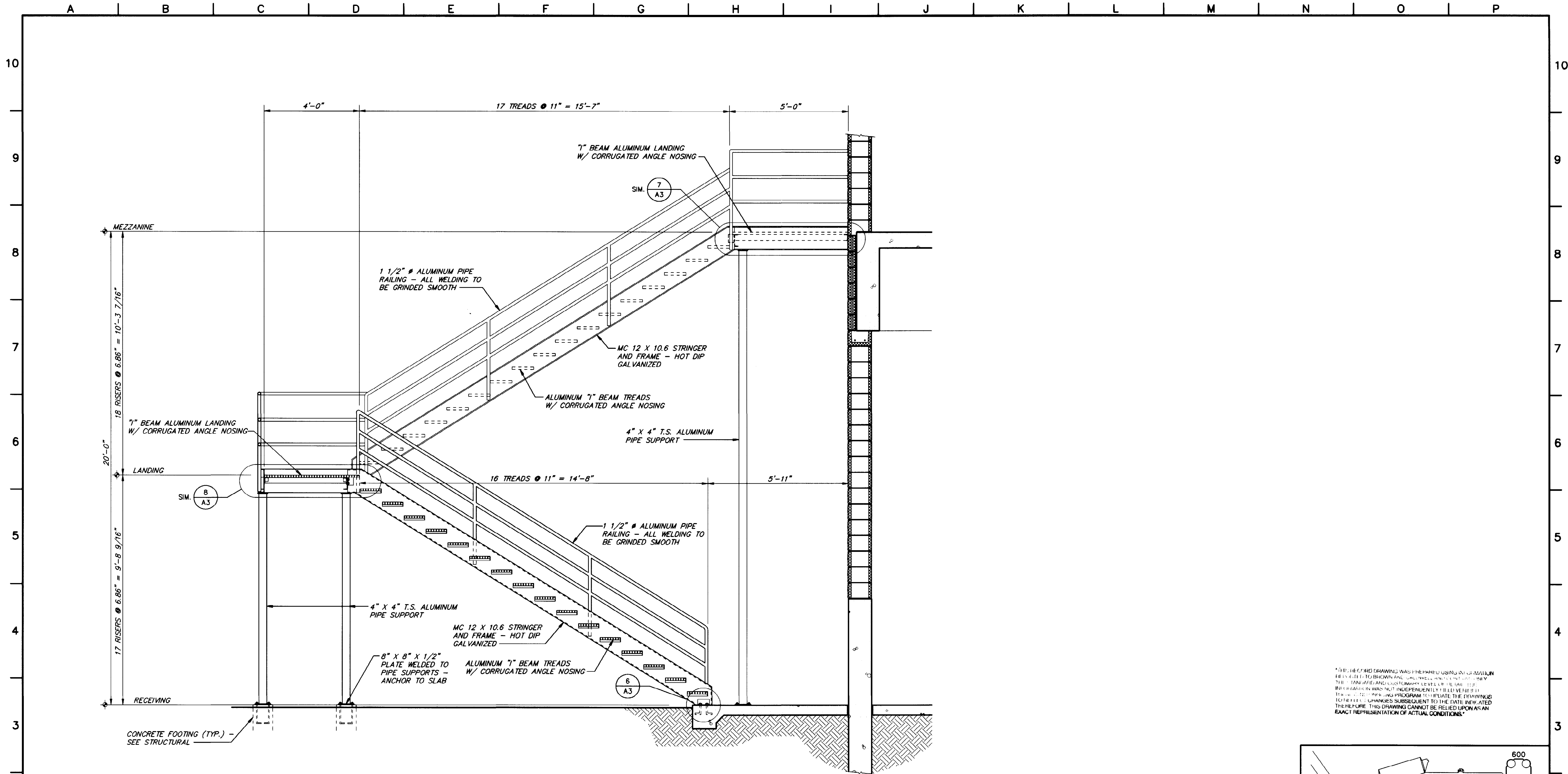
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

STAIR SECTIONS

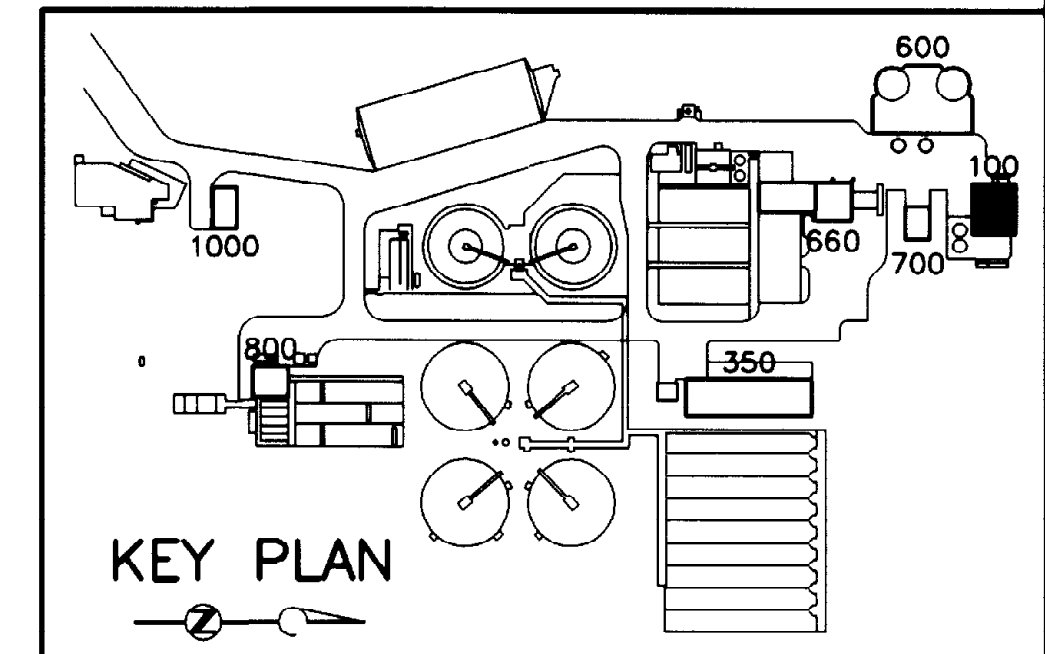
PROJECT NUMBER _____
 DRAWING NUMBER **A105**
 SHEET NUMBER **90**

915A105 10/15/92 16:19



THIS RECORD DRAWING WAS PREPARED USING AN AUTOMATIC FILE CHECKING PROGRAM TO VERIFY THE DRAWING'S COMPLIANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE. THE PROGRAM WAS NOT INDEPENDENTLY FIELD VERIFIED. IT IS THE USER'S RESPONSIBILITY TO VERIFY THE DRAWING'S COMPLIANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE. THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

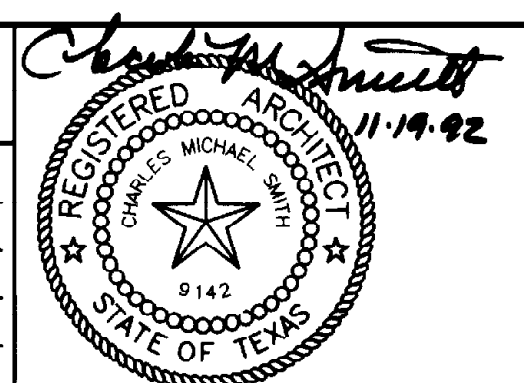
STAIR SECTION $\frac{1}{A106}$
SCALE: 1/2" = 1'-0"



PSA PRESTIDGE SMITH ARCHITECTS, INC.
600 SUNLAND PARK DRIVE SUITE 2-300
EL PASO, TEXAS 79915-9998

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/20/92
APPROVED: *Samuel E. Anderson* DATE: 11-20-92
APPROVED: _____ DATE: _____



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS
STAIR SECTION

PROJECT NUMBER
DRAWING NUMBER
A106
SHEET NUMBER
01

9115A106 10/15/92 16:25

GENERAL NOTES (BUILDINGS)

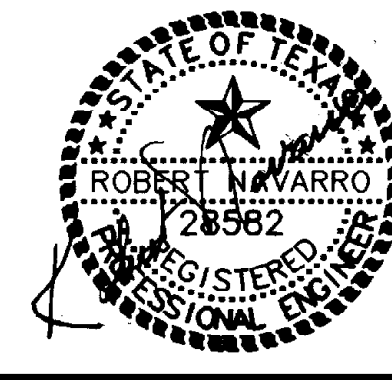
- THE PRIMARY FINISHED FLOOR ELEVATION IS GIVEN AS REFERENCE ELEVATION [0'-0"] SEE SITE GRADING PLAN FOR ACTUAL DATUM ELEVATION FOR EACH BUILDING.
- CONCRETE:
 - ALL STRUCTURAL CONCRETE UNLESS OTHERWISE NOTED, INCLUDING CONCRETE FILL FOR REINFORCED CMU WALL BLOCK CELLS, SHALL BE PRODUCED WITH PORTLAND CEMENT AND FLY ASH AS SPECIFIED AND SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS AS LISTED IN THE TABLE IN THE SPECIFICATIONS.
 - REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60, $F_y=60,000$ PSI, AND/OR ASTM A-706, GRADE 60, $F_y=60,000$ PSI.
 - ALL SLABS ON GRADE SHALL BE PLACED OVER COMPACTED SOIL WHICH HAS BEEN WETTED BUT NOT SATURATED. PROVIDE A 30 LB. FELT MATERIAL AT JOINTS BETWEEN FLOOR SLABS ON GRADE AND FOUNDATION STEM WALLS UNLESS OTHERWISE NOTED. LIMIT SLAB PLACEMENT GENERALLY TO SQUARE, OR NEAR SQUARE RECTANGLES OF APPROXIMATELY 600 SQUARE FEET. PLACE SLABS IN A CHECKERBOARD PATTERN. IN GENERAL, MAKE JOINTS COINCIDE WITH LINES OF COLUMNS OR PERMANENT WALLS AND/OR AS NOTED ON PLANS. THE CONTRACTOR SHALL SUBMIT A PROPOSED CONSTRUCTION JOINT LAYOUT FOR APPROVAL BY THE ENGINEER FOR EACH BUILDING OR STRUCTURE FLOOR SLAB.
 - ALL HORIZONTAL REINFORCEMENT FOR REINFORCED CONCRETE WALLS, BEAMS, FOUNDATIONS AND MASONRY BOND BEAMS SHALL BE DOWELED WITH 2'-0" X 2'-0" MIN. CORNER BARS AT ALL CORNERS, RE-entrant CORNERS, AND/OR WALL INTERSECTIONS. CORNER BARS SHALL BE OF THE SAME SIZE AND SPACING AS HORIZONTAL REINFORCEMENT. LAP LENGTH SHALL BE 48 BAR DIAMETERS OR 32 INCHES MINIMUM, UNLESS OTHERWISE NOTED.
 - UNLESS OTHERWISE NOTED, CONCRETE COVER OVER STEEL REINFORCEMENT SHALL BE AS FOLLOWS:

FOOTINGS3" CLEAR, BOTTOM AND SIDES
WALLS AND BEAMS2" CLEAR TO MAIN REINFORCEMENT
SLABS ON GRADE1-1/2" CLEAR FROM TOP OF SLAB
STRUCTURAL SLABS1-1/2" CLEAR FROM TOP @ SURFACES
(UNLESS OTHERWISE NOTED)EXPOSED TO WEATHER:
	1" CLEAR FROM TOP TYPICAL;
	1" CLEAR FROM BOTTOM.
 - STRUCTURAL SLABS ON GRADE, 3" CLEAR FROM BOTTOM UNLESS NOTED OTHERWISE.
 - PROVIDE RE-entrant CORNER BARS (#4 X 4'-0") TOP AND BOTTOM, OR EACH FACE, AT ALL CONCRETE WALL, SLABS, AND STRUCTURAL SLABS.
 - CHAMFER ALL EXPOSED CONCRETE CORNERS 3/4" TYP. UNLESS NOTED OTHERWISE.
- MASONRY:
 - THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL CMU WALLS SHOWING A SEPARATE WALL ELEVATION FOR EACH WALL, INDICATING SIZE AND SPACING OF VERTICAL WALL REINFORCING, REINFORCING LOCATION AND SIZE OF STEEL PLATES AND OTHER EMBEDMENTS, BOND BEAMS, ETC. FOR THE APPROVAL BY THE ENGINEER. VERTICAL BAR SPLICES SHALL BE 42 BAR DIAMETERS UNLESS OTHERWISE NOTED AND THE CONTRACTOR WITH HIS MASONRY CONTRACTOR SHALL DETERMINE THE SPlicing OPTION AND WALL CONSTRUCTION SEQUENCE SUBJECT TO THE APPROVAL OF THE ENGINEER.
 - ALL MORTAR SHALL BE OF THE TYPE SPECIFIED AND AS APPROVED BY THE ENGINEER. MORTAR STRENGTH SHALL BE NOT LESS THAN 2500 PSI.
 - UNLESS OTHERWISE NOTED, PROVIDE 1-#5 VERTICAL REINFORCING BAR IN ALL INTERIOR AND EXTERIOR BUILDING WALLS AT ALL CORNERS, WALL INTERSECTIONS, EACH SIDE OF CONTROL JOINTS, AND JAMBS OR ALL OPENINGS, AND AT INTERVALS INDICATED ON THE PLANS, BUT NOT TO EXCEED 48 INCHES ON CENTER. SEE FOUNDATION PLANS FOR WALL REINFORCING AT EACH BUILDING.
 - VERTICAL REINFORCING IN WALL CELLS OF CMU WALLS SHALL RUN CONTINUOUS (SPliced) FROM THE TOP OF THE FOUNDATION WALL TO THE TOP OF THE PARAPET. VERTICAL REINFORCING IN CELLS OF CMU COLUMNS SHALL BE CONTINUOUS (ONE PIECE) FROM THE TOP OF FOUNDATION WALL TO THE TOP OF THE COLUMN AS DETAIL. PLASTER BLOCKS OR CUT BLOCKS WILL BE USED AT CMU COLUMNS. PROVIDE FOUNDATION DOWELS FOR EACH VERTICAL REINFORCING BAR, LAPPED 42 DIAMETERS, MINIMUM, IN MASONRY AND EMBED 16 INCHES MINIMUM IN CONCRETE STEM WALLS OF FOOTINGS OR AS SHOWN ON THE DETAILS. FILL ALL CELLS CONTAINING REINFORCING COMPLETELY WITH CONCRETE GROUT AS SPECIFIED. FILL ALL CELLS OF WALLS OCCURRING BELOW GRADE WITH CONCRETE GROUT. REINFORCE LOAD BEARING WALLS IN CENTER WITH 1-#5 VERTICAL REINFORCING, MINIMUM, UNLESS OTHERWISE NOTED ON THE PLAN NOTES OR DETAILS. SEE FOUNDATION PLANS IN THE DRAWINGS FOR GREATER VERTICAL WALL REINFORCING REINFORCING REQUIREMENTS OF LOAD BEARING WALLS.
 - PROVIDE 8" HIGH MINIMUM (UNLESS OTHERWISE NOTED) BOND BEAMS AT 7'-4" O.C. MAXIMUM SPACING IN ALL INTERIOR WALLS; AT 6'-0" O.C. MAXIMUM SPACING IN ALL EXTERIOR WALLS; AT BEARING ELEVATIONS OF DOUBLE TEE STEMS AND BEAMS AND ELEVATIONS OF ROOF PARAPET CORN. ANGLE. STEP ELEVATION OF BOND BEAMS AS REQUIRED TO ACCOUNT FOR ROOF SLOPE ADJACENT TO THE BOND BEAMS. REINFORCE BOND BEAMS WITH 2 #5, OR AS SHOWN ON DRAWINGS.
 - ALL BOND BEAM REINFORCEMENT, EXCEPT FOR THE BOND BEAM REINFORCING AT FLOOR AND ROOF LEVEL, SHALL BE CUT AT CONTROL JOINTS AND EXPANSION JOINTS. LAP HORIZONTAL REINFORCEMENT IN BOND BEAMS 2'-8" MINIMUM UNLESS OTHERWISE NOTED ON THE DRAWINGS. IN ADDITION TO BOND BEAMS, PROVIDE HORIZONTAL WALL JOINT REINFORCING AS SPECIFIED IN ALL WALLS AT 16 INCHES ON CENTER, IN HORIZONTAL JOINTS BELOW THE ROOF LEVEL AND AT 8 INCHES ON CENTER IN THE PARAPET PORTION OF THE WALL EXTENDING ABOVE THE ROOF. CUT ALL HORIZONTAL JOINT REINFORCEMENT AT CONTROL JOINTS AND EXPANSION JOINTS.
 - ALL CELLS OF CMU WALLS WHICH WILL HAVE EMBEDDED PLATES INSTALLED, SHALL BE FULLY GROUTED WITH CONCRETE GROUT AS SPECIFIED.
 - ALL EMBEDDED PLATES SHALL BE SET FLUSH AT SIDES OR ON TOP OF WALL UNITS. SAWCUT CMU UNITS TO FIT PLATE NEAT. CUT CMU WALL UNITS INSTALL ALL EMBEDDED PLATES SO AS TO ASSURE FULL AND COMPLETE DEVELOPMENT OF THE HEADED CONCRETE ANCHORS WITH CONCRETE.
 - UNLESS OTHERWISE NOTED, ALL THE CMU LINTELS OVER OPENINGS SHALL HAVE REINFORCEMENT AS SCHEDULED ON SHEET S-4.
 - REINFORCE CMU SILLS BELOW OPENINGS WITH THE SAME SIZE AND TYPE OF REINFORCING AS THE REINFORCING SCHEDULED FOR THE LINTEL AT THE HEAD OF THE OPENING, UNLESS SPECIFICALLY DETAILED OTHERWISE.
- PRESTRESSED CONCRETE MEMBERS:
 - ALL PRESTRESSED DOUBLE TEE PANELS SHALL BE DESIGNED FOR THE SUPERIMPOSED DEAD LOAD AND LIVE LOAD, AND FOR THE SPECIAL CONCENTRATED LOADS AS SHOWN ON THE FRAMING PLANS AND ON THE PRESTRESSED PANEL ELEVATIONS ON SHEET S-7. PRESTRESSED CONCRETE ROOF MEMBERS SHALL ALSO BE DESIGNED FOR THE WEIGHT OF MECHANICAL UNITS AS SHOWN ON THE ROOF FRAMING PLANS (THE LOADS AS SCHEDULED DO NOT INCLUDE THE WEIGHT OF THE PRESTRESSED CONCRETE MEMBERS). IN ADDITION TO ALL OTHER LOADS, THE PRESTRESSED MEMBERS SHALL BE CAPABLE OF SUPPORTING ALL CONSTRUCTION LOADS.

ROBERT NAVARRO & ASSOCIATES ENGINEERING, INC.
 124 W. CASTELLANO DRIVE, SUITE 201
 EL PASO, TEXAS 79912
 (915) 532-1406 FAX(915) 532-1496

THE SEAL AFFIXING ON THIS DOCUMENT WAS AUTHORIZED BY ROBERT NAVARRO P.E. 28562 ON APRIL 26, 1993

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)
FILE 5870
DRAWN J.O.
DESIGNED R.N.
CHECKED M.H.
CHECKED R.N.



HEADED CONCRETE ANCHOR SCHEDULE

UNLESS OTHERWISE NOTED ON DRAWINGS, THE FOLLOWING SHALL BE THE STANDARD LENGTHS FOR HEADED CONCRETE ANCHORS.

STUD DIA. IN INCHES	MINIMUM STANDARD LENGTH IN INCHES
1/4"	4
3/8"	4
1/2"	5 3/16
5/8"	6 3/8"
3/4"	7
7/8"	8

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK

SHOP DRAWING SUBMITTAL NOTE

- SHOP DRAWINGS SHALL BE PREPARED WITH SUFFICIENT DETAIL AND NOTATION FOR FIELD ERECTION AND INSTALLATION. SHOP DRAWINGS SHALL BE SEPARATE DRAWINGS PREPARED BY THE SUPPLIER OF MATERIALS. PHOTO COPIES OF THE CONTRACT DRAWINGS FOR USE AS SHOP DRAWINGS WILL NOT BE PERMITTED.

GENERAL NOTES (HYDRAULIC STRUCTURES)

- HYDRAULIC STRUCTURES ARE CONCRETE STRUCTURES DESIGNED TO PARTIALLY OR ENTIRELY CONTAIN WATER DURING THEIR NORMAL OPERATION AND HAVE BEEN DESIGNED TO PARTIALLY OR ENTIRELY CONTAIN WATER DURING THEIR NORMAL OPERATION. NOTES BELOW APPLY TO THE HEADWORKS, AERATION BASINS, SECONDARY CLARIFIERS, FILTERS, SLUDGE THICKENER BLDG., SLUDGE DewaterING BLDG., ULTRA-VIOLET DISINFECTION, REAERATION CHANNEL, AND SITE UNJUNCTION BOXES.
 - FINISHED FLOOR ELEVATION IS GIVEN AS REFERENCE ELEVATION [0'-0"] ACTUAL DATUM ELEVATION IS SHOWN FOR EACH COMPONENT. ALL ELEVATIONS ARE SHOWN RELATIVE TO REFERENCE ELEVATION AND RELATIVE TO THE ACTUAL DATUM ELEVATION.
 - REINFORCING STEEL:
 - REINFORCING STEEL SHALL BE ASTM A 615 GRADE 60, TYPICALLY, UNLESS OTHERWISE NOTED.
 - REINFORCING STEEL SPLICES OF VERTICAL REINFORCING AS SHOWN AT CONSTRUCTION JOINTS MAY BE DELETED AT THE CONTRACTOR'S OPTION IF VERTICAL REINFORCING IS CONTINUOUS THROUGH THE JOINT, SUBJECT TO THE APPROVAL OF THE ENGINEER.
 - PROVIDE BEND RADIUS AND MINIMUM HOOK LENGTH AT VERTICAL STEEL REINFORCING FOUNDATION DOWELS AS SHOWN ON THE TYPICAL WATERSTOP AND HOOK REQUIREMENTS' DETAIL ON SHEET S-2 ON ALL HYDRAULIC STRUCTURES AND STRUCTURES THAT CONTAIN WATER OR RETAIN EARTH. ALL OTHER BEND RADI SHALL BE PER ACI 318-89.
 - PROVIDE ADDITIONAL REINFORCING STEEL AROUND LARGE OPENINGS AS SHOWN ON SHEET S-2.
 - STEEL REINFORCING DETAILS:

STRAIGHT HOOKS AND OFFSETS, UNLESS OTHERWISE NOTED OR DETAILED, TO BE AS RECOMMENDED BY THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.

AT ALL CORNERS AND INTERSECTIONS OF WALLS, STEM WALLS, THROUGH WALLS, GRADE BEAMS AND CONTINUOUS FOOTINGS, USE DETAILS AND REINFORCING SHOWN ON SHEET S-4, UNLESS GREATER REQUIREMENTS ARE SHOWN ON THE SPECIFIC DETAILS CUT AT SPECIFIC SECTIONS.

AROUND ALL EDGES OF SLAB OR WALL OPENINGS USE ADDITIONAL REINFORCING AS SHOWN ON SHEET S-2.
- CONCRETE:
 - CONCRETE FOR ALL WATER BEARING STRUCTURES SHALL UTILIZE TYPE II OR TYPE V, LOW ALKALI CEMENT AS SPECIFIED.
 - CONCRETE FOR ALL OTHER STRUCTURES SHALL UTILIZE TYPE II OR TYPE V, LOW ALKALI CEMENT OF THE CLASS OF CONCRETE AS SPECIFIED. SEE SPECIFICATIONS FOR STRENGTH REQUIREMENTS AND FOR OTHER INFORMATION REGARDING CONCRETE REQUIREMENTS.
 - CONSTRUCTION JOINT LOCATIONS IN WALLS AS SHOWN IN THE STRUCTURAL PLANS AND SECTIONS. CONSTRUCTION JOINTS AS DESIGNED. THE CONTRACTOR MAY CHOOSE DIFFERENT LOCATIONS FOR CONSTRUCTION JOINTS, SUBJECT TO THE APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL SUBMIT, IN WRITING, THE PROPOSED CONSTRUCTION JOINT LOCATIONS AND SHALL OBTAIN APPROVAL FROM THE ENGINEER BEFORE STARTING THE WORK.
 - THE LOCATION OF CONSTRUCTION JOINTS IN THE SLABS ON GRADE ARE SHOWN ON THE PLANS. ALTERNATE CONSTRUCTION JOINT LOCATIONS IN SLABS ON GRADE MAY BE PROPOSED BY THE CONTRACTOR, SUBJECT TO THE WRITTEN APPROVAL OF THE ENGINEER. SLAB PLACEMENTS SHALL NOT EXCEED 600 SQ. FT. THE CONTRACTOR SHALL SUBMIT A PROPOSED SLAB CONSTRUCTION PLAN WHICH WILL SHOW LOCATION OF CONSTRUCTION JOINTS, THICKENED SLAB EDGES AT JOINTS, WATERSTOP REQUIREMENTS, AND SEQUENCE OF CONSTRUCTION FOR APPROVAL BY THE ENGINEER.
 - CHAMFER ALL EXPOSED CONCRETE CORNERS, 3/4" TYP. UNLESS NOTED OTHERWISE.
 - PROPER CURING OF ALL CONCRETE IS ESSENTIAL TO THE CONSTRUCTION OF ALL CONCRETE BUT ESPECIALLY FOR THE CONSTRUCTION OF ACCEPTABLE WATER-CONTAINING STRUCTURES. THE CONTRACTOR IS CAUTIONED TO PAY SPECIAL ATTENTION TO PROPER AND EFFECTIVE CURING PROCEDURES AS SPECIFIED. ALL WATER BEARING STRUCTURES SHALL BE WATER CURED.
 - PORTIONS OF THE WATER CONTAINING STRUCTURES OF THE HEADWORKS BUILDING, SHALL BE CONSTRUCTED WITH AN EMBEDDED PROTECTIVE PLASTIC LINER PLATE. SEE SPECIFICATIONS AND SECTIONS IN DRAWINGS FOR DETAILS AND LIMITS OF PLASTIC LINER PLATE.
 - PROVIDE POLYVINYL CHLORIDE WATERSTOPS AS SPECIFIED AT ALL SUBMERGED CONSTRUCTION JOINTS OF ALL WALLS OF WATER BEARING STRUCTURES. PROVIDE WATERSTOPS AT CONSTRUCTION JOINTS BELOW GRADE OF WALLS OF NON-WATER BEARING STRUCTURES AS SHOWN ON THE DRAWINGS. LOCATIONS OF WATERSTOPS SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW AND APPROVAL BY THE ENGINEER. SEE SHEET S-2 "TYPICAL WATERSTOP AND HOOK REQUIREMENTS" FOR DETAILS OF WATERSTOPS AT WALL FOUNDATION CONSTRUCTION JOINTS. SEE SHEET S-2 "TYPICAL SLAB ON GRADE CONSTRUCTION JOINT WATERSTOP REQUIREMENTS" AT SLAB ON GRADE CONSTRUCTION JOINTS. WATERSTOPS SHALL BE CONTINUOUS BETWEEN VERTICAL AND HORIZONTAL CONSTRUCTION JOINTS.

IN ADDITION TO THE POLYVINYL CHLORIDE WATERSTOPS AS SPECIFIED AND DETAILED AT CONSTRUCTION JOINTS, PROVIDE CONTINUOUS PREFORMED PLASTIC ADHESIVE JOINT WATERSTOP AS SHOWN ON SHT. S-2 AND AS SPECIFIED AT SPECIFIC LOCATIONS SHOWN.
- SEE EQUIPMENT DRAWINGS AND ARCHITECTURAL DRAWINGS FOR STAIR HANDRAIL, ETC. DETAILS AND SHEET S-3 FOR GRATING AND COVER PLATE SUPPORT DETAILS AT TRENCHES AND BOXES.
- GENERAL STAIR DETAILS ARE SHOWN ON THE ARCHITECTURAL DRAWINGS AND EQUIPMENT MISCELLANEOUS DETAILS. SEE SPECIFIC SECTIONS OF EACH COMPONENT FOR SUPPORT AND/OR CONNECTION REQUIREMENTS AT THE COMPONENT.
- ALL EMBEDDED METAL ITEMS AND GRATING SHALL BE ALUMINUM OR HOT-DIP GALVANIZED STEEL AS DETAILED UNLESS OTHER MATERIALS ARE SHOWN ON THE DRAWINGS.
- REFERENCE TO OTHER DRAWINGS:

SEE ARCHITECTURAL, EQUIPMENT, MECHANICAL AND ELECTRICAL DRAWINGS, FOR TYPES OF FLOOR FINISH AND THEIR LOCATIONS, DEPRESSIONS IN FLOOR SLABS, OPENINGS IN WALLS, ROOFS AND FLOORS, DOORS, WINDOWS, DUCTS, VENTS, PLUMBING, ETC. ALL TYPES OF FLASHING, INSERTS, ANCHORAGE, HANGERS, ETC., EMBEDDED IN OR ATTACHED TO THE CONCRETE STRUCTURE, ROADWAY PAVING, EXTERIOR WALKS, STAIRS, RAMPS, CURBS, WALLS, TERRACES, ETC., EXTERIOR GRADES, ELEVATIONS OF SLOPING ROOF SURFACES, AND LOCATION OF DRAINS, ETC.

GENERAL NOTES (CONT'D.)

- DISCREPANCIES:

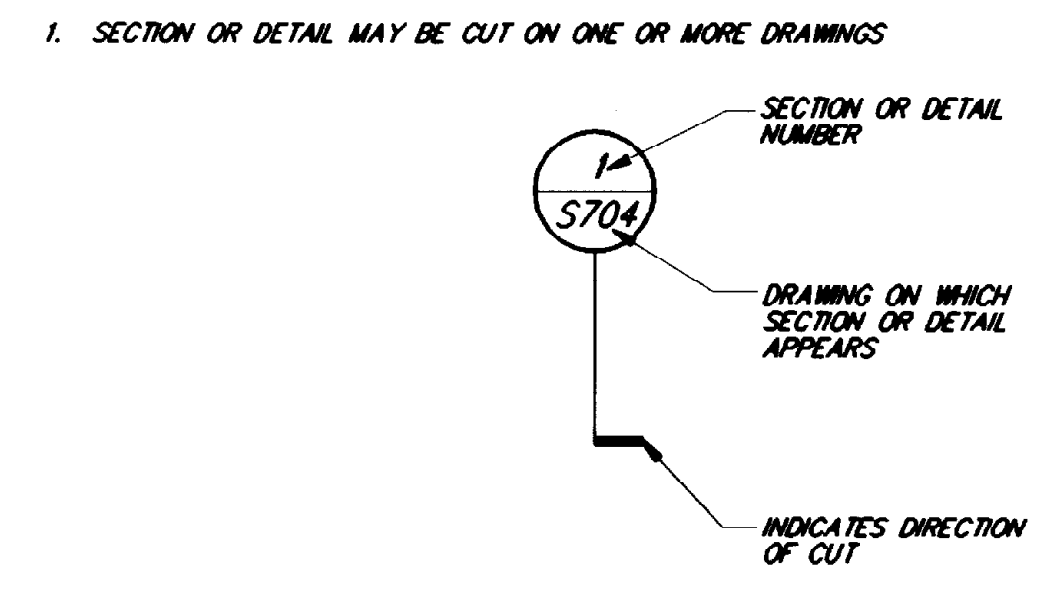
THE CONTRACTOR SHALL COMPARE THE STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL, EQUIPMENT, MECHANICAL AND ELECTRICAL DRAWINGS AS TO LAYOUT DIMENSIONS AND ELEVATIONS. ALL DISCREPANCIES, IF ANY, SHALL BE REPORTED TO THE ENGINEER FOR PROPER ADJUSTMENT BEFORE PROCEEDING WITH THE WORK.
- OMISSIONS:

IN THE EVENT THAT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE STRUCTURAL GENERAL NOTES OR IN THE SPECIFICATIONS, THEN THEIR CONSTRUCTION SHALL BE IN THE SAME CHARACTER FOR SIMILAR CONDITIONS THAT ARE SHOWN OR CALLED FOR.
- DIMENSIONS:

DIMENSIONS, UNLESS OTHERWISE NOTED, ARE TO FACE OF MASONRY WALLS, TO FACE OF ROUGH CONCRETE OR TO COLUMN CENTER LINES.
- CONCRETE COVER:

CONCRETE COVER FOR WATER RETAINING STRUCTURES SHALL BE AS SHOWN ON THE SPECIFIC DETAILS FOR EACH COMPONENT. IF NO SPECIFIC COVER IS SHOWN, THE CONCRETE COVER SHALL GENERALLY BE IN ACCORDANCE WITH NOTE 2E OF "GENERAL NOTES (BUILDINGS)" ON THIS SHEET.
- UNLESS SPECIFICALLY NOTED ON THE PLANS OR SECTIONS, ALL FLOOR OPENINGS SHALL BE COVERED WITH GRATING OR FLOOR PLATE AS NOTED AND/OR SPECIFIED AND SUCH GRATING OR FLOOR PLATES SHALL BE SUPPORTED AT ITS EDGES AS SHOWN ON SHEET S-3.
- SEE "TYPICAL SECTION AND DETAIL DESIGNATION SYSTEM" THIS SHEET FOR CROSS SECTION REFERENCE SECTIONS SHOWN ON ALL PLAN AND SECTION SHEETS.
- ALL WELDS SHALL BE CLEANED AND COATED WITH AN APPROVED COATING AS SPECIFIED.
- WHERE COMPACTED BACKFILL MUST BE PROVIDED UNDER DOWELS PROJECTING FROM WALLS AT HYDRAULIC STRUCTURES AND AT BUILDING WALLS, THE CONTRACTOR MAY CHANGE THE DOWEL MATERIAL AND CONFIGURATION, WHERE THE REQUIRED DOWEL SIZE IS NUMBER 5 OR SMALLER THE CONTRACTOR MAY USE STRAIGHT VERTICAL DOWELS USING ASTM A-706, GRADE 60 STEEL TO SUBSTITUTE FOR THE DOWELS SHOWN ON THE DRAWINGS, AND FIELD BEND THE DOWELS AS DETAILED. THE CONTRACTOR MAY ALSO SUBMIT FOR APPROVAL, A GRADE 60 STEEL THREADED DOWEL AND INSERT ASSEMBLY SYSTEM AS MANUFACTURED BY "TRINCO" (LENTON BAR SPLICES) OR SIMILAR TO SUBSTITUTE FOR THE DOWELS SHOWN ON THE DRAWINGS. WHERE THE DOWEL SIZE REQUIRED IS NUMBER 6 OR LARGER THE CONTRACTOR MAY USE A GREATER NUMBER OF SMALLER DIAMETER BARS TO PROVIDE AN EQUIVALENT AMOUNT OF REINFORCING STEEL AREA USING #5 MAXIMUM, STRAIGHT DOWELS OR THREADED ASSEMBLIES AS NOTED ABOVE TO SUBSTITUTE FOR THE DOWELS SHOWN ON THE DRAWINGS.

TYPICAL SECTION AND DETAIL DESIGNATION SYSTEM



THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. TO REFLECT CHANGES, THIS DRAWING CANNOT BE RELEASD UNLESS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

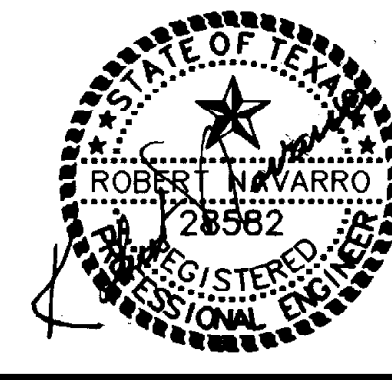
BC Brown and Caldwell Consultants
 Phoenix, Arizona

SUBMITTED: _____ PROJECT MANAGER DATE: _____

APPROVED: _____ BROWN AND CALDWELL DATE: _____

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)
FILE 5870
DRAWN J.O.
DESIGNED R.N.
CHECKED M.H.
CHECKED R.N.



ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

EL PASO WATER UTILITIES

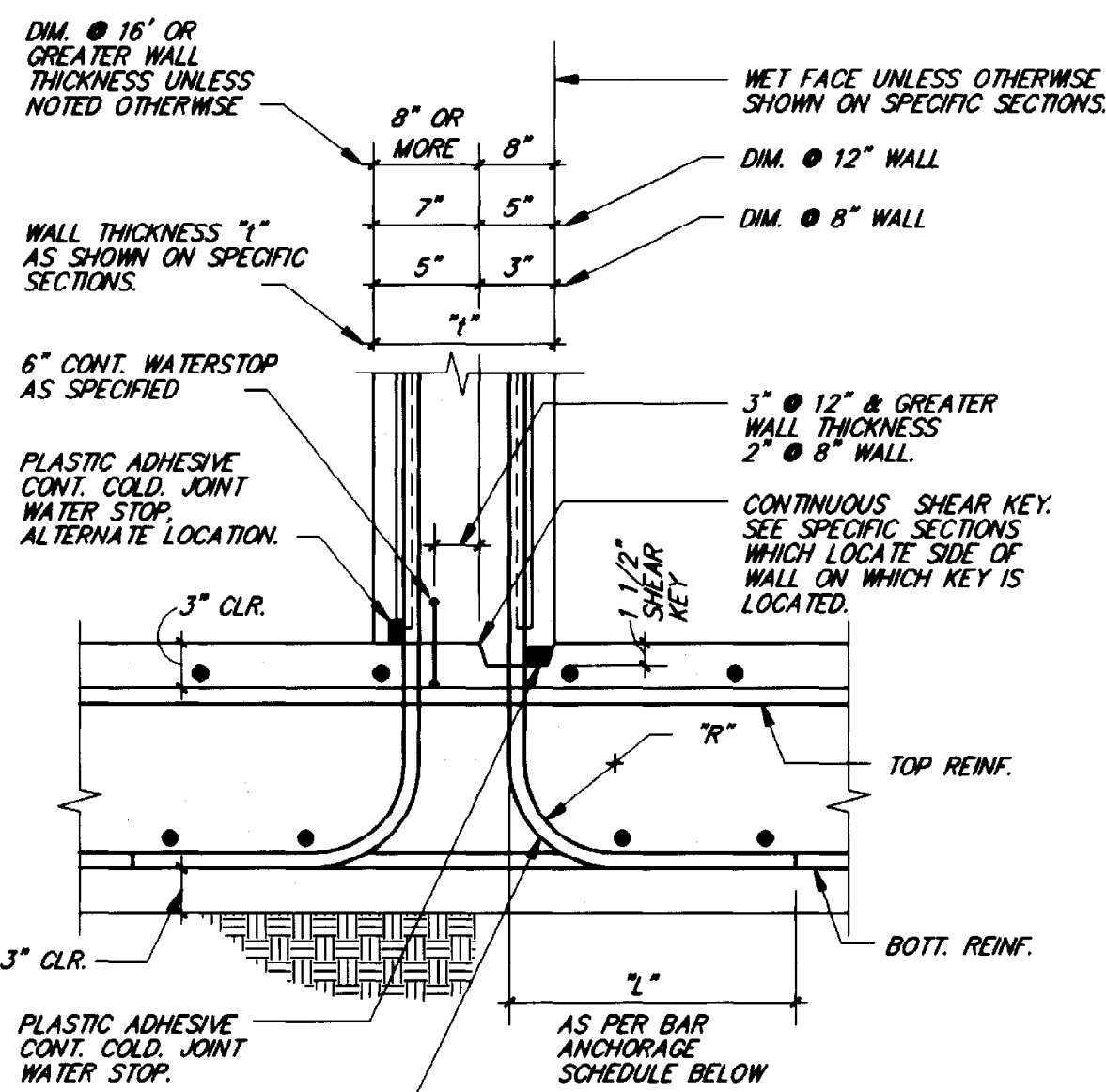
GENERAL SHEETS

GENERAL NOTES

PROJECT NUMBER _____

DRAWING NUMBER **S1**

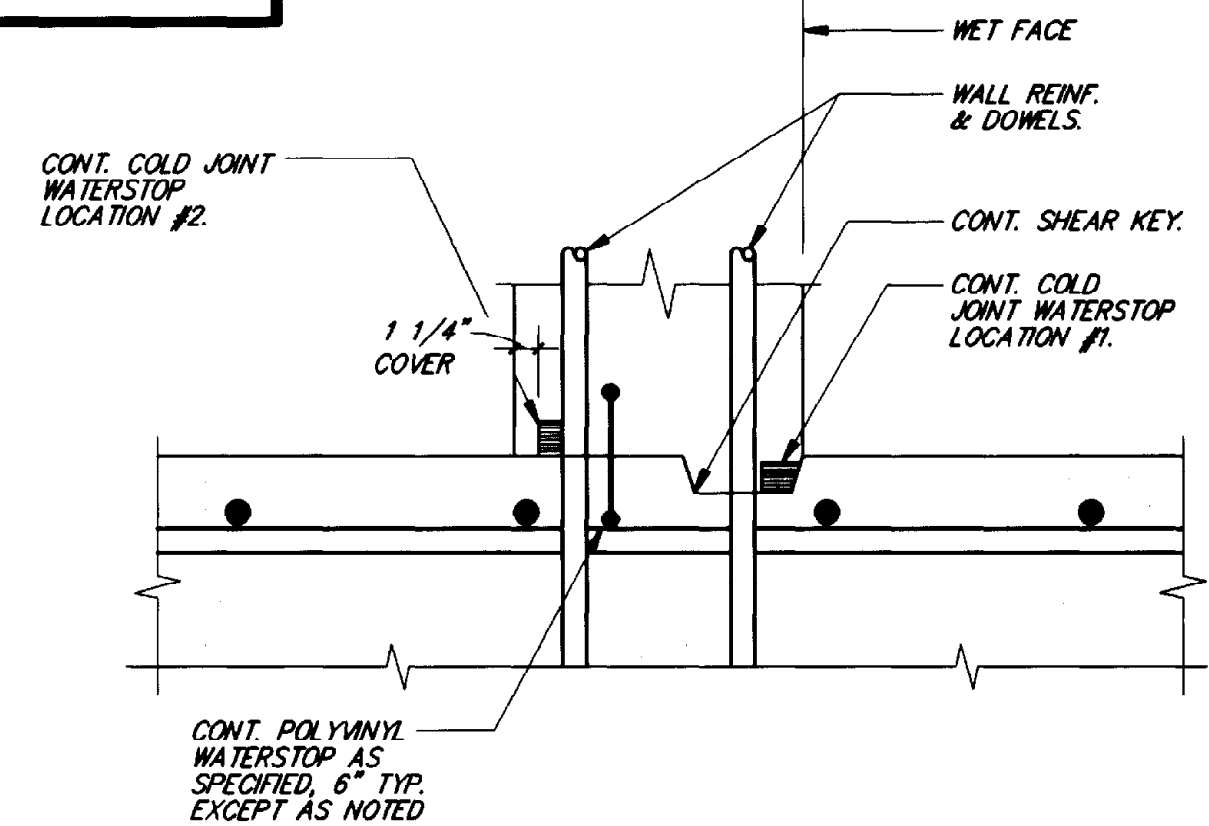
SHEET NUMBER 118



MINIMUM BAR RADIUS & ANCHORAGE SCHEDULE		
BAR SIZE	MINIMUM INSIDE RADIUS OF BEND "R" "R" = 12 BAR DIA. #	MINIMUM LENGTH
#4	—	1'-0"
#5	7 1/2"	1'-4"
#6	9"	1'-6"
#7	10 1/2"	2'-0"
#8	12"	2'-3"
#9	13 1/2"	3'-0"
#10	15"	4'-0"

- NOTES:
1. MINIMUM BAR RADIUS AND ANCHORAGE REQUIREMENTS APPLY AT ALL WATER CONTAINING AND SOIL RETAINING WALL STRUCTURES WHETHER INDICATED OR NOT AT SPECIFIC SECTIONS AND DETAILS FOR EACH COMPONENT.
 2. WORK THIS SECTION WITH SPECIFIC WALL SECTIONS AND ELEVATIONS.
 3. VERTICAL LAP LENGTH FOR WALL REINFORCING DOMELS SHALL BE AS SHOWN ON SPECIFIC WALL SECTIONS AND ELEVATIONS.
 4. SEE SECT. 2/S2 FOR DETAILS OF COLD JOINT WATERSTOP.

1 SECTION
S2 1"=1'-0"



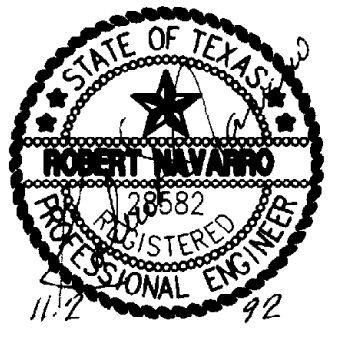
- NOTES:
1. THE COLD JOINT WATERSTOP SHALL BE PLACED IN ALL WALL TO FOUNDATION CONST. JOINTS OF WATER BEARING STRUCTURES IN ADDITION TO THE 6" OR 9" POLYVINYL WATERSTOP AS SPECIFIED.
 2. CONT. COLD JOINT WATERSTOP SHALL BE INSTALLED ON THE INSIDE OF THE WALL IN CONTACT WITH THE WATER.
 3. WHEN THE SHEAR KEY IS INDICATED TO BE ON THE INSIDE FACE OF THE WALL, THE COLD JOINT WATERSTOP SHALL BE PLACED AS SHOWN IN LOCATION #1. WHEN THE SHEAR KEY IS ON THE OUTSIDE FACE OF THE WALL, THE COLD JOINT WATERSTOP SHALL BE PLACED AS SHOWN IN LOCATION #2.
 4. THE COLD JOINT WATERSTOP SHALL BE PLACED IN LOCATION #1 OR #2 BUT NOT AT BOTH LOCATIONS.

2 SECTION
S2 1 1/2"=1'-0"

WHERE "WET FACE" APPLIES TO BOTH WALL FACES PLACE A COLD JOINT WATERSTOP AT LOCATIONS #1 AND #2.

ROBERT NAVARRO & ASSOCIATES ENGINEERING, INC.
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THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY ROBERT NAVARRO P.E. 26582 ON NOVEMBER 02, 1992.



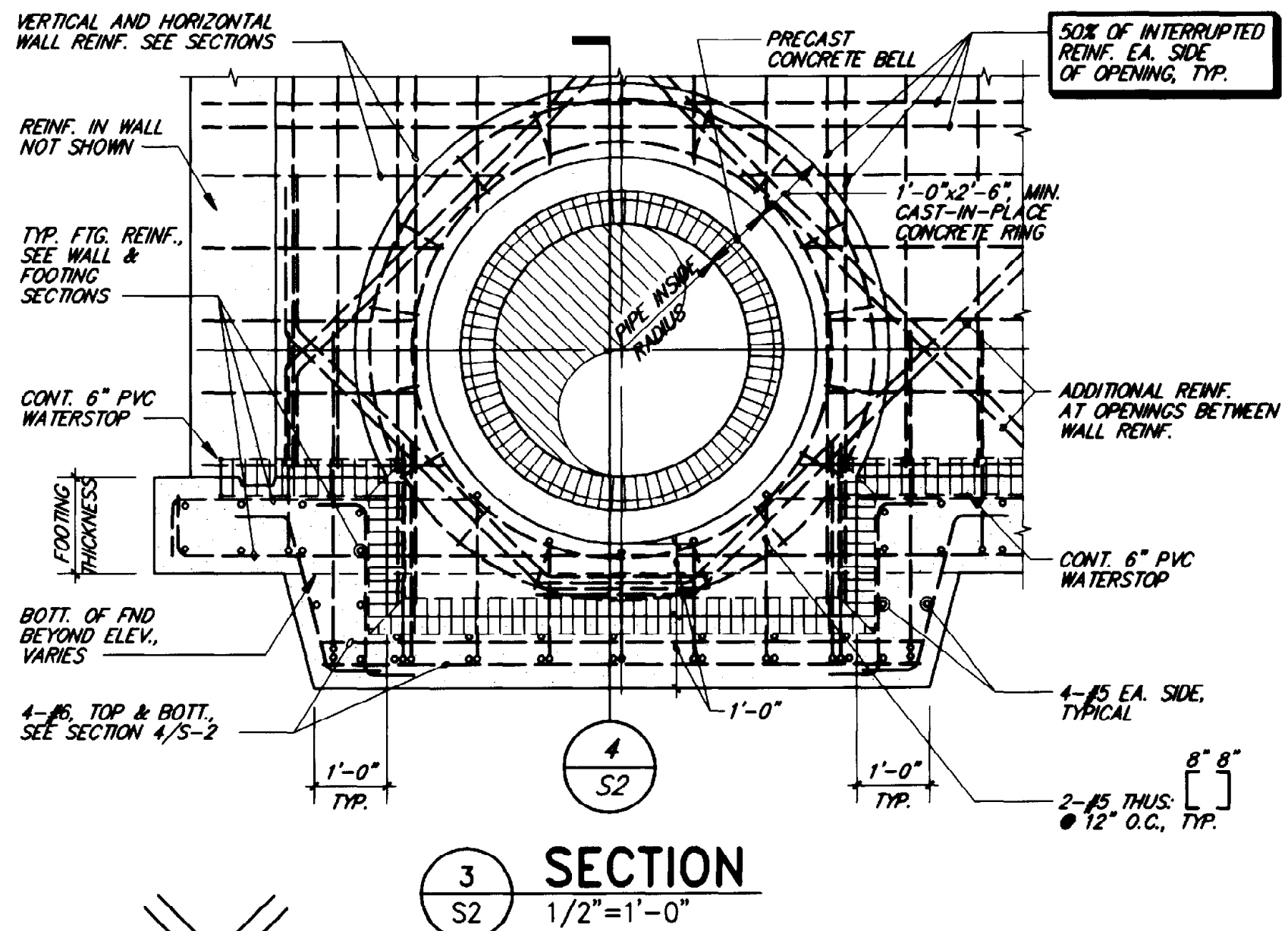
BC Brown and Caldwell Consultants
Phoenix, Arizona
SUBMITTED: *Robert Navarro* DATE: 11/21/92
APPROVED: *Samuel Calderon* DATE: 11/20/92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)
FILE 5870
DRAWN R.J.
DESIGNED R.N.
CHECKED M.H.
CHECKED R.N.

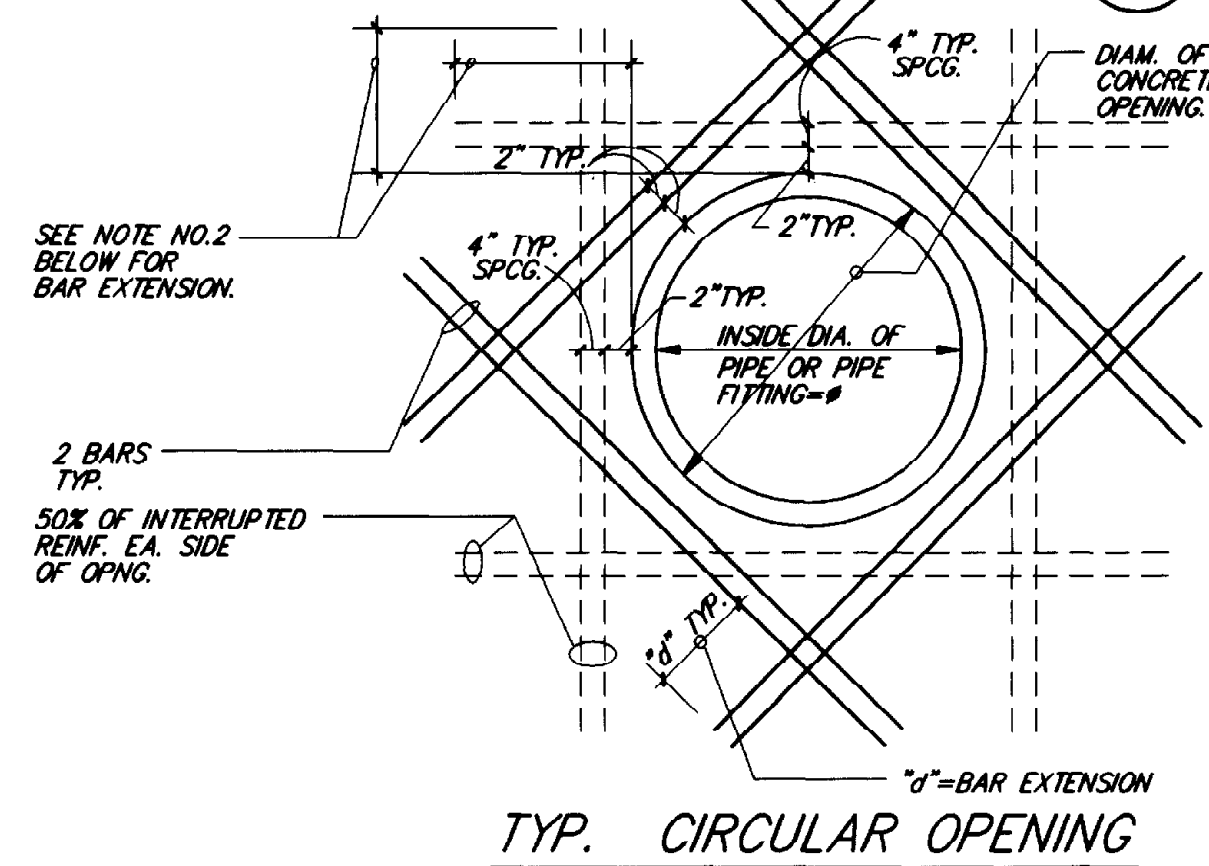
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
A/2	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	8K

EL PASO WATER UTILITIES
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

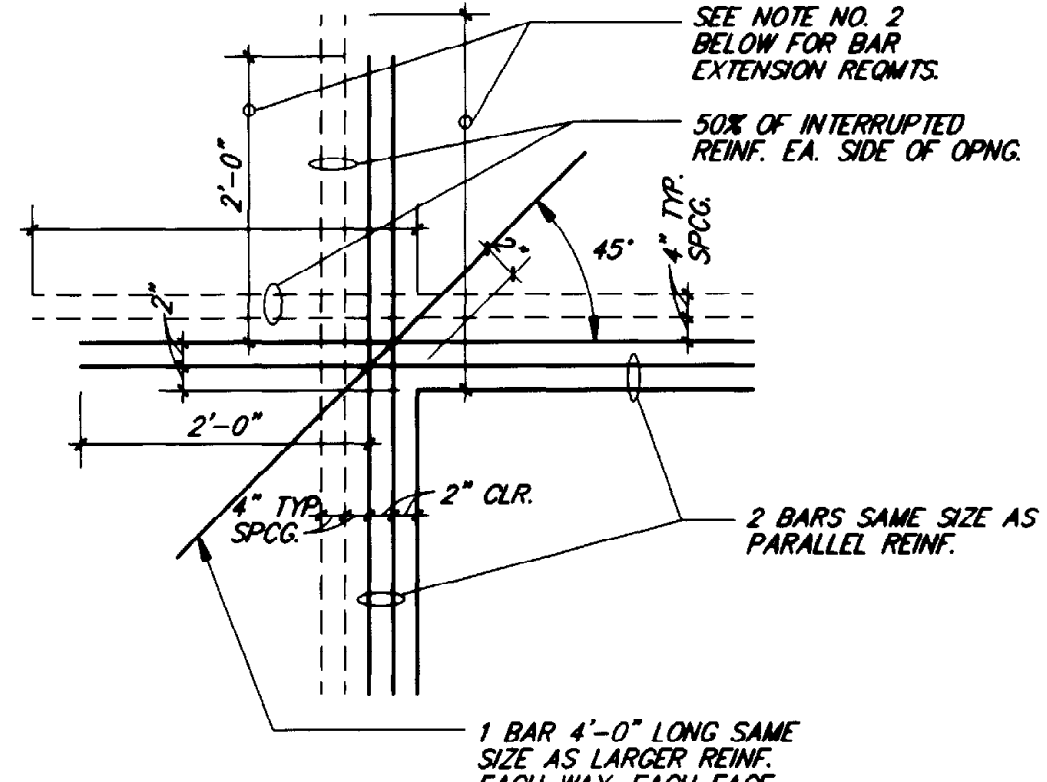
GENERAL SHEETS
TYPICAL CONCRETE DETAILS
PROJECT NUMBER
DRAWING NUMBER **S2**
SHEET NUMBER **119**



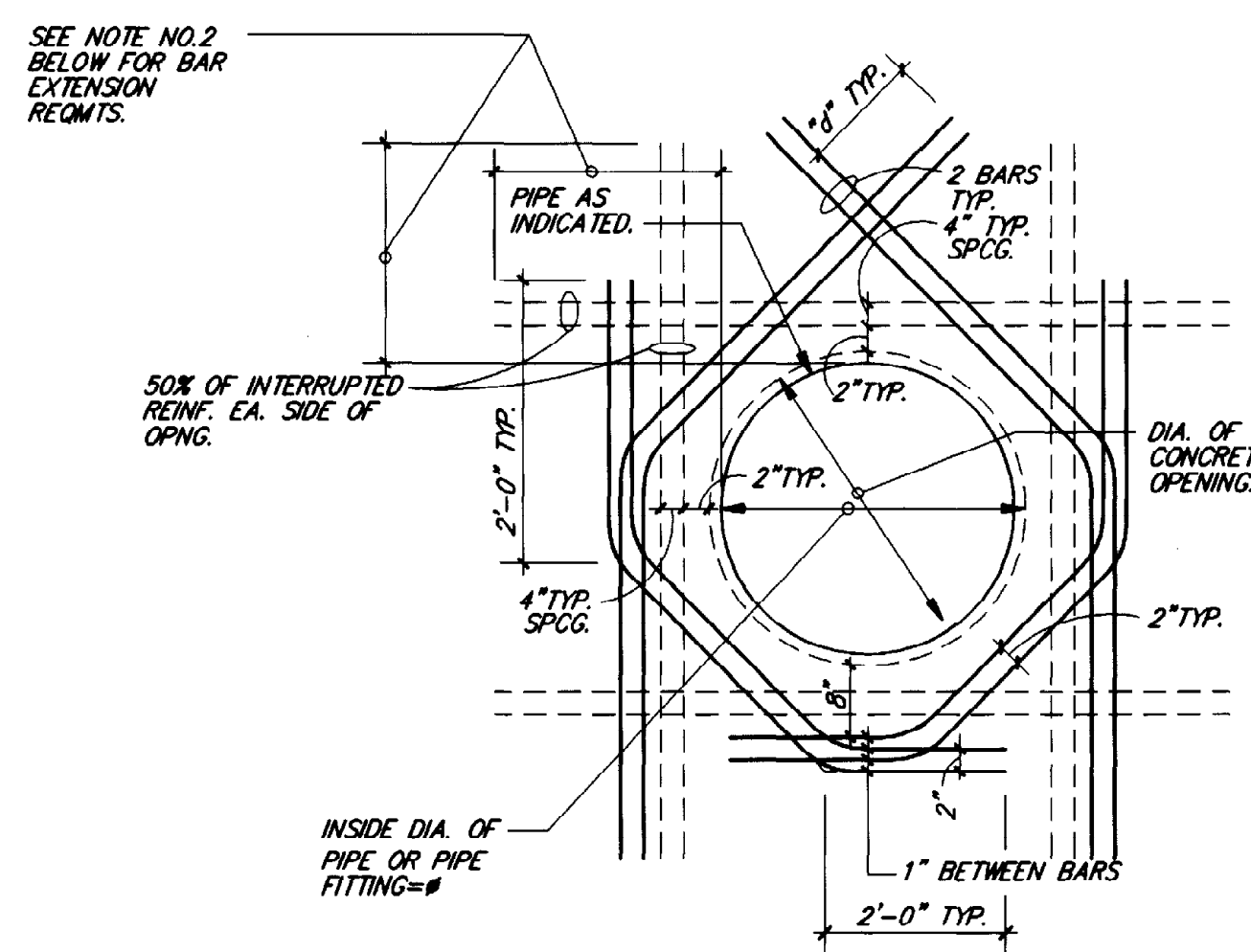
OPENING INSIDE #	BAR SIZE	"d"
4" THRU 20"	#5	15"
24"	#6	15"
30"	#7	18"
36"	#7	18"
48"	#8	24"
60"	#9	30"



TYP. CIRCULAR OPENING



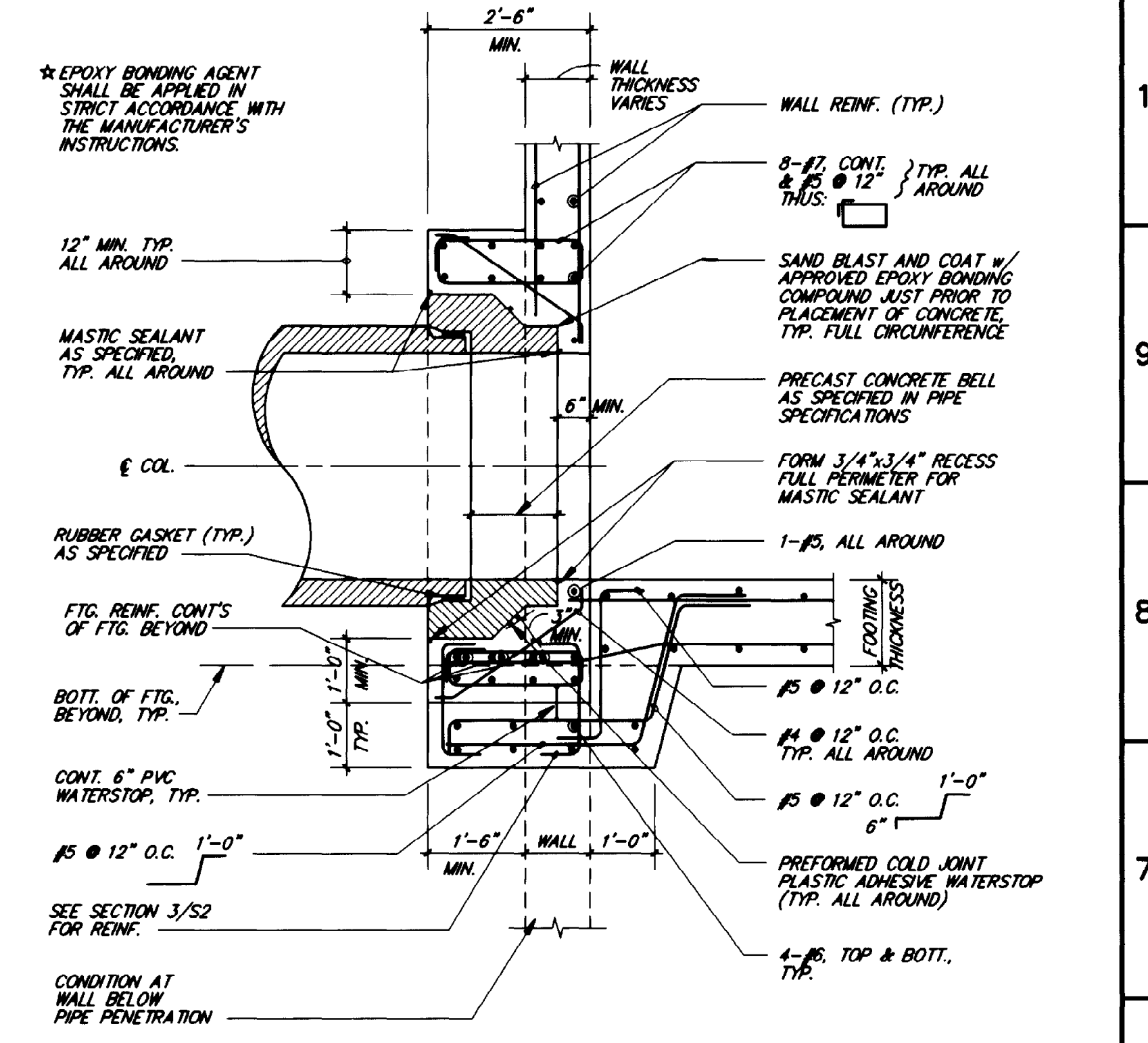
CORNER OF RECT. OPENINGS



CIRCULAR OPENING WITH NARROW CLEARANCE

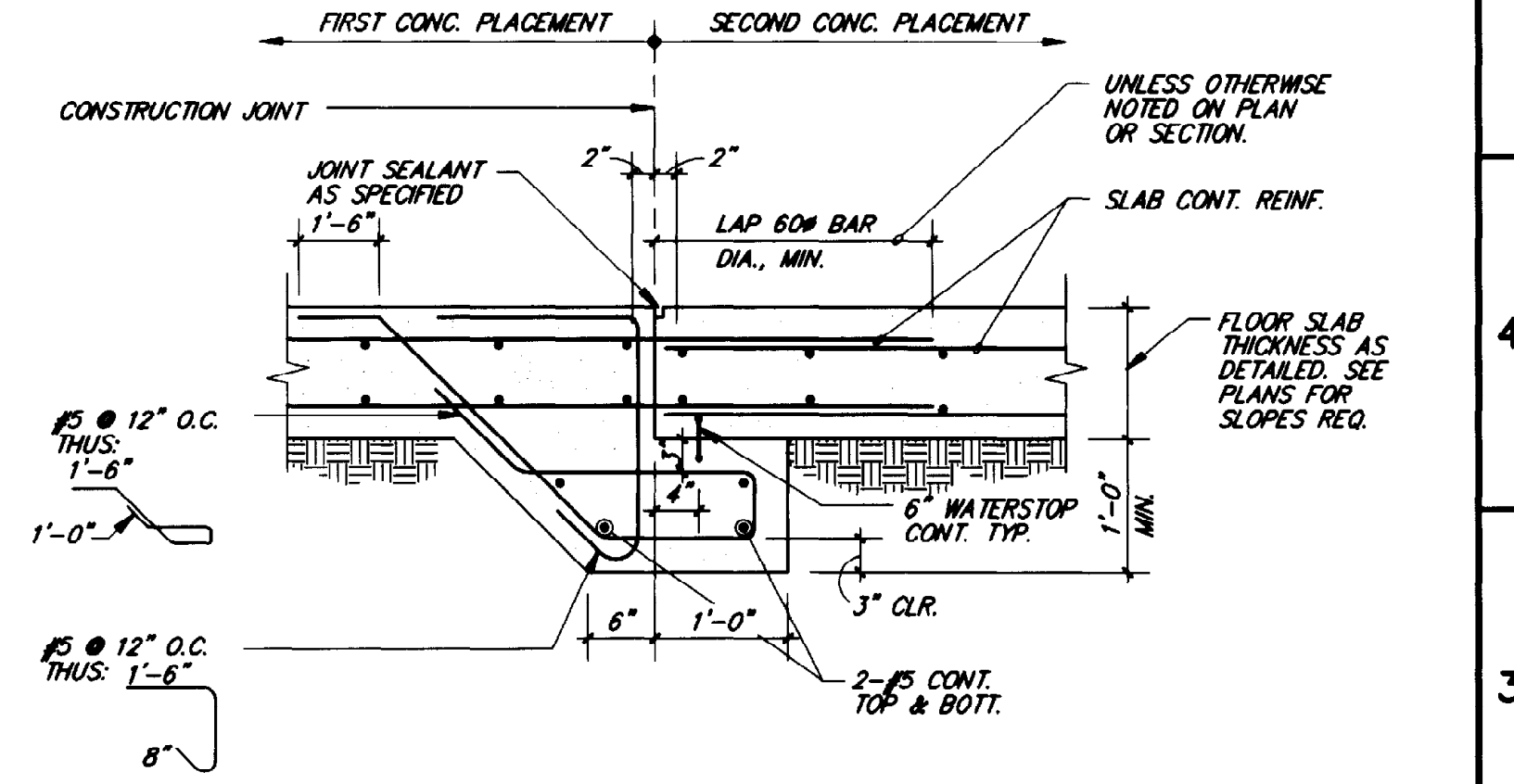
ADDITIONAL REINFORCEMENT DETAILS AT OPENINGS

5 SECTION
S2 3/4"=1'-0"



CAST IN PLACE PIPE BELL

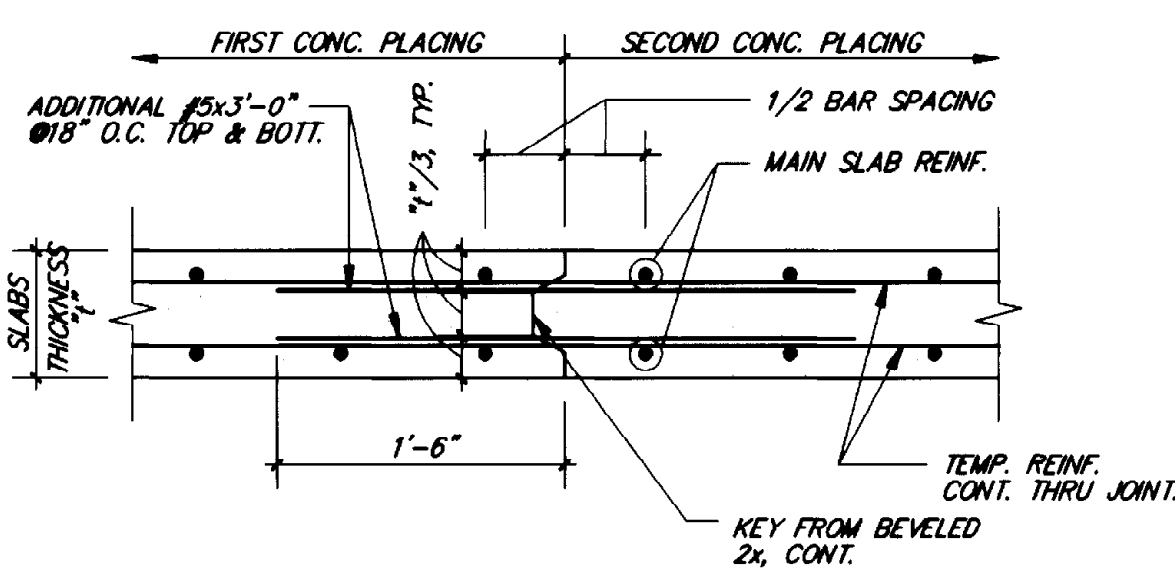
4 SECTION
S2 1/2"=1'-0"



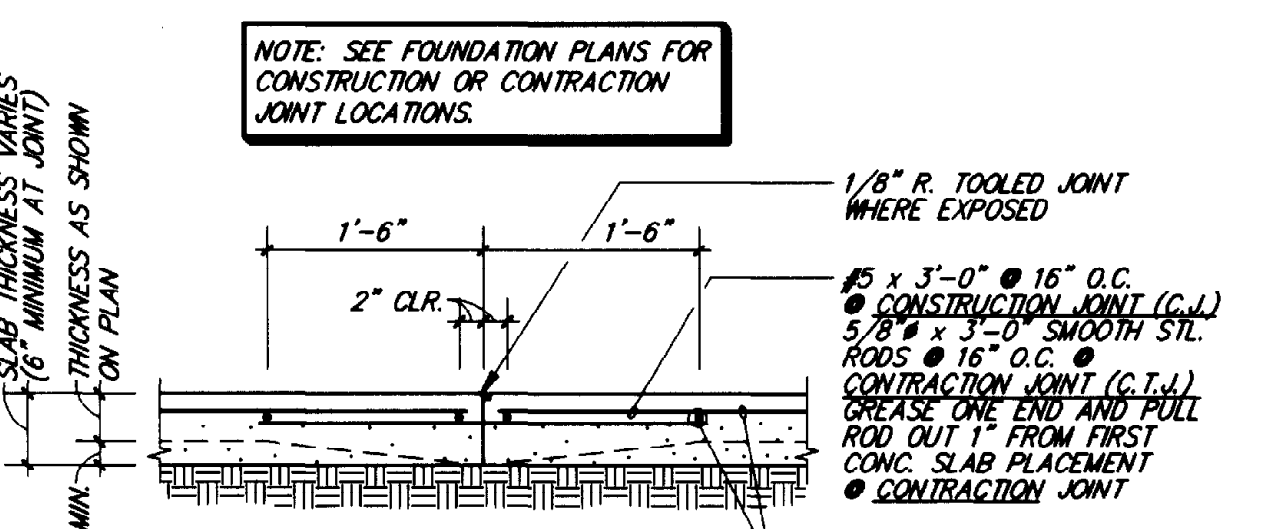
TYPICAL SLAB ON GRADE CONSTRUCTION JOINT FOR ALL WATER CONTAINMENT STRUCTURES

6 SECTION
S2 3/4"=1'-0"

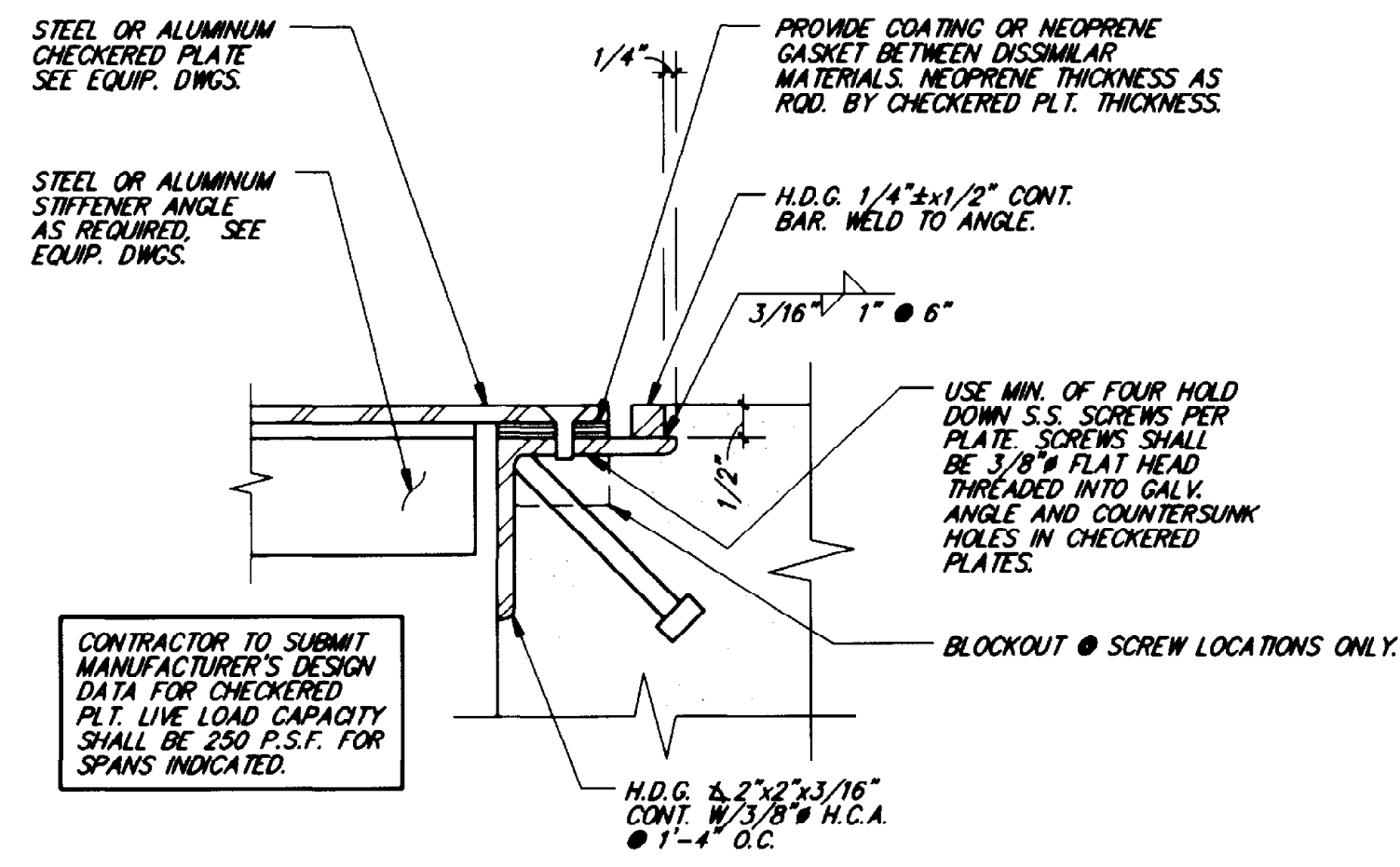
THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO ONGOING PROGRAM TO UPDATE THE DRAWINGS TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.



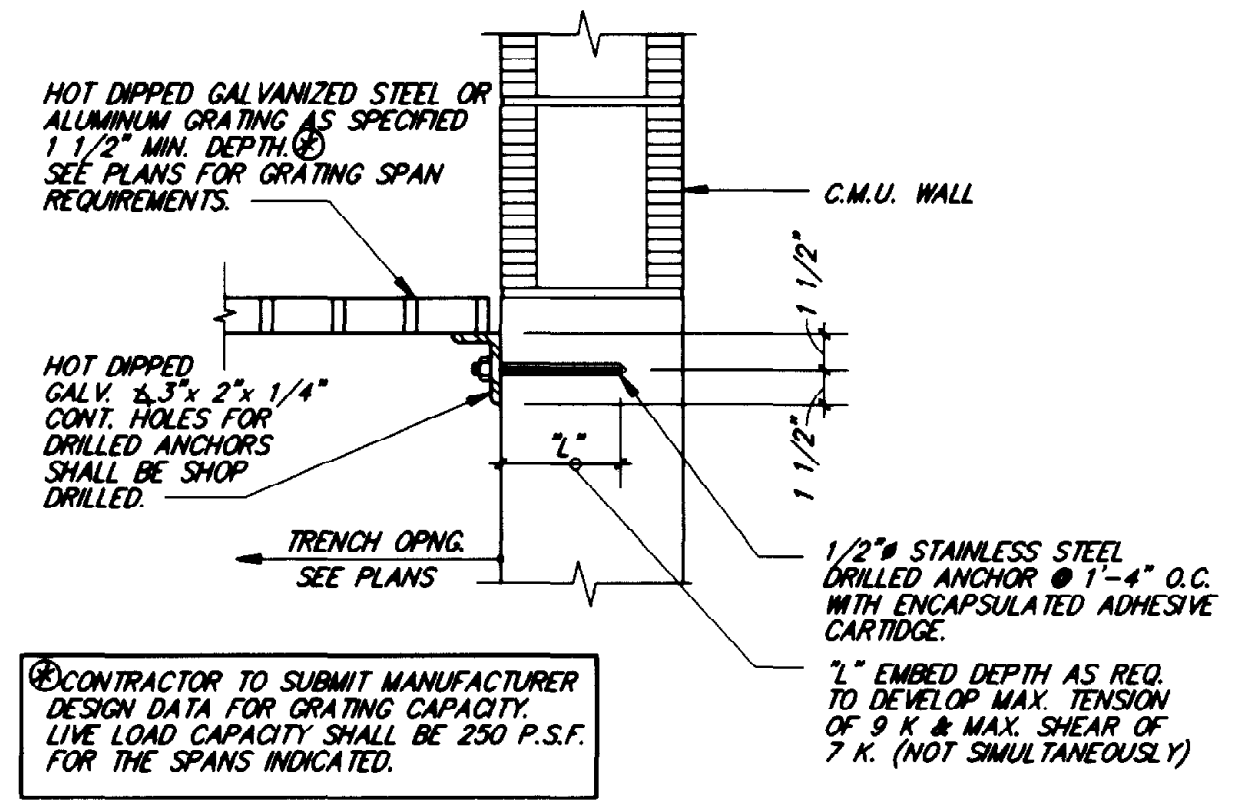
1 SECTION
S3 1"=1'-0"



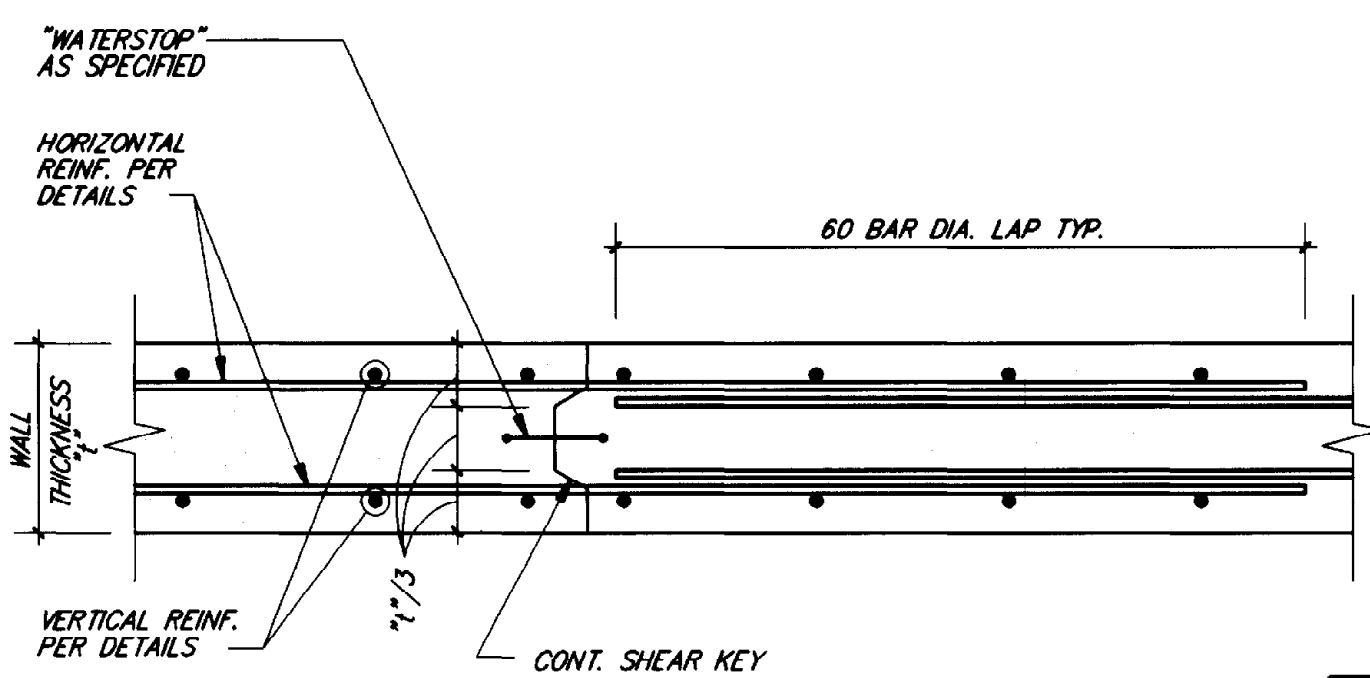
2 SECTION
S3 3/4"=1'-0"



3 SECTION
S3 3"=1'-0"

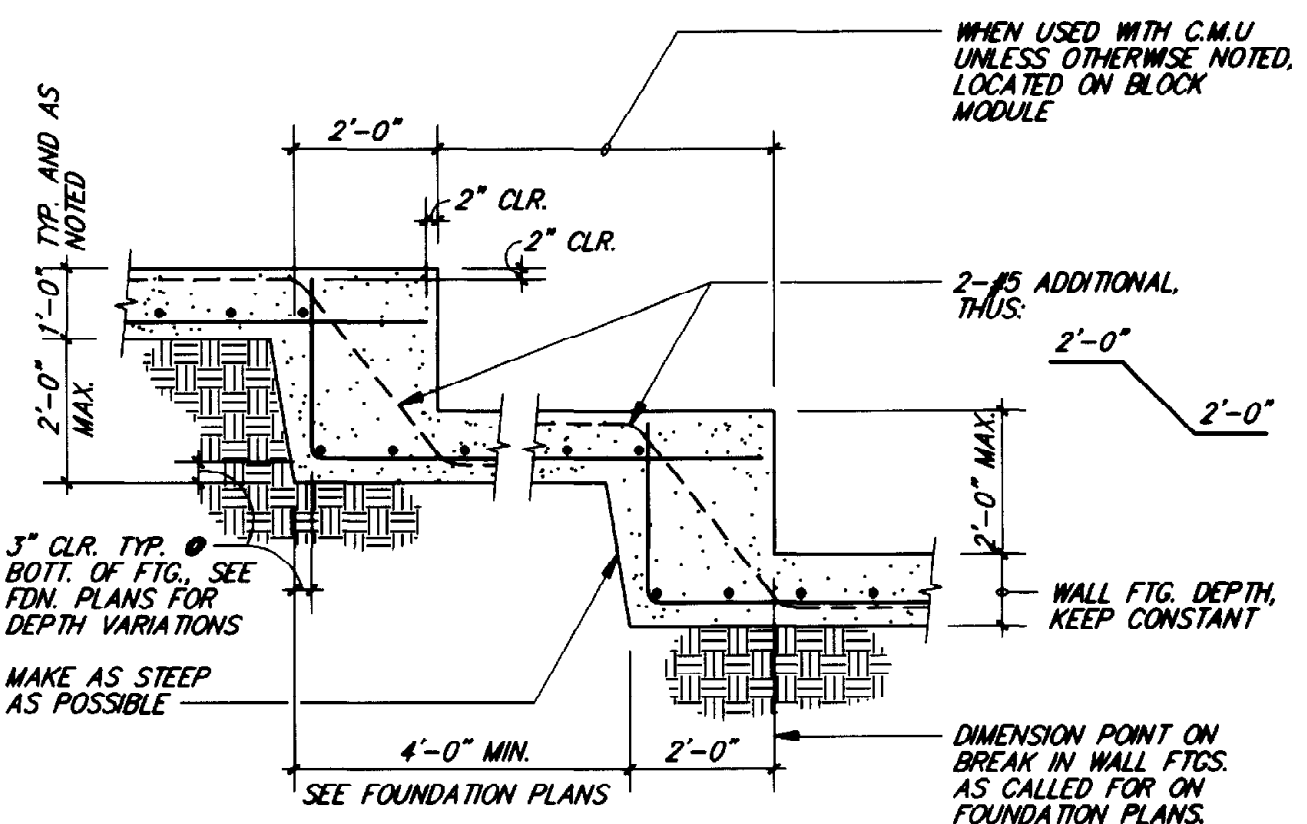


4 SECTION
S3 1 1/2"=1'-0"

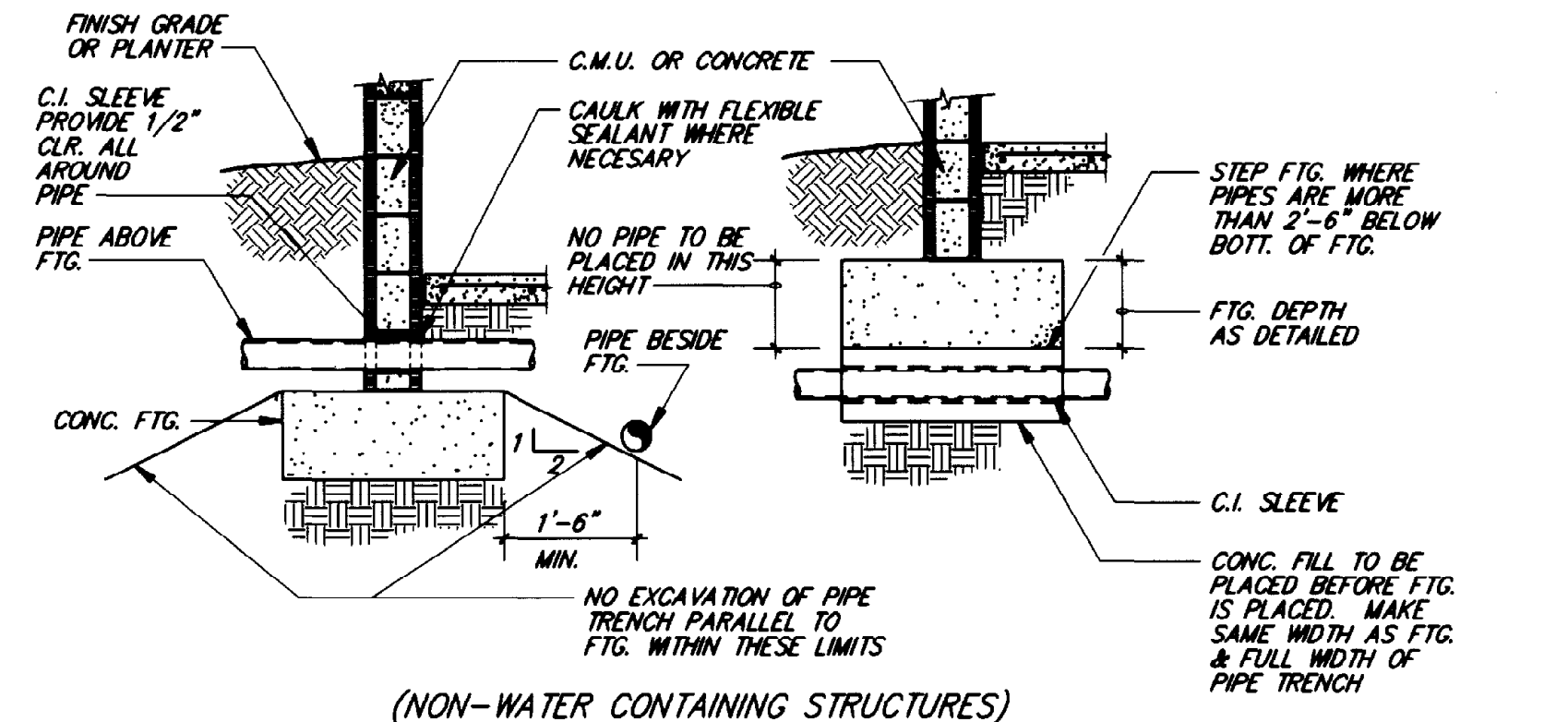


5 SECTION
S3 1"=1'-0"

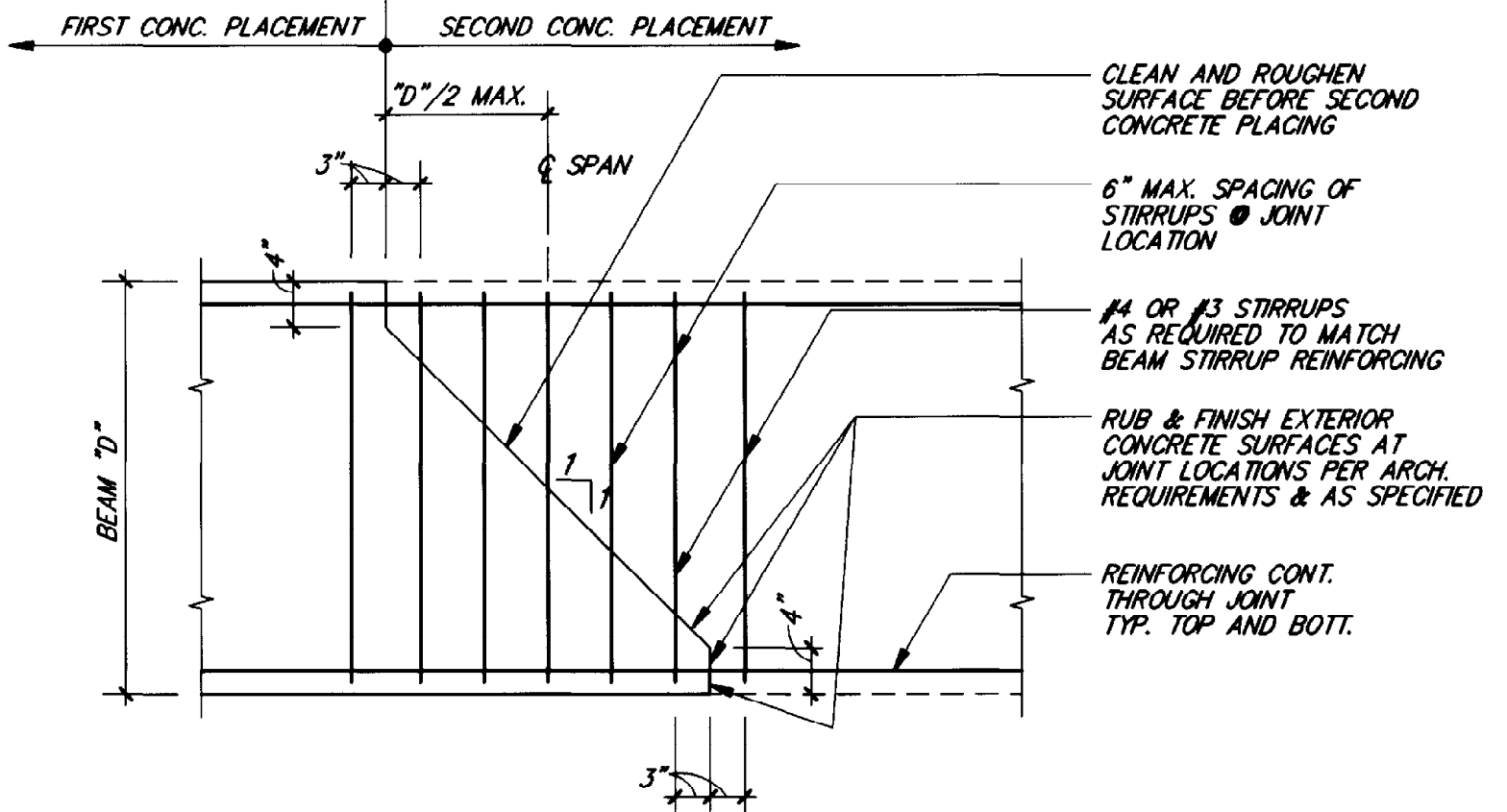
NOTES:
1. PROVIDE 60 BAR DIAMETER (#6) LAP WHERE REQUIRED AT ALL HORIZ. TEMPERATURE OR MAIN REINF. UNLESS OTHERWISE NOTED.
2. STAGGER ALL ADJACENT HORIZONTAL REINF. BAR SPLICES 60 BAR DIAMETERS MINIMUM.



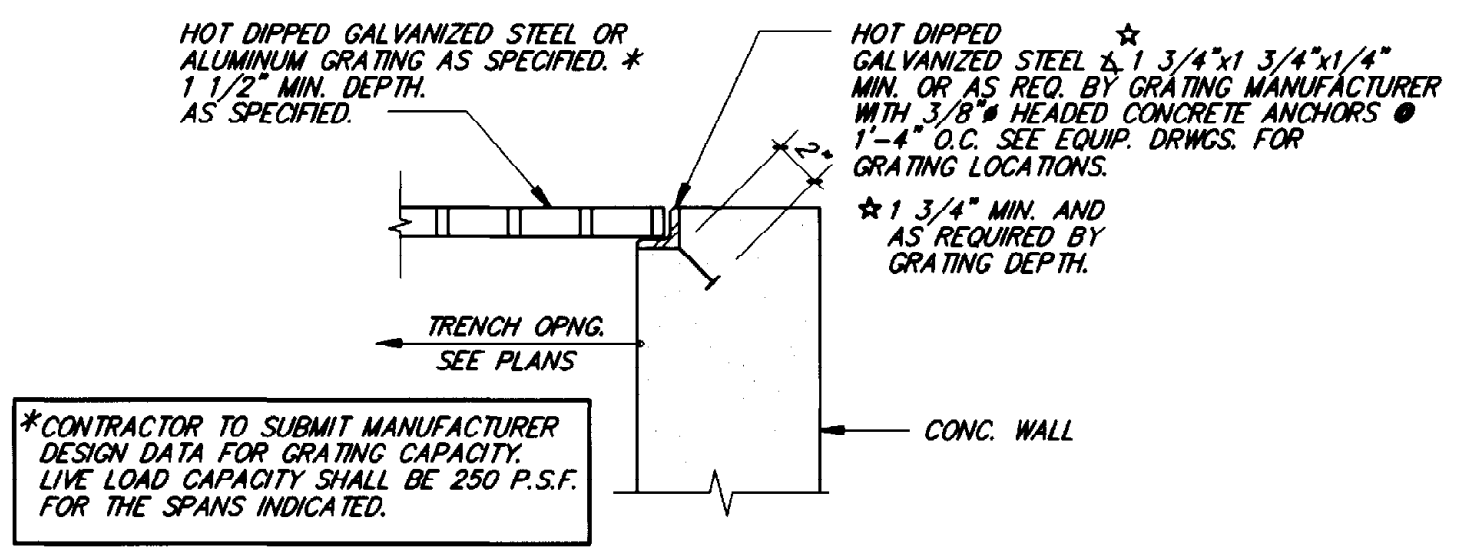
6 SECTION
S3 3/8"=1'-0"



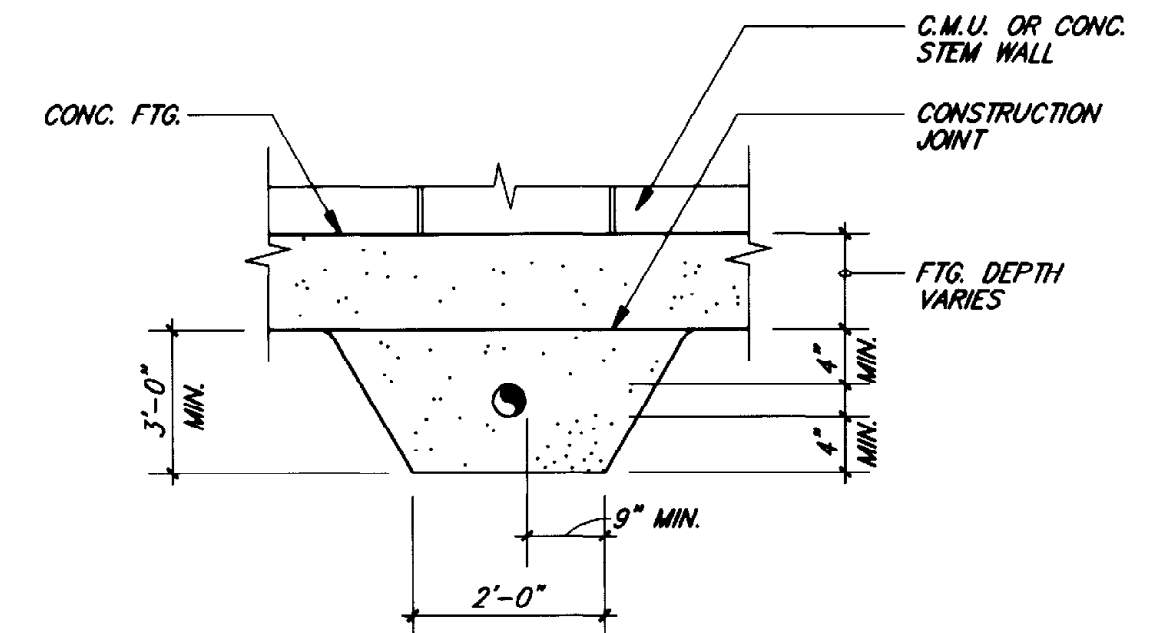
7 SECTION
S3 1 1/2"=1'-0"



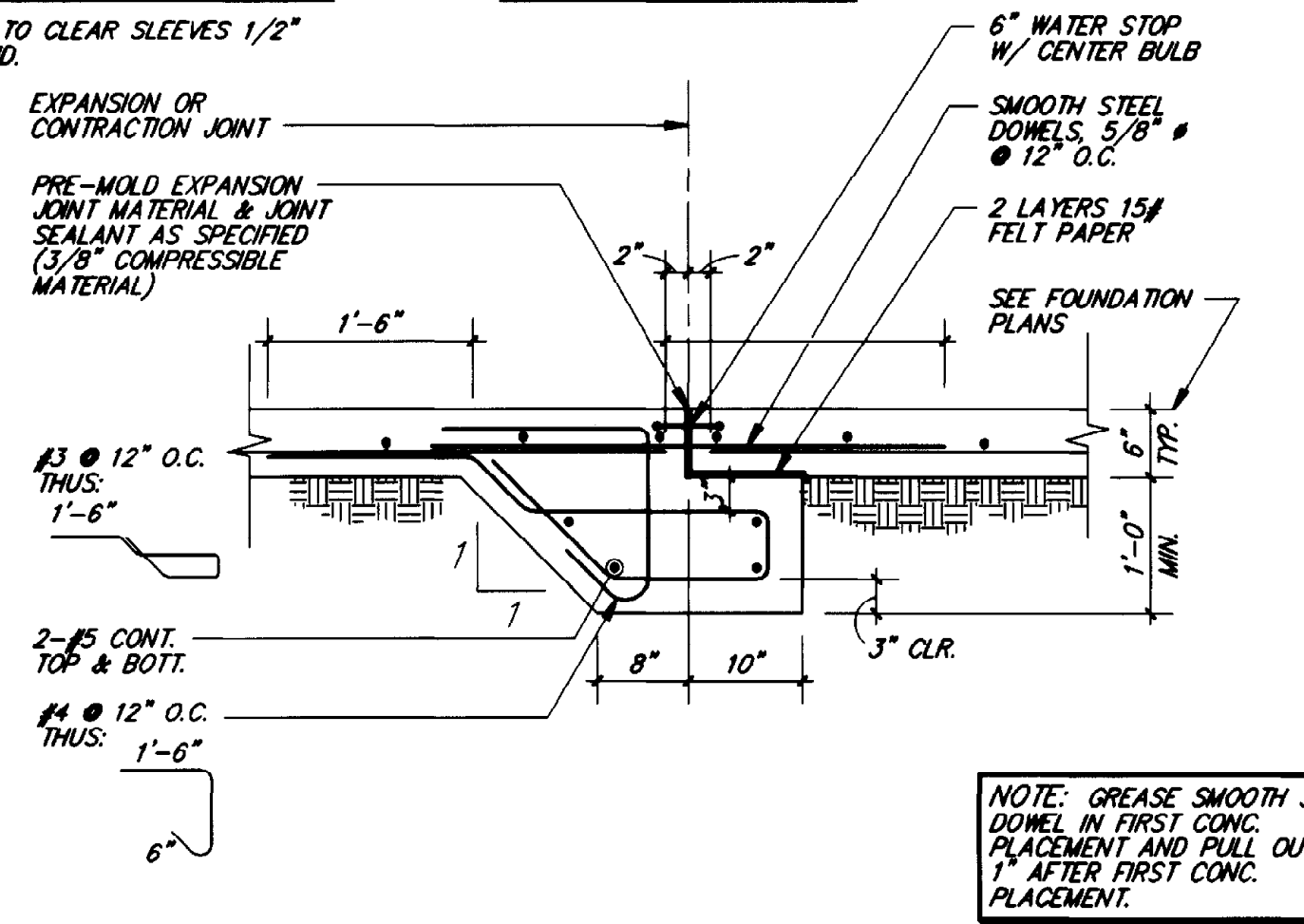
7 SECTION
S3 3/4"=1'-0"



8 DETAIL
S3 1 1/2"=1'-0"



9 SECTION
S3 N.T.S.



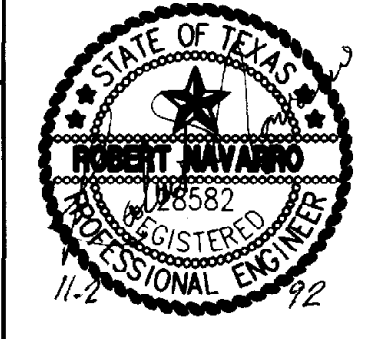
10 SECTION
S3 3/4"=1'-0"

ROBERT NAVARRO & ASSOCIATES ENGINEERING, INC.
124 W. CASTELLANO DRIVE, SUITE 201
EL PASO, TEXAS 79912
(915) 532-1406 FAX(915) 532-1496

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY ROBERT NAVARRO P.E. 26582 ON NOVEMBER 02, 1992.

BC Brown and Caldwell Consultants
Phoenix, Arizona
SUBMITTED: Robert S. Schulz DATE: 11/20/92
APPROVED: [Signature] DATE: 11-20-92
APPROVED: [Signature] DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)
FILE: 5870
DRAWN: R.J.
DESIGNED: R.N.
CHECKED: I.L.
CHECKED: R.N.



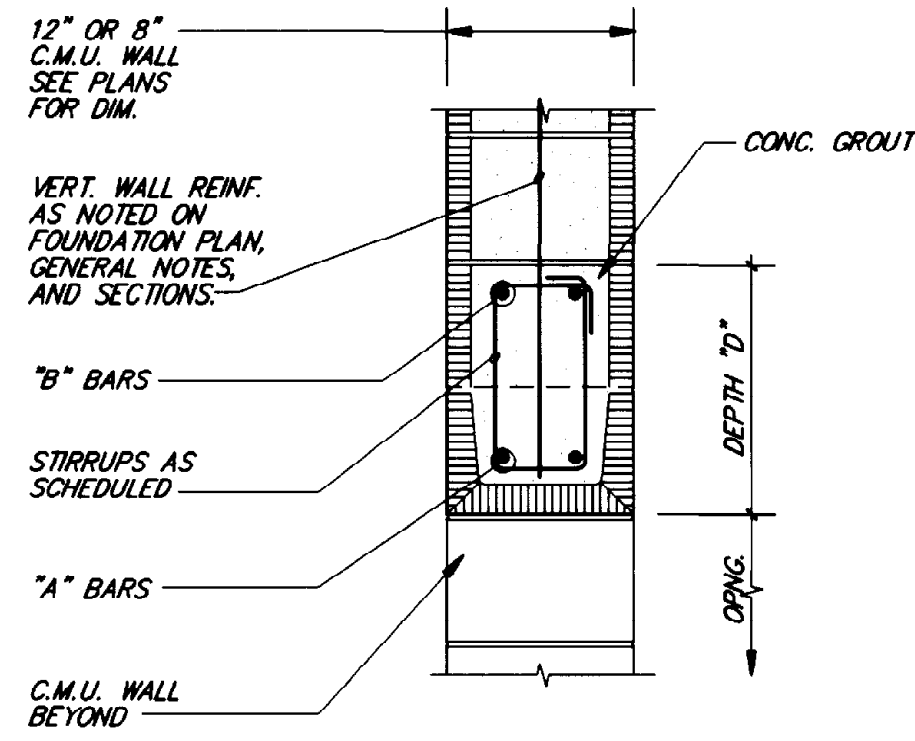
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION
EL PASO WATER UTILITIES

GENERAL SHEETS
PROJECT NUMBER
DRAWING NUMBER
S3
SHEET NUMBER
120

THIS RECORD DRAWING WAS PREPARED USING INFORMATION REPORTED TO BROWN AND CALDWELL AND CONTAINS ONLY THE STANDARD AND CUSTOMARY LEVEL OF DETAIL. THE INFORMATION WAS NOT INDEPENDENTLY FIELD VERIFIED. THERE IS NO QUALITY CONTROL PROGRAM TO UPDATE THE DRAWING TO REFLECT CHANGES SUBSEQUENT TO THE DATE INDICATED. THEREFORE, THIS DRAWING CANNOT BE RELIED UPON AS AN EXACT REPRESENTATION OF ACTUAL CONDITIONS.

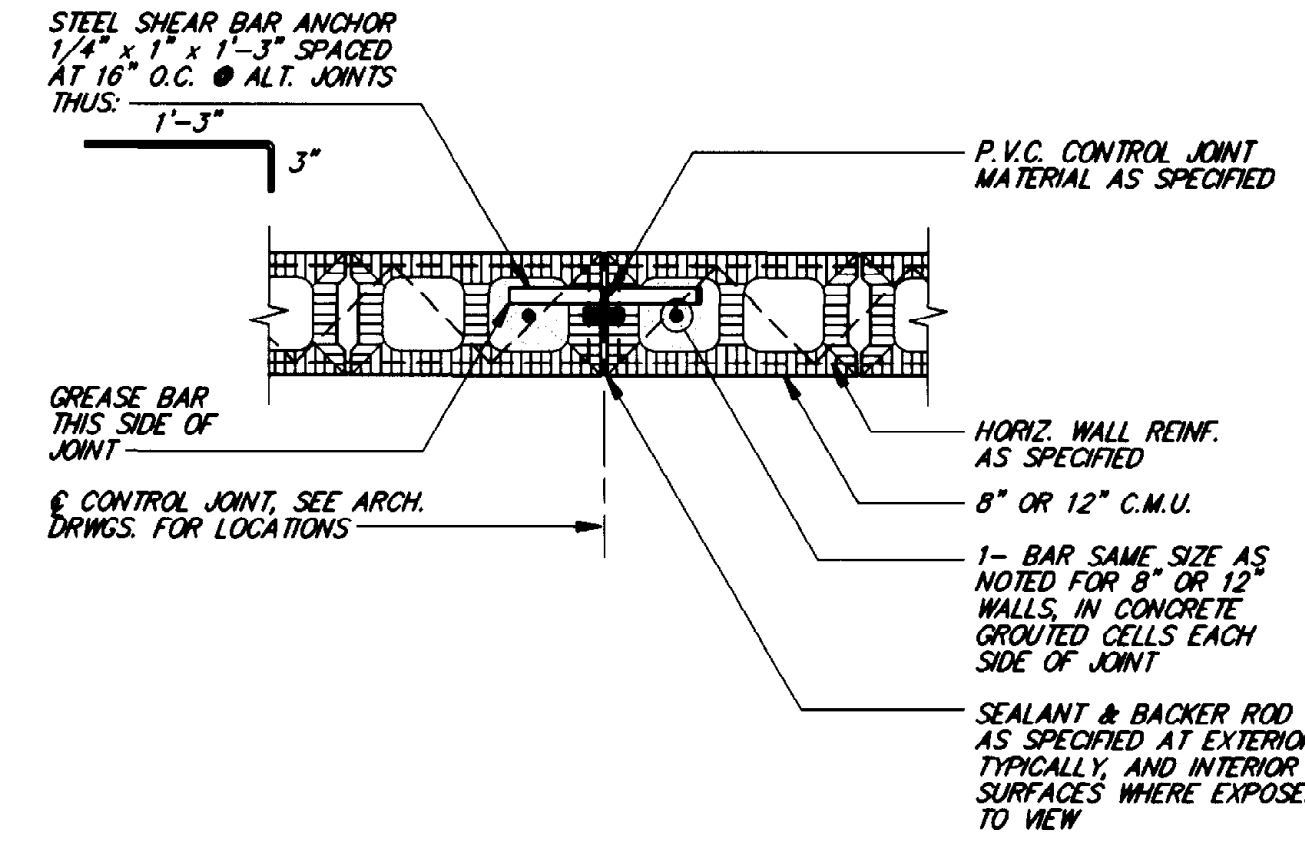
UNLESS OTHERWISE NOTED, ALL EMBEDDED PLATES OR SHAPES, LOOSE PLATES OR STEEL ELEMENTS SHALL BE HOT DIP GALVANIZED AS SPECIFIED. COAT ALL FIELD WELDS WITH GALVANIZING COMPOUND AFTER WELDING OPERATIONS ARE COMPLETED IN ACCORDANCE WITH ASTM A 780.



TYPE	SPAN (CLEAR)	DEPTH	#1 REINF.	#2 REINF.	STIRRUPS (SPEC. FROM EA. END)
I	UP TO 3'-4"	8"	2#5	-	-
II	3'-5" TO 6'-0"	16"	2#5	2#5	-
III	6'-1" TO 8'-0"	16"	2#6	2#5	#3, 5 @ 4" REST @ 8" O.C.
IV	8'-1" TO 10'-0"	24"	2#7	2#6	#3, 8 @ 4" REST @ 8" O.C.

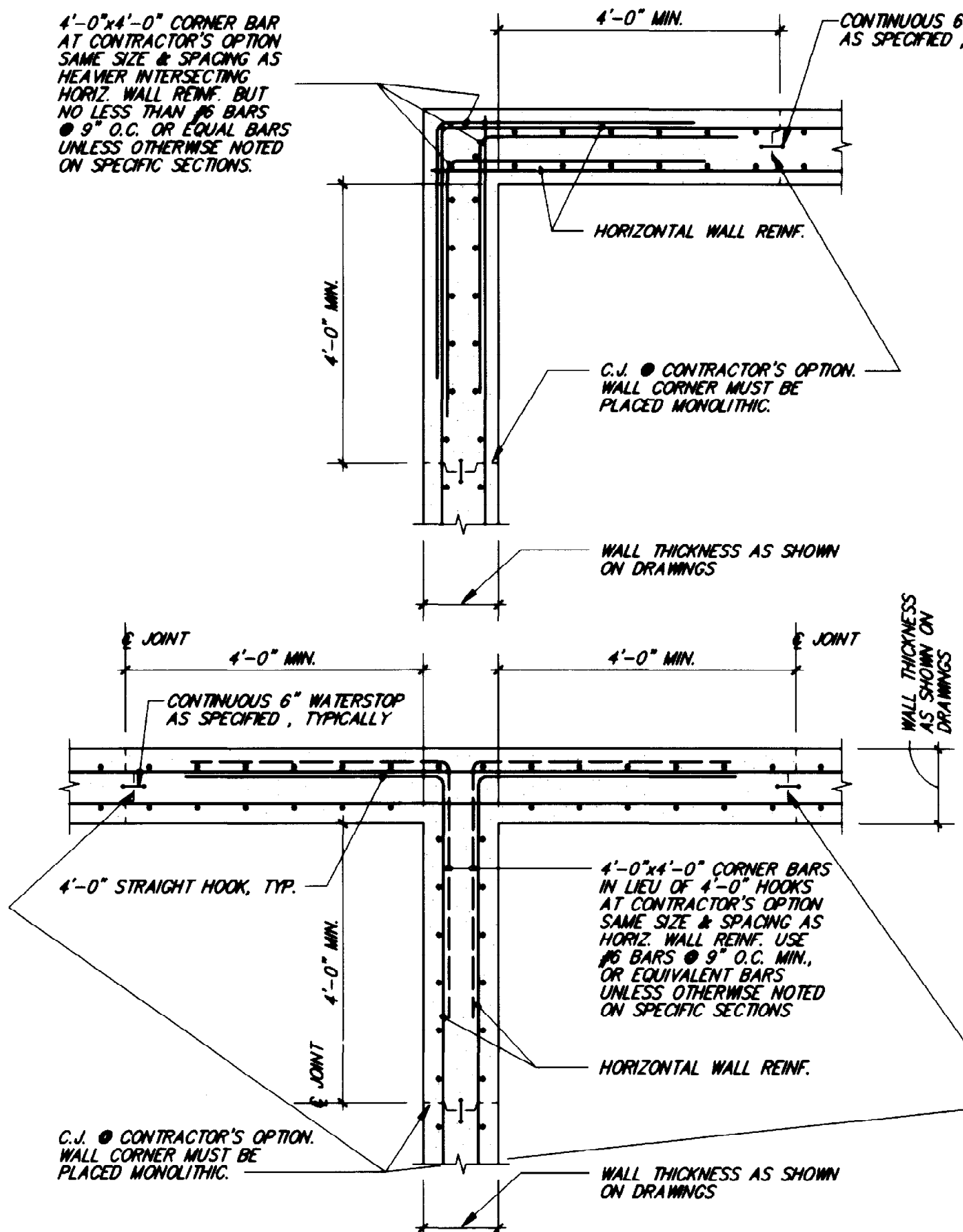
(TYP. C.M.U. WALL LINTEL SECTION & SCHEDULE)

1 SECTION
S4 1"=1'-0"



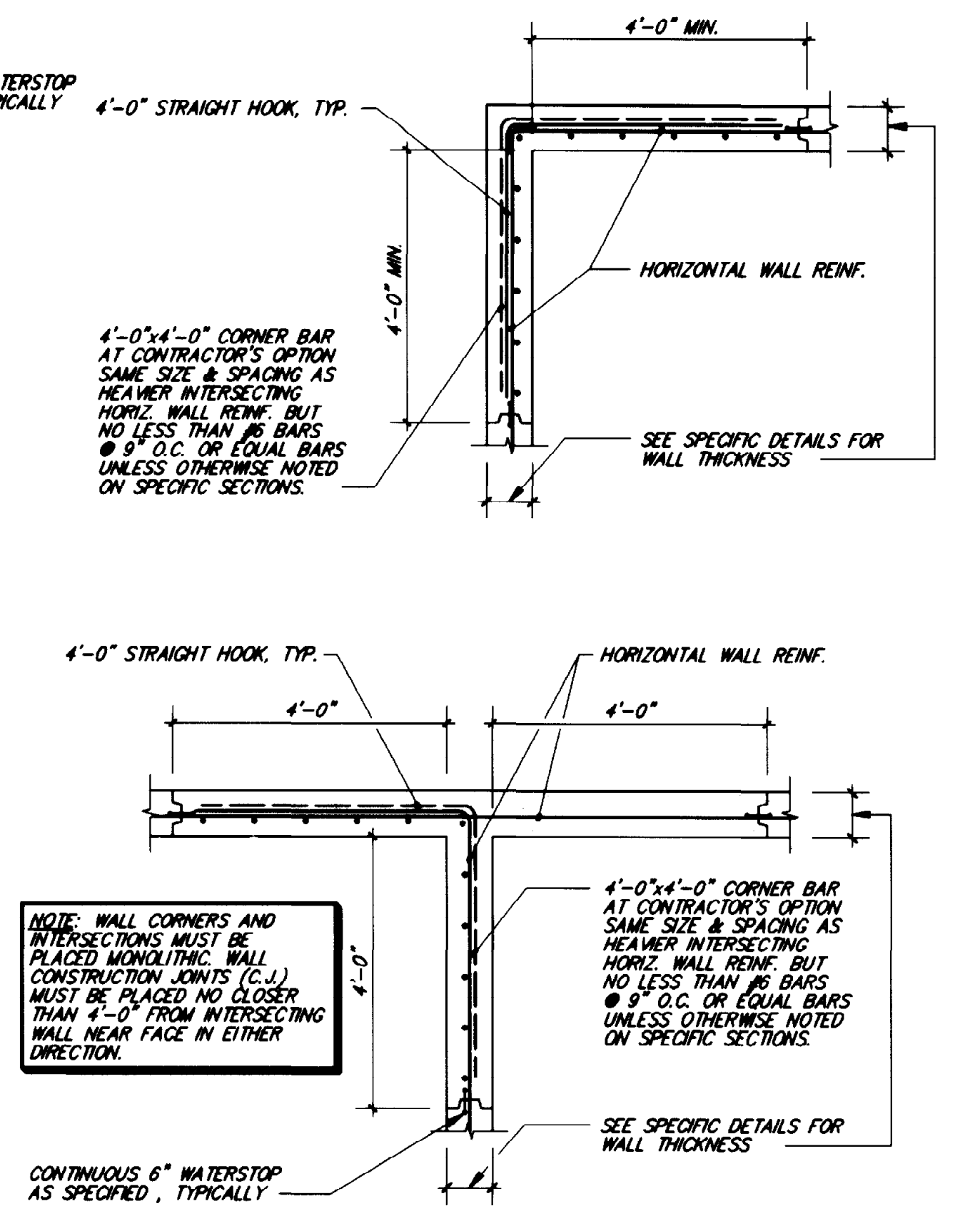
TYPICAL C.M.U. WALL

2 SECTION
S4 1"=1'-0"



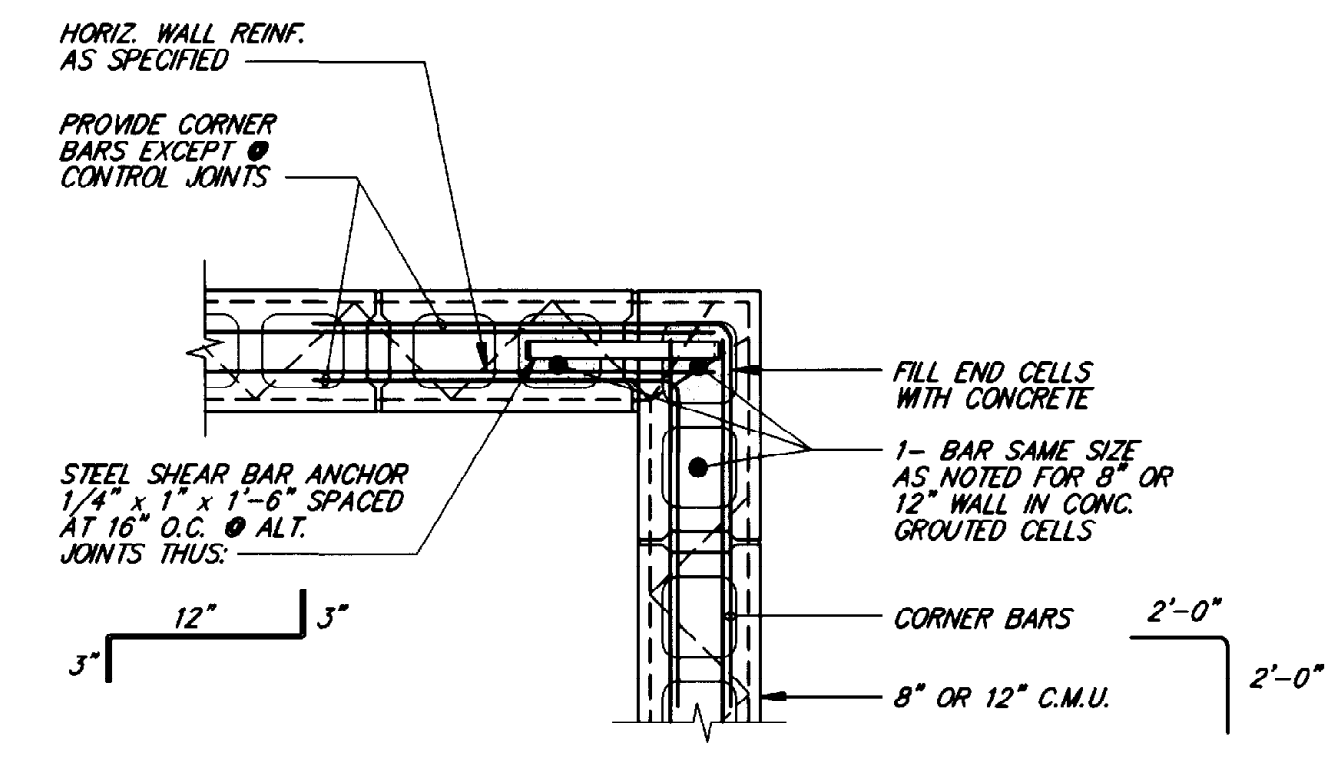
TYP. DOUBLE CURTAIN REINFORCING (TYPICAL REINFORCING AT WALL CORNERS OR INTERSECTIONS)

3 SECTION
S-4 1/2"=1'-0"



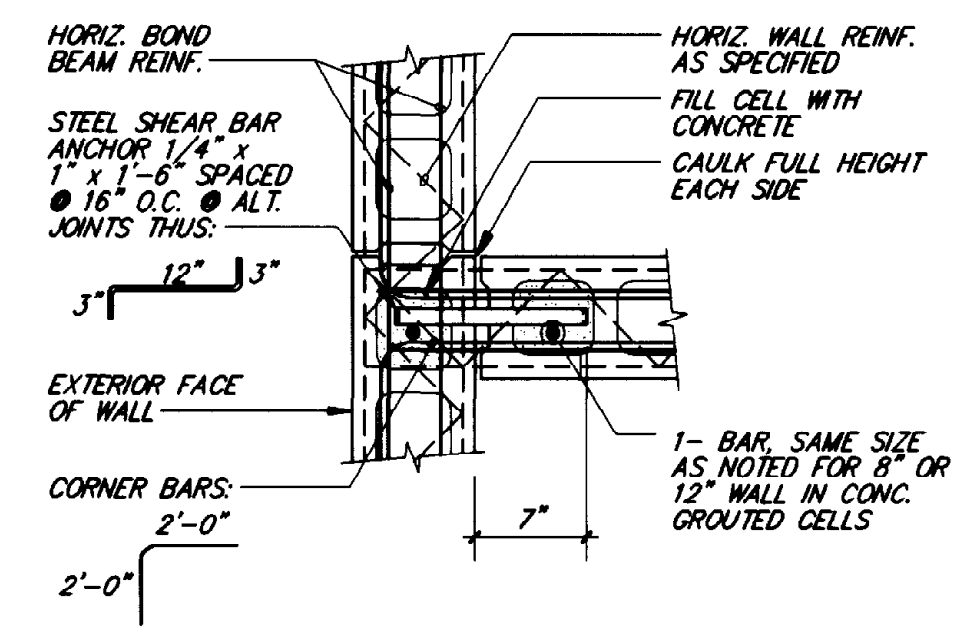
TYP. SINGLE CURTAIN REINFORCING (TYPICAL REINFORCING AT WALL CORNERS OR INTERSECTIONS)

4 SECTION
S-4 1/2"=1'-0"



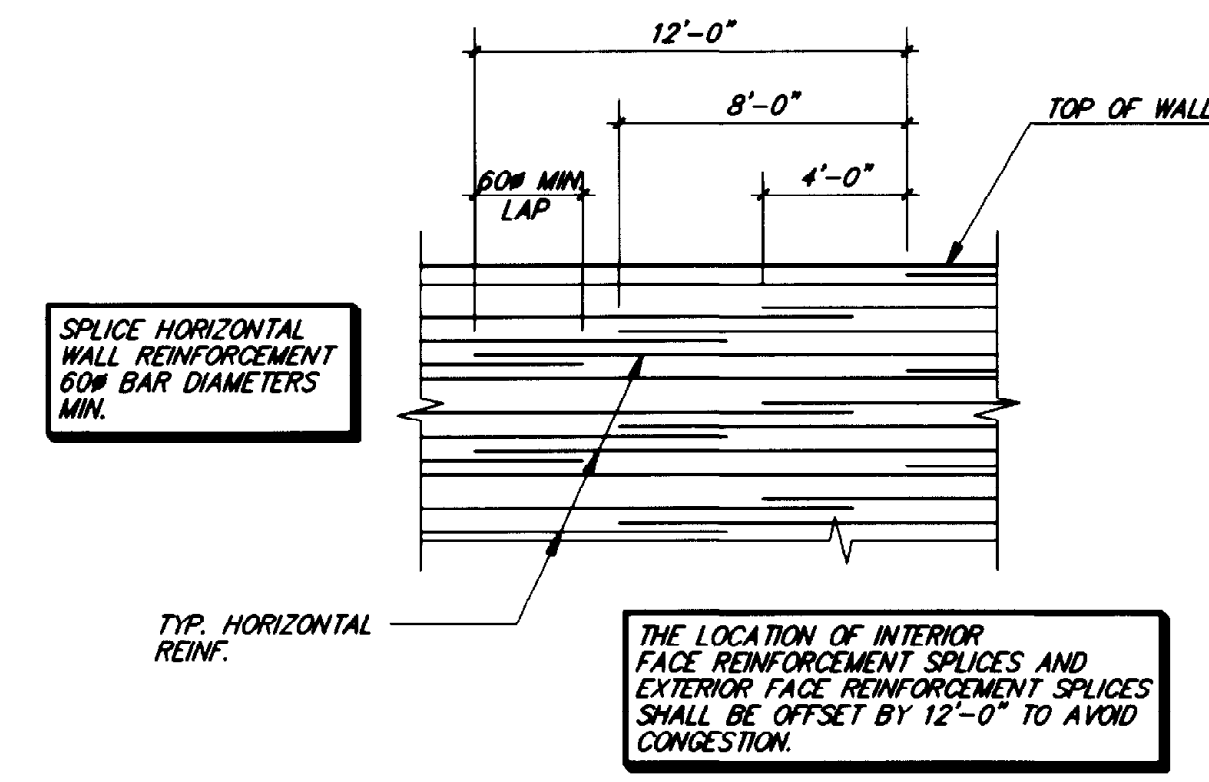
TYPICAL C.M.U. WALL

5 SECTION
S4 1"=1'-0"



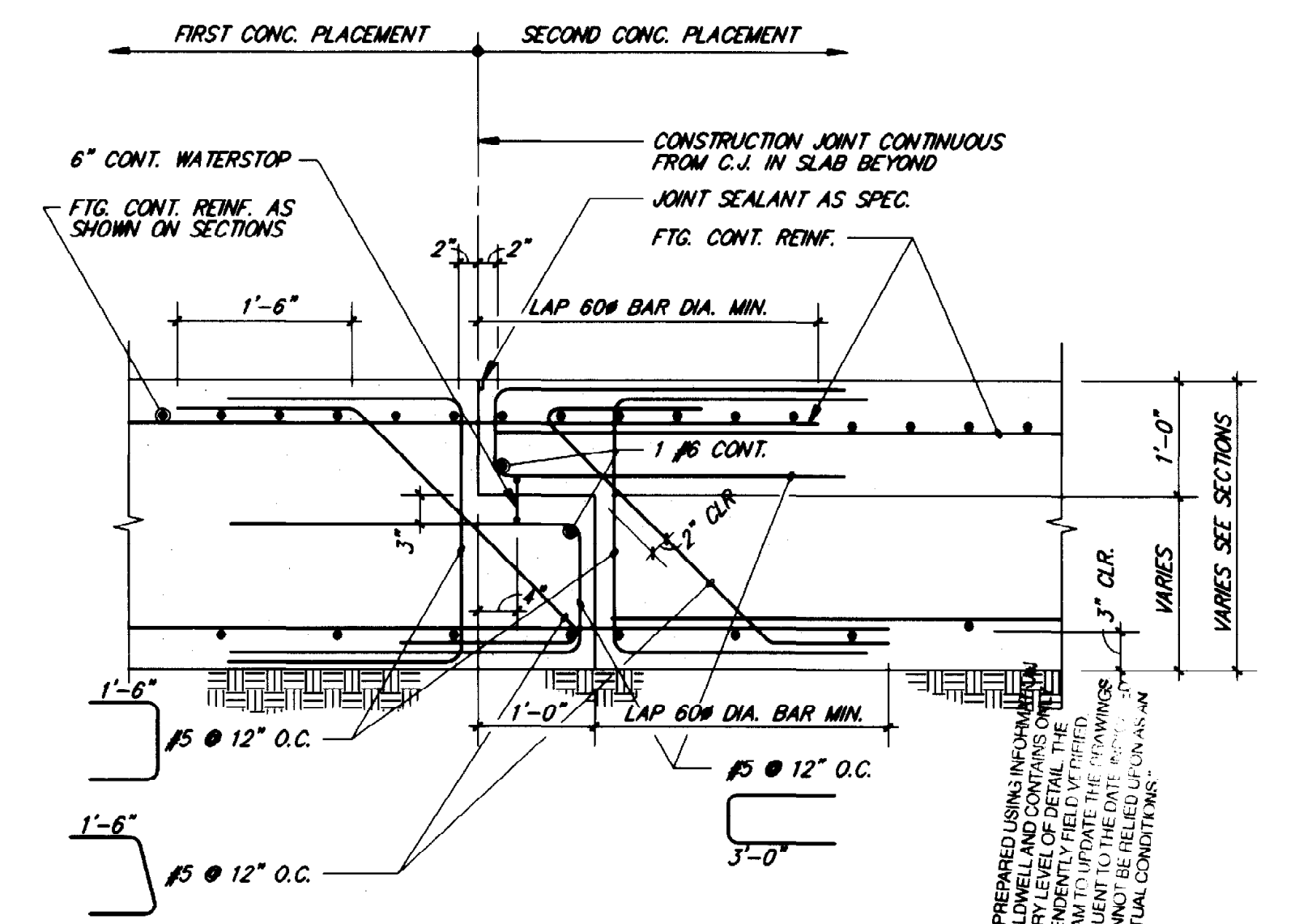
TYPICAL C.M.U. WALL

6 SECTION
S4 1"=1'-0"



SPLICE REQUIREMENTS-HORIZONTAL WALL REINFORCEMENT (CIRCULAR STRUCTURES)

7 SECTION
S-4 3/16"=1'-0"



TYPICAL FOOTING CONSTRUCTION (C.J.) FOR WATER CONTAINMENT STRUCTURES

8 SECTION
S-4 3/4"=1'-0"

ROBERT NAVARRO & ASSOCIATES ENGINEERING, INC.
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THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY ROBERT NAVARRO P.E. 28582 ON NOVEMBER 02, 1992

BC Brown and Caldwell Consultants
Phoenix, Arizona
SUBMITTED: *Robert S. Schell* DATE: 11/20/92
APPROVED: *Robert S. Schell* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)
FILE: 5870
DRAWN: R.R.
DESIGNED: R.N.
CHECKED: I.L.
CHECKED: R.N.



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

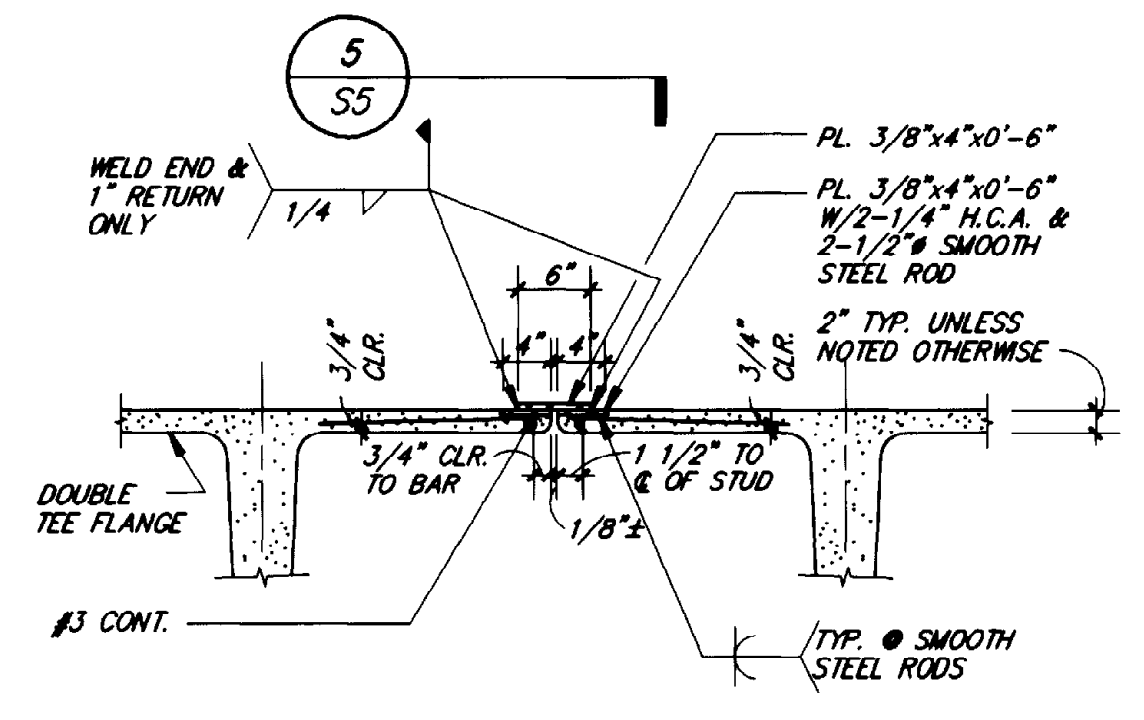
EL PASO WATER UTILITIES
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

GENERAL SHEET
PROJECT NUMBER
DRAWING NUMBER **S4**
SHEET NUMBER **121**

THIS RECORD DRAWING WAS PREPARED USING INSTRUCTIONS FROM THE STATIONING AND CONTROL DATA AND CONTAINS INFORMATION THAT IS NOT TO BE USED FOR ANY OTHER PROJECT. ANY CHANGES TO THIS DRAWING SHALL BE MADE BY THE ORIGINAL DESIGNER OR HIS REPRESENTATIVE. THE EXACT REPRESENTATION OF ACTUAL CONDITIONS SHALL BE THE RESPONSIBILITY OF THE USER.

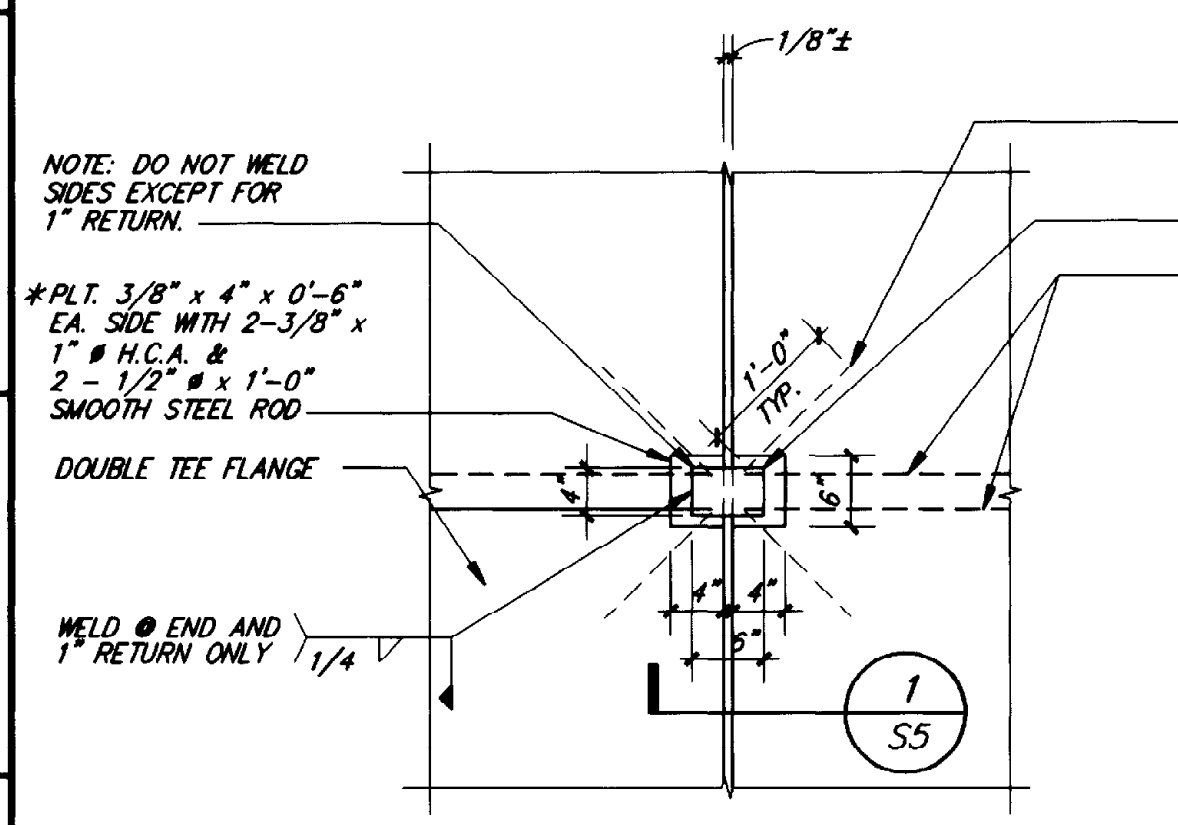
GENERAL NOTE:
 ALL MISCELLANEOUS STEEL EITHER EMBEDDED IN CONCRETE OR NOT (PLATES, ANGLES, HEADED CONCRETE ANCHORS, SMOOTH AND THREADED RODS, ANCHOR BOLTS, ETC.) SHOWN ON THIS SHEET SHALL BE HOT DIP GALVANIZED. ALL WELDS SHALL BE CLEANED AND COATED WITH APPROVED GALVANIC COATING AS SPECIFIED.

MONORAIL BEAM AND BRIDGE CRANE RUNWAY BEAM CONNECTION NOTE:
 MINIMUM SIZE OF MONORAIL BEAM SUPPORTED FROM DOUBLE TEE PANEL SHALL BE 10x25.4 MONORAIL BEAM ENDS SHALL BE EXTENDED TO FACE OF WALLS AND CONNECTED TO WALLS WHERE SHOWN ON ROOF FRAMING PLANS.
 MONORAIL MANUFACTURER SHALL CONFIRM THE DESIGN SIZE OF MONORAIL BEAMS AND SIZE & LAYOUT OF BEAM TO D.T. CONNECTION PLATES AND RODS, SUBJECT TO THE WRITTEN APPROVAL OF THE ENGINEER.

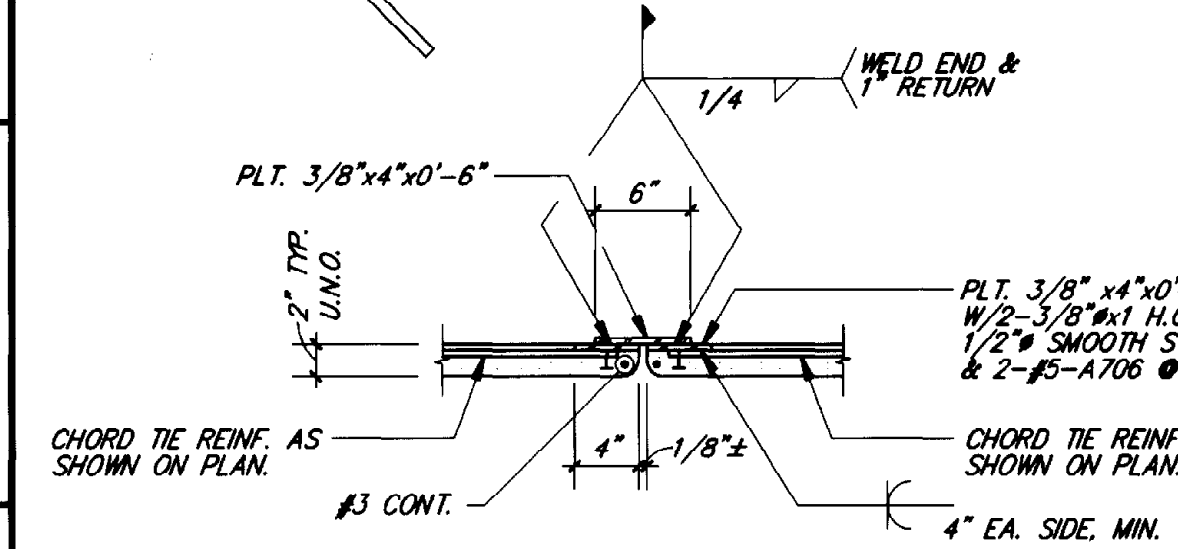
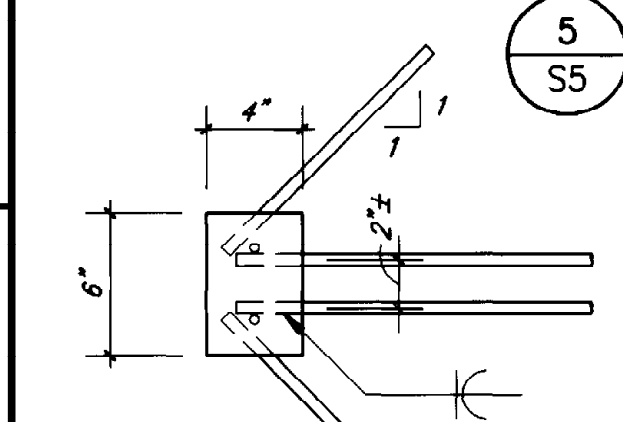


TYP. CONNECTION AT EDGES OF D.T. FLANGES
 (SEE FRAMING PLANS FOR SPACING OF CONNECTIONS)

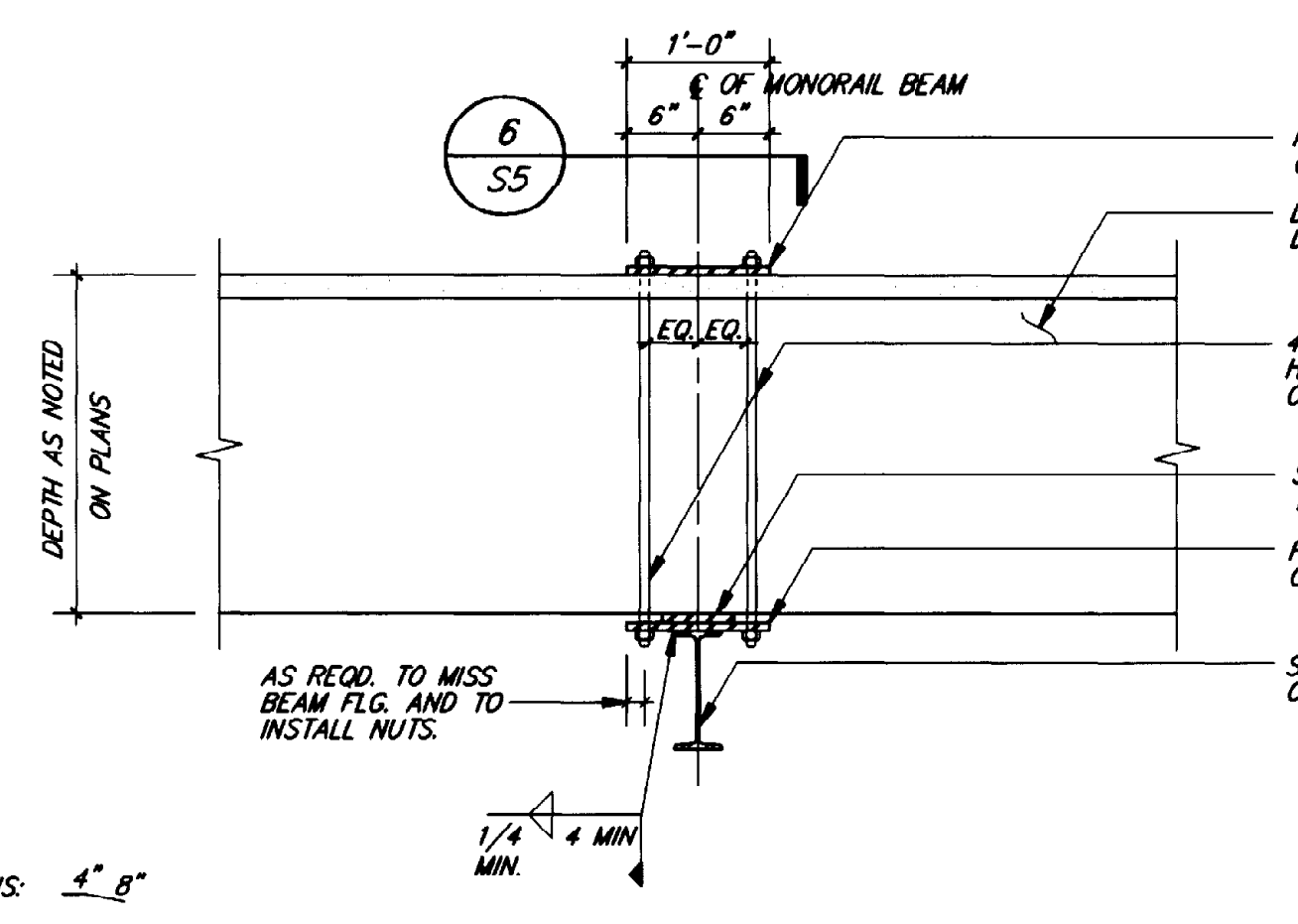
SECTION 1
 S5 3/4"=1'-0"



SECTION 5
 S5 3/4"=1'-0"

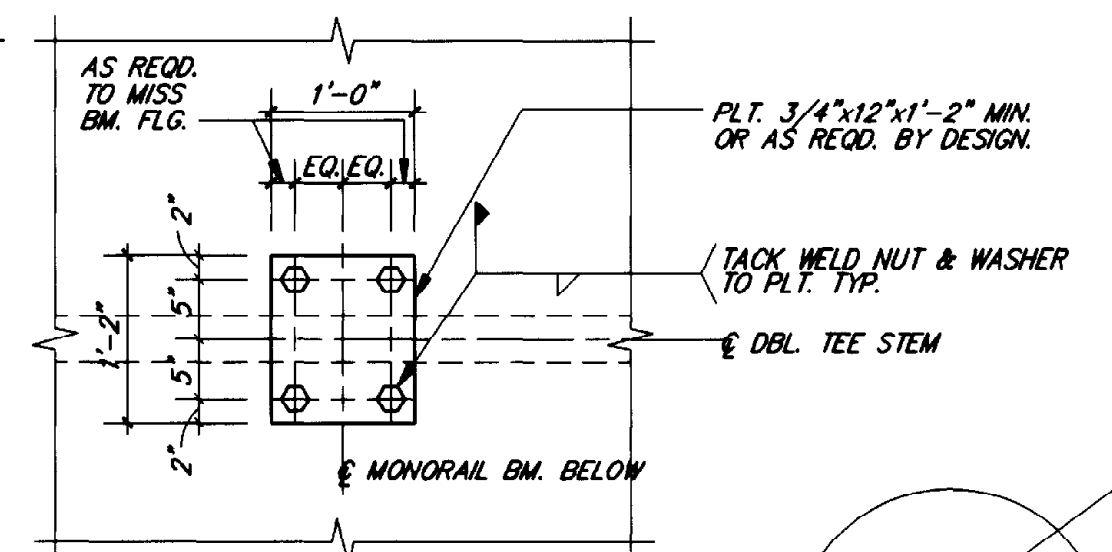


SECTION 9
 S5 3/4"=1'-0"

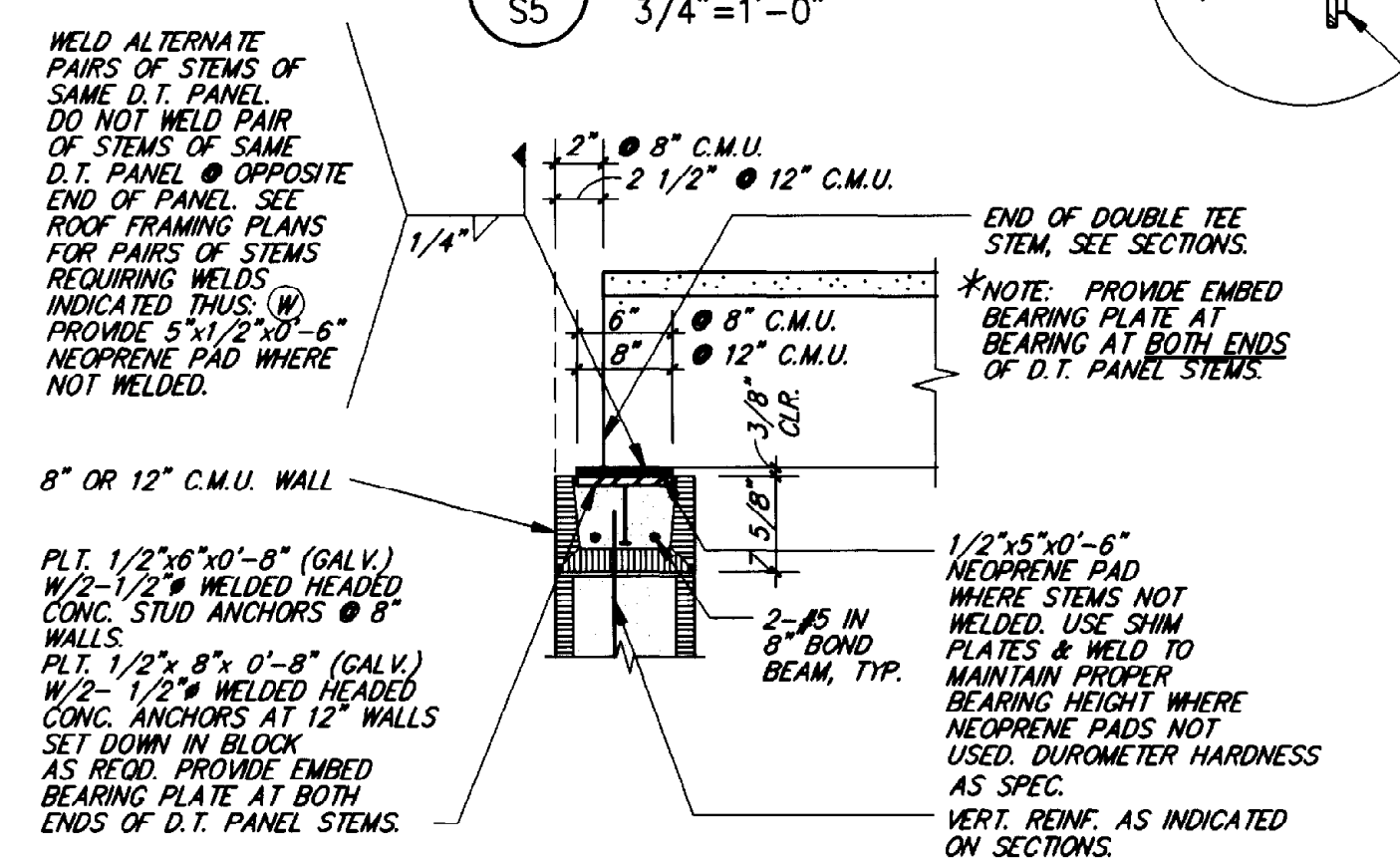


TYP. MONORAIL BEAM D.T. CONNECTION
 (SEE PLAN SHEETS FOR MONORAIL BEAM LOCATIONS.)
 (SEE NOTE ABOVE FOR MONORAIL BEAM & CONN. DESIGN)

SECTION 2
 S5 3/4"=1'-0"

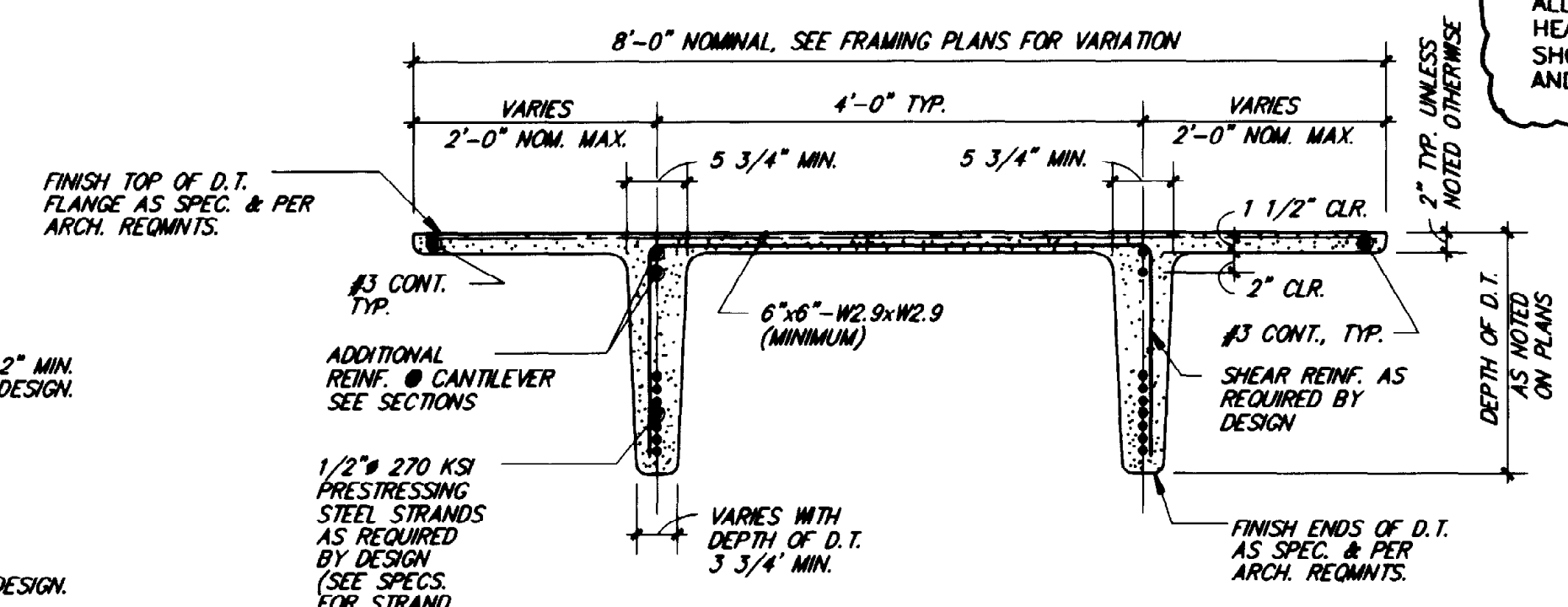


SECTION 6
 S5 3/4"=1'-0"



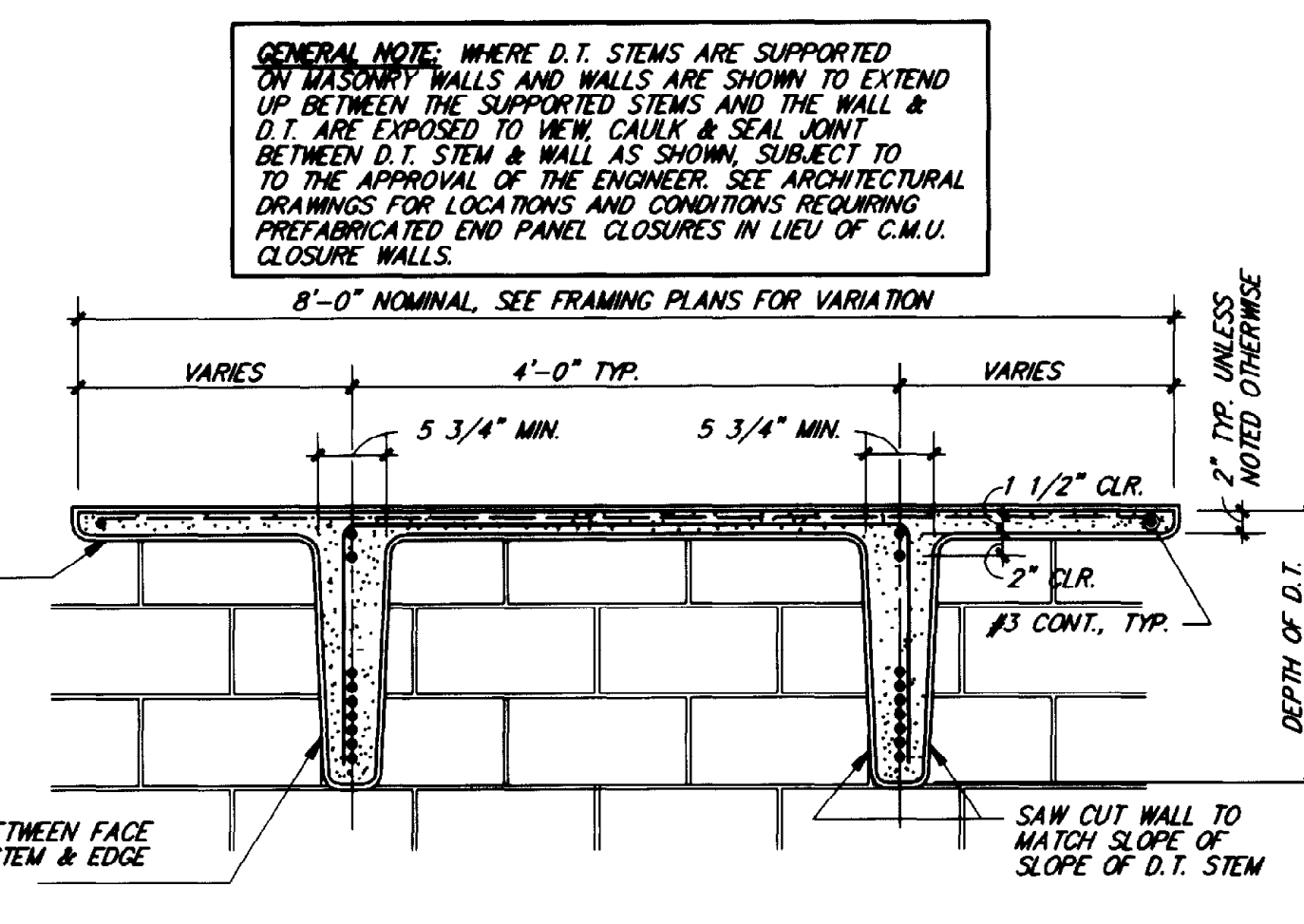
TYP. DOUBLE TEE BRG. ON C.M.U. WALL

SECTION 10
 S5 3/4"=1'-0"



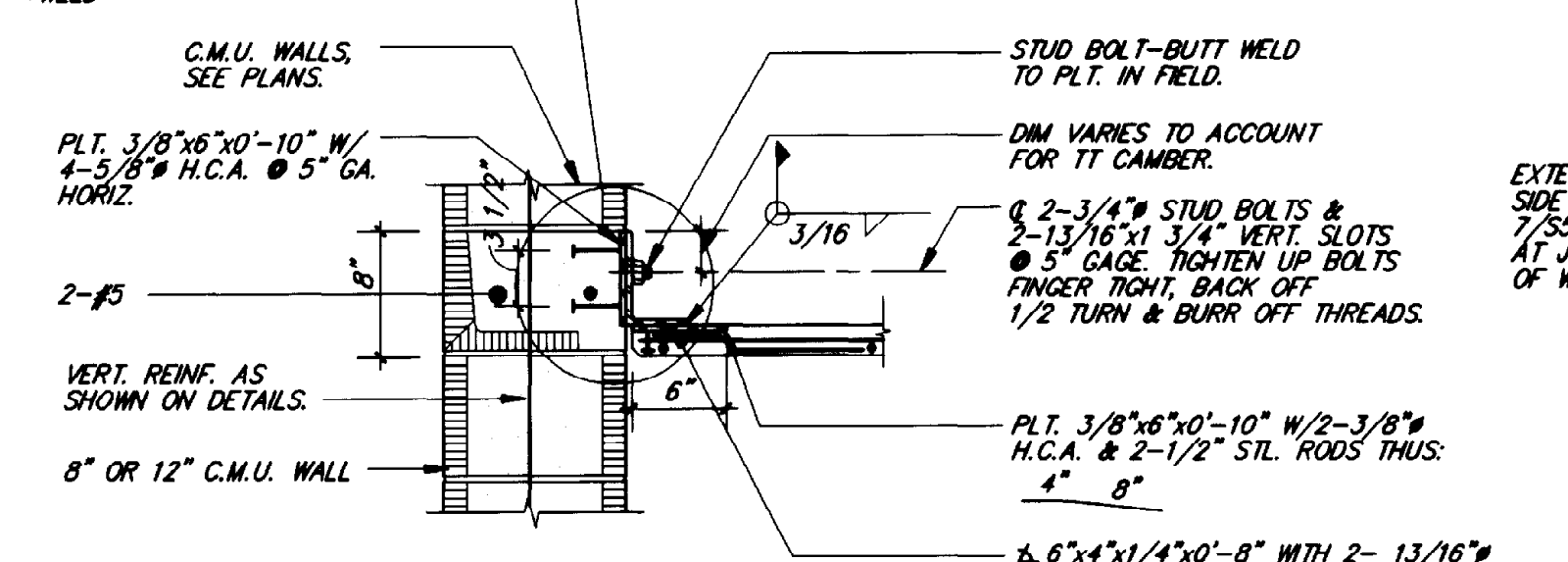
TYPICAL DOUBLE TEE (D.T.) SECTION

SECTION 3
 S5 3/4"=1'-0"



TYP. CAULKING REQUIREMENTS AT D.T. AND WALL

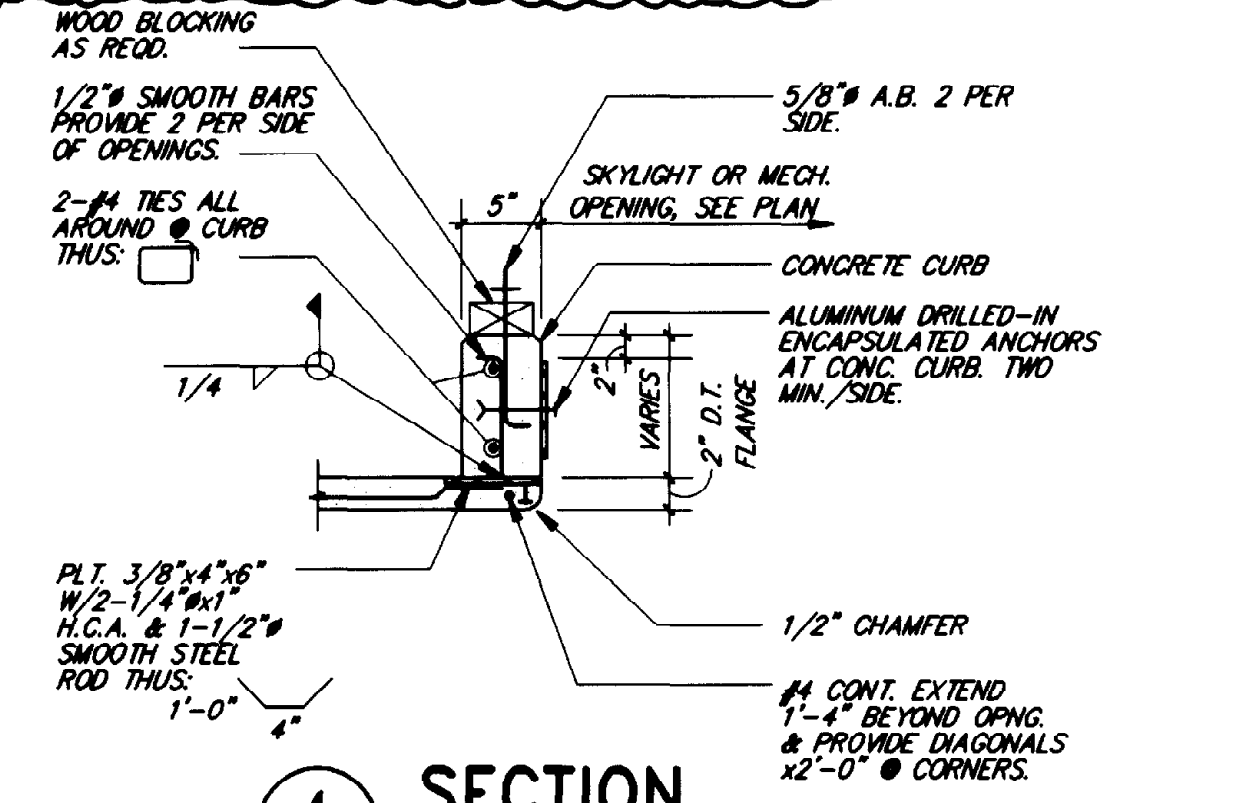
SECTION 7
 S5 3/4"=1'-0"



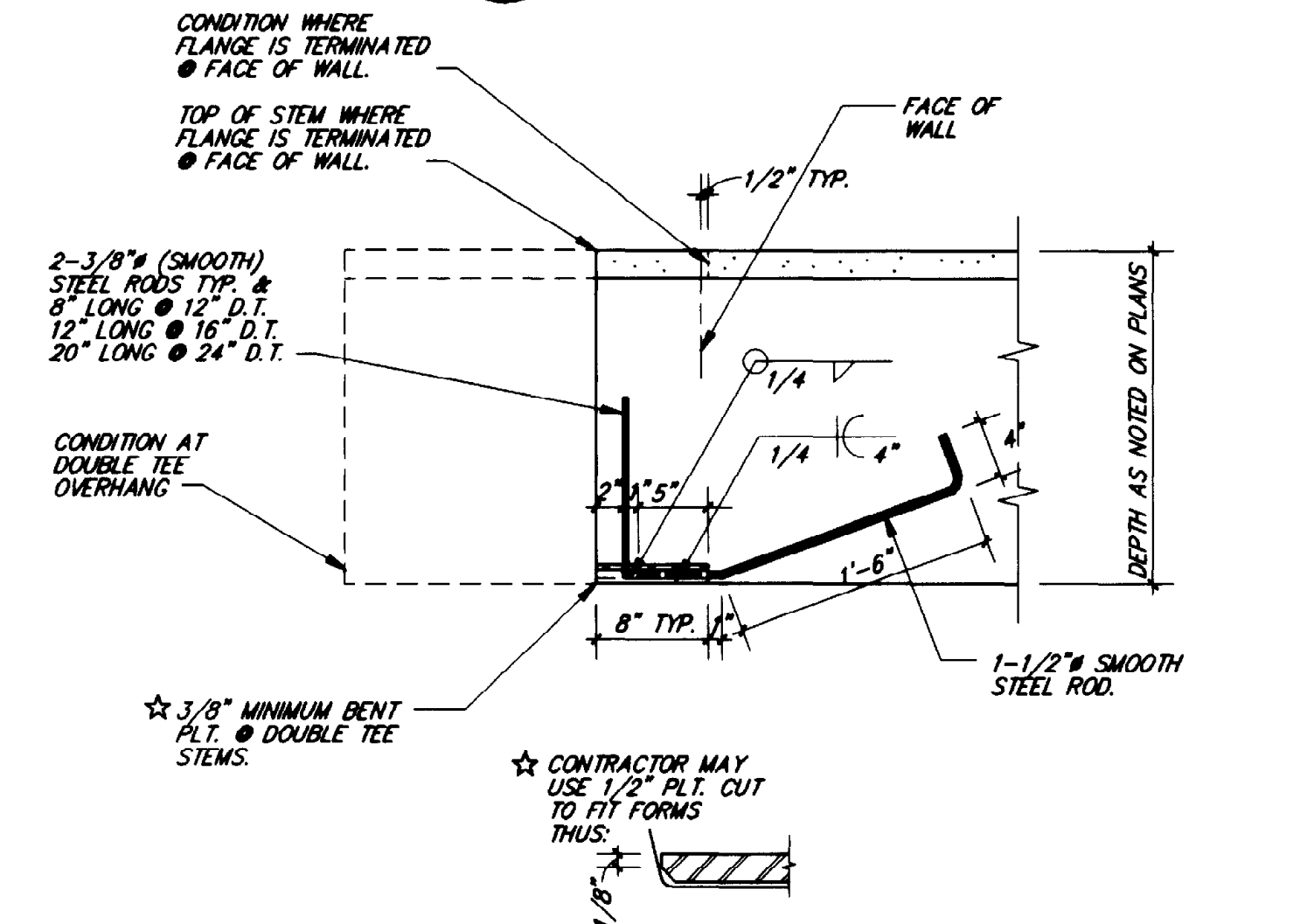
TYP. D.T. - FLANGE CONNECTION (EDGE)
 (WITHOUT TOPPING)

- NOTES:
 1. LOCATE CONN. AS SHOWN ON ROOF FRAMING PLANS AND AT 8'-0" O.C. MAX.
 2. WELD CONN. AFTER DEAD LOAD IS IN PLACE.

SECTION 11
 S5 1"=1'-0"

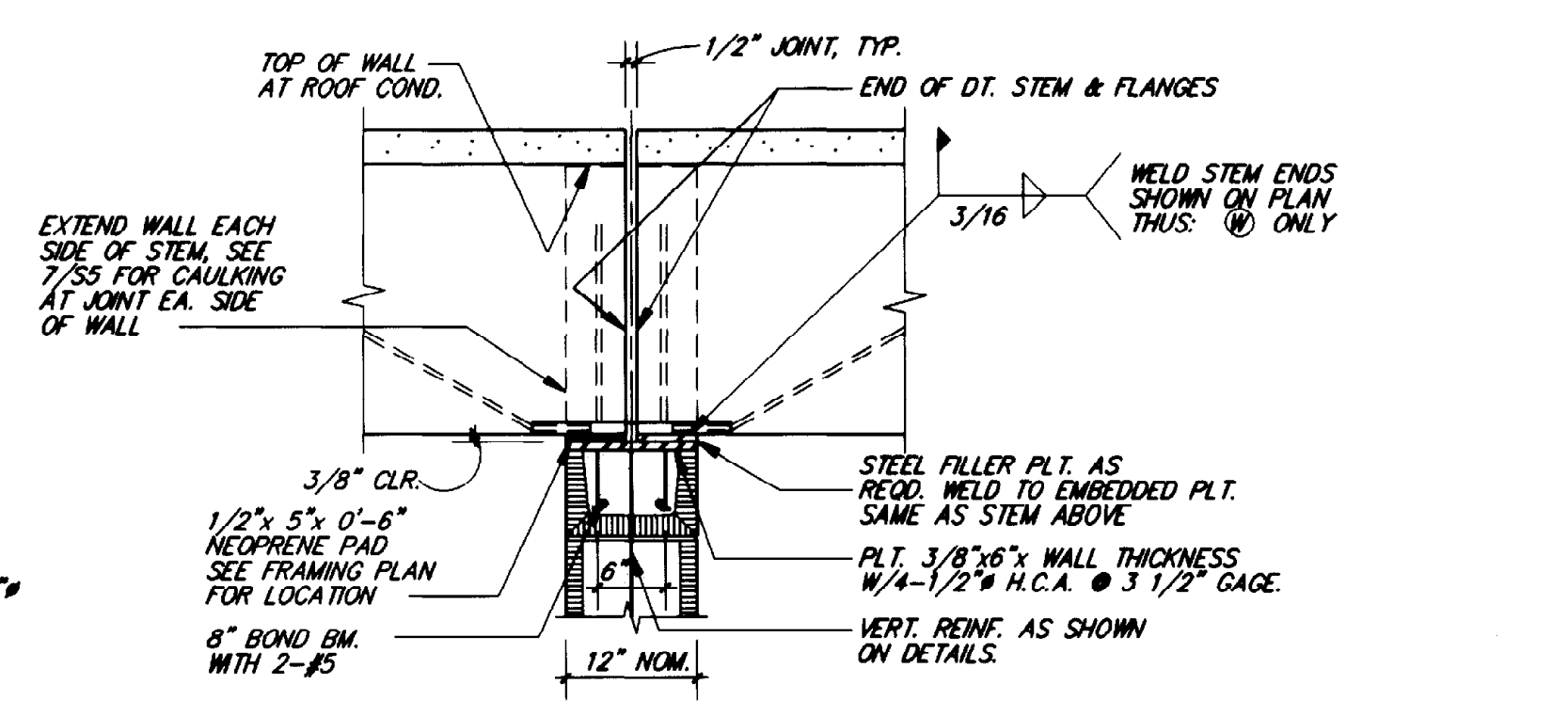


SECTION 4
 S5 3/4"=1'-0"



TYP. DOUBLE TEE BRG. PLATE DETAIL

SECTION 8
 S5 3/4"=1'-0"



TYP. D.T. - BEARING DETAIL
 (COMMON BEARING WALL)

SECTION 12
 S5 3/4"=1'-0"

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THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORED BY ROBERT NAVARRO P.E. 28582 ON NOVEMBER 02, 1992.



Brown and Caldwell Consultants
 Phoenix, Arizona
 SUBMITTED: [Signature] DATE: 11/20/92
 APPROVED: [Signature] DATE: 11-20-92
 APPROVED: [Signature] DATE: []

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)
 FILE 5870
 DRAWN R.J.
 DESIGNED I.L.
 CHECKED I.L.
 CHECKED R.N.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/10	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK

EL PASO WATER UTILITIES
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

GENERAL SHEETS
TYPICAL DOUBLE TEE DETAILS
 PROJECT NUMBER
 DRAWING NUMBER **S5**
 SHEET NUMBER **122**

SUBEXCAVATION AND STRUCTURAL FILL NOTES

- SUBEXCAVATION AND STRUCTURAL FILL FOR EACH OF THE STRUCTURES IS DESCRIBED IN NOTES 2 THROUGH 10. BELOW.
- SUBEXCAVATE AS INDICATED BELOW: A "SUBEXCAVATION AND STRUCTURAL FILL PLAN" (PARTIAL SUB-EX. & STRUCTURAL FILL PLAN) HAS BEEN PREPARED FOR THE DEWATERING BUILDING ADDITION AND ODOR CONTROL FACILITIES NORTH OF THE EXISTING MAIN BUILDING, THE ADMINISTRATION BUILDING, THE FILTERS STRUCTURE, THE UV DISINFECTION BUILDING, AND THE REAERATION STRUCTURE ON THE SOUTH PORTION OF THE SITE. THE SUBEXCAVATION REQUIREMENT FOR THESE STRUCTURES ARE DESCRIBED IN THE NARRATIVE BELOW.
 - A. DEWATERING BUILDING ADDITION TO THE MAIN BUILDING, ODOR CONTROL FACILITIES, FILTERS STRUCTURE, UV DISINFECTION STRUCTURE, REAERATION STRUCTURE, AND THE ADMINISTRATION BUILDING UNDER THE STRUCTURE AREA WHICH IS DEFINED BY A DASHED LINE BEYOND THE FACE OF THE EXTERIOR WALLS, AS SHOWN ON THE "SUBEXCAVATION AND STRUCTURAL FILL PLAN" THIS SHEET, SUBEXCAVATE AND INSTALL STRUCTURAL FILL IN THE SUBEXCAVATED AREA TO BRING THE SUBGRADE UP TO THE BOTTOM OF FOUNDATION OR SLAB.
 - SUBEXCAVATE TO AN ELEVATION AS INDICATED THUS: 3767.00 ON THE "PARTIAL SUB-EX. & STRUCTURAL FILL PLAN" AND SLOPE UP EXCAVATION TO THE NEXT HIGHER SUBEXCAVATION LEVEL OR TO THE EXISTING GRADE WHERE A HIGHER LEVEL DOES NOT OCCUR ADJACENT TO LOWER SUBEXCAVATION LEVEL.
 - DIMENSIONS TO EDGE OF THE EXCAVATION FROM EXTERIOR FACE OF WALLS IS TO EDGE OF THE SUBEXCAVATION AT THE BOTTOM OF THE SUBEXCAVATION LEVEL.

B. CLARIFIERS NO. 3, 4, 5 & 6, BLOWER BLDG., AERATION TANKS, SLUDGE THICKENER BLDG., HEADWORKS

NO SOIL IMPROVEMENT IS ANTICIPATED TO BE REQUIRED UNDER THESE STRUCTURES. THE ENGINEER WILL REVIEW THE SURFACE OF THE FOUNDATION EXCAVATIONS WHEN EXCAVATION REACHES FOOTING SUBGRADE ELEVATION AND WILL CONFIRM THAT NO SOIL IMPROVEMENT IS REQUIRED, OR WILL PROVIDE INFORMATION FOR ISSUING INSTRUCTIONS FOR SOIL IMPROVEMENT REQUIREMENTS AT THESE LOCATIONS.

- SCARIFY AND COMPACT THE RESULTING SUBEXCAVATED SURFACE OR THE SURFACE OF THE AREA TO RECEIVE FILL TO NOT LESS THAN 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D 1557.
- WHERE SUBEXCAVATION IS REQUIRED, PLACE STRUCTURAL FILL IN 8 INCH-DEPTH, LOOSE LIFTS, MOISTEN TO WITHIN PLUS OR MINUS 2% OF THE OPTIMUM VALUE, AND COMPACT EACH LIFT TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D 1557.
- STRUCTURAL FILL OR BACKFILL MATERIAL SHALL NOT CONTAIN ROCKS LARGER THAN SIX INCHES (6") AND SHALL BE FREE OF ANY ORGANIC OR OTHER DELETERIOUS SUBSTANCES SUCH AS BRUSH, ROOTS, SOIL, ETC. THE FILL SHALL BE OF SUCH QUALITY THAT IT WILL COMPACT THOROUGHLY WITHOUT THE PRESENCE OF EXCESSIVE VOIDS WHEN WATERED AND ROLLED, AND SHALL SATISFY THE FOLLOWING:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
NO. 4	40 - 100
NO. 200	15 - 45
PLASTICITY INDEX	SHALL NOT EXCEED 15

ALL SUBEXCAVATED MATERIALS MAY BE USED IN THE GENERAL SITE AREA. CLAY SOILS SHALL BE PLACED IN THE LOWER PART OF THE FILLS, NOT UNDER ANY OF THE STRUCTURES OR OF THE ROADWAYS.

SITE SOILS FROM CUTS OR SUBEXCAVATION MAY BE USED FOR STRUCTURAL FILL, PROVIDED THEY MEET THE REQUIREMENTS FOR STRUCTURAL FILL SPECIFIED ABOVE. THE SOIL REPORT INDICATES THAT SITE SOILS WILL PROBABLY MEET THESE REQUIREMENTS; HOWEVER, ANY SOIL MATERIAL PROPOSED FOR STRUCTURAL FILL INCLUDING SITE SOILS MUST MEET THE REQUIREMENTS SPECIFIED ABOVE. THE COST OF ANY REMOVAL OF UNACCEPTABLE SOIL MATERIALS, AND THE COST FOR THE ACQUISITION AND TRANSPORTATION OF BORROW MATERIAL FROM OUTSIDE THE SITE, AS MAY BE REQUIRED, SHALL BE BORNE BY THE CONTRACTOR.

ALL CONTROLLED EARTHWORK SHALL BE OBSERVED, INSPECTED, AND TESTED UNDER THE DIRECTION OF THE ENGINEER.

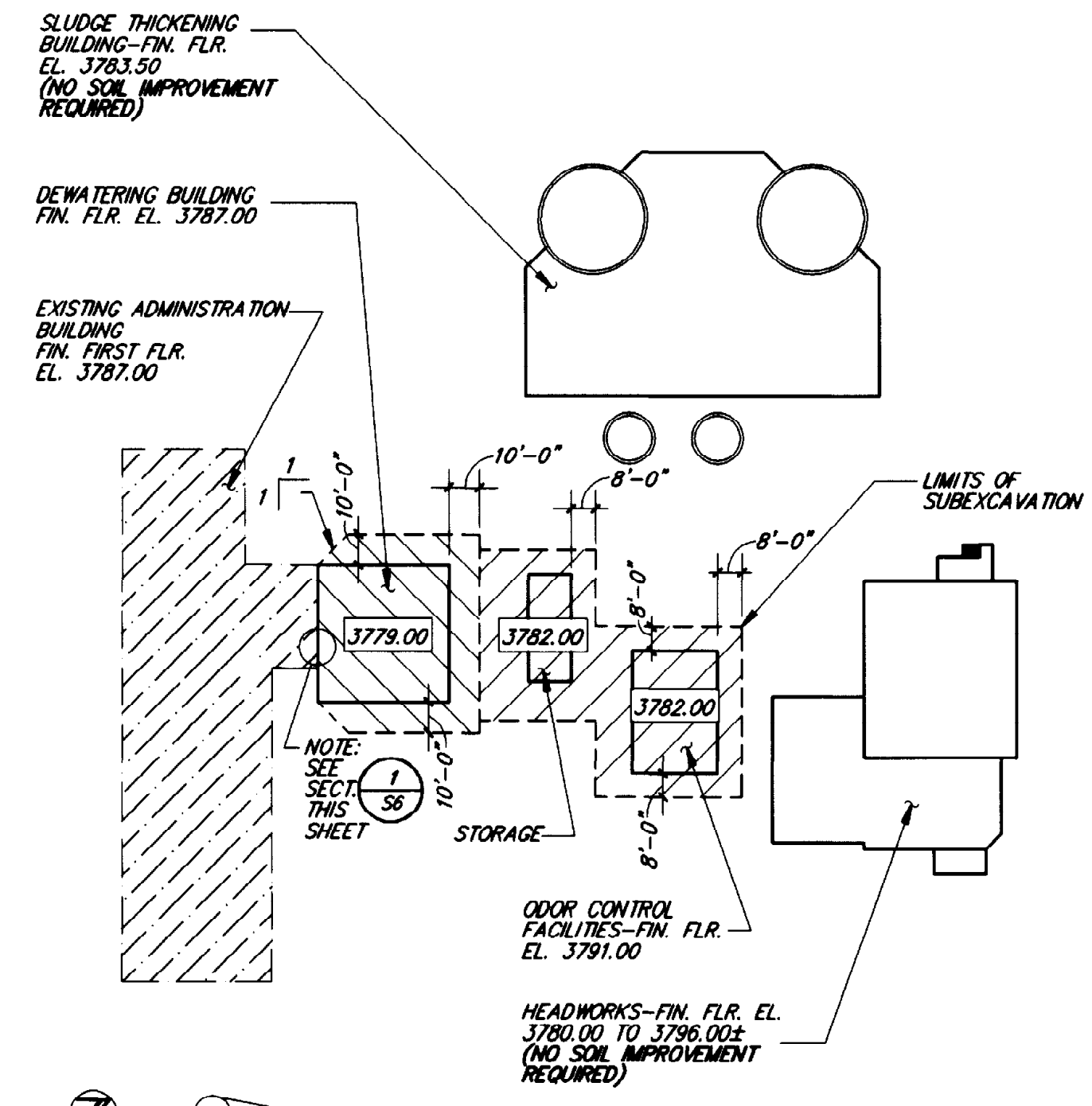
STRUCTURAL FILL WITHIN THE STRUCTURE AREAS OR ON THE SITE SHALL NOT BE CONSTRUCTED WHEN THE ATMOSPHERIC TEMPERATURE IS BELOW 35 DEGREES F. WHEN THE TEMPERATURE FALLS BELOW 35 DEGREES, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL AREAS OF COMPLETED SURFACES AGAINST ANY DETRIMENTAL EFFECTS OF GROUND FREEZING BY METHODS APPROVED BY THE ENGINEER. ANY AREAS THAT ARE DAMAGED BY FREEZING SHALL BE RECONDITIONED, RESHARED, AND COMPACTED BY THE CONTRACTOR IN CONFORMANCE WITH THE REQUIREMENTS DESCRIBED IN THESE NOTES WITHOUT ADDITIONAL COST TO THE OWNER.

TESTS OF STRUCTURAL FILL MATERIALS AND OF THE ORIGINAL GROUND SURFACE WITHIN THE STRUCTURE AREAS SHALL BE MADE AT THE FOLLOWING MINIMUM RATES:

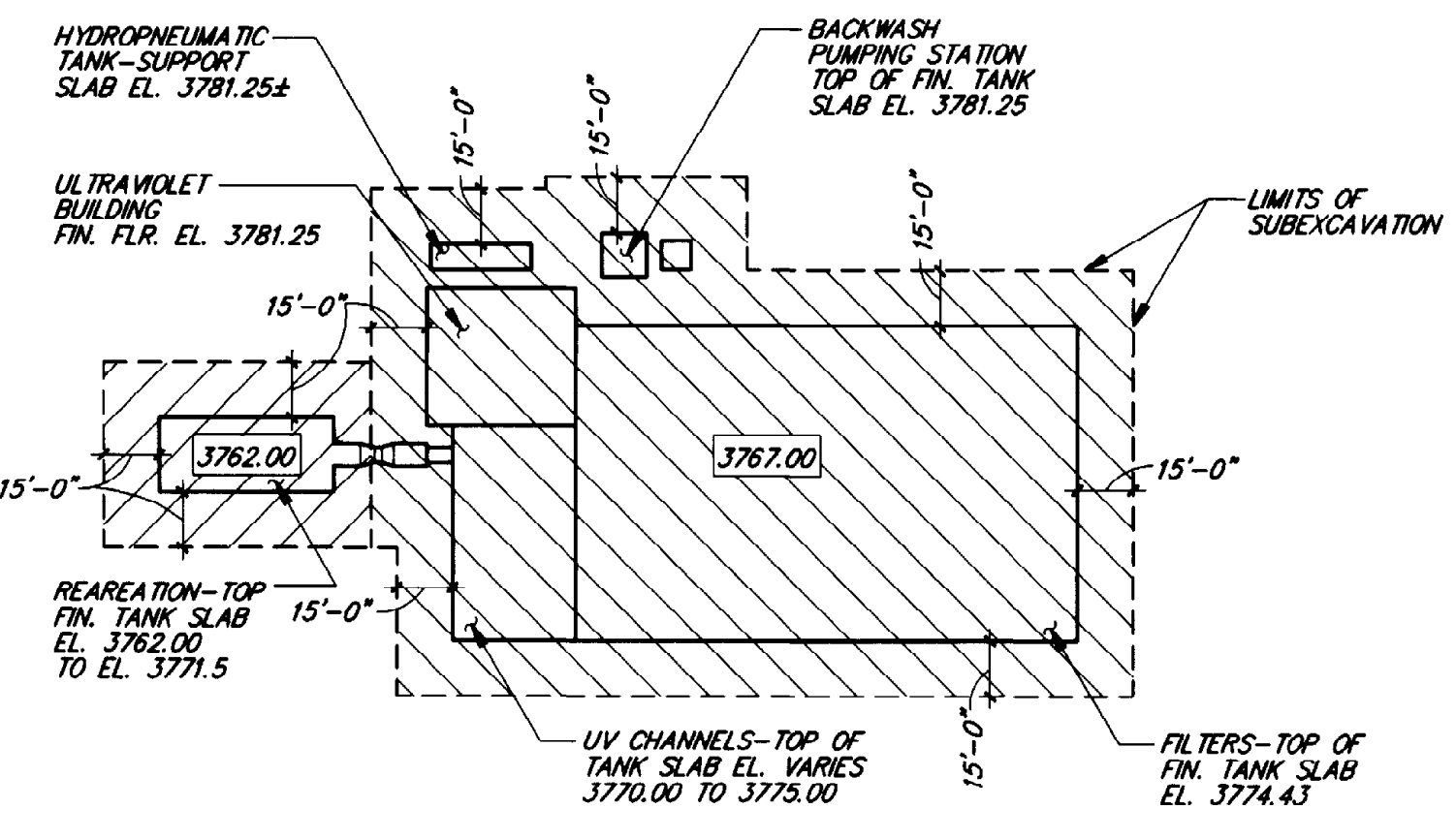
- ONE FIELD DENSITY TEST FOR EACH 6400 SQUARE FEET OF ORIGINAL GROUND SURFACE IN ACCORDANCE WITH ASTM D 2922 OR ASTM D 1556, OR A MINIMUM OF THREE TESTS AT EACH SEPARATE STRUCTURE AREA, PRIOR TO PLACING OF STRUCTURAL FILL.
 - ONE FIELD DENSITY TEST FOR EACH 6400 SQUARE FEET OF STRUCTURAL FILL OR FOR EACH LAYER PLACED, OR A MINIMUM OF THREE TESTS AT EACH SEPARATE STRUCTURE AREA PER EACH LAYER, WHICHEVER IS THE GREATER NUMBER OF TESTS.
 - TWO MOISTURE-DENSITY CURVES FOR EACH TYPE OF MATERIAL USED, ACCORDING TO ASTM D 1557.
 - ONE SIEVE ANALYSIS AND ONE PLASTICITY INDEX FOR EACH TYPE OF SITE OR IMPORTED MATERIAL USED, ACCORDING TO ASTM D 422, D 423 AND D 424.
- SHOULD ANY LIFT OR PORTION OF A LIFT NOT CONFORM TO THE DENSITY REQUIREMENTS, THE LIFT SHALL BE SCARIFIED AND RECOMPACTED UNTIL THE REQUIRED DENSITY IS REACHED, TO THE SATISFACTION OF THE ENGINEER.

PERCHED WATER WAS ENCOUNTERED IN FOUR OF THE BORINGS DURING THE GEOTECHNICAL INVESTIGATION. THE CONTRACTOR SHALL ACCOUNT FOR, AND TAKE THE NECESSARY STEPS TO DIVERT, DEWATER OR OTHERWISE CONTROL WATER SO AS TO PREVENT ANY WATER FROM ENTERING INTO THE CONSTRUCTION AREA, SO THAT THE VARIOUS PORTIONS OF THE PLANT CAN BE ACCOMPLISHED IN THE DRY. THE CONTRACTOR MAY CONSIDER AND PROPOSE DRAINAGE SUMPS, CUTOFF TRENCHES, TRENCH DRAINS OR OTHER METHODS FOR SUBMITTAL AND APPROVAL BY THE ENGINEER. IN ADDITION, THE EXCAVATION SURFACES MAY REQUIRE SLOPING TO COLLECTION POINTS TO AID IN THE DEWATERING PROCESS. AFTER COMPLETION OF THE WORK, THE CONTRACTOR SHALL MAKE SURE THAT ANY REMAINING WATER IS CHANNELLED AROUND THE COMPLETED STRUCTURE. THE WATER SHALL BE ROUTED IN SUCH A MANNER SO AS TO PRECLUDE IT FROM RISING TO THE SURFACE, OR TO BE TRAPPED AND NOT BE ALLOWED TO DRAIN NATURALLY THROUGH THE GRANULAR SOILS. ALL WORK AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACTORS PROPOSAL AND SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.

A COPY OF THE GEOTECHNICAL REPORT AND ADDENDUMS PREPARED BY SERGENT HAUSKINS AND BECKWITH, DATED JUNE X, 1992 SHALL BE AVAILABLE AT THE OFFICES OF THE EL PASO WATER UTILITIES AND AT THE EL PASO OFFICES OF BROWN AND CALDWELL FOR REVIEW BY THE CONTRACTOR

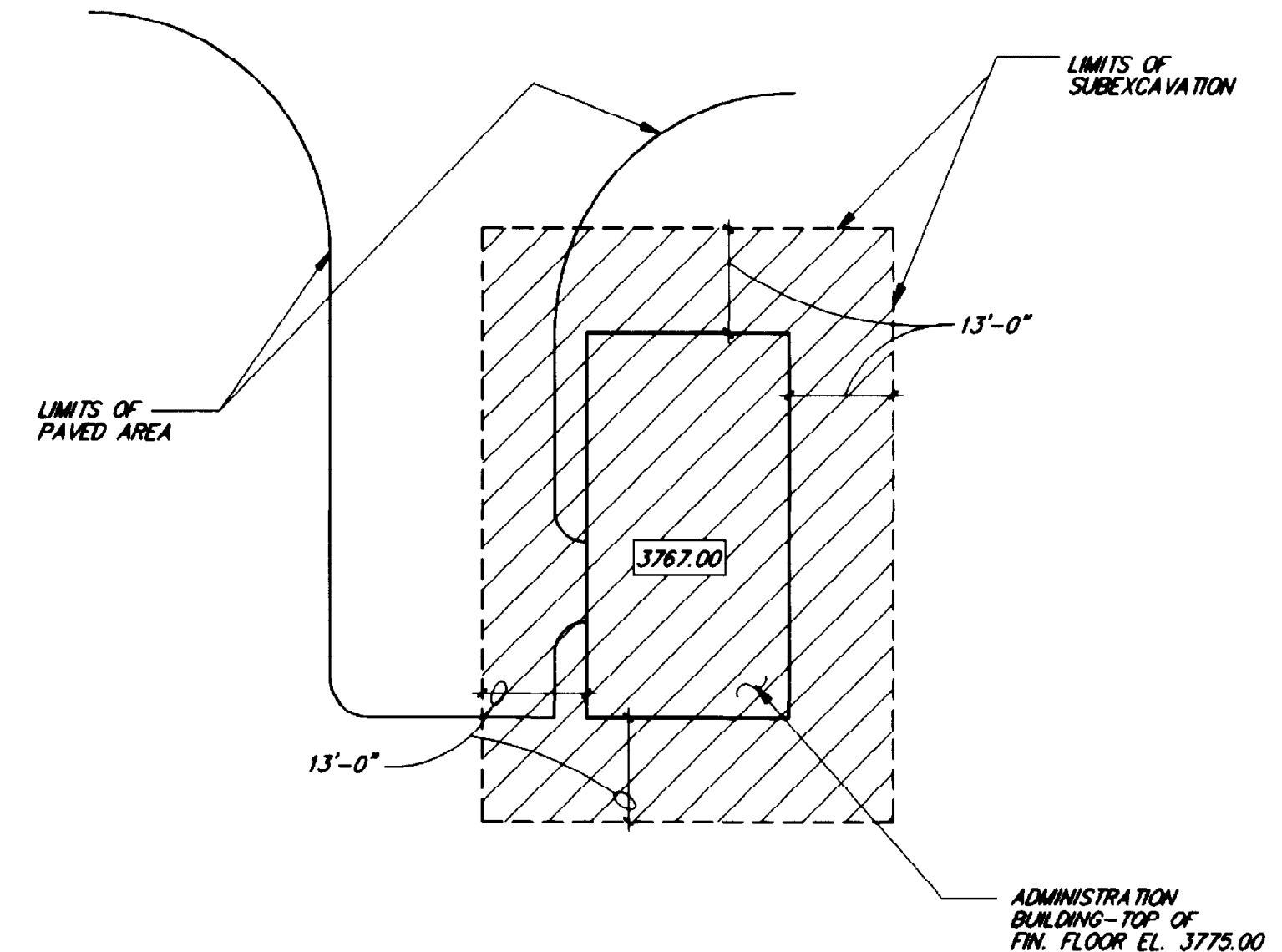


PARTIAL SUB-EX. & STRUCTURAL FILL PLAN
 1"=50.0' (DEWATERING BUILDING ADDITION, ODOR CONTROL FACILITIES) (NORTH PORTION OF SITE)

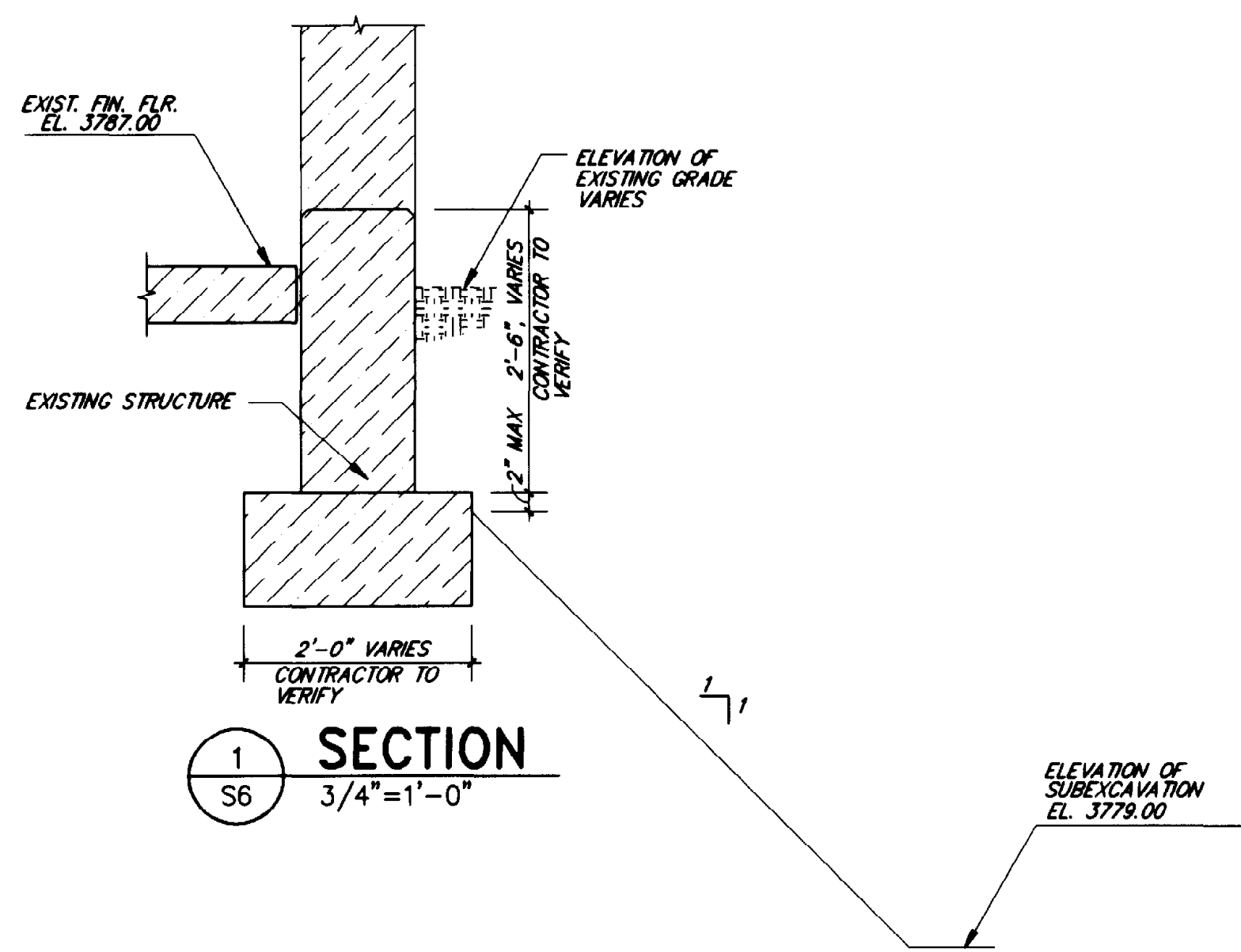


PARTIAL SUB-EX. & STRUCTURAL FILL PLAN
 1"=50.0' (FILTERS, ULTRAVIOLET BUILDING AND CHANNELS, REAERATION STRUCTURE) (SOUTH PORTION OF SITE)

12. SEE NOTE NO. 15 OF "GENERAL NOTES (HYDRAULIC STRUCTURES)" DRAWING S1 FOR BACKFILLING REQUIREMENTS UNDER SPECIAL AREAS WHERE HORIZONTAL PROJECTING DOWELS OCCUR.



PARTIAL SUB-EX. & STRUCTURAL FILL PLAN
 1"=20.0' (ADMINISTRATION BUILDING) (SOUTH PORTION OF SITE)



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

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BC Brown and Caldwell Consultants
 Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 4/20/92
 APPROVED: *[Signature]* DATE: 11-20-92
 APPROVED: _____ DATE: _____

FILE	5870
DRAWN	A.S.
DESIGNED	J.L.
CHECKED	R.N.
CHECKED	R.N.



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

GENERAL SHEETS

EARTHWORK NOTES

PROJECT NUMBER	
DRAWING NUMBER	S6
SHEET NUMBER	123

PRESTRESSED CONCRETE DOUBLE TEE SUPERIMPOSED LOAD SCHEDULE

LOCATIONS	ROOF DOUBLE TEE DEPTH (IN INCHES)	ROOF LOADS		FLOOR DOUBLE TEE DEPTH (IN INCHES)	FLOOR LOADS	
		D.L. (P.S.F.)	L.L. (P.S.F.)		D.L. (P.S.F.)	L.L. (P.S.F.)
BLOWER BUILDING SECOND FLOOR ROOF	32	31	20	16	55	100
SLUDGE THICKENING BUILDING ROOF	24	31	40	--	--	--
CHEMICAL BUILDING ROOF	24	31	20	--	--	--
ULTRAVIOLET BUILDING ROOF	24	31	20	--	--	--
ADMINISTRATION BUILDING ROOF	24	31	20	--	--	--

DOUBLE TEE SCHEDULE NOTES

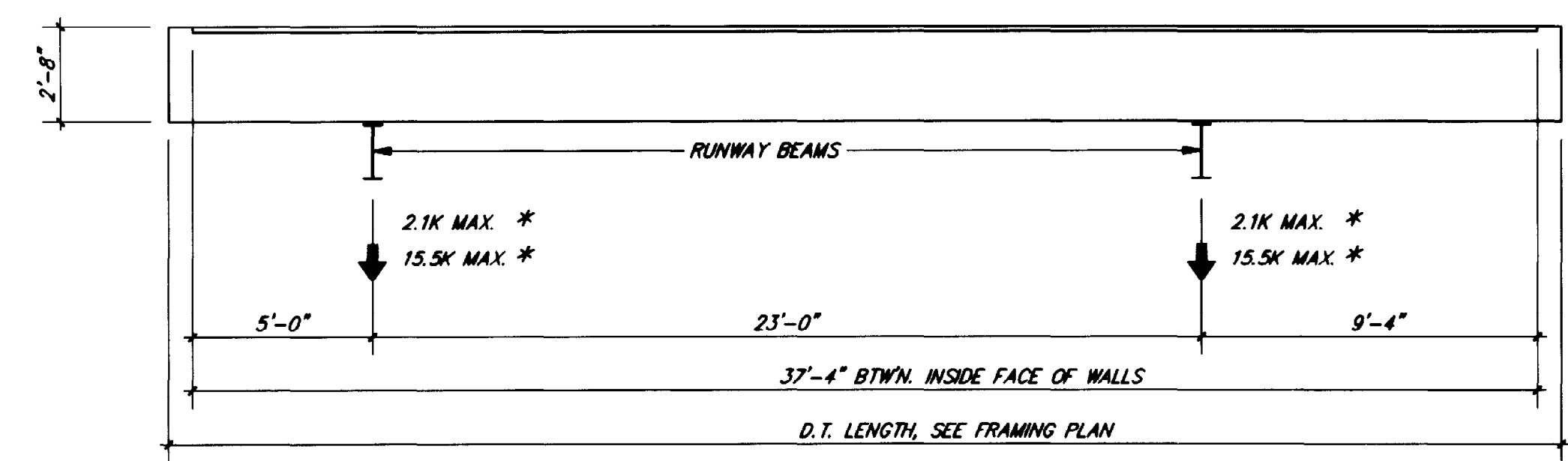
- UNLESS OTHERWISE NOTED, ALL CONCRETE FOR PRESTRESSED CONCRETE DOUBLE TEE PANELS SHALL BE HARDROCK CONCRETE.
- PRESTRESSED CONCRETE DOUBLE TEE PANELS SHALL BE DESIGNED WITHOUT RELYING ON THE USE OF ANY TOPPING FOR COMPOSITE ACTION.
- LOADS NOTED IN THE "PRESTRESSED CONCRETE DOUBLE TEE SUPERIMPOSED LOAD SCHEDULE" ARE TYPICAL UNIFORM LOADS ON THE FLOORS OR ROOFS. SEE ROOF PLANS AND DOUBLE TEE PANEL ELEVATIONS ON THIS SHEET FOR SPECIAL LOADS DUE TO CRANES, MECHANICAL EQUIPMENT, OR OTHER LOADS TO BE ADDED TO THE TYPICAL LOADS SCHEDULED. THE DOUBLE TEE PANEL ELEVATIONS SHOW THE CONCENTRATED CRANE LOADS, MONORAIL LOADS AND SPECIAL DEAD LOADS, BUT NOT THE MECHANICAL CRANE LOADS. SEE ROOF FRAMING PLANS FOR SIZE, LOCATION, AND TOTAL OPERATING WEIGHTS OF THE MECHANICAL LOADS. COORDINATE FINAL SELECTED MECHANICAL EQUIPMENT UNITS WITH THE MECHANICAL DRAWINGS. SIZE, WEIGHT, LOCATION, AND OTHER SUPPORT CONDITIONS OF MECHANICAL EQUIPMENT UNITS SHOWN ARE BASED ON ONE TYPE OF EQUIPMENT. IF THE CONTRACTOR CHANGES THE SIZE, WEIGHT OR LOCATION OF THE MECHANICAL EQUIPMENT UNITS, THE ENGINEER SHALL BE NOTIFIED IN WRITING. THE CONTRACTOR IS NOT TO PROCEED ON ANY CHANGES UNTIL APPROVED IN WRITING BY THE ENGINEER. THE CONTRACTOR SHALL REMAIN RESPONSIBLE FOR THE CHANGES, IF ANY, TO THE DOUBLE TEE UNITS, COST OF DESIGN CHANGES, OR TO CHANGES OF ANY SUPPORT OR STRUCTURE PROVIDING SUPPORT. CALCULATIONS SHOWING THE DESIGN CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR RECORD. CHANGES IN EQUIPMENT OR STRUCTURE SHALL BE AT NO COST TO THE OWNER.
- OPENINGS THROUGH DOUBLE TEE FLANGES FOR MECHANICAL UNITS, SKYLIGHTS, ETC., SHALL BE ACCOUNTED FOR IN THE DESIGN. NOT ALL OPENINGS ARE SHOWN. SEE APPLICABLE SECTIONS ON SHEET S-5 FOR DETAILS OF SKYLIGHTS, ETC.
- THE MONORAIL/BRIDGE CRANE LIVE LOADS ARE DESIGNATED THUS: 5 TON, ETC., ON THE "BRIDGE CRANE AND MONORAIL SCHEDULE." THE D.L. AND L.L. IS SHOWN THUS: 5.5 K, WHICH IS 5.5 KIPS ON THE DOUBLE TEE PANEL ELEVATIONS. DOUBLE TEE PANELS SUPPORTING CRANE BEAMS SHALL BE DESIGNED FOR THE 2 CONDITIONS WHERE THE FULL CRANE LOADS OCCUR AT EACH END OF THE BRIDGE GIRDER, I.E., DIRECTLY BELOW EACH OF THE CRANE RUNWAY BEAMS. EACH DOUBLE TEE STEM MUST BE DESIGNED TO SUPPORT 100% OF THE MONORAIL CRANE LOADS, OR OF THE END TRUCK WHEEL OF THE BRIDGE CRANE.
- SINCE THE DIRECTION AND LOCATION OF MONORAILS VARIES IN THE BUILDING, THE MOST CRITICAL LOADING POSITION FOR ANY DOUBLE TEE SHALL BE DERIVED FROM THE FRAMING PLANS AND DOUBLE TEE PANEL ELEVATIONS DRAWN.
- THE LIVE LOAD STRESSES PRODUCED BY MONORAIL OR BRIDGE/CRANE LOADING SHALL BE INCREASED FOR IMPACT EFFECTS BY 25%.
- SEE GENERAL SHEET S-5 FOR TYPICAL MONORAIL/BRIDGE CRANE BEAM CONNECTION TO THE DOUBLE TEE AT EACH OF THE DOUBLE TEE STEMS. SEE SHEET S804 FOR CONNECTION DETAIL WHEN BEAM OCCURS BETWEEN TWO STEMS. CONNECTIONS MUST BE PLACED AT EVERY DOUBLE TEE STEM FOR MONORAIL/BRIDGE CRANE CAPACITIES OF 1 1/2 TONS OR LARGER. CONNECTIONS MAY BE PLACED AT EVERY OTHER DOUBLE TEE STEM FOR MONORAIL/CRANE CAPACITIES OF LESS THAN 1 1/2 TONS. WHERE SUPPORTED BY ONE STEM THE DOUBLE TEE PANEL SHALL BE DESIGNED WITH ONE HUNDRED PERCENT OF THE LIVE LOAD ON THAT STEM.
- WHERE MONORAIL TRAVERSES AROUND A CURVE, PROVIDE SUPPORT CONNECTIONS SIMILAR TO SECTION S/S804 TO THE DOUBLE TEES OR TO SUPPORT MEMBERS BETWEEN DOUBLE STEMS AT EACH 30 DEGREES OF CURVE TRAVERSED BUT IN NO CASE AT A SPACING OF MORE THAN 3'-0" ON CENTER ALONG THE CURVE.
- ALL CONNECTION PLATES AND ANY OTHER STEEL HARDWARE OF DOUBLE TEE PANELS SHALL BE HOT DIP GALVANIZED.

BRIDGE CRANE AND MONORAIL SCHED.

LOCATION	TYPE	CAPACITY	REMARKS
BLOWER BUILDING	BRIDGE CRANE (TRAVELING)	5 TON	1 - REQUIRED
ULTRA VIOLET BUILDING	MONORAIL	1 TON	1-REQUIRED WITH 180' TURN. (EXTERIOR AND INTERIOR.)

BRIDGE CRANE AND MONORAIL NOTES

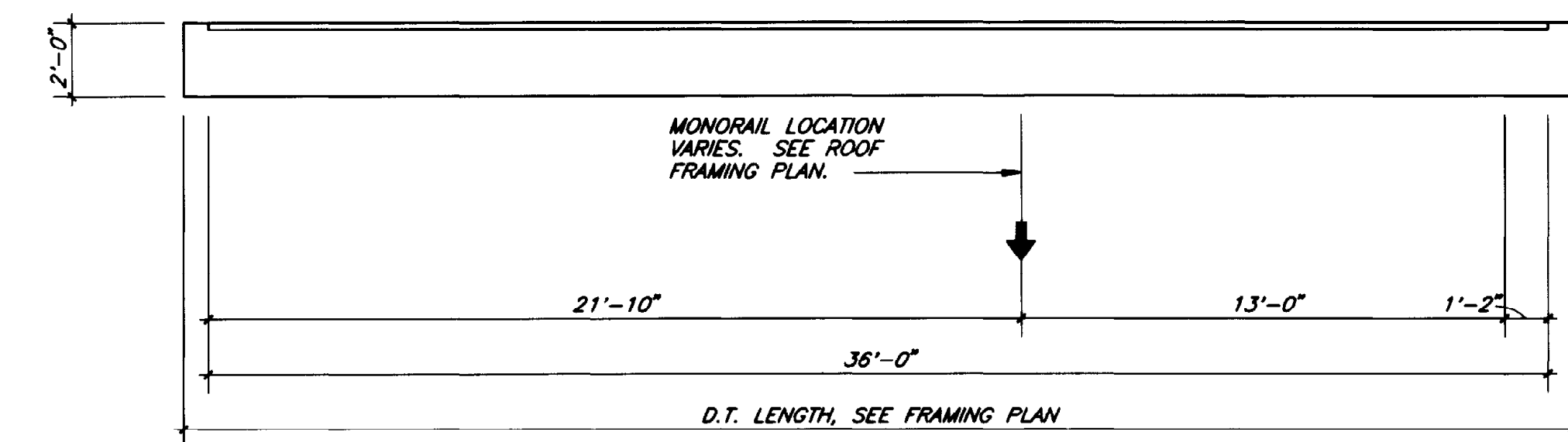
- THE LOCATION OF CRANE AND MONORAIL BEAMS WITHIN A PARTICULAR ROOF AREA IS INDICATED ON THE FRAMING PLAN OF THAT BUILDING. BEAMS OR MONORAIL BEAM CRANE LOCATIONS ARE SHOWN RELATIVE TO THE ENDS OF THE SUPPORTING DOUBLE TEE OR SUPPORT MEMBERS. THE MAXIMUM AND MINIMUM CRANE AND/OR MONORAIL BEAM REACTIONS SHOWN INCLUDE THE WEIGHTS OF THE CRANE AND BRIDGE ASSEMBLY, THE HOIST ASSEMBLY AND MONORAIL AND CRANE BEAMS, BUT DO NOT INCLUDE THE INCREASE FOR IMPACT ON THE LIVE LOAD AS REQUIRED BY NOTE #7 OF THE DOUBLE TEE SCHEDULE NOTES.
- SEE EQUIPMENT AND STRUCTURAL SHEETS FOR CRANE/MONORAIL CONNECTION DETAILS.
- SEE EQUIPMENT AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL EQUIPMENT, MECHANICAL UNITS, DETAILS, OR SPECIAL CONDITIONS WHICH MAY NOT BE SHOWN OR NOTED ON THESE DRAWINGS, SCHEDULE OR NOTES.



** TYPICAL BLOWER BUILDING ROOF DOUBLE TEE (37'-4" NOMINAL SPAN) (5 TON 23'-0" SPAN UNDERHUNG BRIDGE CRANE)

* BECAUSE OF BRIDGE CRANE END TRUCK 2 WHEELS, LOADS SHOWN ABOVE ARE 6'-0" END TRUCK WHEEL BASE TAKEN BY 2 STEMS OF ONE DOUBLE TEE.

** ASSUMED UNDERHUNG BRIDGE CRANE WEIGHTS
 UNDERHUNG BRIDGE CRANE WEIGHT = 3375 LBS.
 HOIST & TROLLEY (MOTORIZED) = 2250 LBS.
 CRANE CAPACITY = 10,000 LBS.



TYPICAL ULTRA VIOLET BUILDING ROOF DOUBLE TEE (36'-0" NOMINAL SPAN) (3 TON MONORAIL)

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ROBERT NAVARRO & ASSOCIATES ENGINEERING, INC.
 124 W. CASTELLANO DRIVE, SUITE 201
 EL PASO, TEXAS 79912
 (915) 532-1406 FAX(915) 532-1496

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY ROBERT NAVARRO P.E. 28582 ON NOVEMBER 02, 1992

BC Brown and Caldwell Consultants
 Phoenix, Arizona
 SUBMITTED: *Robert S. Schell* DATE: 11-20-92
 APPROVED: *Robert S. Schell* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)
 FILE 5870
 DRAWN J.O.
 DESIGNED R.N.
 CHECKED I.L.
 CHECKED R.N.



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

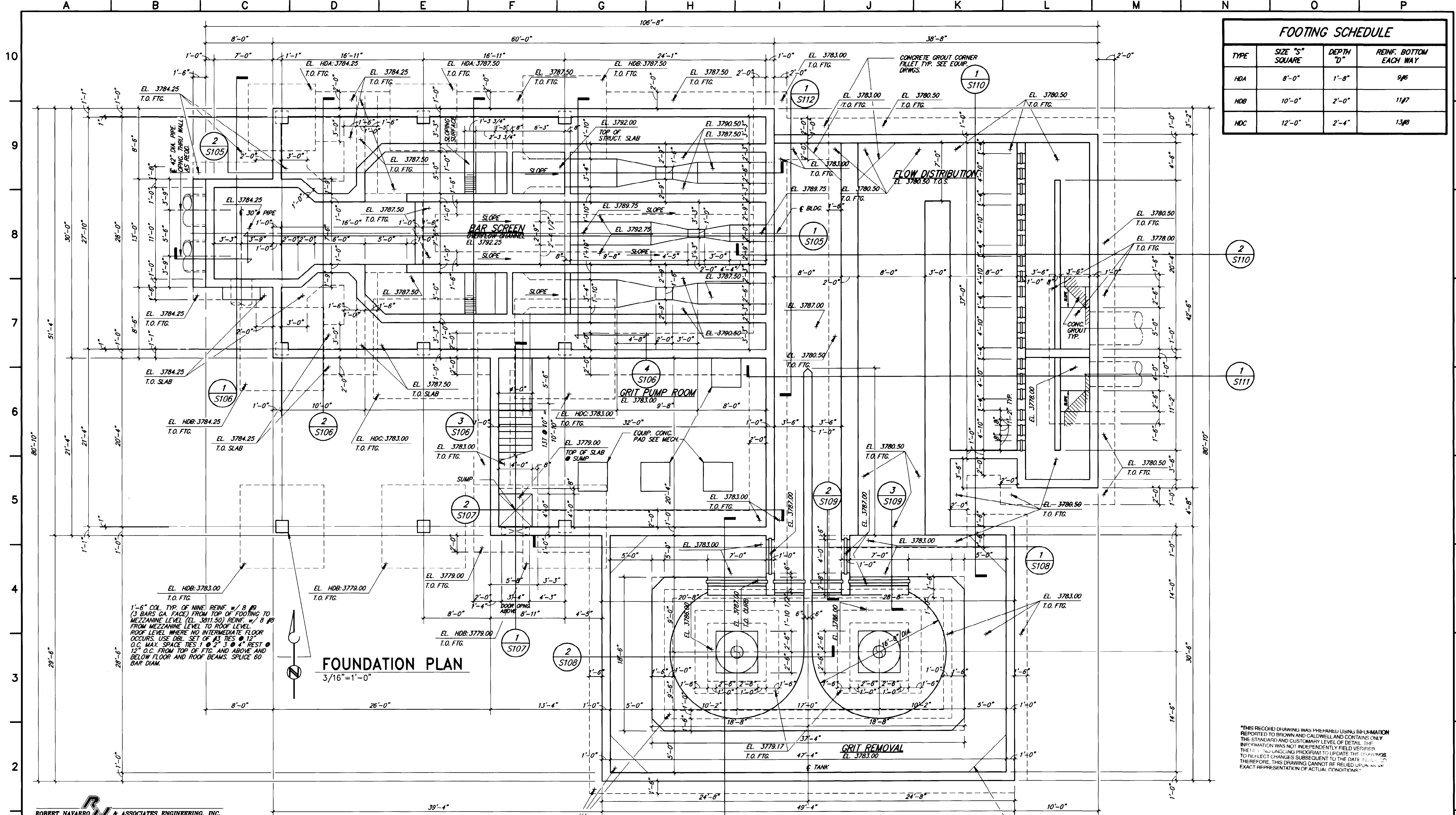
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

GENERAL SHEETS

DOUBLE TEE NOTES & CRANE SCHEDULE

PROJECT NUMBER	
DRAWING NUMBER	S7
SHEET NUMBER	124



FOOTING SCHEDULE			
TYPE	SIZE "S" SQUARE	DEPTH "D"	REINF. BOTTOM EACH WAY
HDA	8'-0"	1'-8"	9/8
HDB	10'-0"	2'-0"	11/7
HDC	12'-0"	2'-4"	13/6

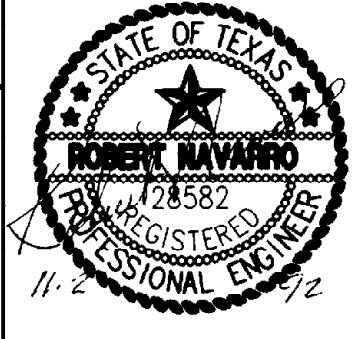
FOUNDATION PLAN
3/16"=1'-0"

1-6" COL. TYP. OF NINE REINF. # 8 @ 8" (3 BARS CA. FACE) FROM TOP OF FOOTING TO MEZZANINE LEVEL (EL. 3811.50) REINF. # 8 @ 8" FROM MEZZANINE LEVEL TO ROOF LEVEL. ROOF LEVEL WHERE NO INTERMEDIATE FLOOR OCCURS. USE DBL. SET OF #3 TIES @ 12" O.C. MAX. SPACE TIES 1 @ 2" 3 @ 4" REST @ 12" O.C. FROM TOP OF FTG. AND ABOVE AND BELOW FLOOR AND ROOF BEAMS. SPLICE 60 BAR DIAM.

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REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

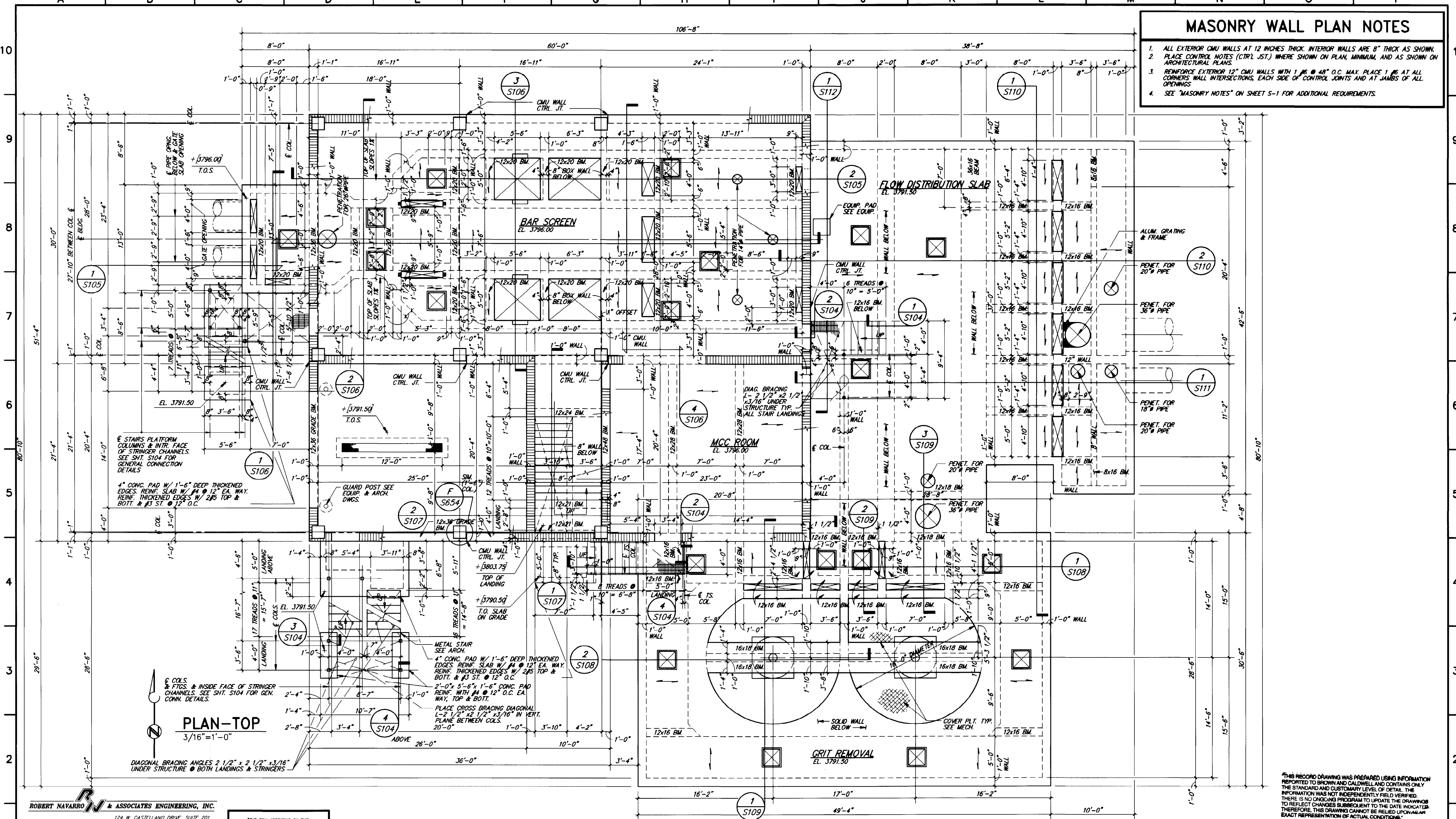
FOUNDATION PLAN

PROJECT NUMBER	1
DRAWING NUMBER	S101
SHEET NUMBER	125

5870-C80 11-02-92 R.R.

MASONRY WALL PLAN NOTES

1. ALL EXTERIOR CMU WALLS AT 12 INCHES THICK. INTERIOR WALLS ARE 8" THICK AS SHOWN.
2. PLACE CONTROL NOTES (CTRL JST) WHERE SHOWN ON PLAN, MINIMUM, AND AS SHOWN ON ARCHITECTURAL PLANS.
3. REINFORCE EXTERIOR 12" CMU WALLS WITH 1 #5 @ 48" O.C. MAX. PLACE 1 #5 AT ALL CORNERS, WALL INTERSECTIONS, EACH SIDE OF CONTROL JOINTS AND AT JAMBS OF ALL OPENINGS.
4. SEE "MASONRY NOTES" ON SHEET S-1 FOR ADDITIONAL REQUIREMENTS.

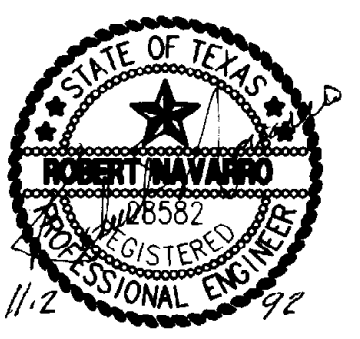


PLAN-TOP
3/16"=1'-0"

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BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schell* DATE: 11/24/92
APPROVED: *Robert S. Schell* DATE: 11-27-92
APPROVED: _____ DATE: _____

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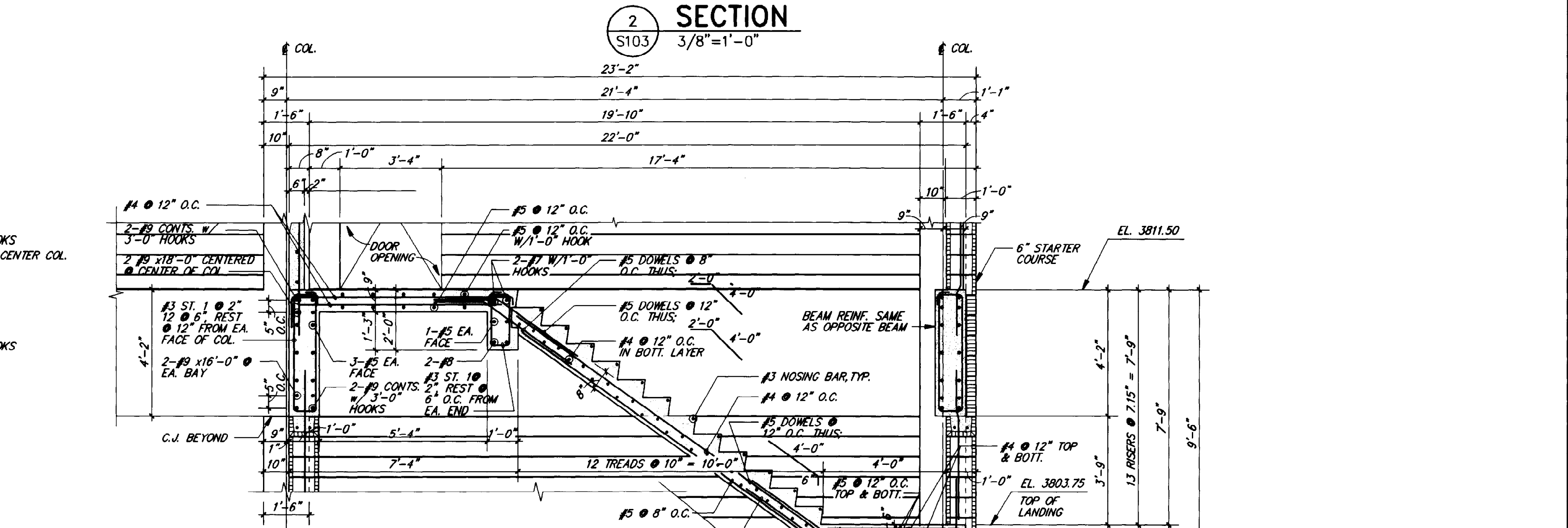
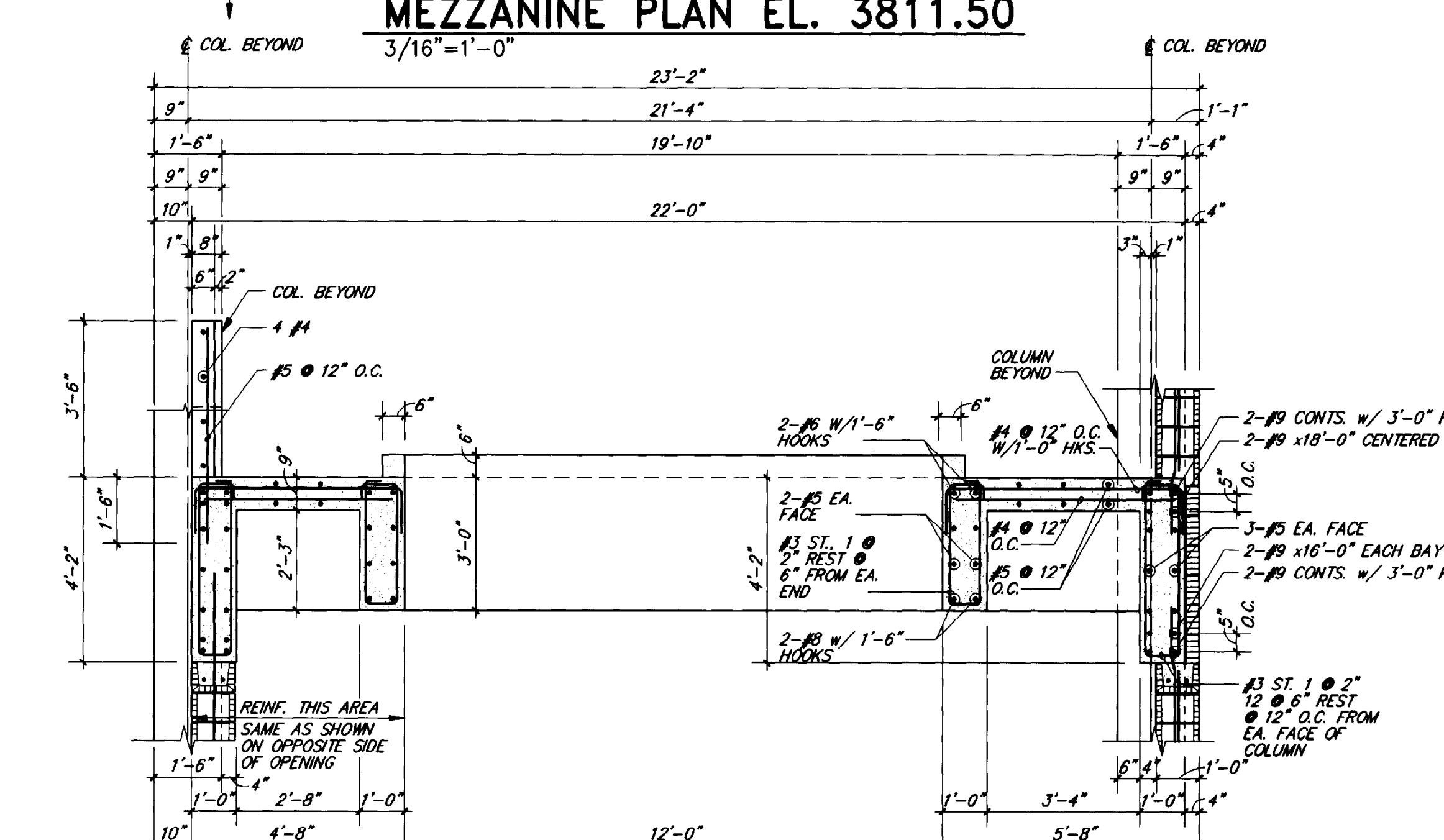
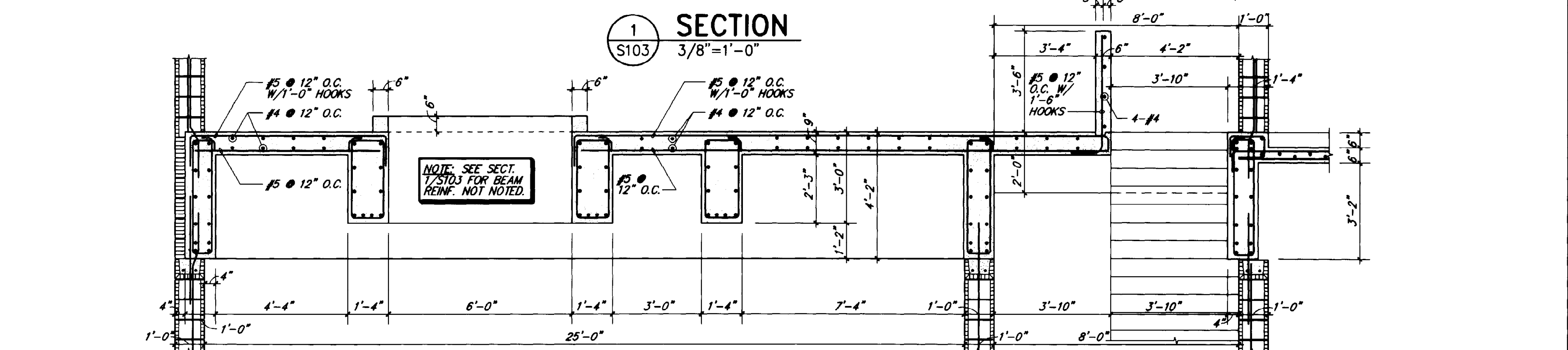
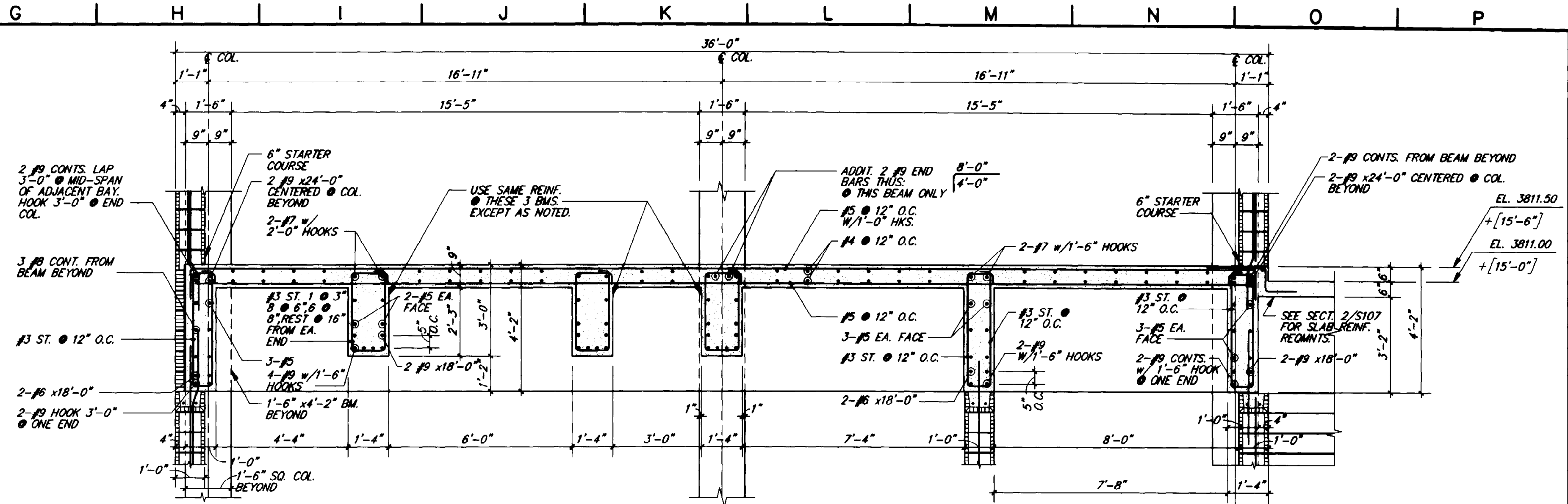
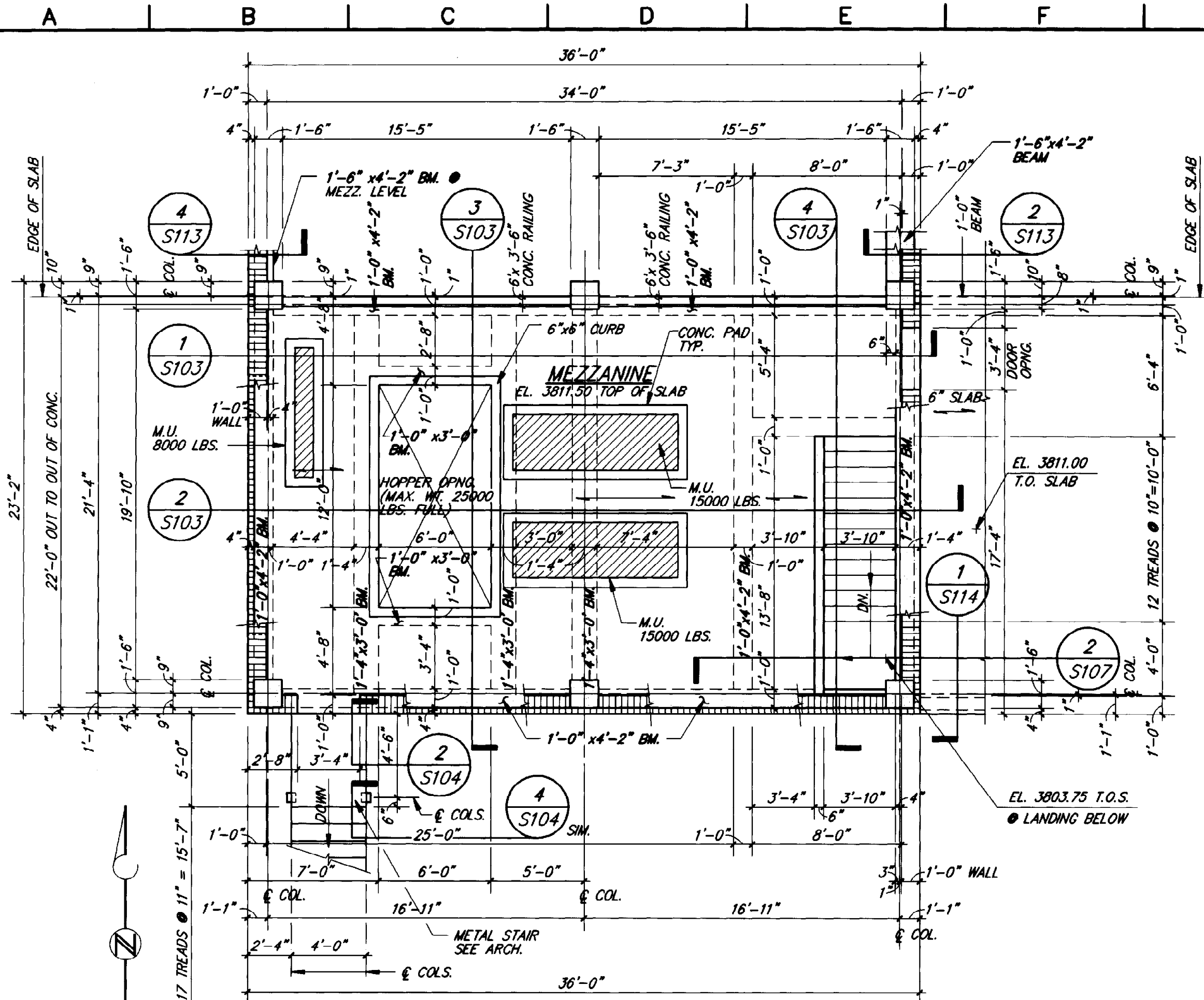
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DRAWN: R.R.
DESIGNED: R.N.
CHECKED: I.L.
CHECKED: R.N.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PROJECT NUMBER	1
DRAWING NUMBER	S102
SHEET NUMBER	126



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ZONE	REV.	DESCRIPTION	BY	DATE

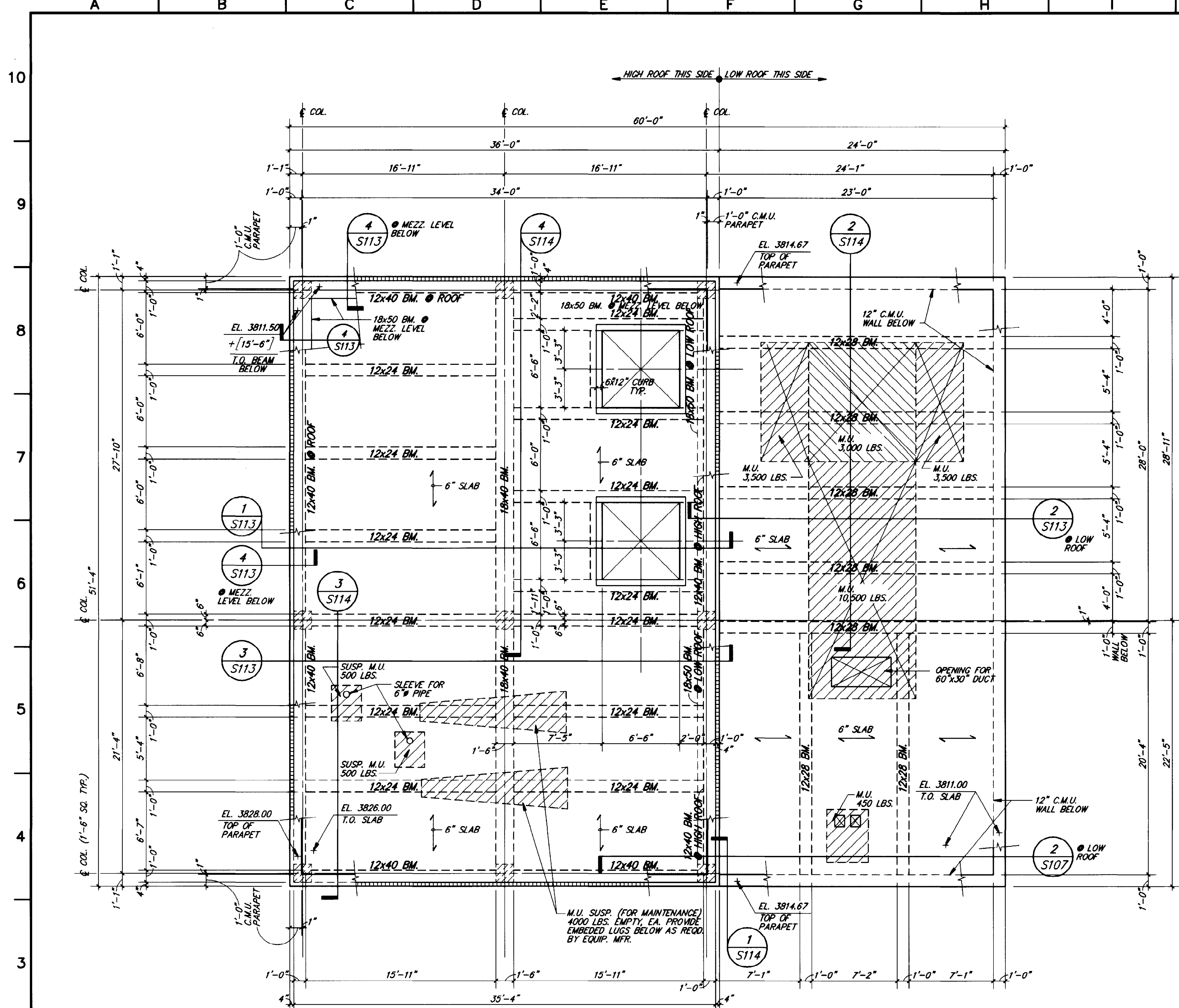
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

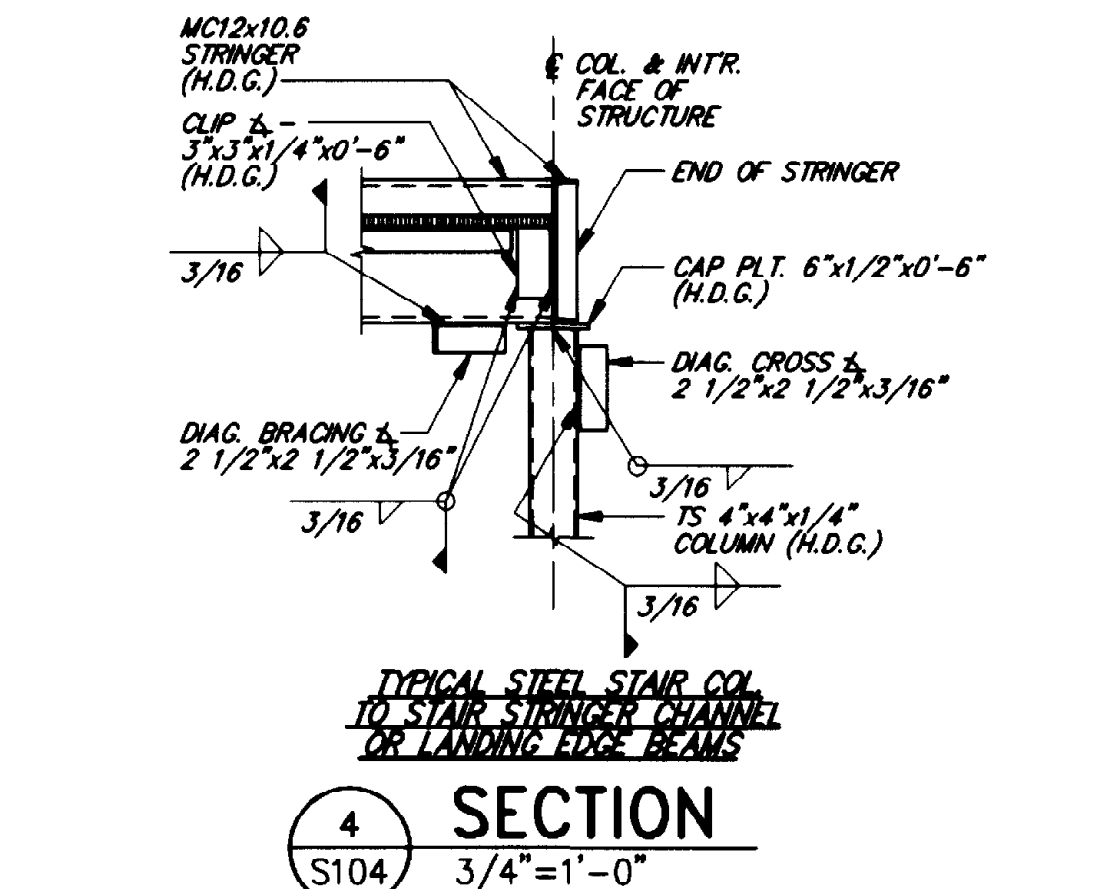
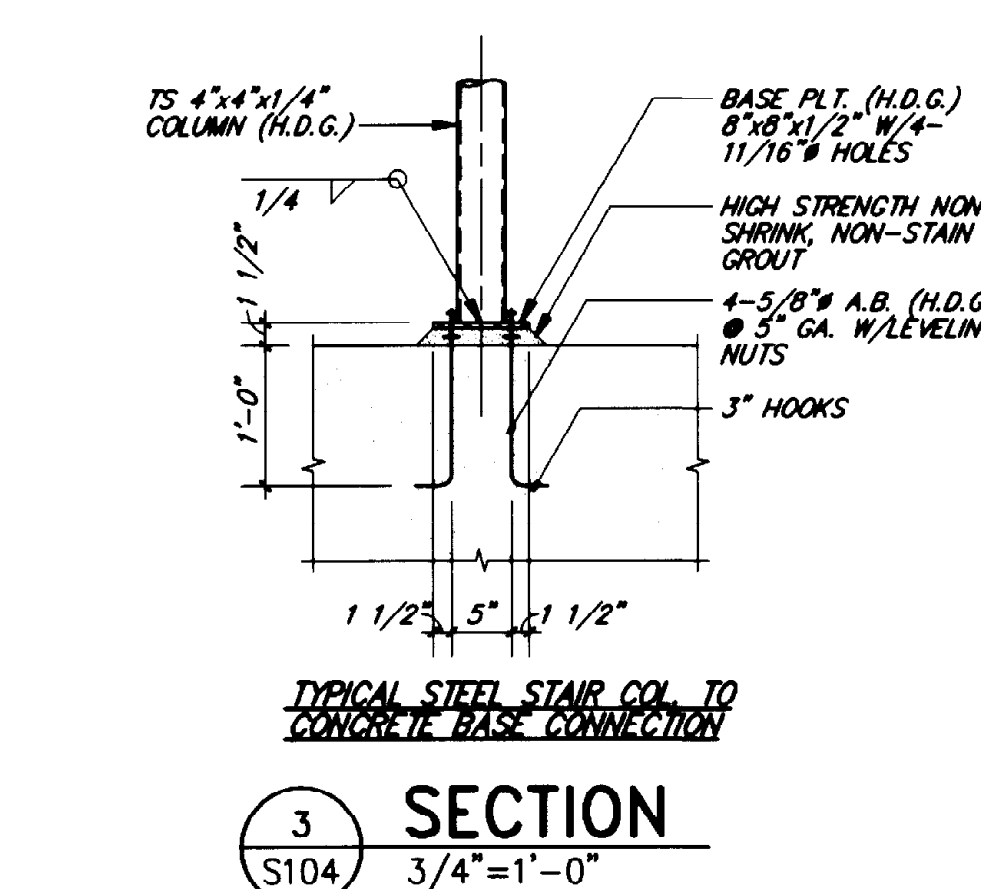
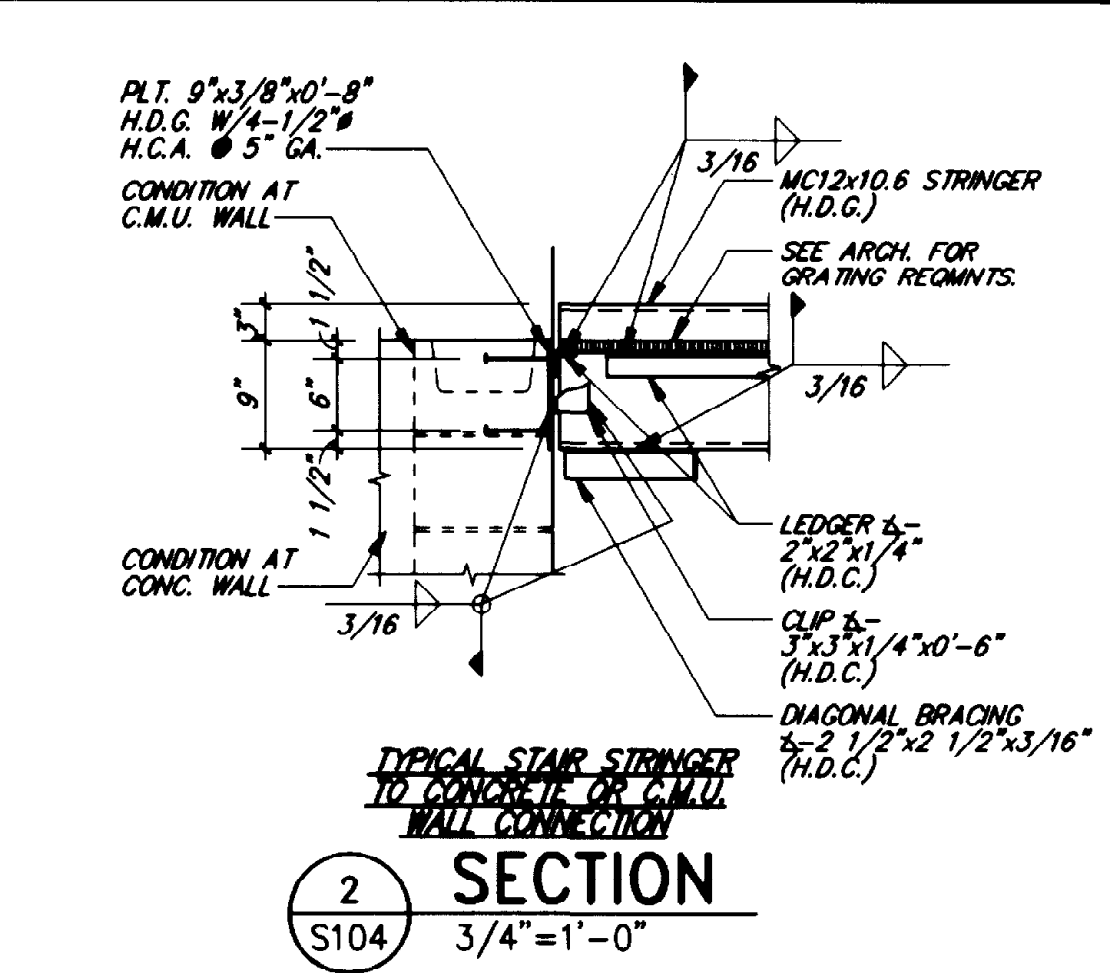
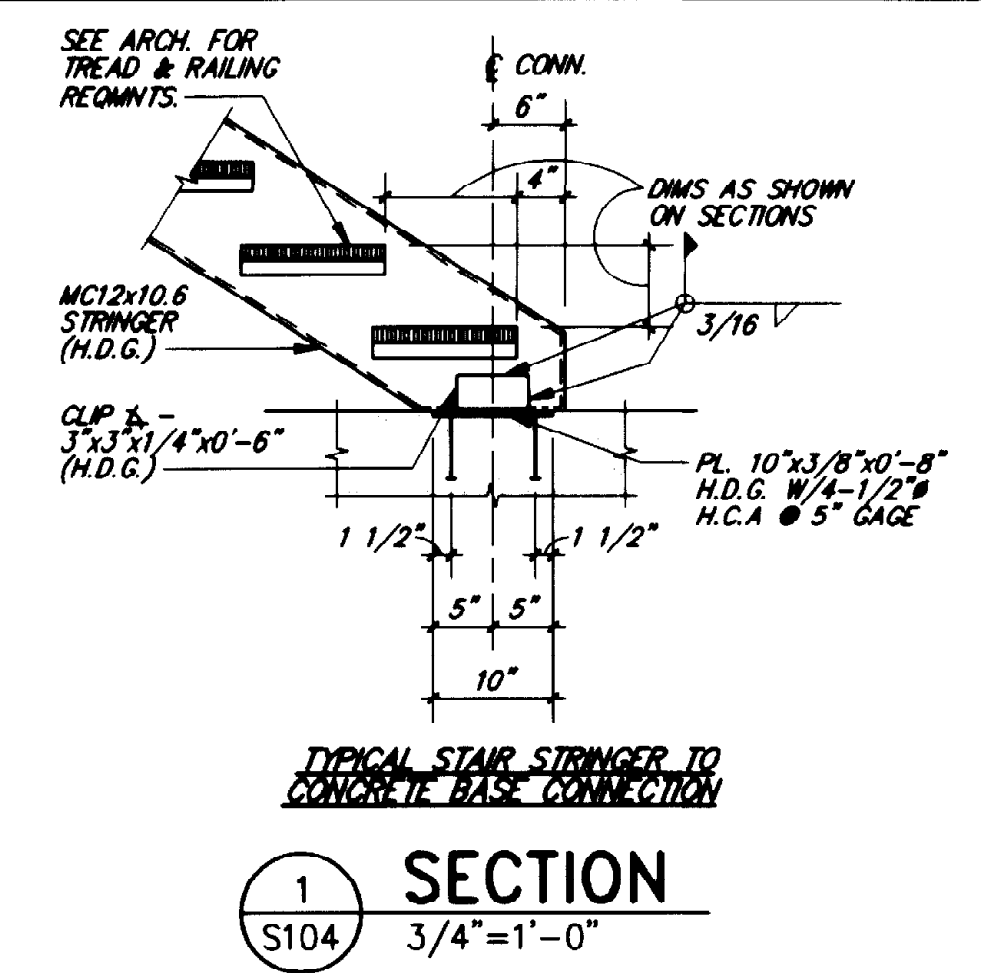
MEZZANINE FRAMING PLAN & SECTIONS

PROJECT NUMBER
DRAWING NUMBER **S103**
SHEET NUMBER 127

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ROOF FRAMING PLAN
3/16"=1'-0"



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BC Brown and Caldwell Consultants
Phoenix, Arizona
SUBMITTED: *Robert S. Schulz* DATE: 11/20/92
APPROVED: *Robert S. Schulz* DATE: 11-30-92
APPROVED: _____ DATE: _____

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FILE: 5870
DRAWN: J.O.
DESIGNED: J.L.
CHECKED: R.N.
CHECKED: R.N.



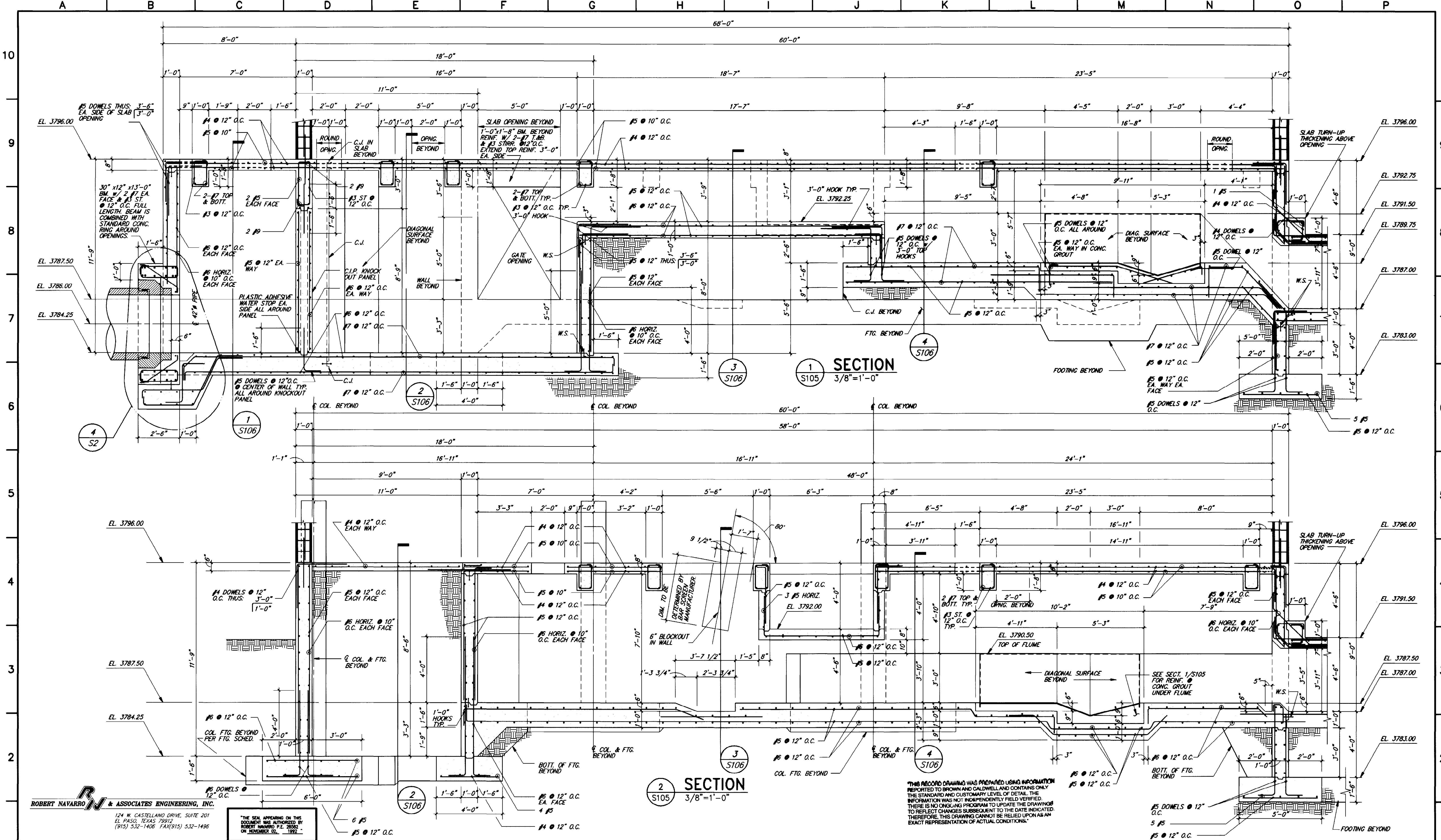
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION
EL PASO WATER UTILITIES

HEADWORKS
ROOF FRAMING PLAN AND SECTIONS

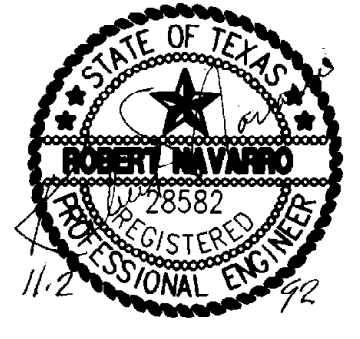
PROJECT NUMBER	1
DRAWING NUMBER	S104
SHEET NUMBER	128

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FILE	5870
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DESIGNED	I.L.
CHECKED	I.L.
CHECKED	R.N.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

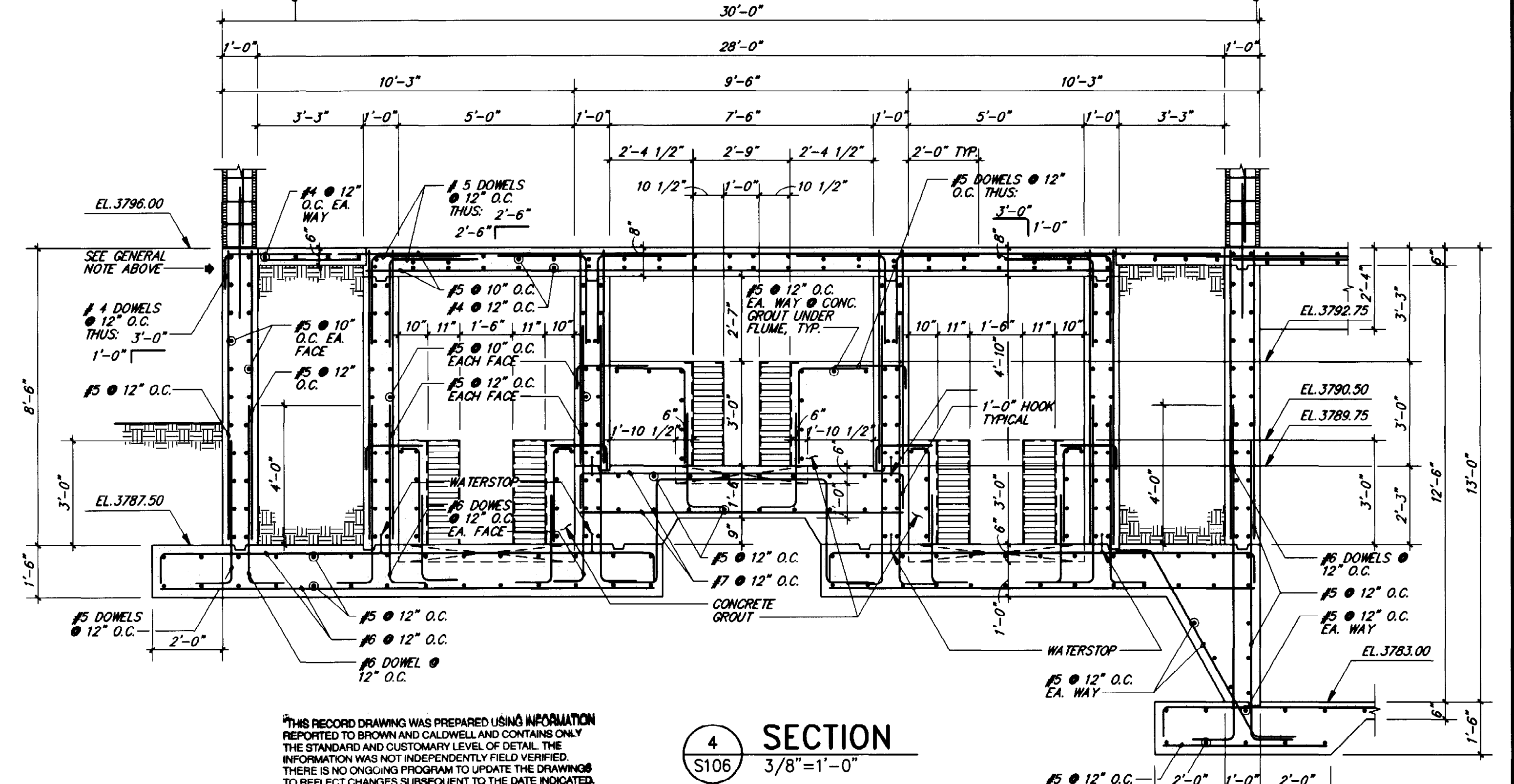
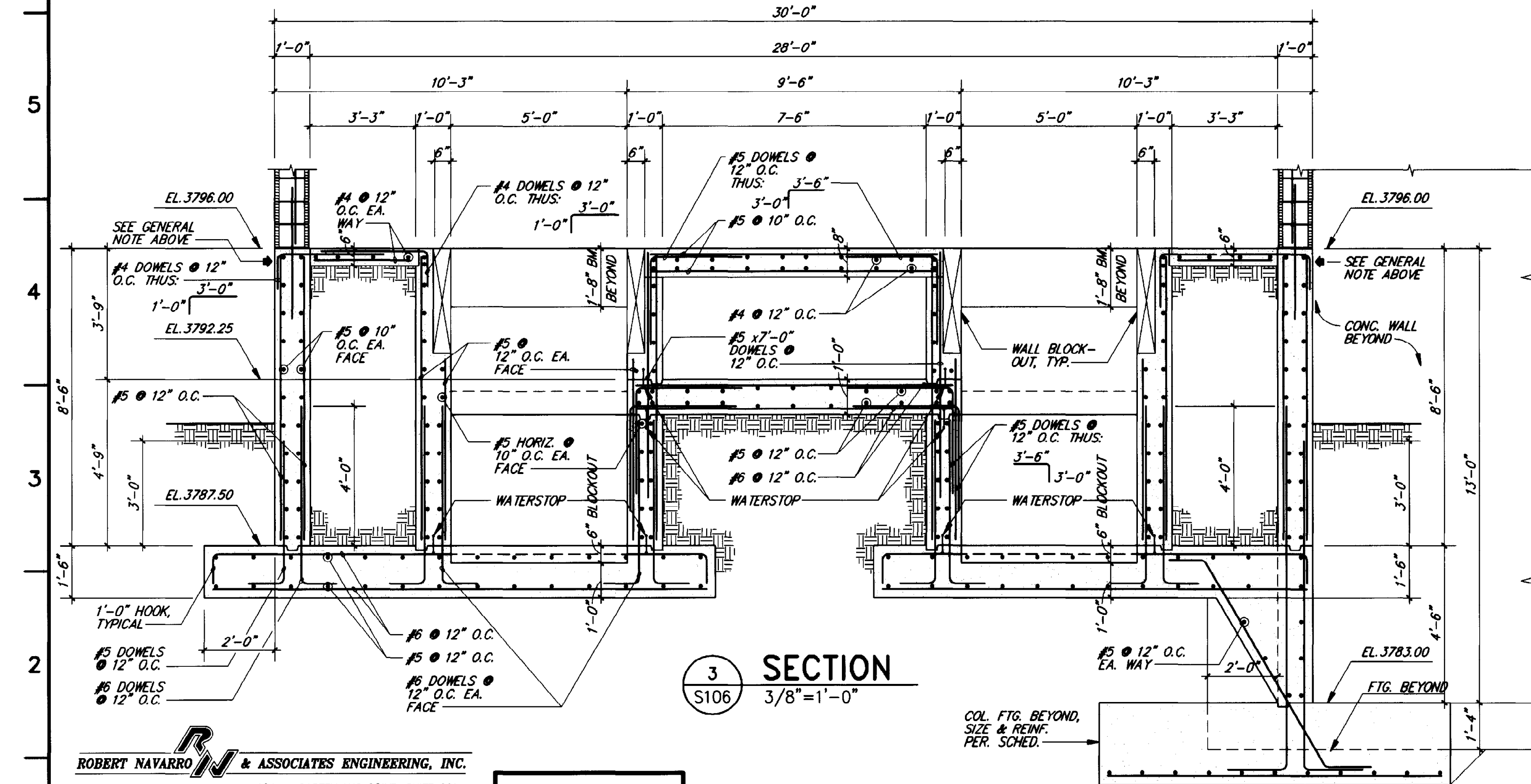
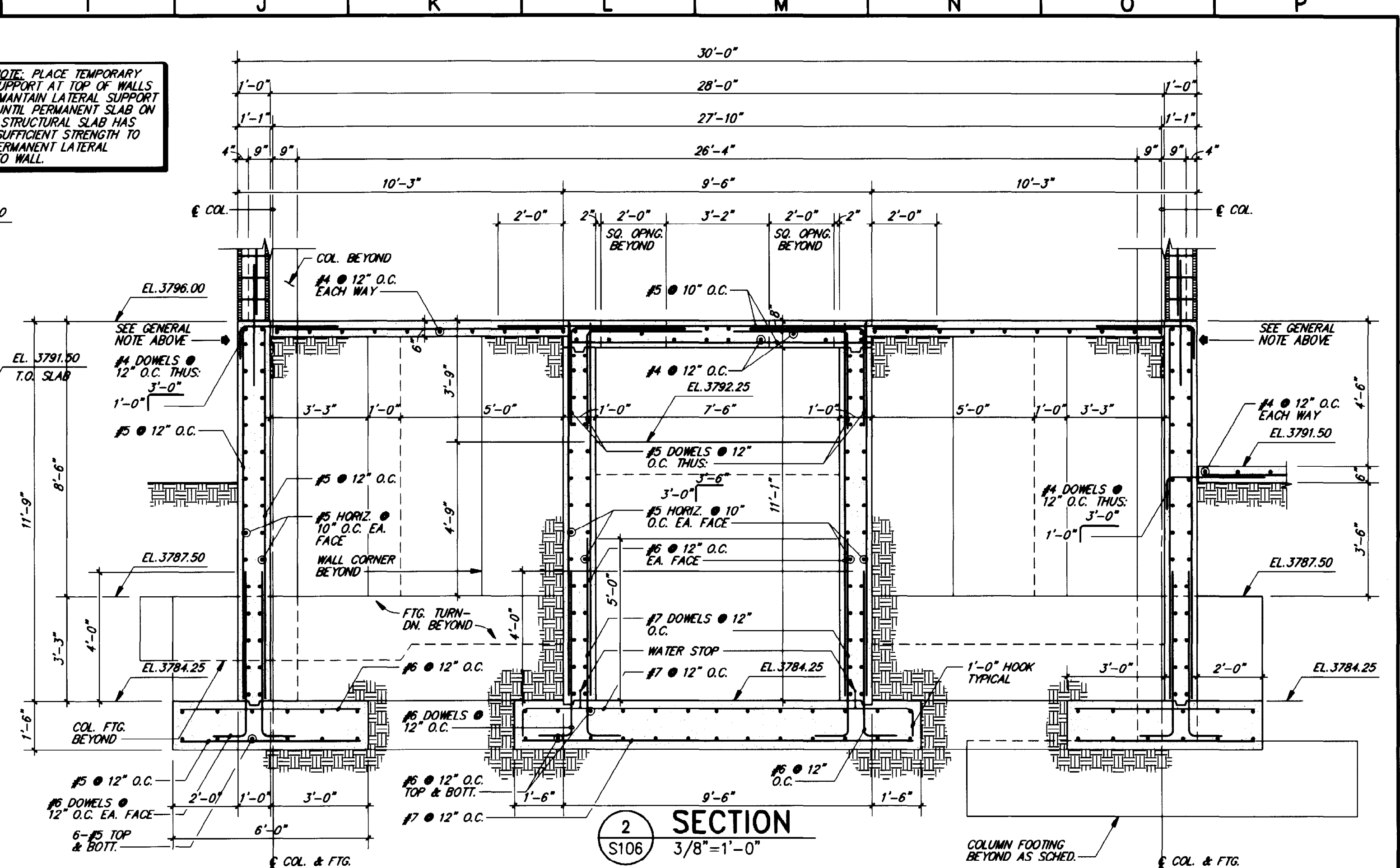
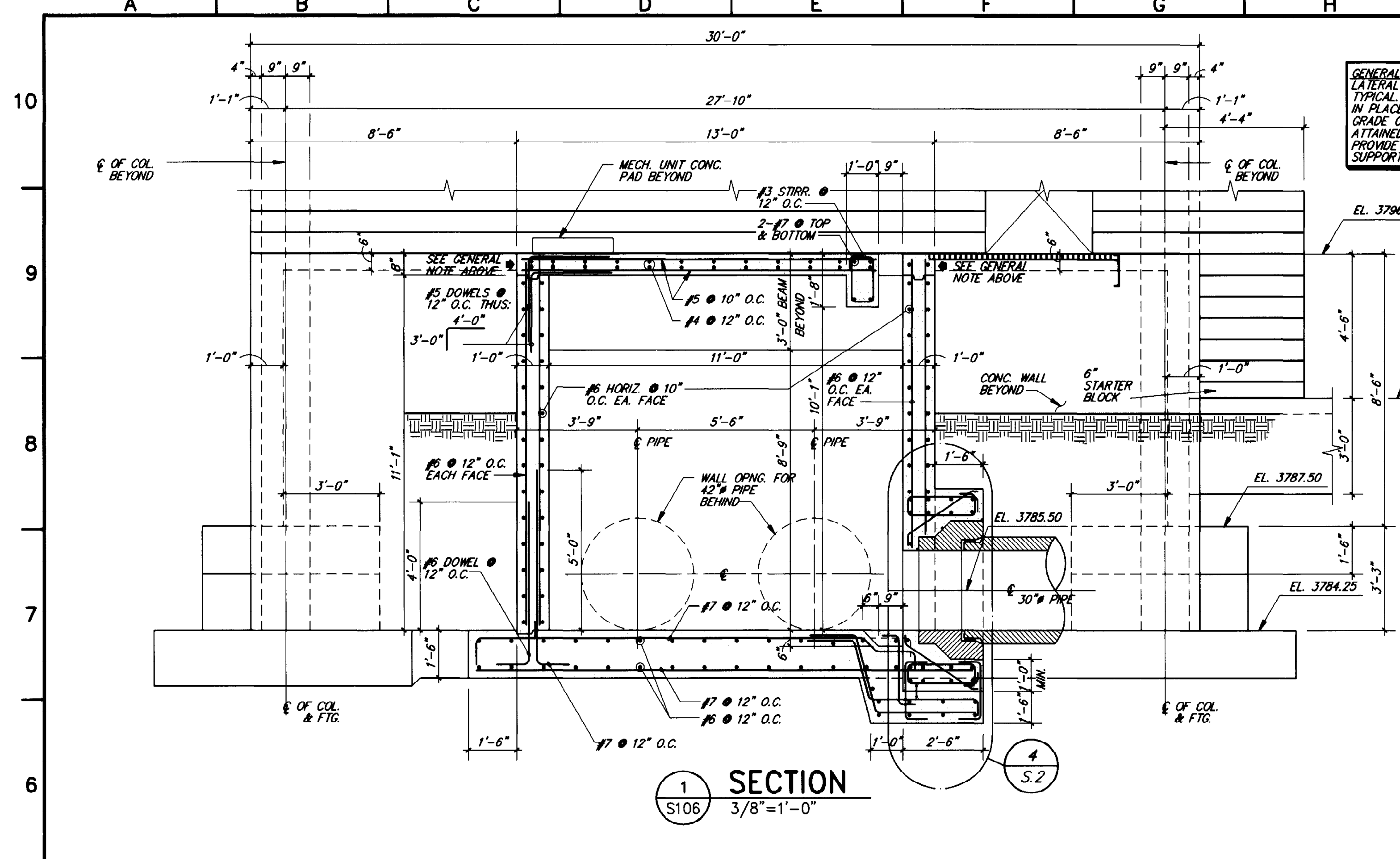
HEADWORKS

SECTIONS AND DETAILS

PROJECT NUMBER	1
DRAWING NUMBER	S105
SHEET NUMBER	129

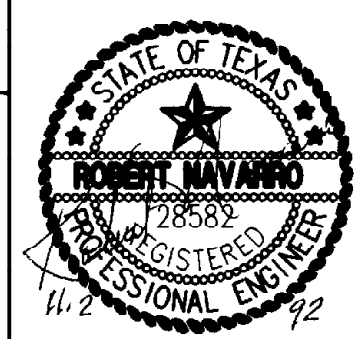
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5870-064 11-06-92 M.H.



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ZONE	REV.	DESCRIPTION	BY	DATE	APP.



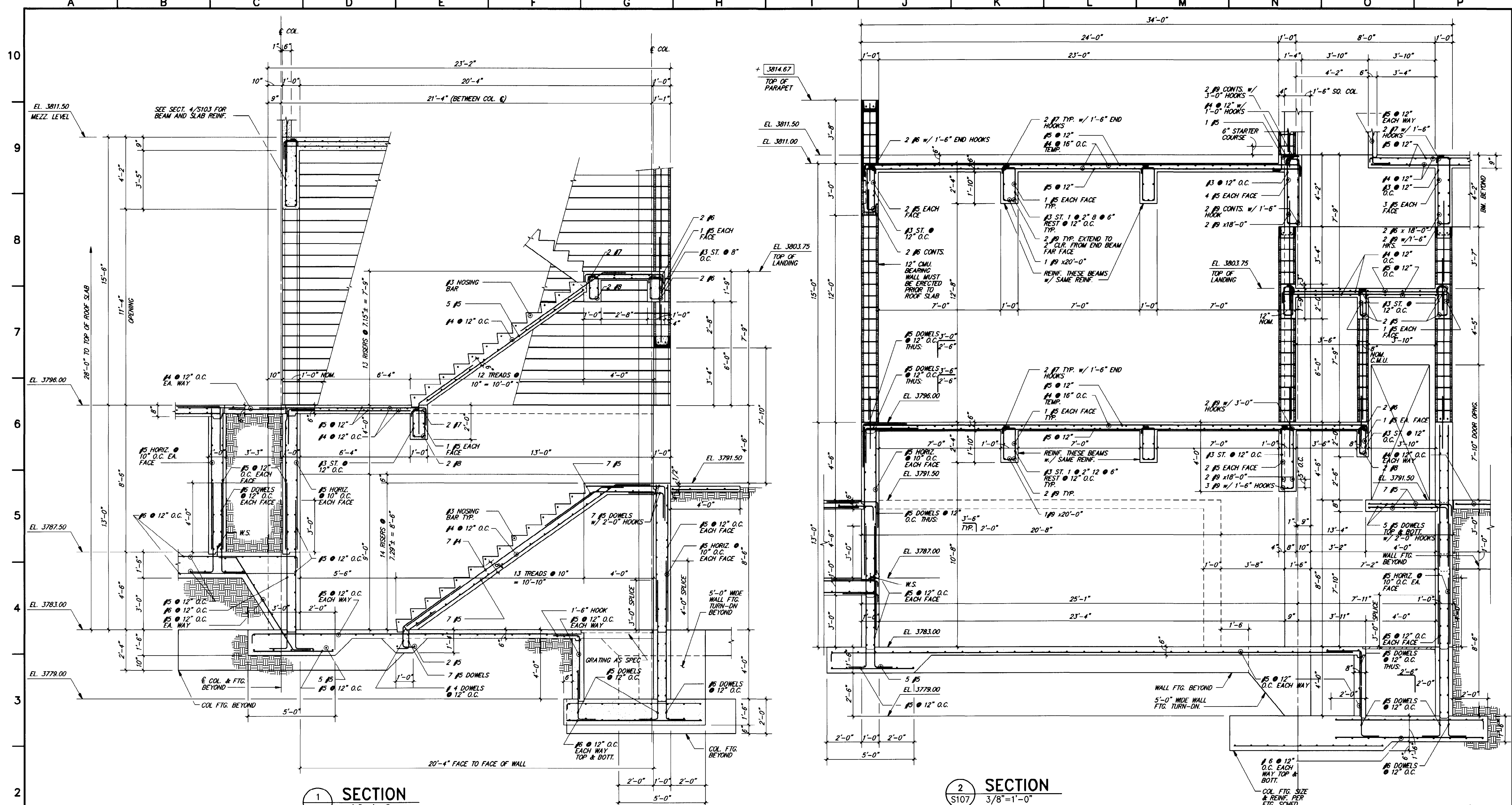
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS SECTIONS AND DETAILS

PROJECT NUMBER 1
DRAWING NUMBER **S106**
SHEET NUMBER 130

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5870-085 11-06-92 M.H.



1 SECTION
S107 3/8"=1'-0"

2 SECTION
S107 3/8"=1'-0"

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BC Brown and Caldwell Consultants
Phoenix, Arizona
SUBMITTED: *Robert Navarro* DATE: *11/20/92*
APPROVED: *Samuel J. ...* DATE: *11-20-92*
APPROVED: _____ DATE: _____

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FILE 5870
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DESIGNED I.L.
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CHECKED R.N.

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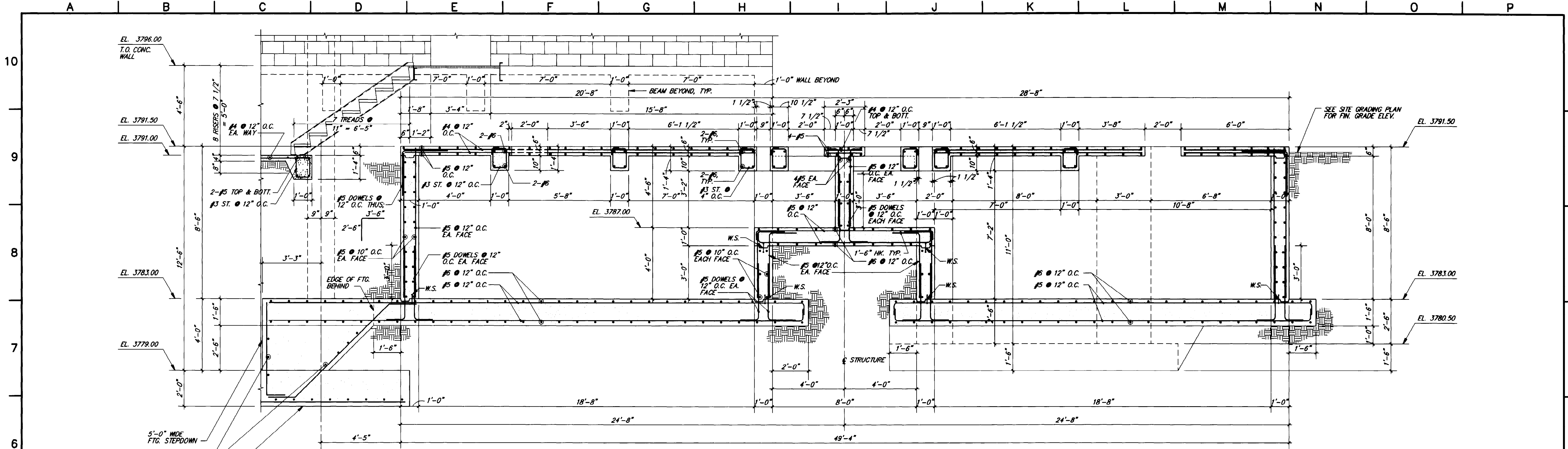


NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

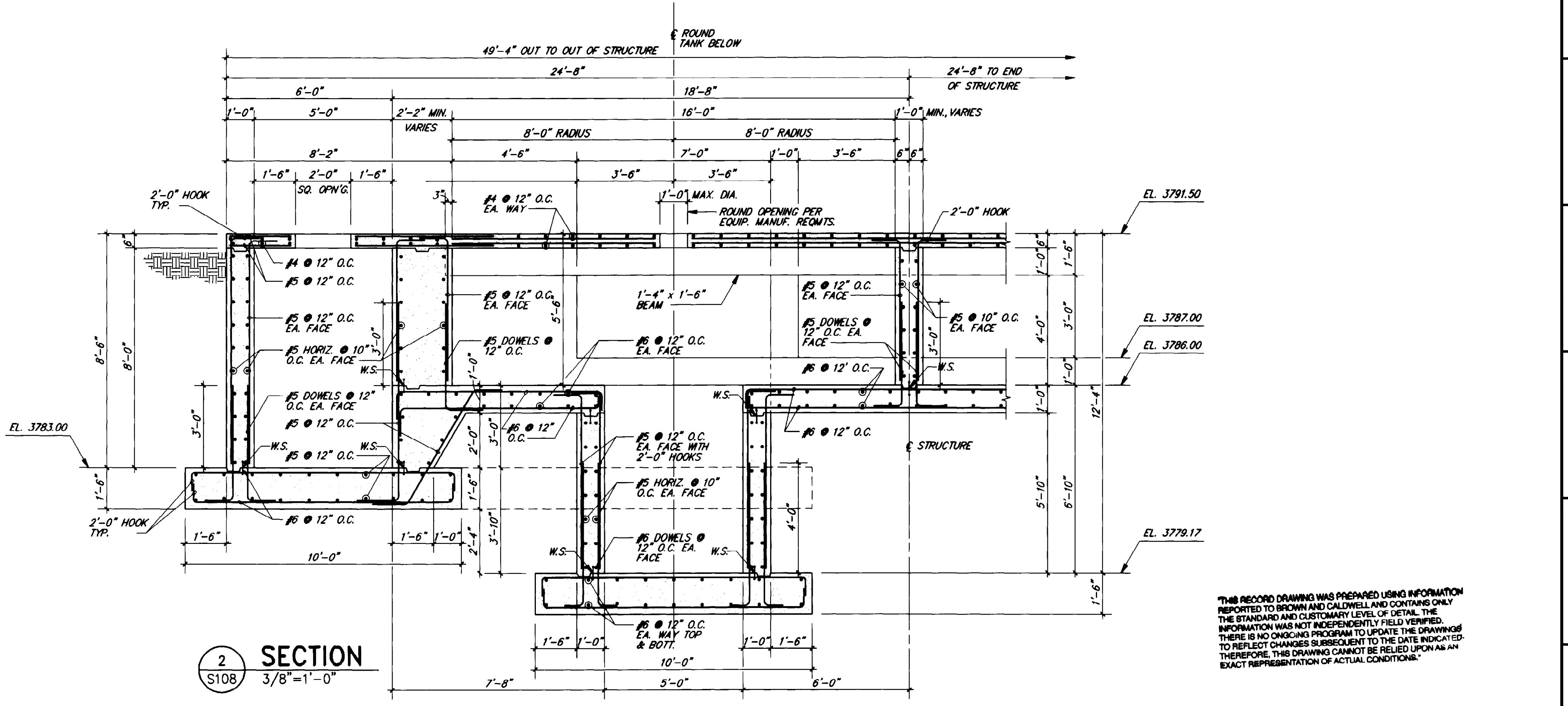
HEADWORKS SECTIONS AND DETAILS

PROJECT NUMBER
DRAWING NUMBER
S107
SHEET NUMBER
131

5870-086 11-06-92 M.H.



SECTION 1
S108 3/8"=1'-0"

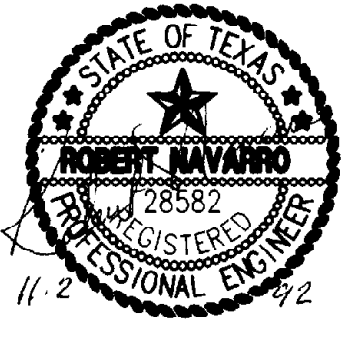


SECTION 2
S108 3/8"=1'-0"

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REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



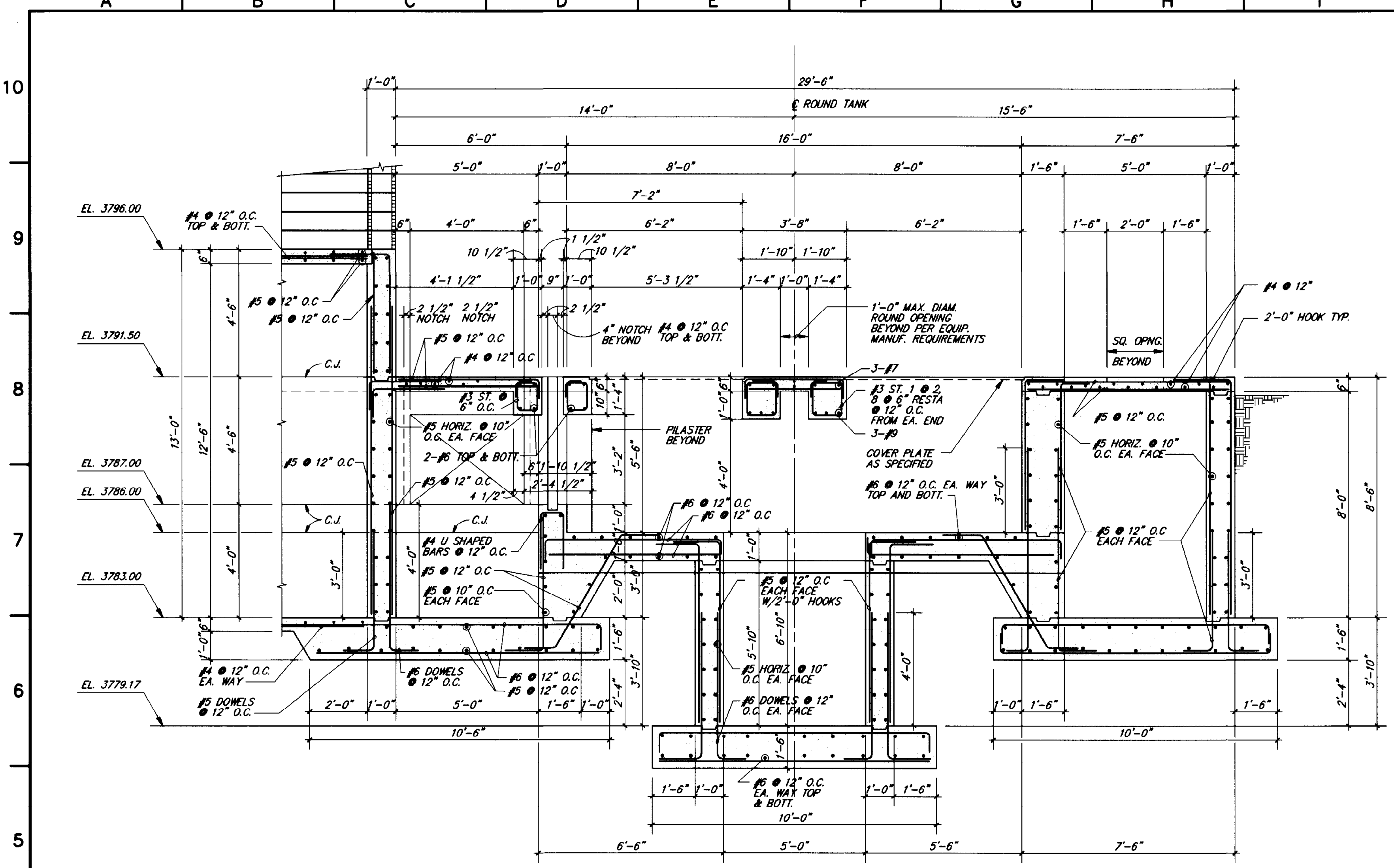
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS SECTIONS AND DETAILS

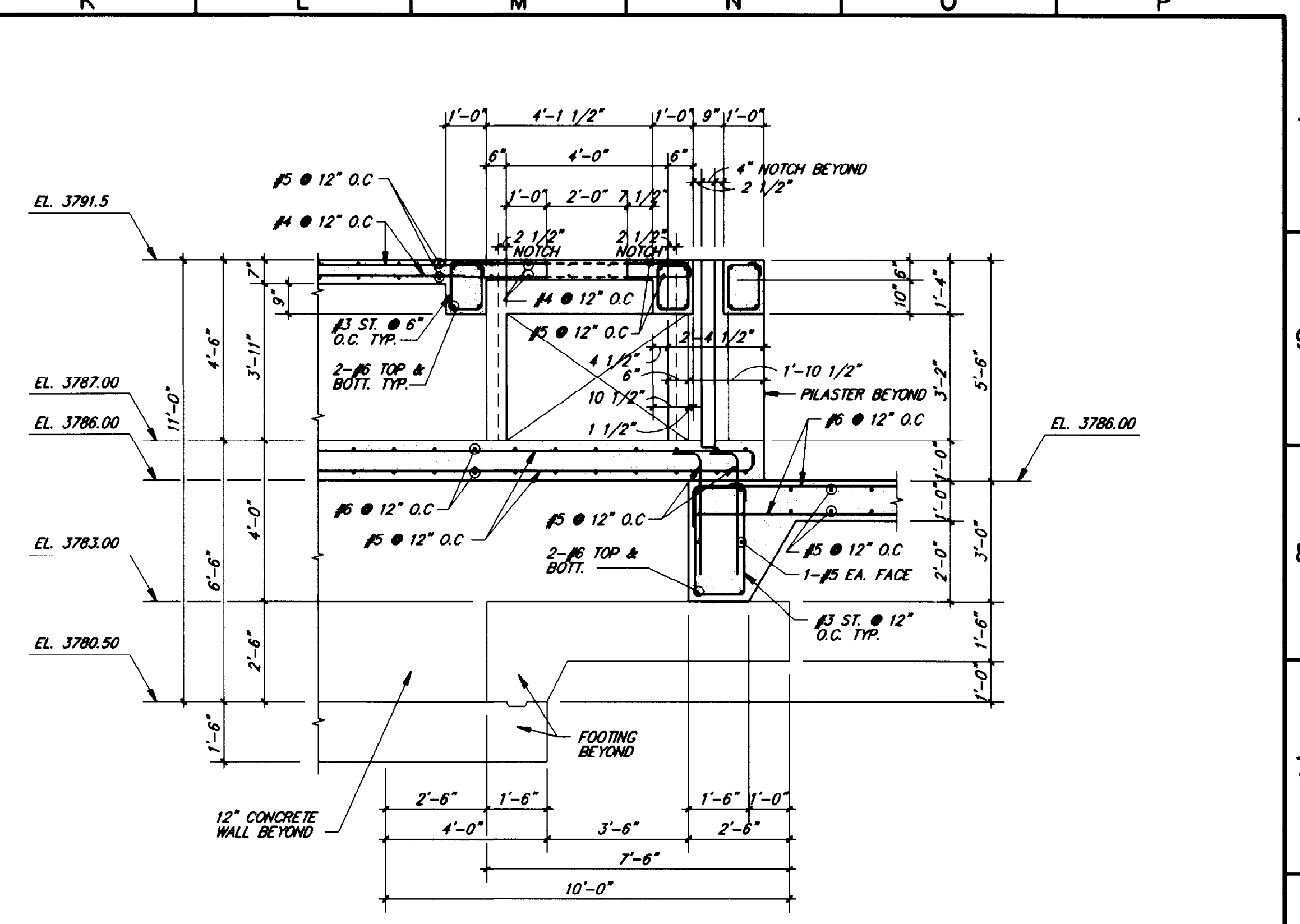
PROJECT NUMBER 1
DRAWING NUMBER **S108**
SHEET NUMBER 132

3870-087 11-06-92 M.H.

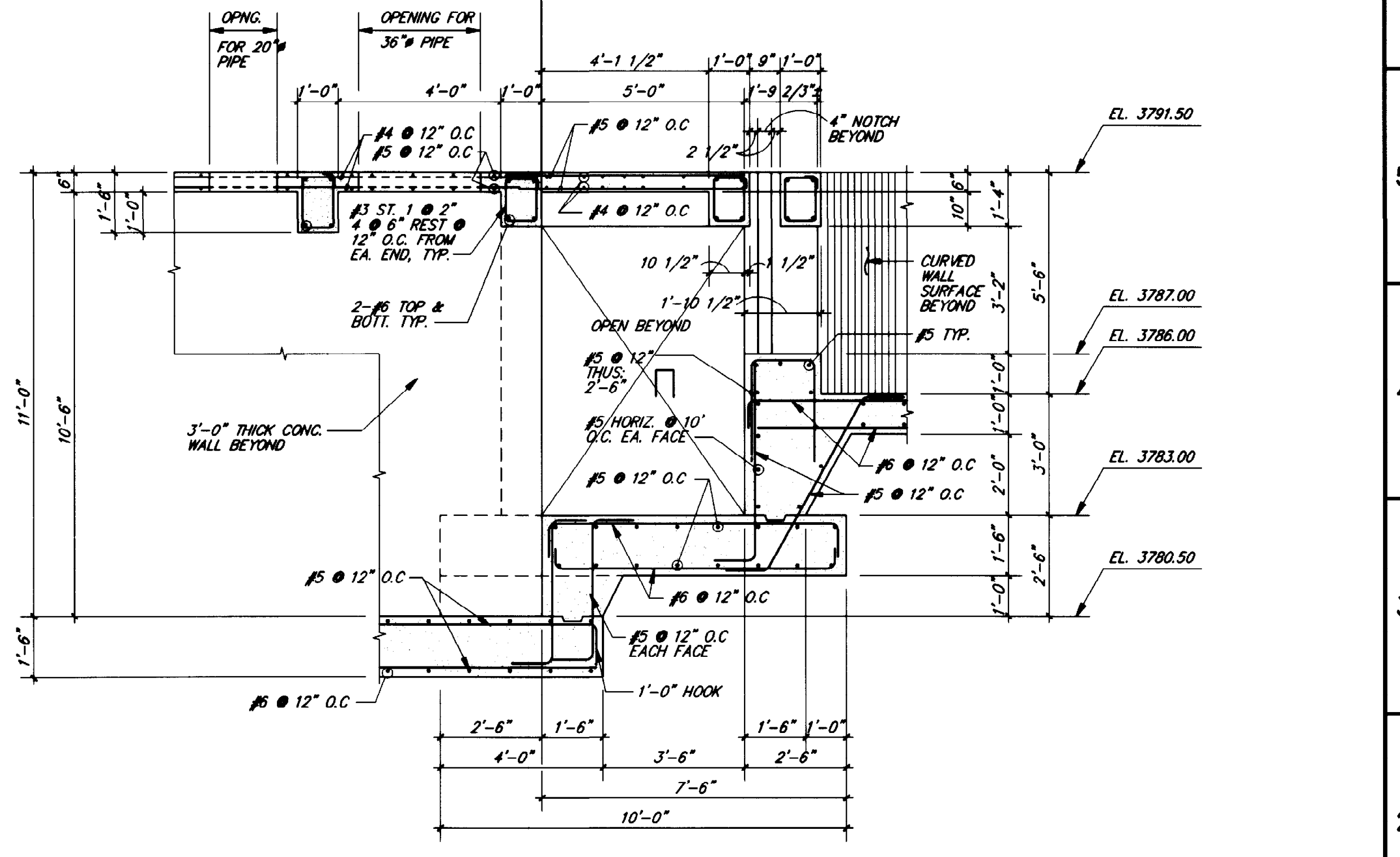
BC Consultants
Phoenix, Arizona
SUBMITTED: *Robert S. Schulz* DATE: 11/12/92
APPROVED: *Robert S. Schulz* DATE: 11-20-92
APPROVED: _____ DATE: _____



1 SECTION
S109 3/8"=1'-0"



2 SECTION
S109 3/8"=1'-0"



3 SECTION
S109 3/8"=1'-0"

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CHECKED R.N.



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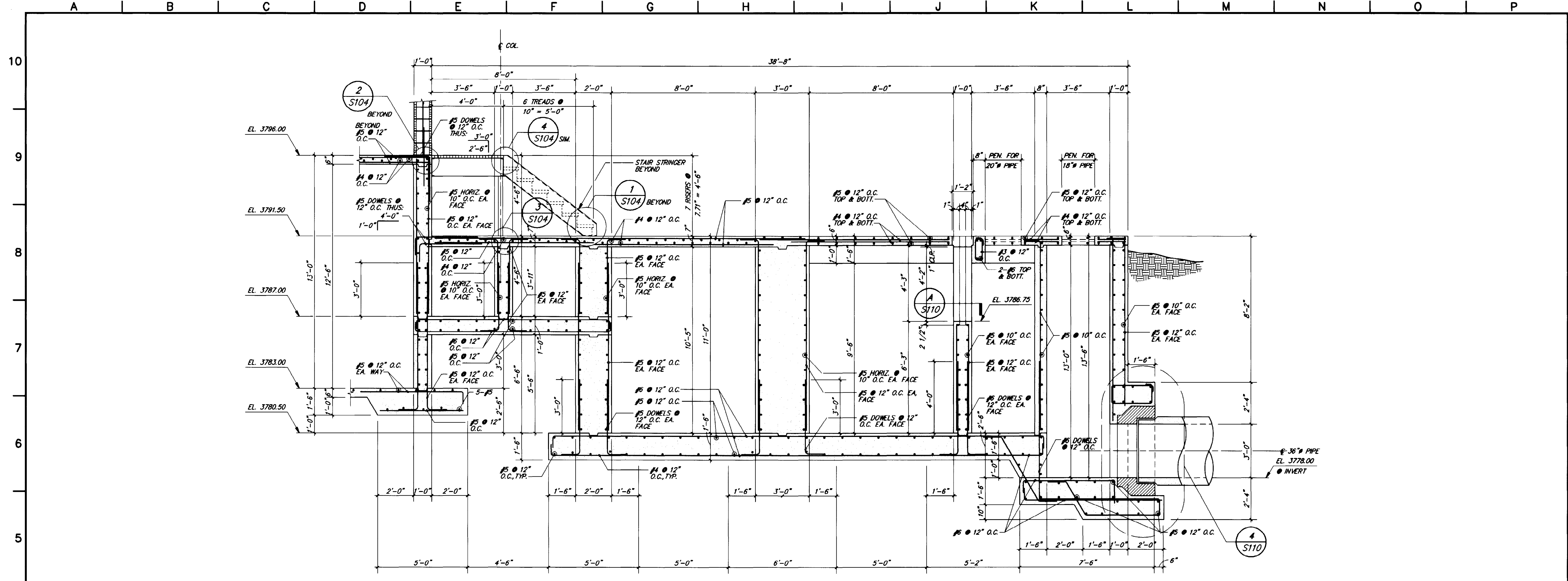


NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS SECTIONS AND DETAILS

PROJECT NUMBER
DRAWING NUMBER
S109
SHEET NUMBER
133

5870-088 11-06-92 M.H.



1 SECTION
S111 3/8"=1'-0"

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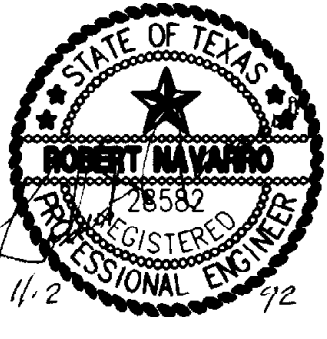
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124 W. CASTELLANO DRIVE, SUITE 201
EL PASO, TEXAS 79912
(915) 532-1406 FAX(915) 532-1496

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY ROBERT NAVARRO P.E. 25582 ON NOVEMBER 02, 1992.

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert E. Schulz* DATE: 11/20/92
APPROVED: *Robert E. Schulz* DATE: 11/20/92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)
FILE 5870
DRAWN J.O.
DESIGNED I.L.
CHECKED I.L.
CHECKED R.N.



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

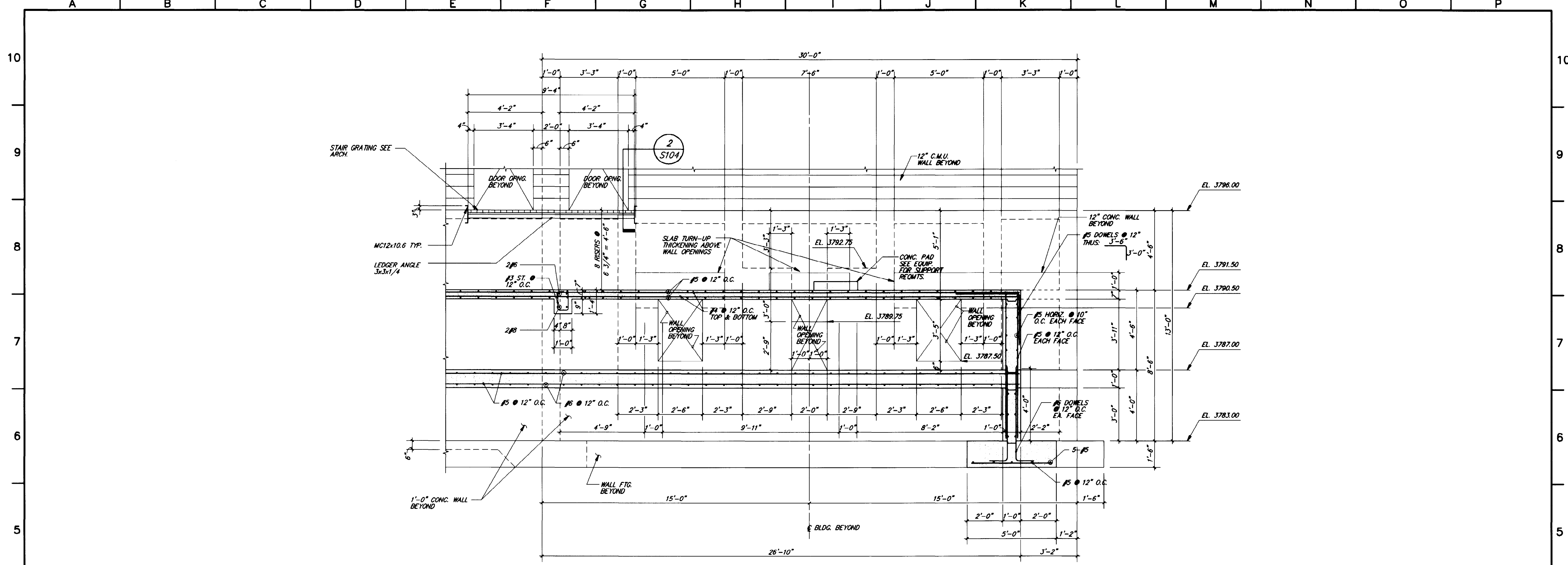


NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS
SECTIONS AND DETAILS

PROJECT NUMBER
DRAWING NUMBER
S111
SHEET NUMBER
135

5870-060 11-06-92 J.O.



1 SECTION
S112 3/8"=1'-0"

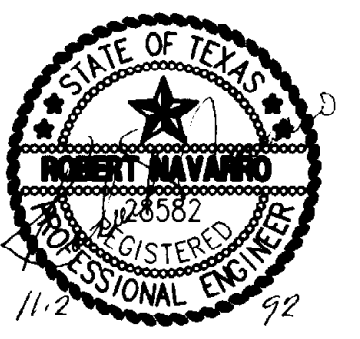
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ROBERT NAVARRO & ASSOCIATES ENGINEERING, INC.
124 W. CASTELLANO DRIVE, SUITE 201
EL PASO, TEXAS 79912
(915) 532-1406 FAX(915) 532-1496

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APPROVED: *Samuel H. Kander* DATE: 11-20-92
APPROVED: _____ DATE: _____

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FILE 5870
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DESIGNED I.L.
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REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

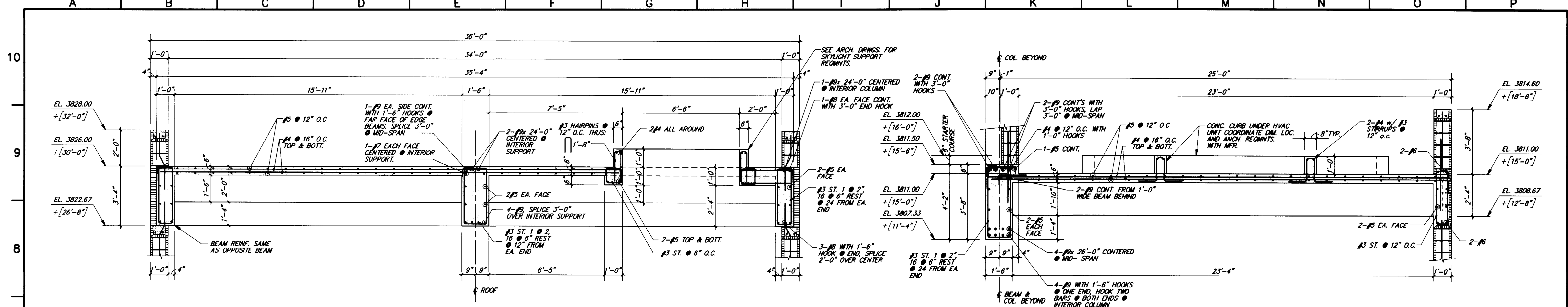


NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS SECTIONS AND DETAILS

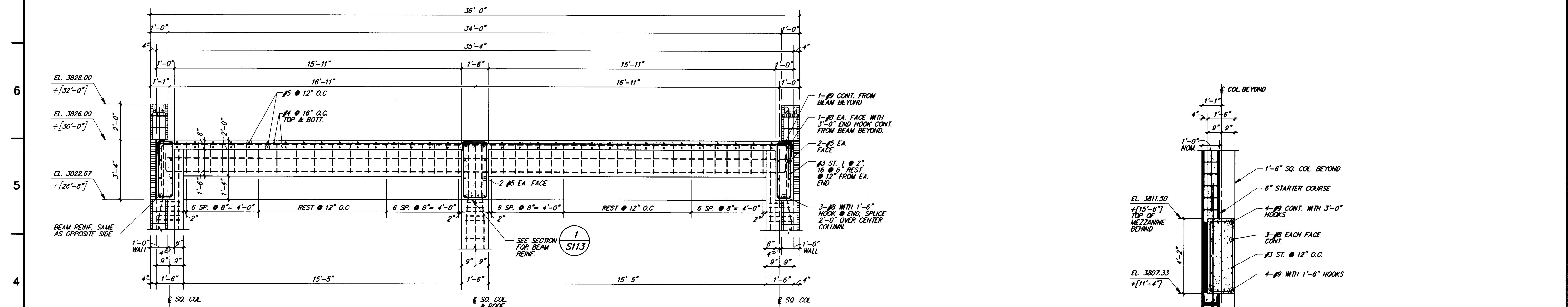
PROJECT NUMBER
DRAWING NUMBER
S112
SHEET NUMBER
136

5870-091 11-06-92 M.H.



1 SECTION
S113 3/8"=1'-0"

2 SECTION
S113 3/8"=1'-0"



3 SECTION
S113 3/8"=1'-0"

4 SECTION
S113 3/8"=1'-0"

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CHECKED I.L.



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



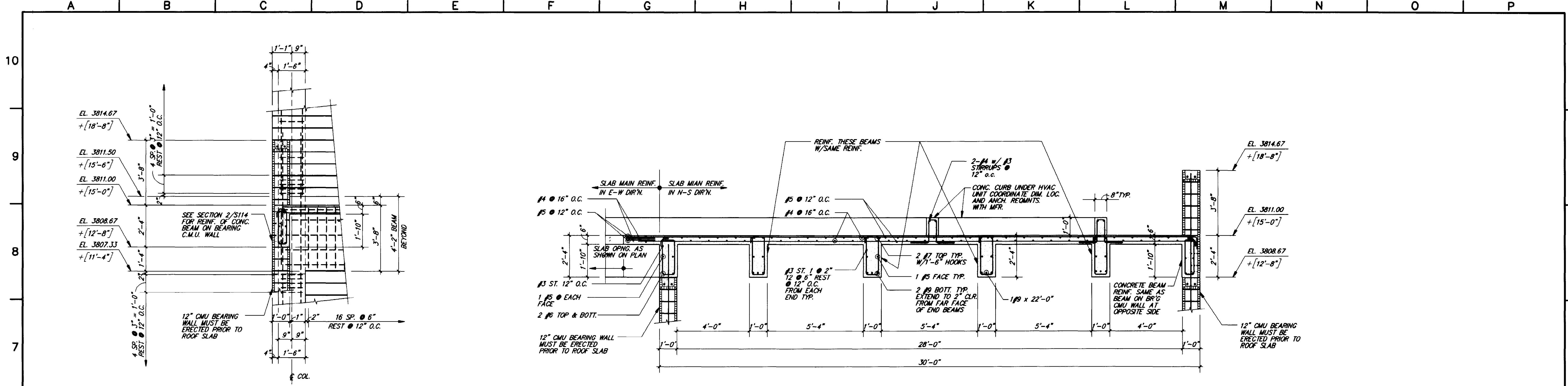
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS
SECTIONS & DETAILS

PROJECT NUMBER
S113
DRAWING NUMBER
S113
SHEET NUMBER
137

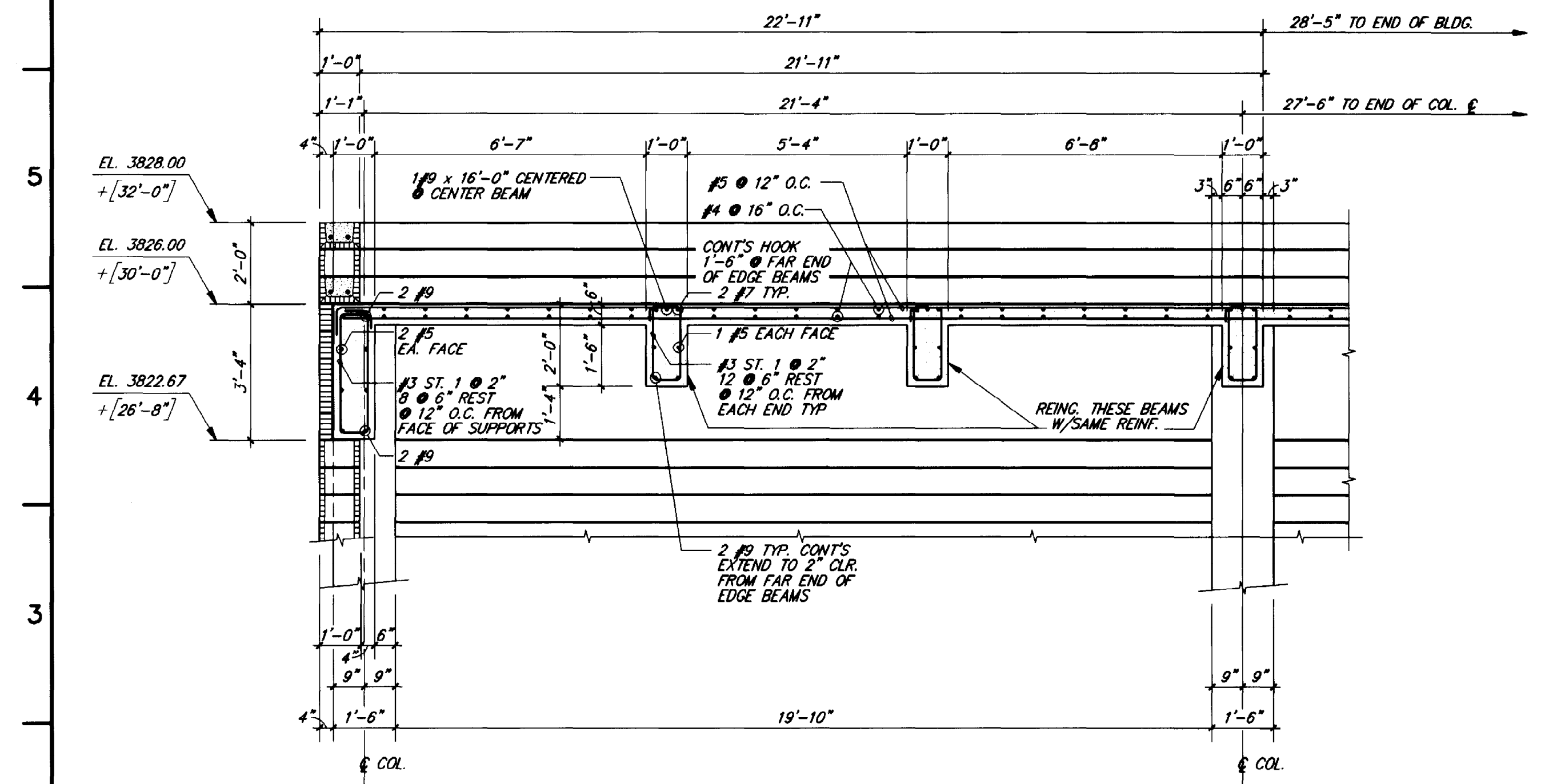
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5870-092 11-06-92 M.H.

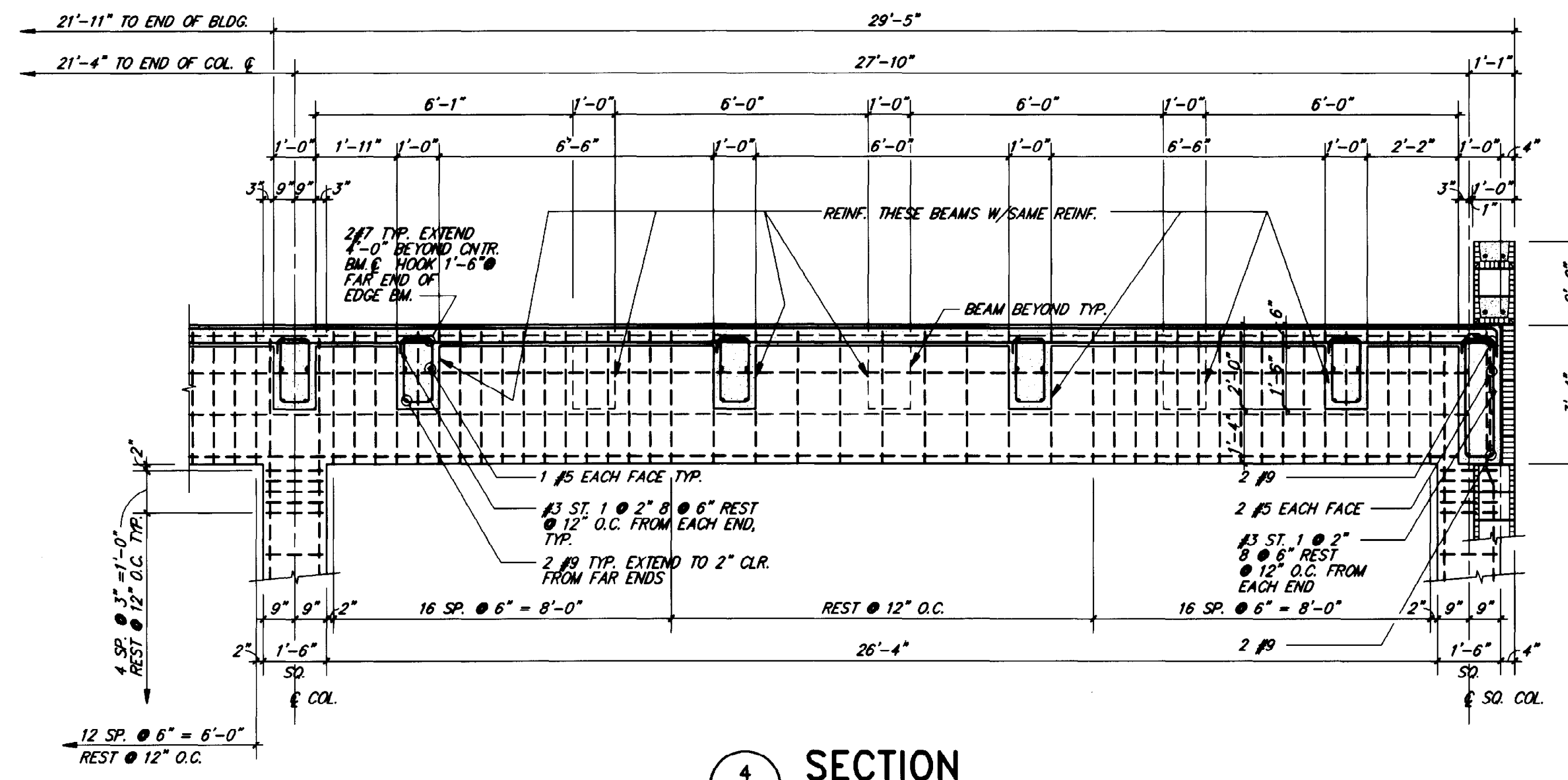


1 SECTION
S114 3/8"=1'-0"

2 SECTION
S114 3/8"=1'-0"



3 SECTION
S114 3/8"=1'-0"



4 SECTION
S114 3/8"=1'-0"

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ROBERT NAVARRO & ASSOCIATES ENGINEERING, INC.

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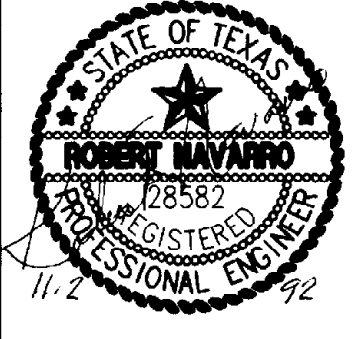
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Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schulz* DATE: 11/24/92
APPROVED: *Robert S. Schulz* DATE: 11-24-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE 5870
DRAWN R.R.
DESIGNED I.L.
CHECKED I.L.
CHECKED R.N.



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

SECTIONS AND DETAILS

PROJECT NUMBER
DRAWING NUMBER
S114
SHEET NUMBER
138

5870-093 11-06-92 M.H.

NOMINAL PIPE SIZE (INCHES)	SUPPORT ROD SIZE AND MAXIMUM LOAD PER ROD. SEE NOTE 2		MAXIMUM PIPE SPAN (FEET) SEE NOTE 3			
	ROD SIZE (INCHES)	MAX LOAD (POUNDS)	STEEL	COPPER	PLASTIC SEE NOTE 4	CAST IRON SEE NOTE 6
3/8 TO 3/4	3/8	610	5	5	CONTINUOUS	---
1	3/8	610	5	5	5	---
1 1/4	3/8	610	5	5	5	---
1 1/2	3/8	610	5	5	5	---
2	3/8	610	10	5	5	---
2 1/2	3/8	610	10	10	5	---
3	3/8	610	10	20	5	---
4	1/2	1130	10	20	5	---
6	5/8	1810	15	20	5	---
8	3/4	2710	15	20	5	---
10	3/4	2710	20	---	5	---
12	7/8	3770	20	---	10	---
14	1	4980	20	---	---	---
18	1	4980	20	---	---	---
18	1	4980	20	---	---	---
20	1-1/4	8000	20	---	---	---
24	1-1/4	8000	20	---	---	---

TABLE A NOTES:

- DESIGN WEIGHT SHALL BE TWICE THE WEIGHT OF THE PIPE FULL OF WATER PLUS THE WEIGHTS OF VALVES, FITTINGS, INSULATING MATERIALS AND SUSPENDED HANGER COMPONENTS ON THE RUN OF PIPE BEING SUPPORTED.
- ROD SIZES SHOWN ARE FOR THE SUPPORT OF A SINGLE PIPE. WHEN SUPPORTING MORE THAN ONE PIPE, ROD SHALL BE SIZED USING DESIGN WEIGHTS (SEE NOTE 1) TO DETERMINE THE TOTAL DESIGN LOAD. THE TOTAL DESIGN LOAD SHALL NOT EXCEED THE MAXIMUM LOADS IN THE TABLE ABOVE.
- PIPE SHALL NOT HAVE POCKETS FORMED IN THE SPAN DUE TO SAGGING OF THE PIPE BETWEEN SUPPORTS CAUSED BY THE WEIGHT OF THE PIPE, MEDIUM IN THE PIPE, INSULATION, VALVES AND FITTINGS.
- SPAN SHOWN IS FOR SCHEDULE 80 PVC PIPE AT 100°F. SPANS FOR OTHER PLASTICS, OTHER PVC PIPE SCHEDULES AND PIPES AT HIGHER TEMPERATURES SHALL BE SHORTENED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. "CONTINUOUS" MEANS PIPE SHALL BE IN UNISTRUT OF SIMILAR CHANNEL.
- PROVIDE A MINIMUM OF ONE PIPE HANGER PER PIPE LENGTH, WITHIN 4 INCHES OF THE BELL.
- PIPE HANGER AND SUPPORT SELECTION SHALL BE IN ACCORDANCE WITH TABLE B AND SPECIFICATION SECTION 15096.

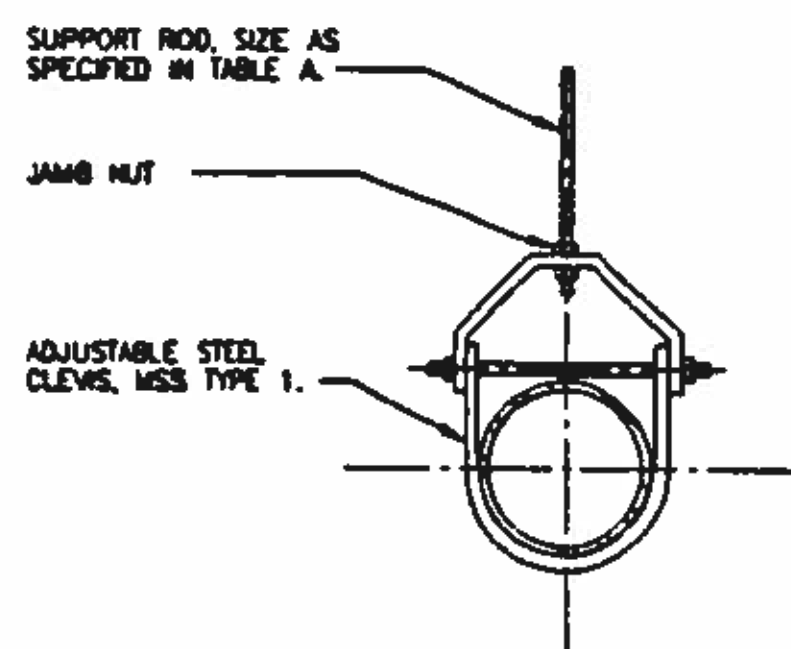
SYSTEM TEMP RANGE DEG F	INSULATION NOTE 1	PIPE ATTACHMENTS							BUILDING STRUCTURAL ATTACHMENTS					
		HORIZONTAL							VERTICAL	STEEL AND/OR MALL IRON				
		STEEL STRAPS	STEEL BANDS	STEEL CLAMPS	CAST IRON HANGING ROLLS	CAST IRON SUPPORTING ROLLS	STEEL TRAPEZES AND RACKS	THERMAL HANGER SHIELDS		STEEL OR CAST IRON STANCHIONS	STEEL RISER CLAMPS	INSERTS	BEAM CLAMPS	WELDED & BOLTED ATTACHMENTS
HOT A-1 120 TO 450	COVERED	13	1, 2	3	4, 5	8	20, 21	SEE SPEC	10	11, 12	A	C, D	J, M	B, G, H, K, L
	BARE	6, 7, 13	1, 2	3	4, 5	8	20, 21	NONE	10					
HOT A-2 451 TO 750	COVERED	13	1	3	4, 5	8	20, 21	SEE SPEC	10	11, 12	A	C, D	J, M	B, G, H, K, L
	BARE	NONE	NONE	3	NONE	NONE	20, 21	NONE	NONE					
HOT A-3 OVER 750	COVERED	13	1	3 (ALLOY)	4, 5	8	20, 21	SEE SPEC	10	11, 12	NONE	C, D	J, M	B, G, H, K, L
	BARE	13	NONE	3 (ALLOY)	NONE	NONE	20, 21	NONE	NONE					
AMBIENT 60 TO 119	COVERED	13	1, 2	3	4, 5	8	20, 21	SEE SPEC	8, 10	11, 12	A	C, D	J, M	B, G, H, K, L
	BARE	6, 7, 13	1, 2	3	4, 5	8	20, 21	NONE	8, 10					
COLD C-1 33 TO 59	COVERED	13	1, 2, 3	3	4, 5	8	20, 21	SEE SPEC	10	11, 12	A	C, D	J, M	B, G, H, K, L
	BARE	6, 7, 13	1, 2, 3	3	4, 5	8	20, 21	NONE	10					
COLD C-2 -2 TO 32	COVERED	13	1, 2, 3	3	4, 5	8	20, 21	SEE SPEC	10	11, 12	A	C, D	J, M	B, G, H, K, L
	BARE	NONE	1, 2, 3	3	4, 5	8	20, 21	NONE	10					

NOTES:

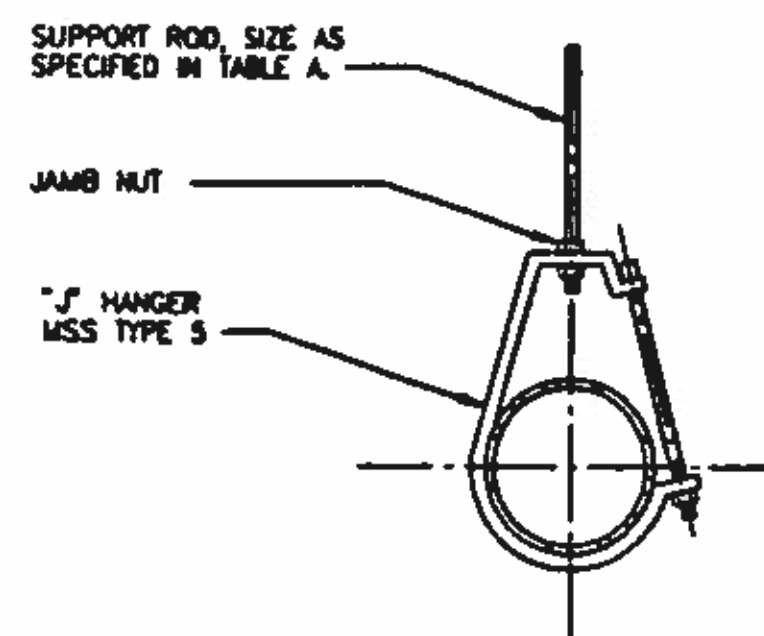
- HANGER ON INSULATED SYSTEMS SHALL INCORPORATE THERMAL HANGER SHIELDS.
- HANGER AND SUPPORT SPACING SHALL BE IN ACCORDANCE WITH TABLE A.

GENERAL NOTES:

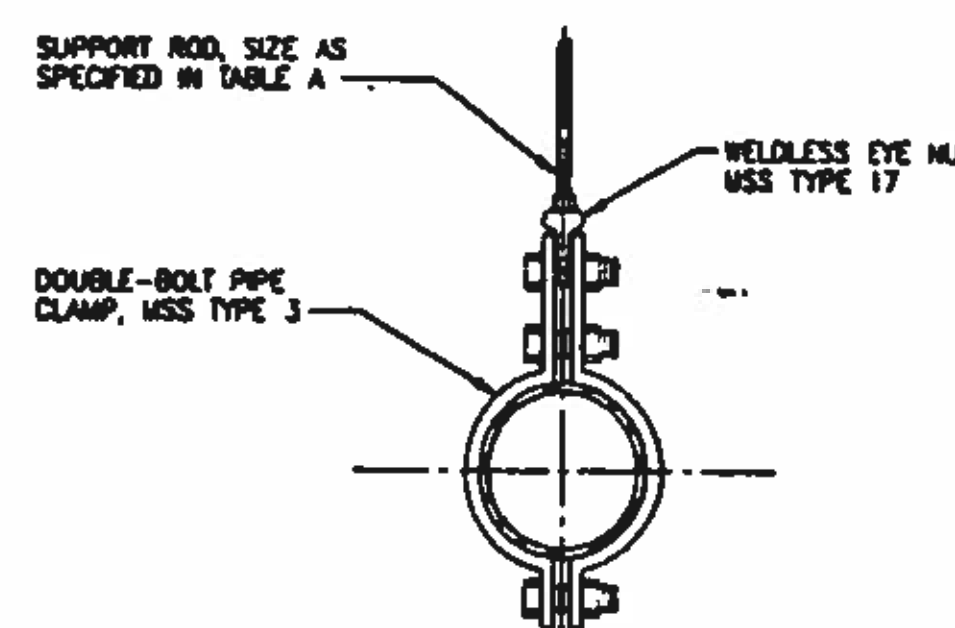
- WHERE NO REFERENCE TO PIPE SUPPORT SYSTEMS ARE GIVEN ON THE DRAWINGS, THE CONTRACTOR SHALL USE AN APPROPRIATE SYSTEM. SEE TABLE "B" DRAWING M1. PIPE AND CONDUIT SUPPORT SYSTEMS SHALL BE UNISTRUT, ELCEM, OR EQUAL, AND SHALL BE DESIGNED BY THE CONTRACTOR TO MEET THE MINIMUM LOAD AND SPAN REQUIREMENTS AS SPECIFIED.
- UNLESS OTHERWISE SPECIFIED, HANGERS AND SUPPORTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. NUTS, BOLTS AND WASHERS MAY BE ZINC PLATED, EXCEPT THOSE SUBJECT TO MOISTURE OR CORROSIVE ATMOSPHERE SHALL BE TYPE 304 STAINLESS STEEL.
- UNLESS OTHERWISE SPECIFIED, EXPANSION STANDS SHALL NOT BE USED.
- MSS REFERS TO THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, STANDARD PRACTICE SP58 AND SP88.
- HANGER BRACKETS AND SUPPORT COMPONENTS MAY BE INTERCHANGED.
- CONCRETE INSERTS IN AREAS BELOW WATER SURFACE OR NORMALLY SUBJECT TO SUBMERGING SHALL BE EMBEDDED ANCHOR BOLTS OR EQUAL.
- PROVIDE PLASTIC OR RUBBER CHANNEL END CAPS AT EXPOSED ENDS OF CHANNELS 7'-0" ABOVE FLOOR AND BELOW.
- MAXIMUM DESIGN WEIGHTS AND LOADS SHALL BE AS SHOWN IN TABLE "A" DRAWING M1, OR AS SHOWN IN THE DETAILS ON THIS DRAWING.
- WHEN SUPPORTING PIPING REQUIRES HORIZONTAL FLEXIBILITY NORMAL TO A STEEL BEAM AXIS, USE STRUCTURAL ATTACHMENTS C AND D AS SHOWN ON DRAWING M3. TYPE F, DRAWING M3 SHALL BE USED FOR PARALLEL FLEXIBILITY.
- ALL PIPING SUPPORTED BY HANGERS AND/OR STRUCTURAL ATTACHMENTS SHALL BE BRACED AGAINST HORIZONTAL, VERTICAL, AXIAL, AND LONGITUDINAL SWAY. BRACINGS SHALL BE CALCULATED TO RESIST SEISMIC LOADINGS AS SPECIFIED BY SMACNA AND AS INDICATED IN THE SPECIFICATIONS.
- PIPE SUPPORT SYSTEMS ARE IDENTIFIED ON THE DRAWINGS AS FOLLOWS:
 - STRUCTURAL ATTACHMENT
 - PIPE ATTACHMENT
- FITTINGS SHALL NOT BE LESS THAN MSS CL B.
- UNLESS OTHERWISE SPECIFIED, TRAPEZE AND PIPE RACK COMPONENTS, (TYPE 20, & 21/M2), SHALL HAVE A MINIMUM STEEL THICKNESS OF 12 GAGE WITH A MAXIMUM DEFLECTION 1/240 OF THE SPAN. MINIMUM CHANNEL COMPONENT SIZE SHALL BE 1 3/8" SQUARE AS MANUFACTURED BY SUPER STRUT, UNISTRUT, ELCEM, OR EQUAL.



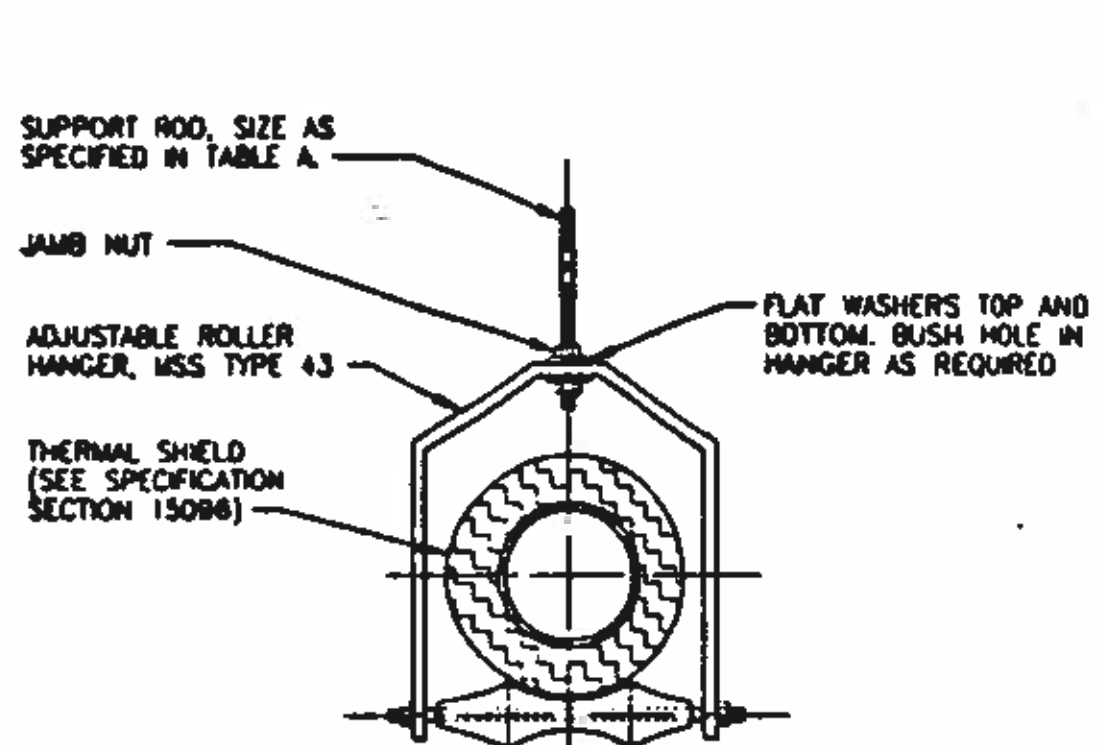
TYPE 1 PIPE HANGER
1/2" THROUGH 12" PIPE



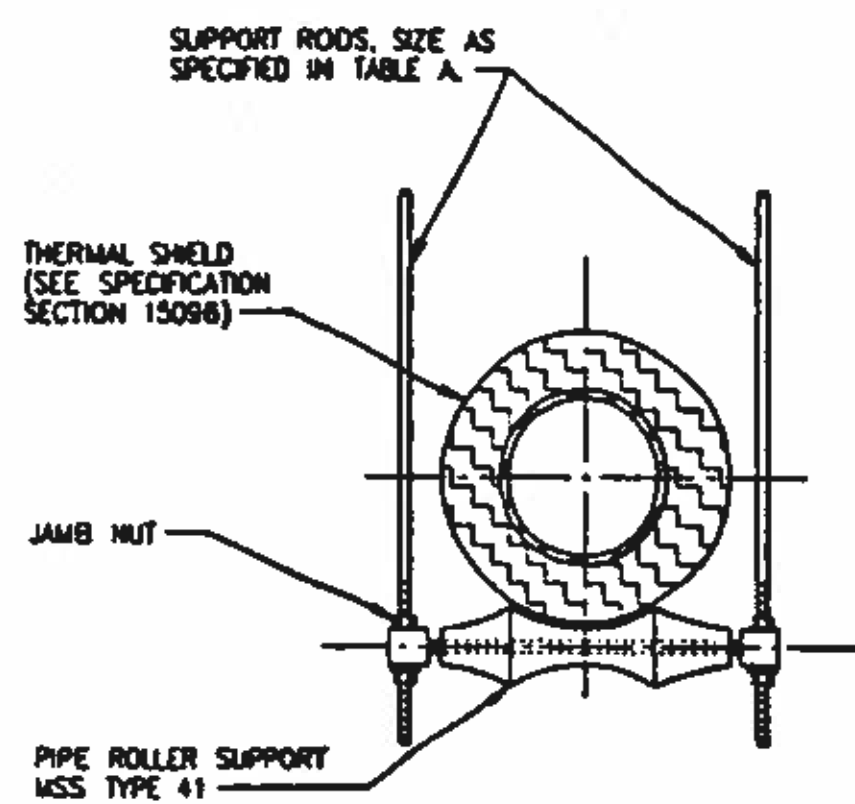
TYPE 2 PIPE HANGER
1/2" THROUGH 6" PIPE



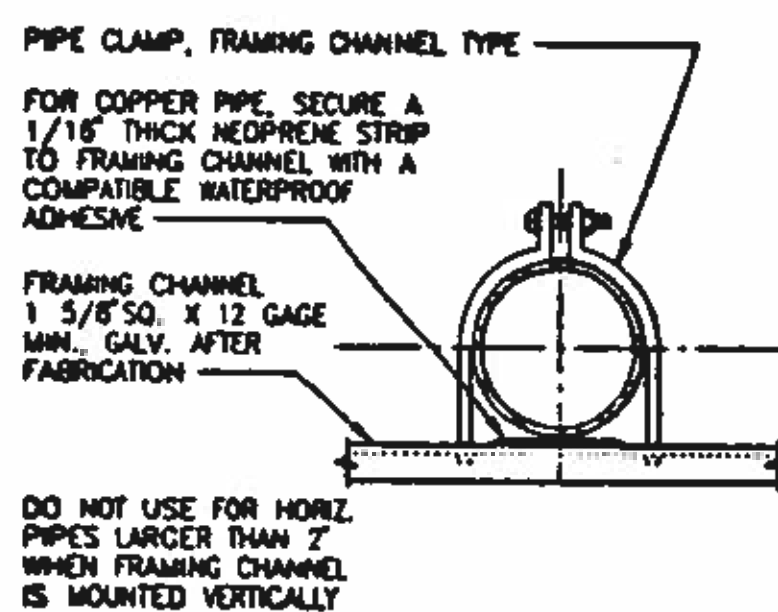
TYPE 3 PIPE HANGER
3/4" THROUGH 12" PIPE



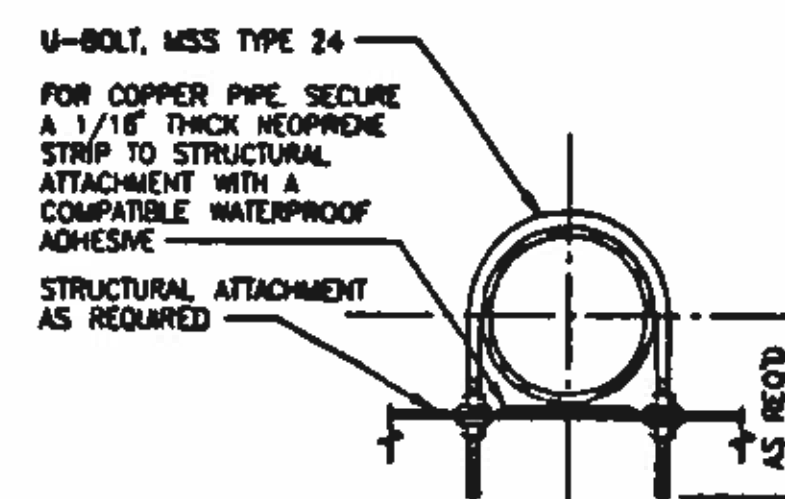
TYPE 4 PIPE HANGER
3/8" THROUGH 12" PIPE



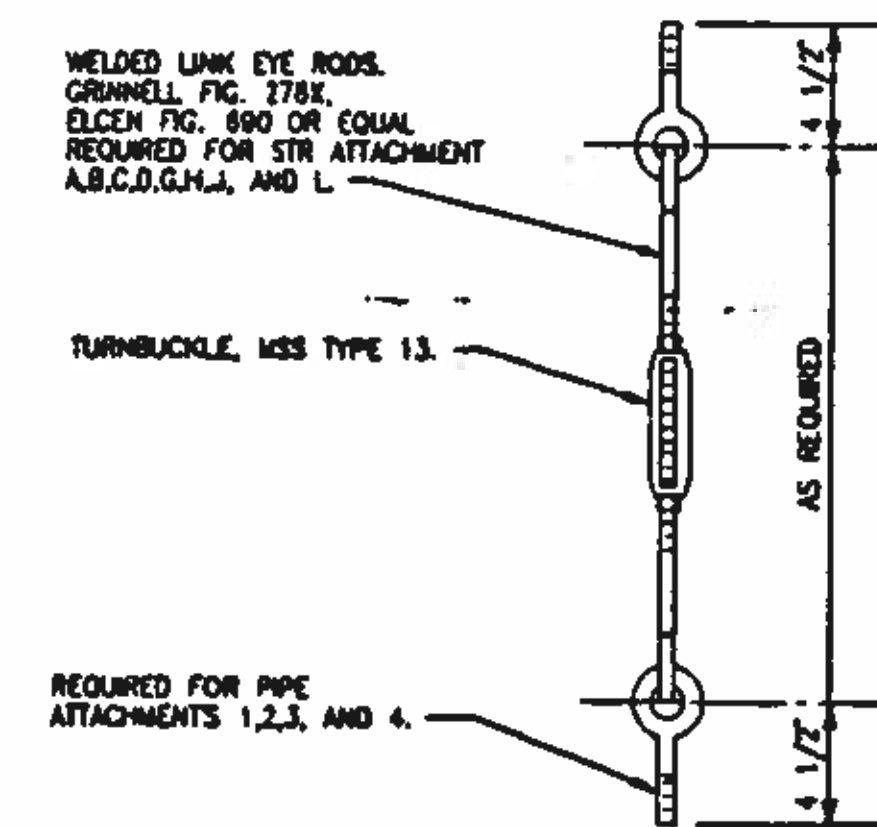
TYPE 5 PIPE HANGER
6" THROUGH 12" PIPE



TYPE 6 PIPE HANGER
3/8" THROUGH 6" PIPE



TYPE 7 PIPE HANGER
1/2" THROUGH 12" PIPE



TYPICAL SUPPORT ROD FOR PIPES SUBJECT TO HORIZONTAL MOVEMENT
SEE NOTE 5 OF TABLE "A" NOTES

NOTE:

NOT ALL OF THE DETAILS SHOWN ON THIS DRAWING PERTAIN TO THIS PROJECT. CONTRACTOR SHALL REVIEW ALL DRAWINGS, AND USE THE PERTINENT DETAILS ACCORDINGLY.

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: 12/20/92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)
FILE: 5870
DRAWN: PMG
DESIGNED: BC
CHECKED: *[Signature]*
CHECKED: *[Signature]*



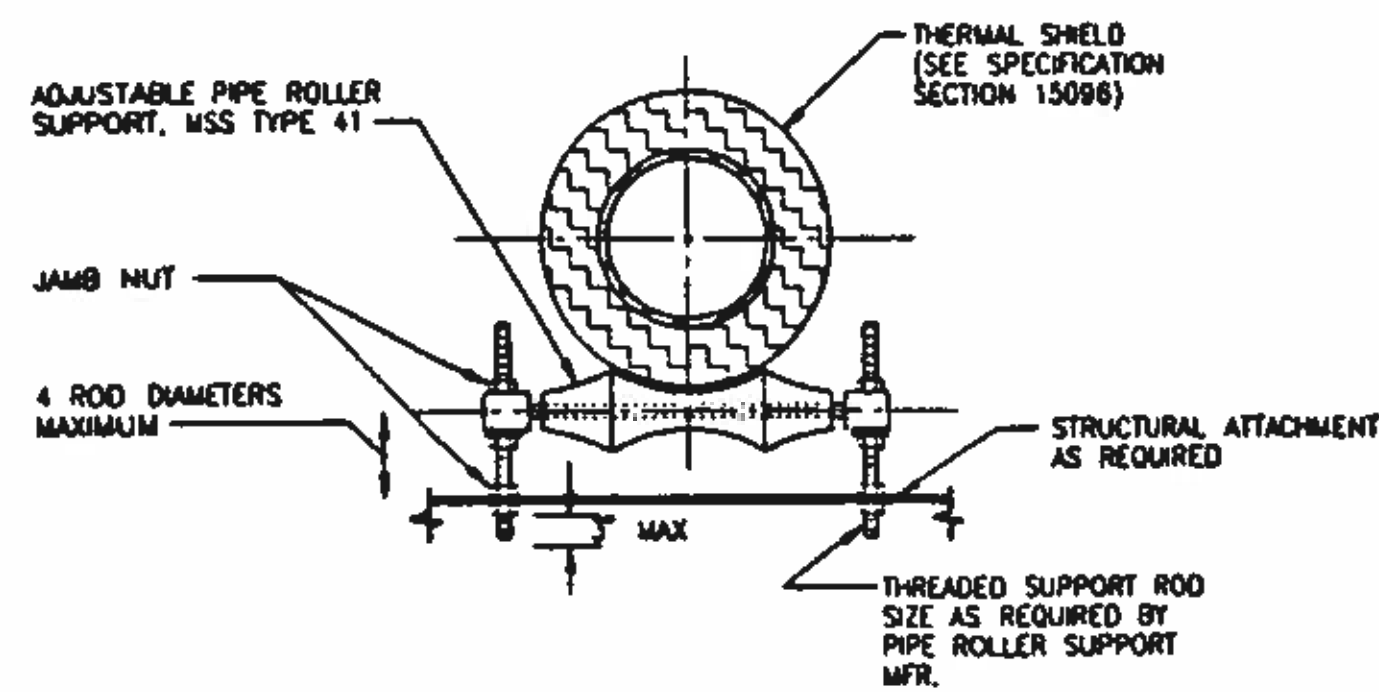
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



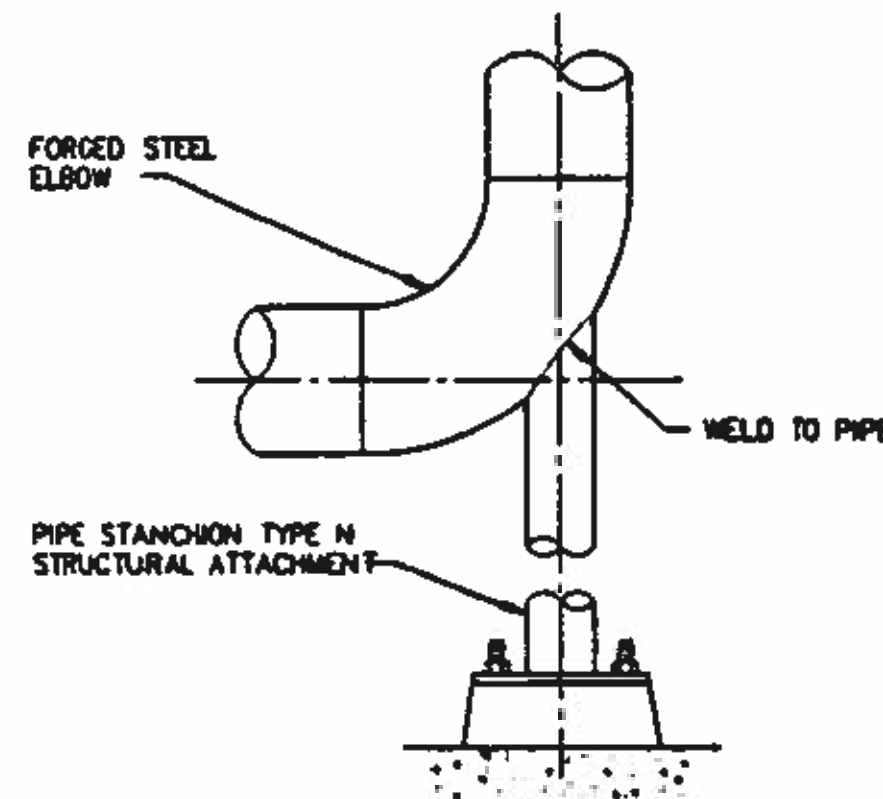
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

STANDARD DETAILS

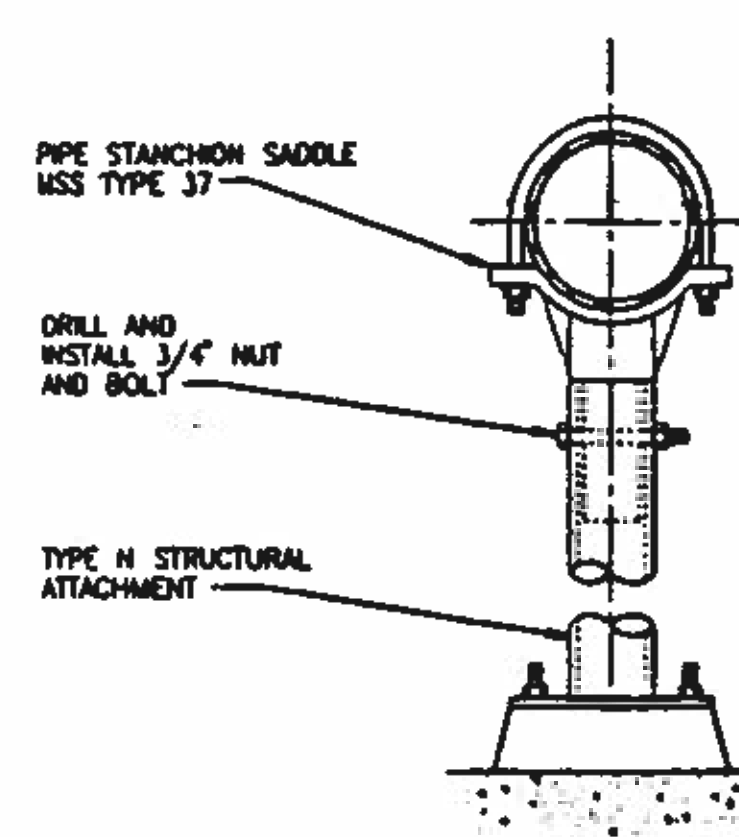
PROJECT NUMBER
DRAWING NUMBER
M1
SHEET NUMBER
212



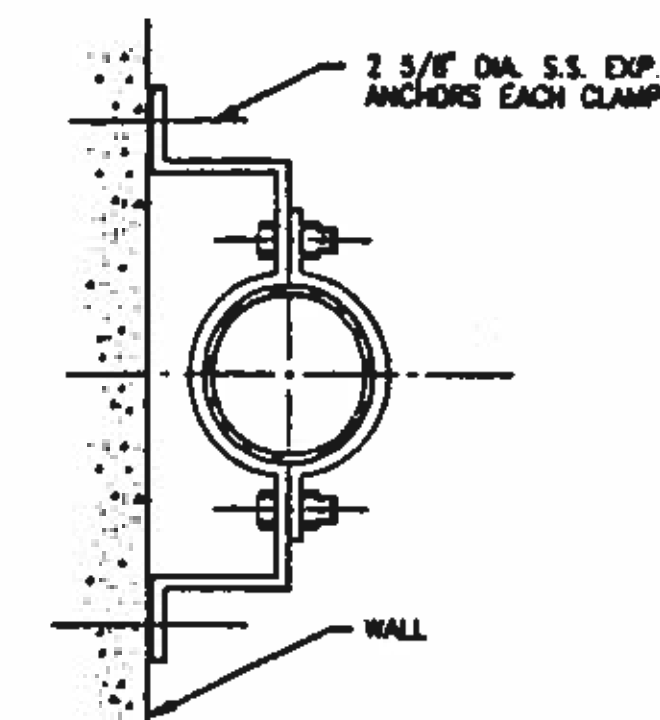
TYPE 8 PIPE HANGER
1" THROUGH 12" PIPE



TYPE 9 PIPE HANGER
2 1/2" THROUGH 14" PIPE

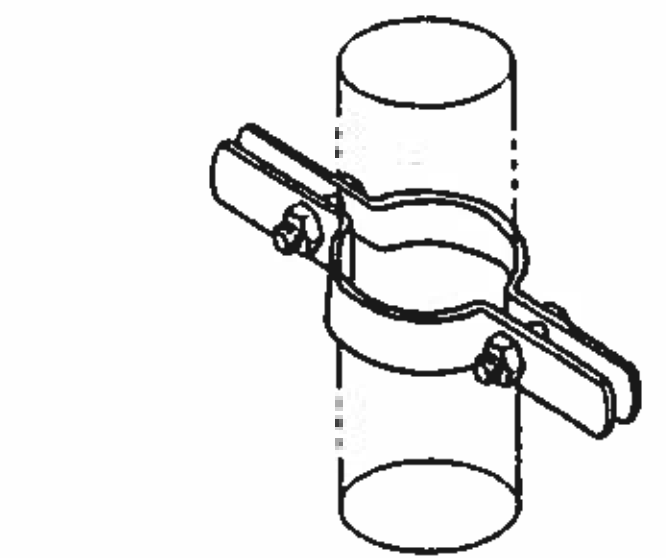


TYPE 10 PIPE HANGER
4" THROUGH 12" PIPE

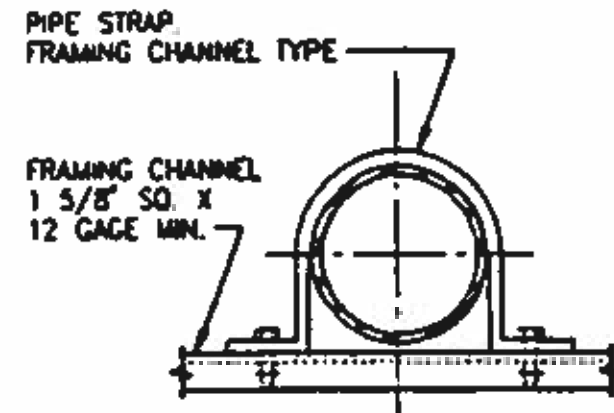


TYPE 11 PIPE HANGER
3/4" THROUGH 8" PIPE

TYPE "M" STRUCTURAL ATTACHMENT FOR EXISTING CONCRETE, NEW PRECAST CONCRETE, OR NEW CONCRETE MASONRY UNITS. USE EMBEDDED CONCRETE INSERT CHANNEL, UNISTRUT P3200 SERIES, OR EQUAL, IN NEW POURED-IN-PLACE CONSTRUCTION. SEE GENERAL STRUCTURAL ATTACHMENTS DRAWING M3.



TYPE 12 PIPE HANGER
FOR VERTICAL PIPE ONLY
1/2" THROUGH 12" PIPE



TYPE 13 PIPE HANGER
FOR VERTICAL PIPE ONLY
1/2" THROUGH 6" PIPE

APPROXIMATE SIZES FOR STANCHION

NPS OF PIPE (INCHES)	2 1/2	3	4	6	8	10	12	14
NPS OF PIPE FORMING LEG (IN)	1 1/2	2	3	4	6	8	8	10

CHANNEL, UNISTRUT P1001, SUPER STRUT A-1202, ELCEN 600-2 TYPE 3, OR EQUAL. MAXIMUM ALLOWABLE LOAD AT MIDPOINT.

"S"	MID PT. MAX. LOAD
30"	1900
36"	1580
42"	1360

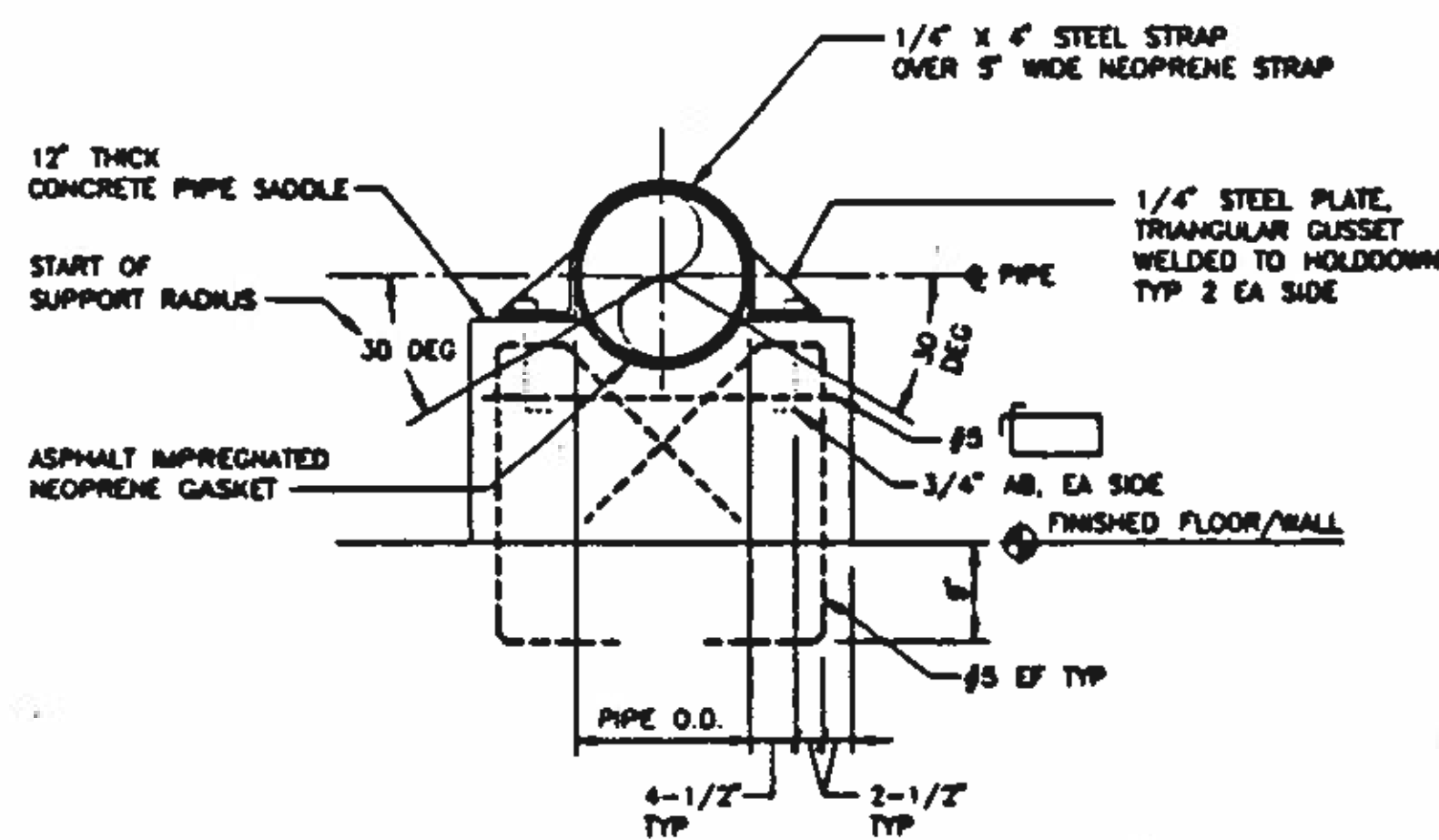
CHANNEL, UNISTRUT P1000, SUPER STRUT A-1200, ELCEN 600, OR EQUAL. MAXIMUM ALLOWABLE LOAD AT MIDPOINT.

"S"	MID PT. MAX. LOAD
24"	845
30"	675
36"	565
42"	485

TRAPEZE NOTES:

- SPACING SHALL BE AS SPECIFIED IN TABLE A/M1. SEE TABLE A/M1, NOTE 2.
- MAXIMUM DESIGN WEIGHTS SHALL BE AS FOLLOWS:
3/8" TO 1 1/4" PIPE -- 100% OF DESIGN WEIGHT, TABLE A/M1.
1 1/2" TO 12" PIPE -- 50% OF DESIGN WEIGHT, TABLE A/M1.
- TOTAL LOADS ON END CONNECTIONS SHALL NOT EXCEED 1/2 THE MAXIMUM ALLOWABLE LOAD AT MID-POINT.
- VERTICAL SPACING SHALL BE AS REQUIRED.

TYPE 20
TYPICAL TRAPEZE PIPE SUPPORT RACK



TYPE 23
CONCRETE SADDLE PIPE SUPPORT

TYPE "7" PIPE HANGER FOR 1/2" THROUGH 12" PIPE. SEE DRAWING M1.

TYPE "G1" PIPE GUIDE. SEE DRAWING M3.

TYPE "8" PIPE HANGER FOR 3/8" THROUGH 6" PIPE. SEE DRAWING M1.

TYPE "G3" PIPE GUIDE. SEE DRAWING M3.

TYPE "G2" PIPE GUIDE. SEE DRAWING M3.

1 3/8" x 3 1/4" (12 GA.) DOUBLE CHANNEL, OR TYPE "K" STRUCTURAL ATTACHMENT FOR RACKS 12" TO 36" WIDE. MAXIMUM ALLOWABLE LOAD 2000 LBS. AT MID-POINT.

1 5/8" SQ. (12 GA.) CHANNEL, OR TYPE "L" STRUCTURAL ATTACHMENTS FOR RACKS 12" TO 24" WIDE. MAXIMUM ALLOWABLE LOAD 1000 LBS. AT MID-POINT.

RACK NOTES:

- SPACING SHALL BE ON 5'-0" CENTERS. SEE TABLE A/M1.
- MAXIMUM DESIGN WEIGHTS SHALL BE AS FOLLOWS:
3/8" TO 1 1/4" PIPE -- 100% OF DESIGN WEIGHT, TABLE A/M1.
1 1/2" TO 12" PIPE -- 50% OF DESIGN WEIGHT, TABLE A/M1.
- TOTAL LOADS ON END CONNECTIONS SHALL NOT EXCEED 1/2 THE MAXIMUM ALLOWABLE LOAD AT MID-POINT.
- VERTICAL SPACING SHALL BE AS REQUIRED.

3/8" ANCHOR BOLTS WITH LEVELING NUTS. LENGTH AS REQUIRED.

TYPE 21
TYPICAL PIPE SUPPORT RACK

NOTE:

NOT ALL OF THE DETAILS SHOWN ON THIS DRAWING PERTAIN TO THIS PROJECT. CONTRACTOR SHALL REVIEW ALL DRAWINGS, AND USE THE PERTINENT DETAILS ACCORDINGLY.

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *Robert S. Schell* DATE: 11/20/12
APPROVED: *Robert S. Schell* DATE: 11/20/12
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)
FILE: 5870
DRAWN: PMG
DESIGNED: BC
CHECKED: GIB
CHECKED: RA



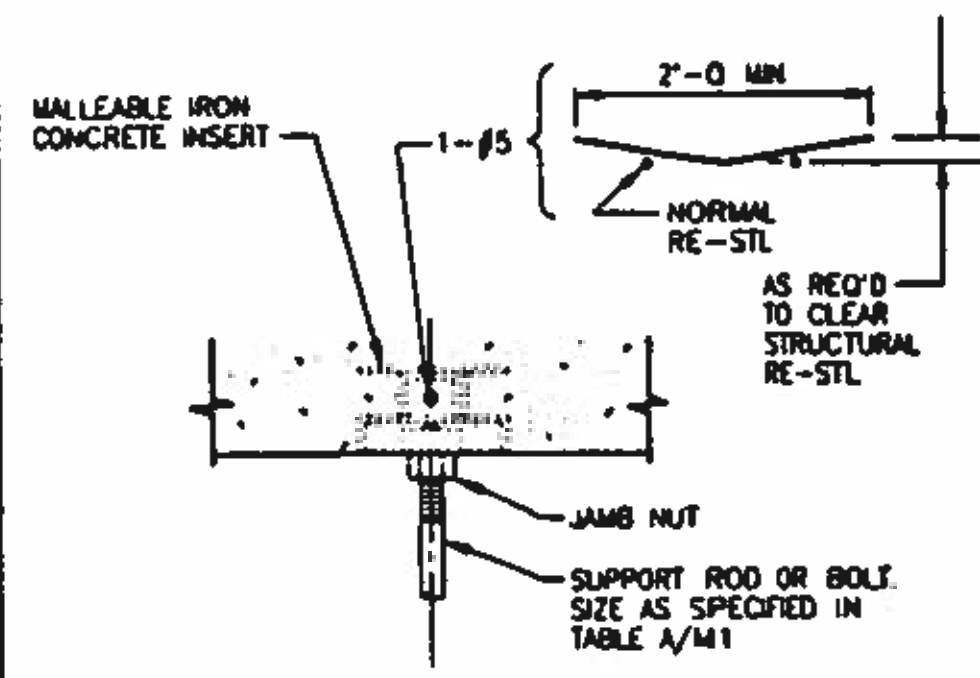
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PIPE SUPPORT SYSTEMS

PROJECT NUMBER
DRAWING NUMBER
M2
SHEET NUMBER
213

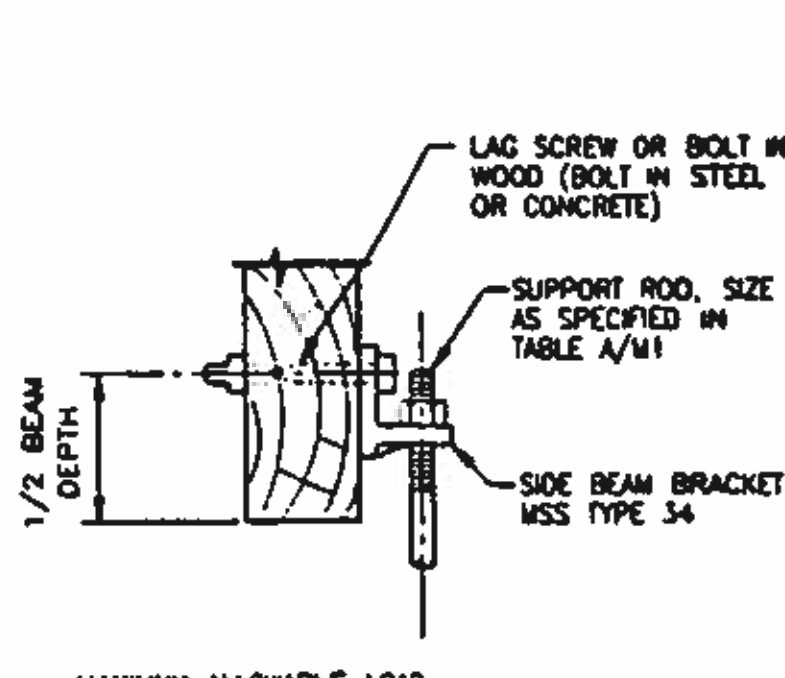


MAXIMUM ALLOWABLE LOAD:

ROD SIZE	LOAD
3/8"	810 LBS
1/2"	1130 LBS
5/8" - 7/8"	1140 LBS

SPACING SHALL BE AS REQUIRED BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A/M1

TYPE A
STRUCTURAL ATTACHMENT

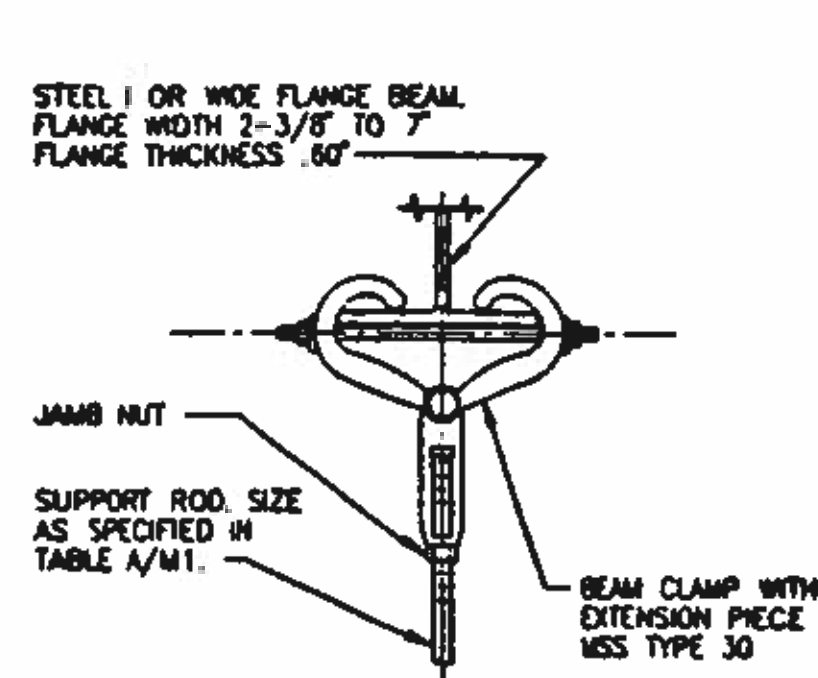


MAXIMUM ALLOWABLE LOAD:

ROD SIZE	LOAD WOOD	LOAD CONCRETE/STEEL
3/8"	390 LBS	610 LBS
1/2"	640 LBS	1130 LBS
5/8"	780 LBS	1810 LBS
3/4"	830 LBS	2710 LBS
7/8"	830 LBS	3770 LBS

SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M1.

TYPE B
STRUCTURAL ATTACHMENT

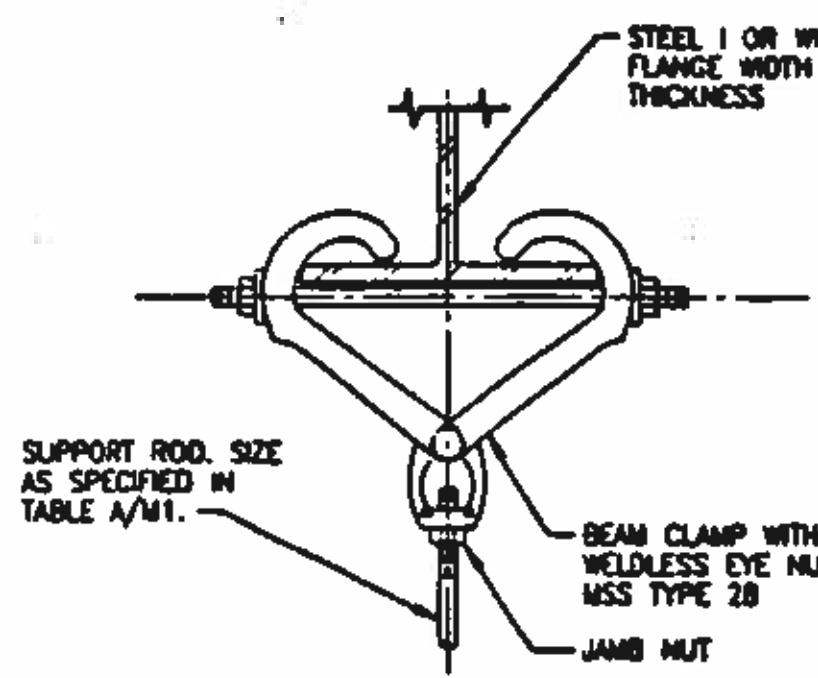


MAXIMUM ALLOWABLE LOAD:

ROD SIZE	LOAD
3/8"	810 LBS
1/2"	1130 LBS
5/8" - 7/8"	1365 LBS

SPACING SHALL BE AS REQUIRED BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A/M1

TYPE C
STRUCTURAL ATTACHMENT

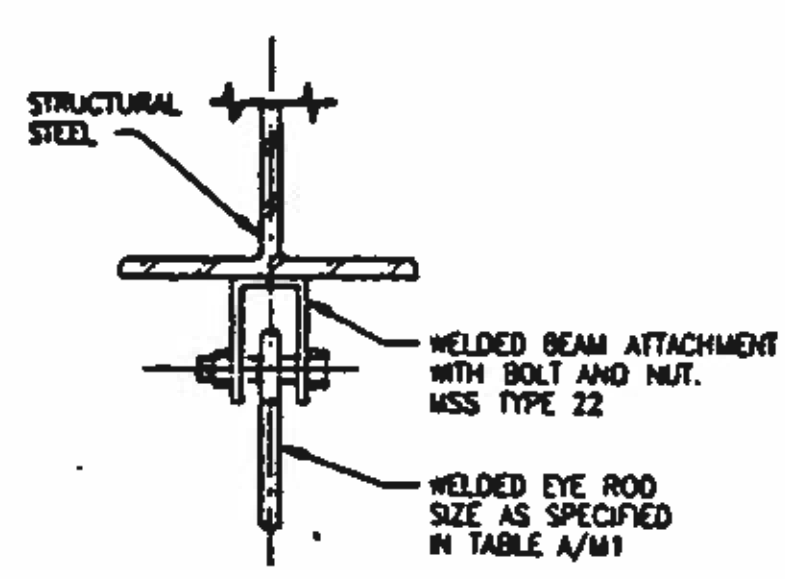
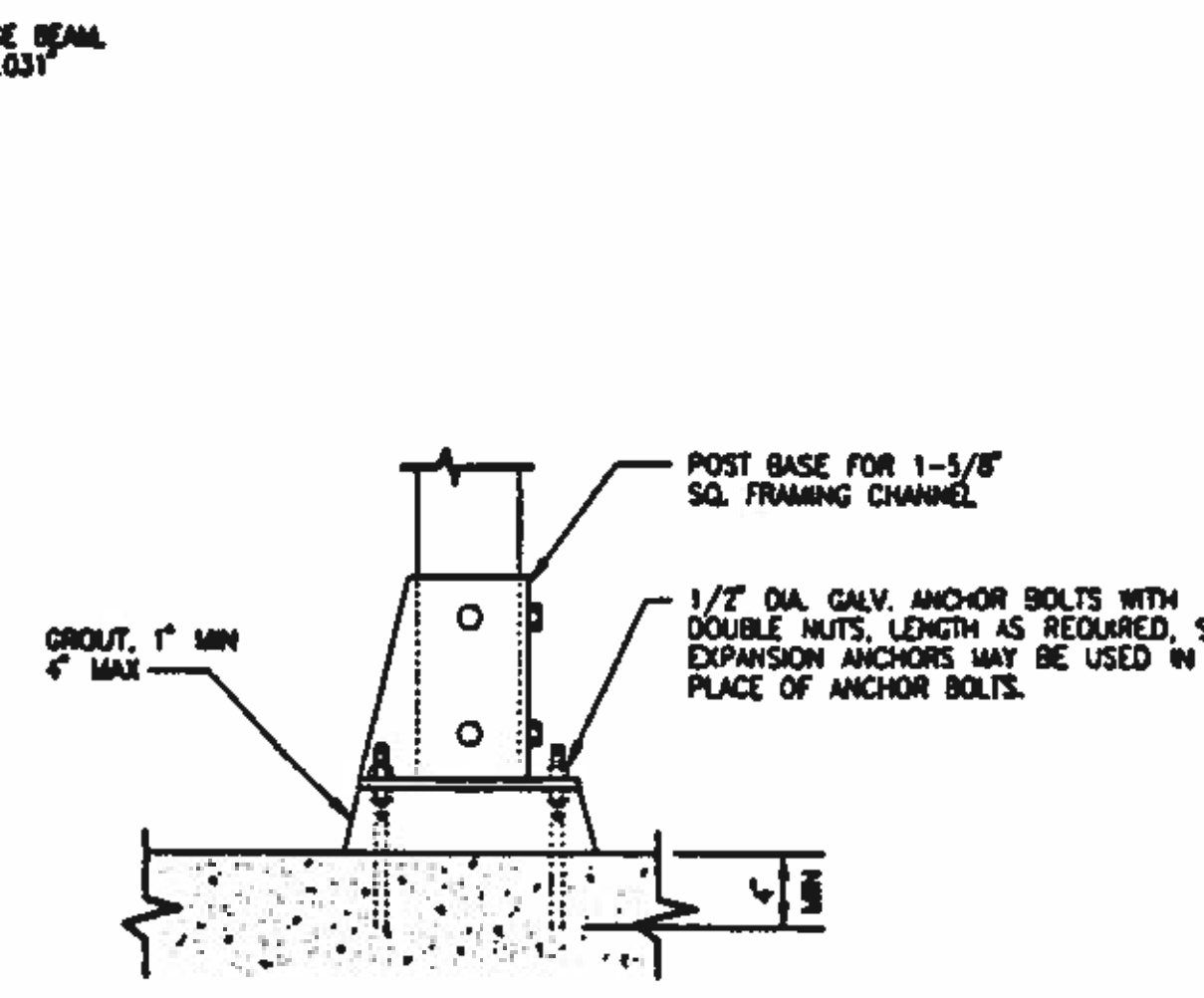


MAXIMUM ALLOWABLE LOAD:

ROD SIZE	LOAD
3/8"	810 LBS
1/2"	1130 LBS
5/8"	1810 LBS
3/4"	2710 LBS
7/8"	3770 LBS

SPACING SHALL BE AS REQUIRED BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A/M1

TYPE D
STRUCTURAL ATTACHMENT

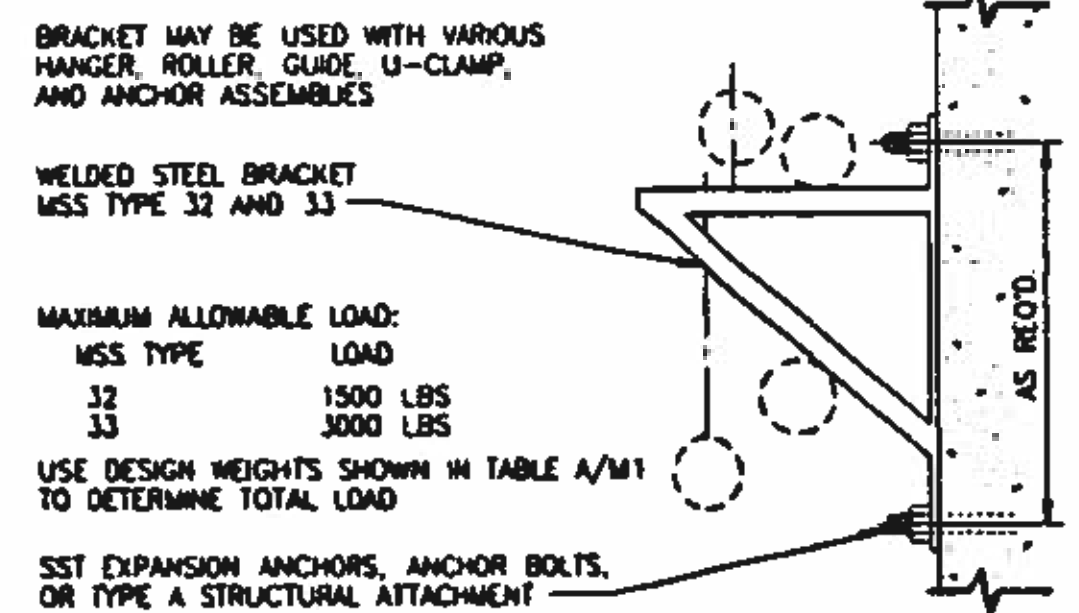


MAXIMUM ALLOWABLE LOAD:

ROD SIZE	LOAD
3/8"	610 LBS
1/2"	1130 LBS
5/8"	1810 LBS
3/4"	2710 LBS
7/8"	4800 LBS
1-1/8"	8000 LBS

SPACING SHALL BE AS REQUIRED BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A/M1

TYPE F
STRUCTURAL ATTACHMENT

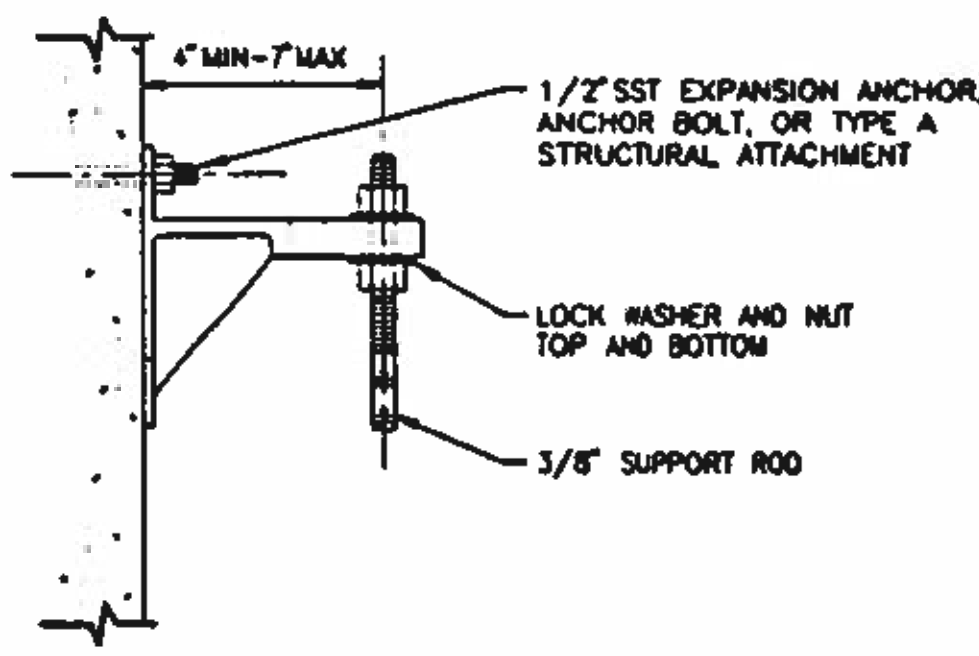


MAXIMUM ALLOWABLE LOAD:

WSS TYPE	LOAD
32	1500 LBS
33	3000 LBS

USE DESIGN WEIGHTS SHOWN IN TABLE A/M1 TO DETERMINE TOTAL LOAD

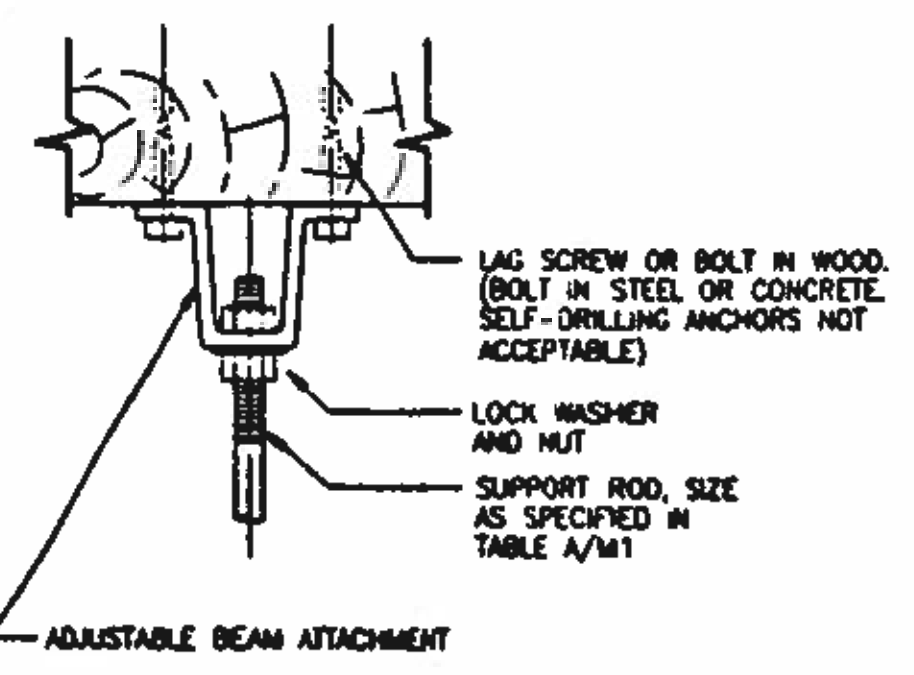
TYPE G
STRUCTURAL ATTACHMENT



MAXIMUM ALLOWABLE LOAD: 180 LBS

SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A/M1

TYPE H
STRUCTURAL ATTACHMENT

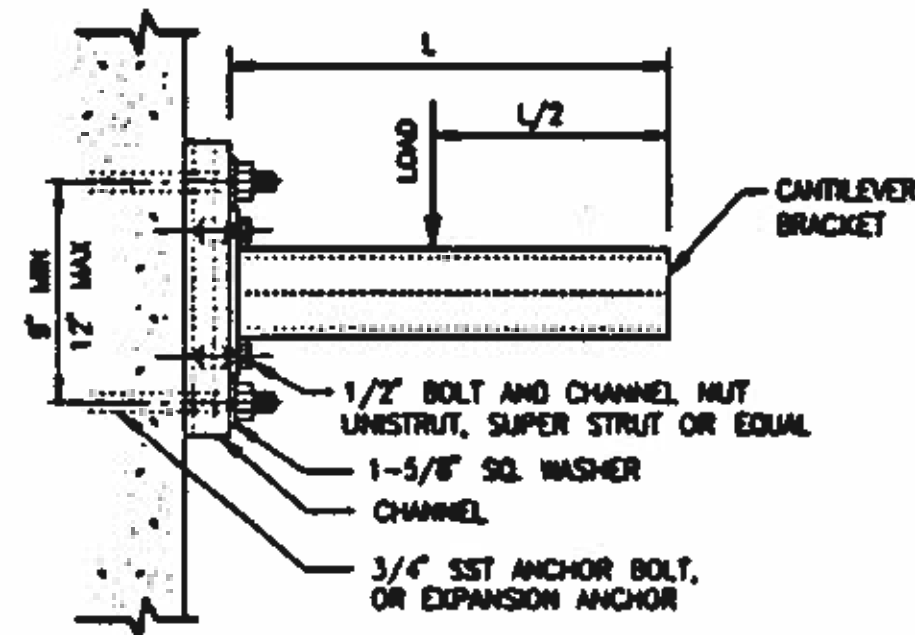


MAXIMUM ALLOWABLE LOAD:

ROD SIZE	LOAD WOOD	LOAD CONCRETE/STEEL
3/8"	425 LBS	610 LBS
1/2"	715 LBS	1130 LBS
5/8"	810 LBS	1810 LBS
3/4"	1500 LBS	2710 LBS
7/8"	1850 LBS	3770 LBS

SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M1

TYPE J
STRUCTURAL ATTACHMENT



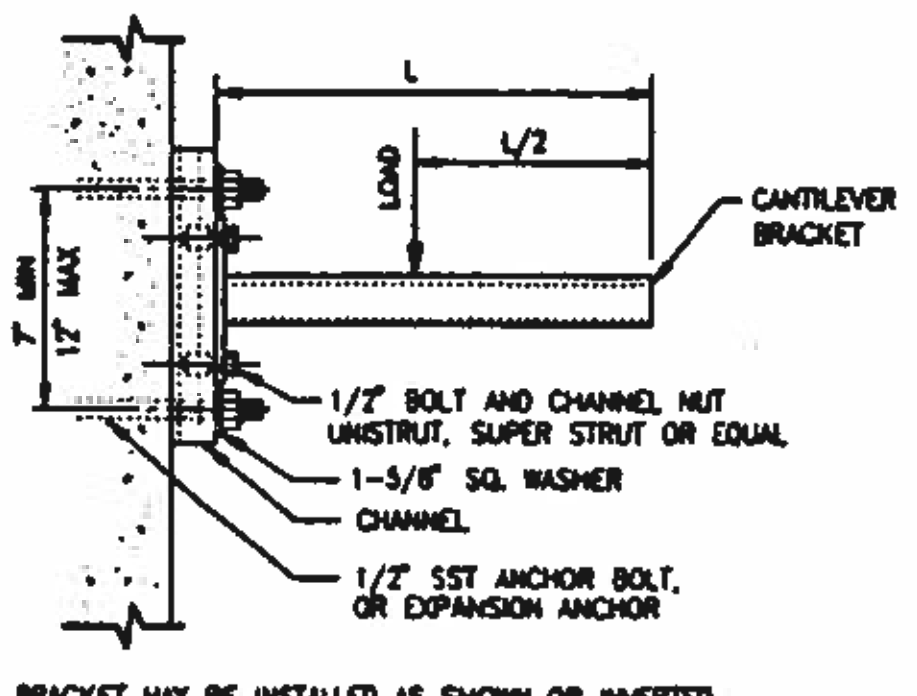
BRACKET MAY BE USED WITH VARIOUS HANGER, ROLLER, GUIDE, AND CLAMP ASSEMBLIES

CAPACITY AT MID-POINT:

L	LOAD
12"	2000 LBS
18"	1300 LBS
24"	1000 LBS
30"	800 LBS
36"	650 LBS

SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M1.

TYPE K
STRUCTURAL ATTACHMENT



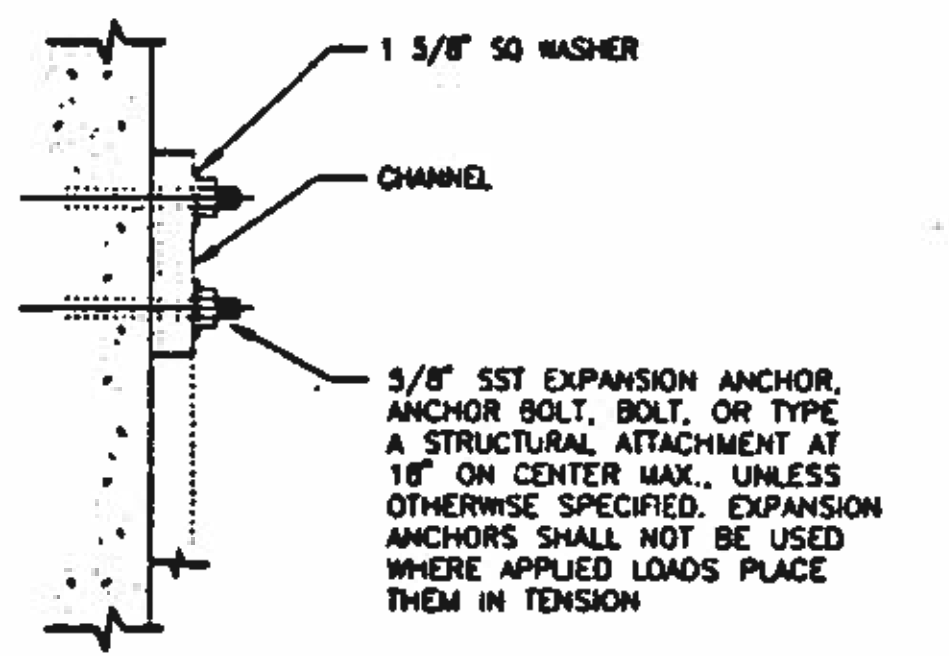
BRACKET MAY BE INSTALLED AS SHOWN OR INVERTED AND USED WITH VARIOUS HANGER, ROLLER, GUIDE, AND CLAMP ASSEMBLIES

CAPACITY AT MID-POINT:

L	LOAD
12"	1800 LBS
18"	1000 LBS
24"	700 LBS
30"	500 LBS

SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M1.

TYPE L
STRUCTURAL ATTACHMENT

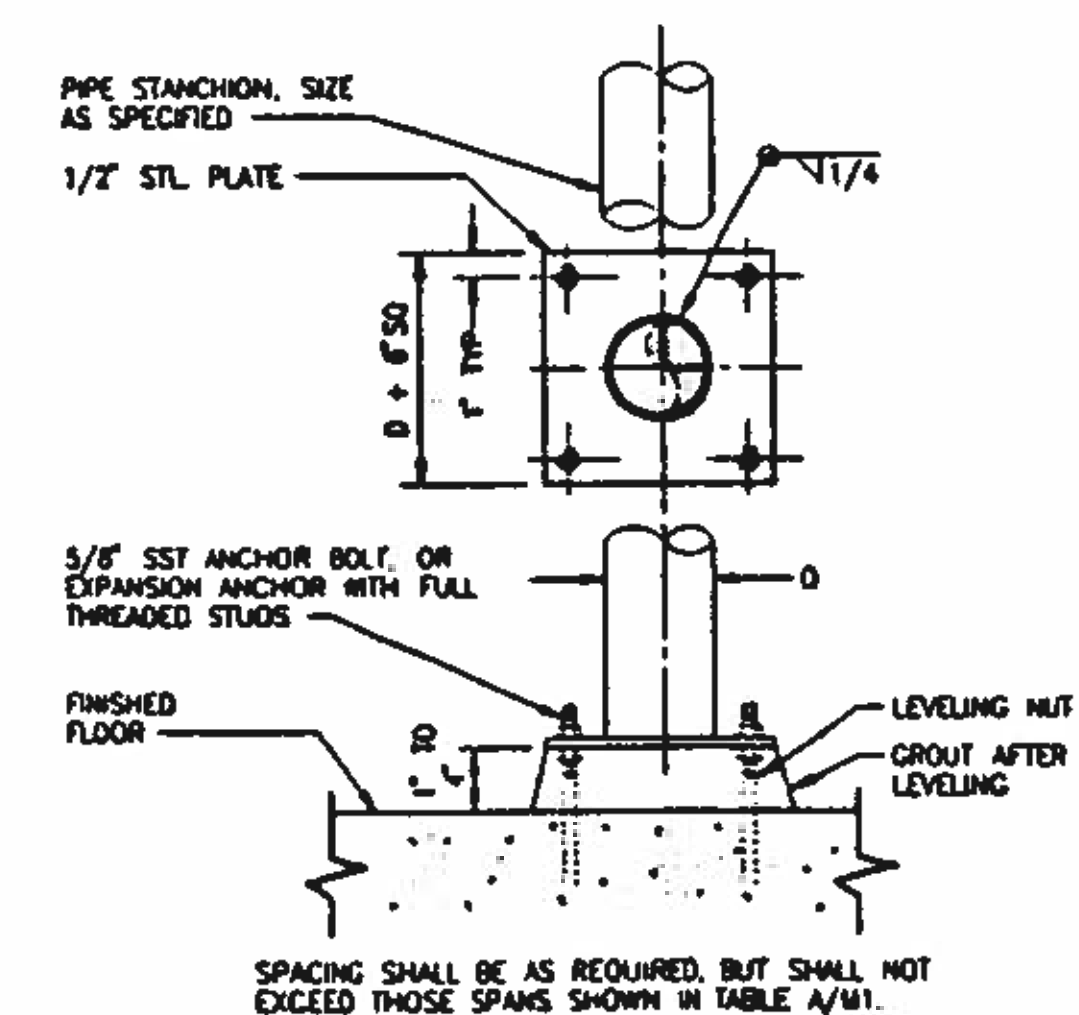


BRACKET MAY BE WALL OR CEILING MOUNTED, AND MAY BE USED WITH VARIOUS HANGER, GUIDE, RACK, OR ANCHOR, AND SWAY BRACE ASSEMBLIES.

MAXIMUM LOAD CAPACITY SHALL BE AS RECOMMENDED BY THE CHANNEL MANUFACTURER.

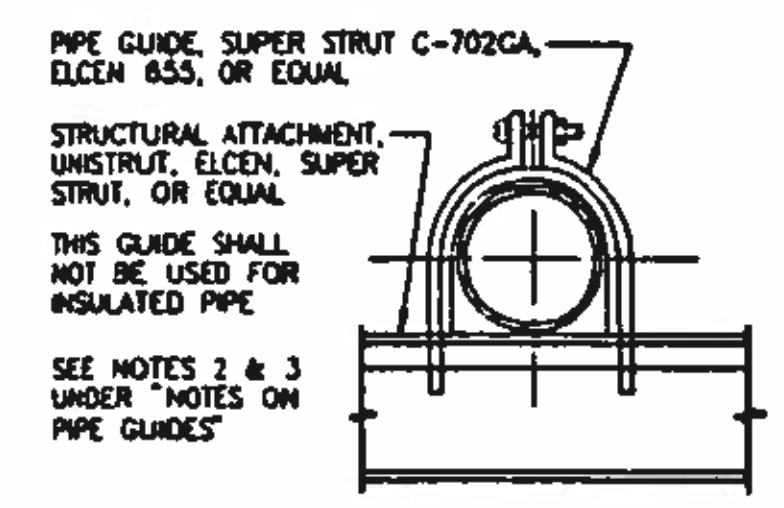
SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A/M1.

TYPE M
STRUCTURAL ATTACHMENT

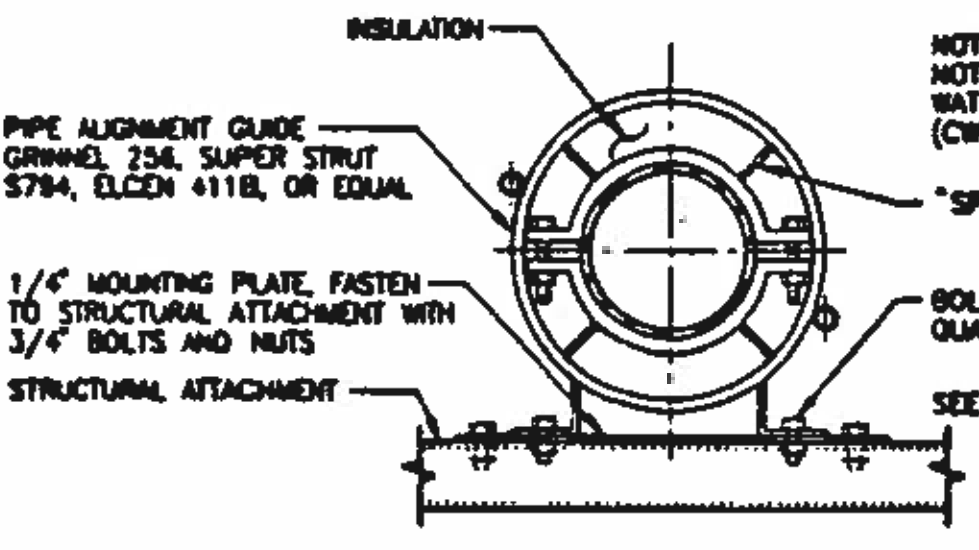


SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A/M1.

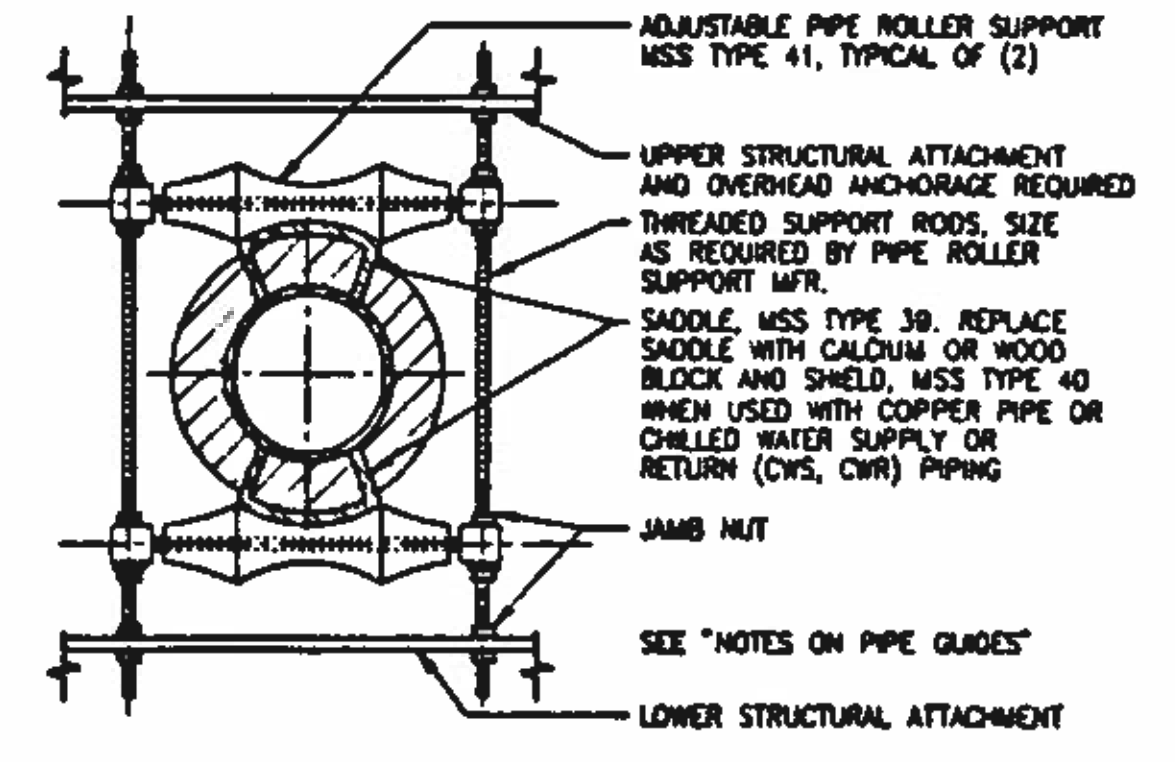
TYPE N
STRUCTURAL ATTACHMENT



TYPE G1 PIPE GUIDE
1/2" THROUGH 6" PIPE



TYPE G2 PIPE GUIDE
3/4" THROUGH 12" PIPE



TYPE G3 PIPE GUIDE
3/8" THROUGH 12" PIPE

- NOTES ON PIPE GUIDES:**
- SECTIONS OF HOT AND CHILLED PIPING BETWEEN ANCHORS SHALL BE PROVIDED WITH PIPE GUIDES.
 - THE FIRST AND SECOND PIPE GUIDES FROM EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM OF FOUR AND EIGHTEEN PIPE DIAMETERS RESPECTIVELY FROM THE FREE END OF THE EXPANSION JOINT. INTERMEDIATE PIPE GUIDES SHALL BE LOCATED AS RECOMMENDED BY THE EXPANSION JOINT MANUFACTURER.
 - FOR "L", "Z", AND "U" CONFIGURATIONS OF PIPING BETWEEN ANCHORS, PIPE GUIDES SHALL BE PROVIDED.

NOTE:

NOT ALL OF THE DETAILS SHOWN ON THIS DRAWING PERTAIN TO THIS PROJECT. CONTRACTOR SHALL REVIEW ALL DRAWINGS, AND USE THE PERTINENT DETAILS ACCORDINGLY.

BC Brown and Caldwell Consultants
Phoenix, Arizona

FILE: 5870
DRAWN: PMG
DESIGNED: BC
CHECKED: G/LA
APPROVED: [Signature]

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

DATE: 11/20/22



REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

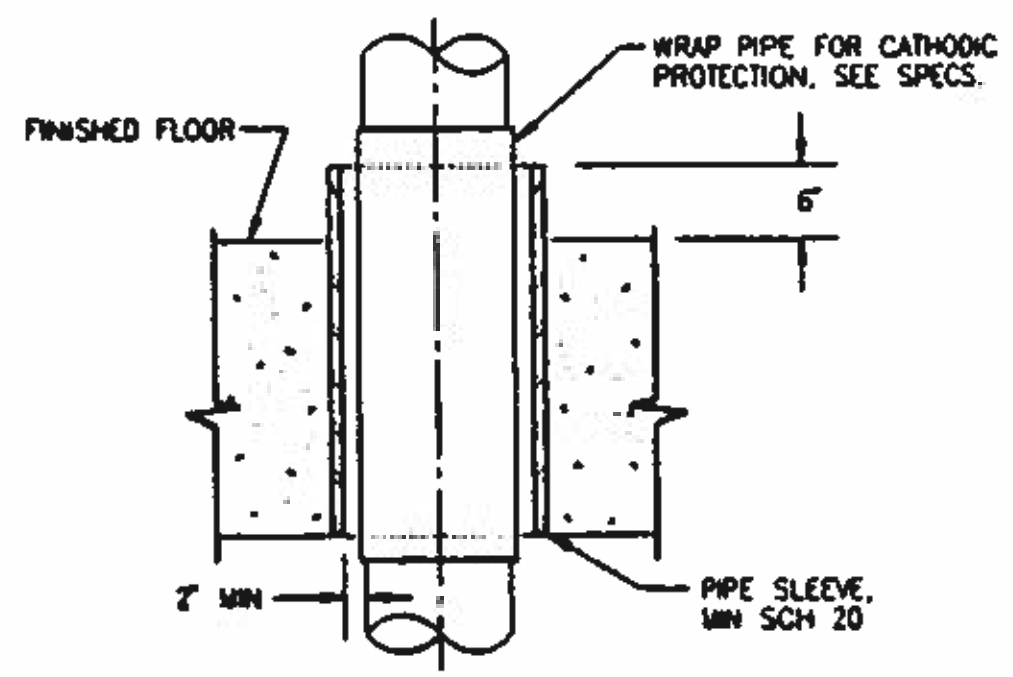
STRUCTURAL ATTACHMENTS AND PIPE GUIDES

PROJECT NUMBER

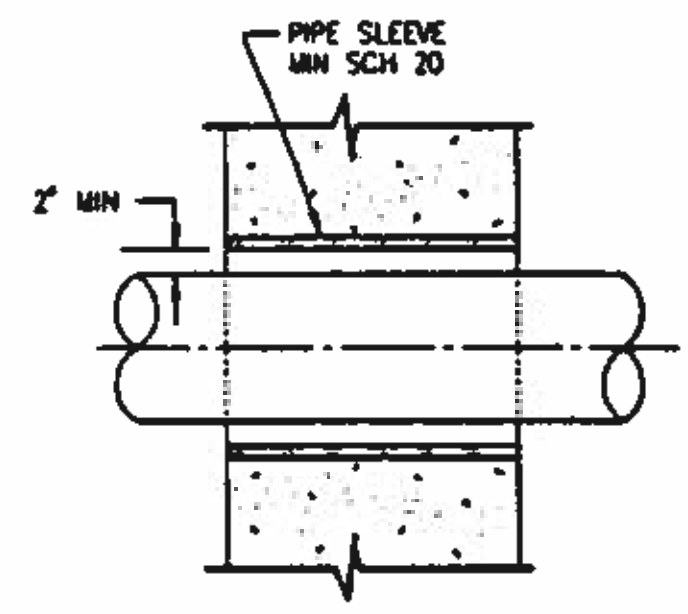
DRAWING NUMBER: **M3**

SHEET NUMBER: 214

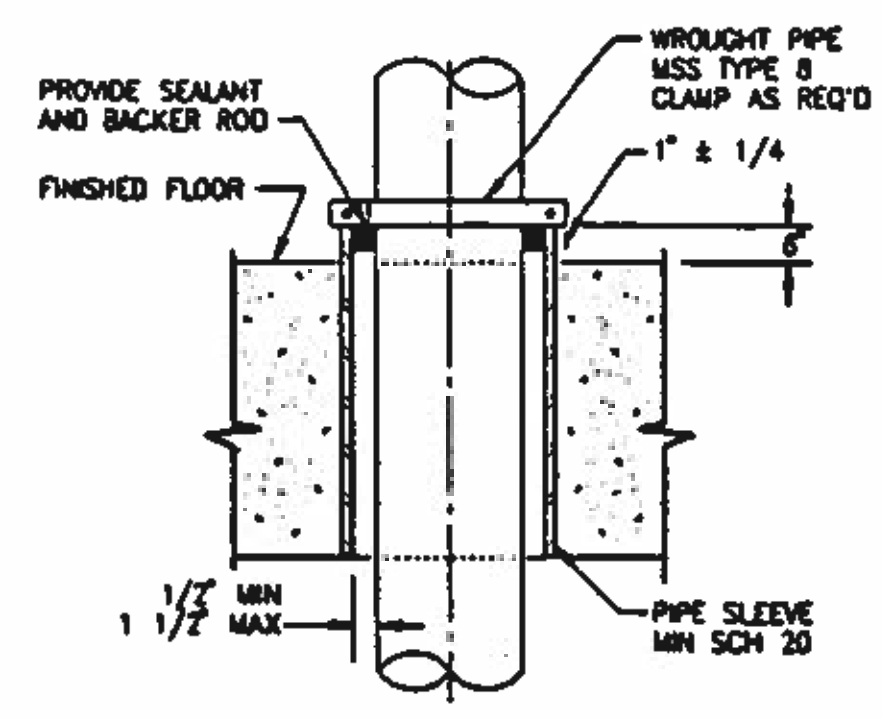
10
9
8
7
6
5
4
3
2



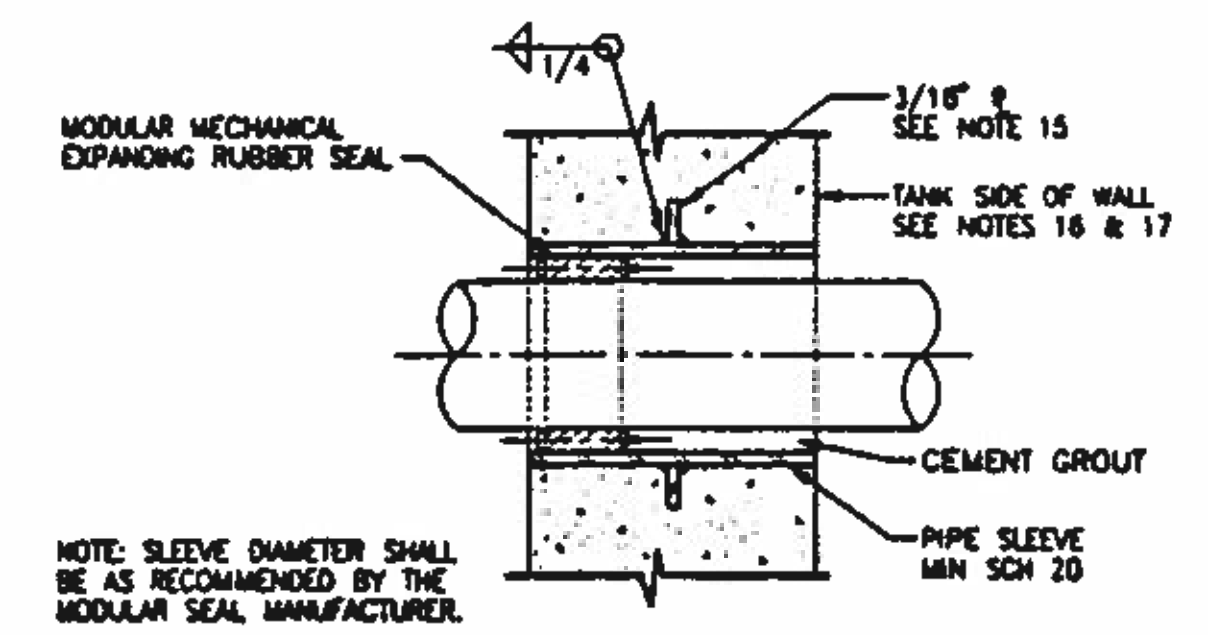
FOR FLOORS
TYPE "A" PIPE PENETRATION



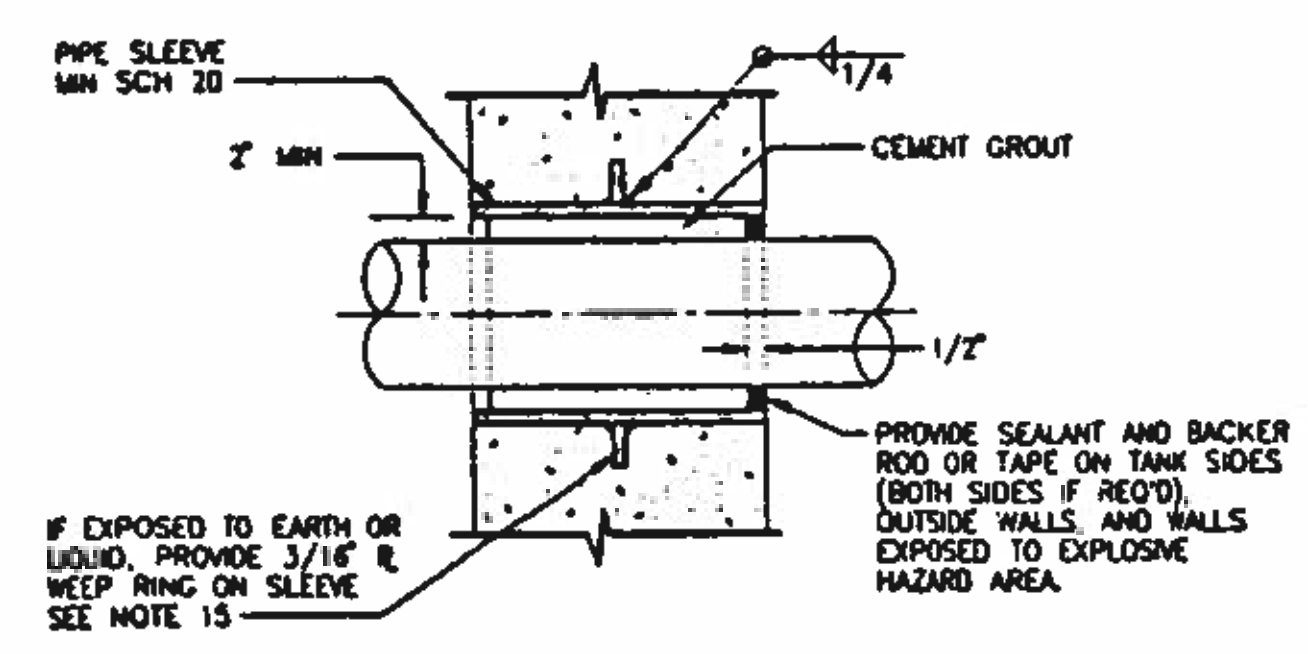
FOR WALLS
TYPE "B" PIPE PENETRATION



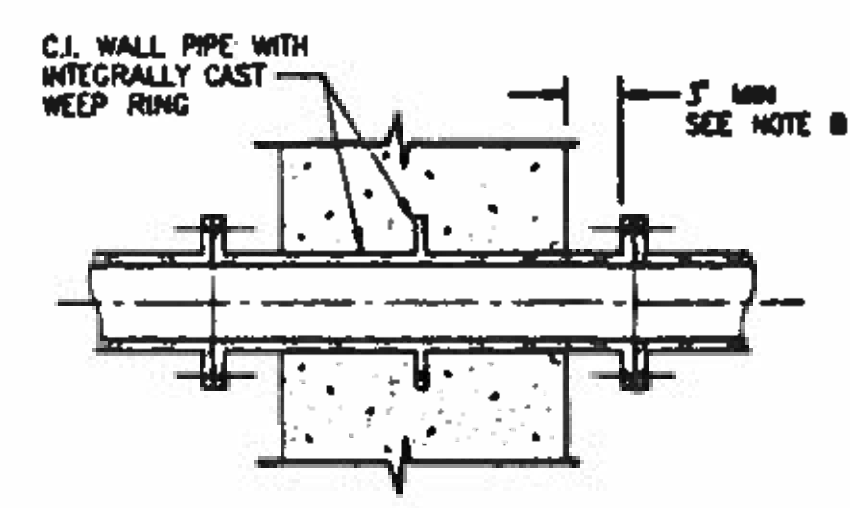
FOR FLOOR AND CEILINGS
TYPE "C" PIPE PENETRATIONS



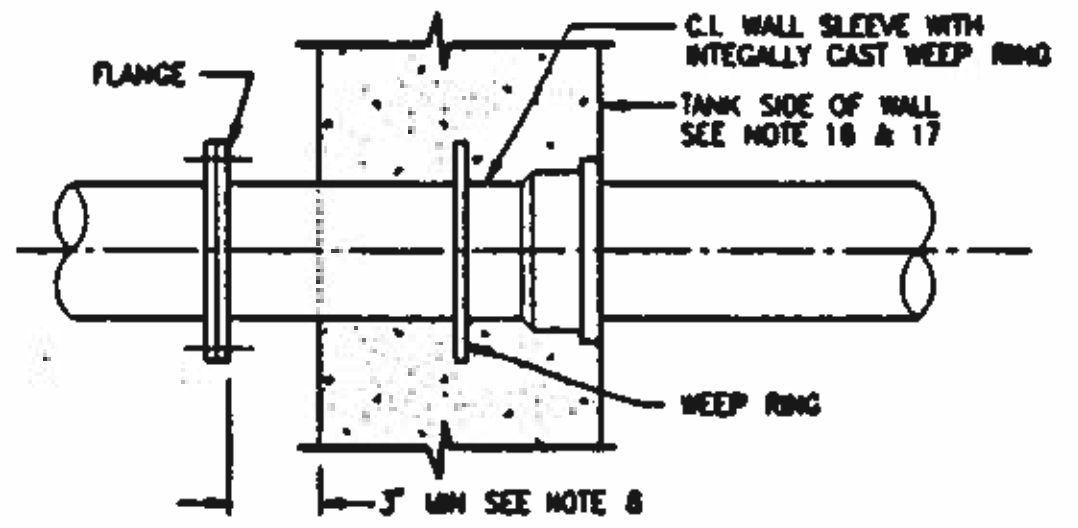
FOR WALLS
TYPE "D" PIPE PENETRATION



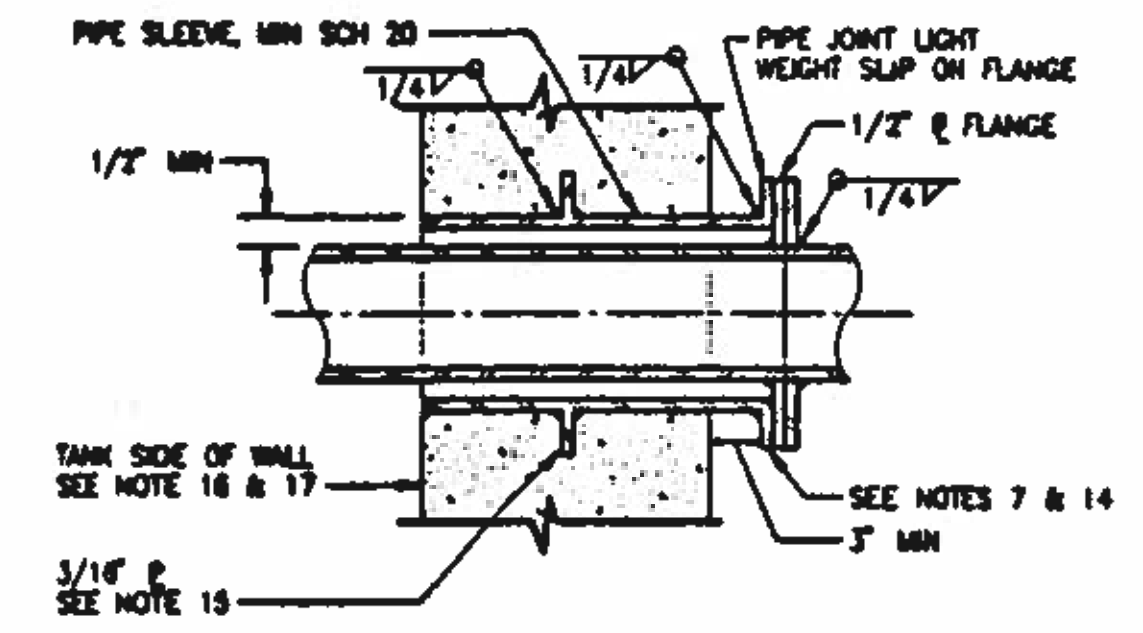
FOR WALLS
TYPE "E" PIPE PENETRATION



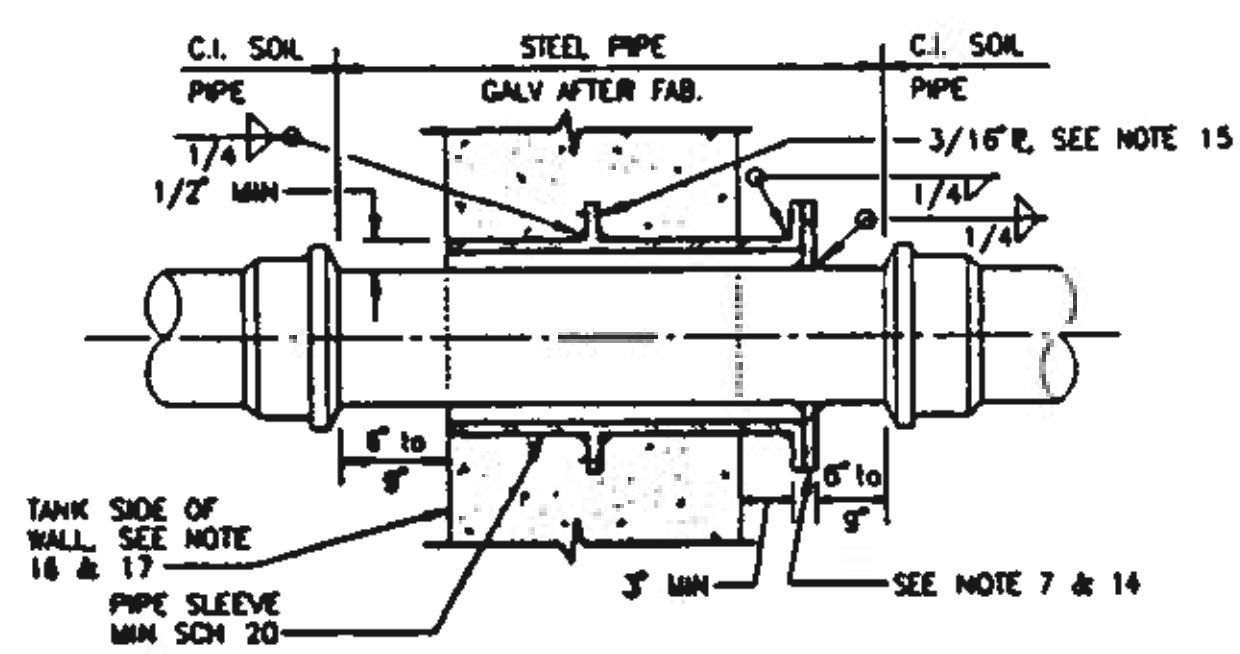
FOR WALLS
TYPE "F" PIPE PENETRATION



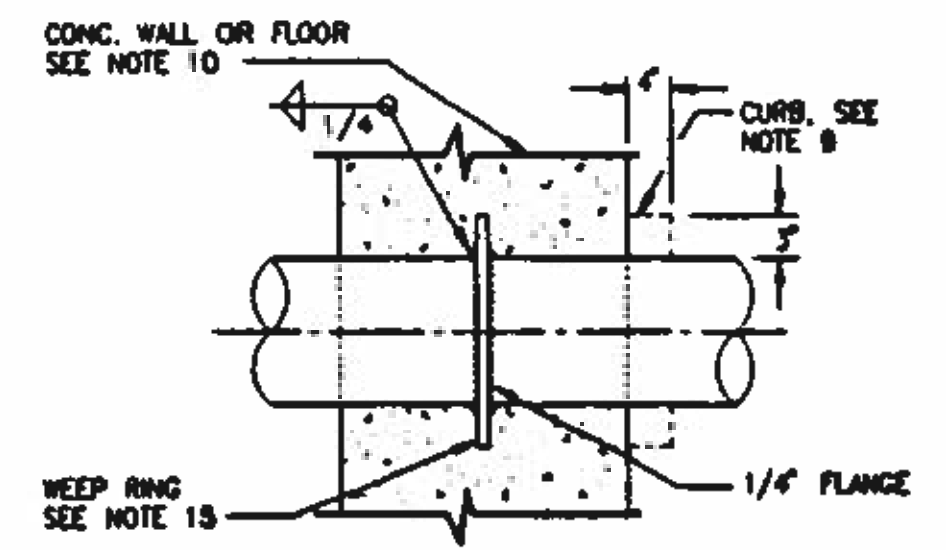
FOR WALLS
TYPE "G" PIPE PENETRATION



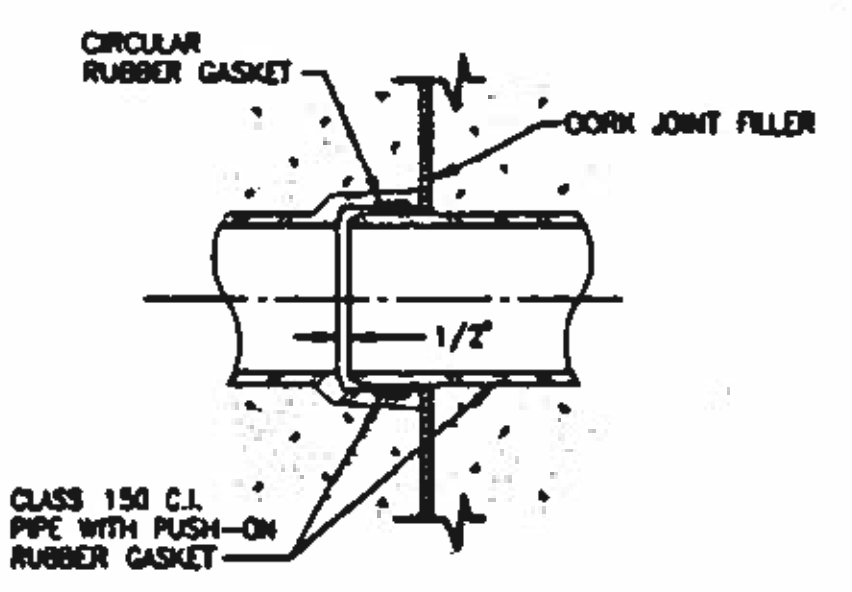
FOR WALLS, FLOORS AND CEILINGS
TYPE H PIPE PENETRATION



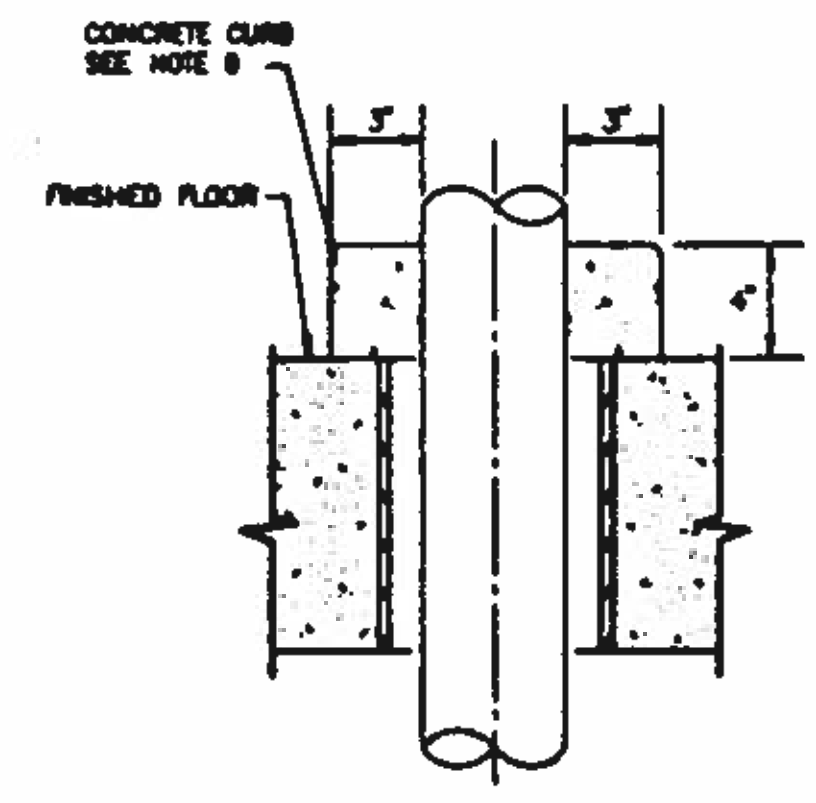
FOR WALLS, FLOORS AND CEILINGS
TYPE "J" PIPE PENETRATION



FOR WALLS, FLOORS AND CEILINGS
TYPE "K" PIPE PENETRATION



FLEXIBLE JOINT ON DRAINAGE LINES
AT STRUCTURAL JOINTS
TYPE "L" PIPE PENETRATION



PIPE PENETRATION CURB
AT FLOOR PENETRATIONS

PIPE PENETRATION NOTES:

- WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, PENETRATIONS SHALL CONFORM TO TABLE, EXCEPT AS OTHERWISE SPECIFIED.
- IN TABLE, "TANK" SHALL MEAN ANY PART OF A STRUCTURE CONTAINING LIQUID, OR IN CONTACT WITH THE EARTH.
- IN TABLE, "PASSAGE" SHALL MEAN ROOM, GALLERY, TUNNEL OR SIMILAR ENCLOSURE.
- IN TABLE, WATER SURFACE, "WS" SHALL MEAN AN ELEVATION 0 INCHES ABOVE MAXIMUM WATER SURFACE SHOWN.
- ALL STEEL SLEEVES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
- IN CONDITION 5, TYPE D,E,H,J, OR K SHALL BE USED WHERE ONE SIDE CONTAINS EXPLOSION PROOF EQUIPMENT, WHERE FLOODING IS POSSIBLE, OR WHERE SPECIFIED.
- SEAL FLANGES SHALL BE DRILLED TO 150 POUND STANDARD, EACH JOINT SHALL BE GASKETED.
- WHERE SPECIFIED, CAST IRON FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS.
- PROVIDE CONCRETE AROUND PIPE WHERE PENETRATING FLOOR, EXCEPT FOR PENETRATION TYPES A AND C, CURB SHALL BE 4" HIGH BY 3" WIDE. SEE TYPICAL CURB DETAIL THIS SHEET.
- PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS.
- FLEXIBLE JOINTS SHALL BE PROVIDED FOR UNDERGROUND PIPING AS SPECIFIED.
- RESTRAINED FLEXIBLE COUPLINGS FOR STEEL PIPE SHALL BE DESIGNED FOR 100 PSI LINE PRESSURE IN ACCORDANCE WITH AWWA MANUAL M1, FIGURE 19.15, AND 19.16 AND TABLE 19.17 SHALL BE UTILIZED.
- INSULATION SHALL NOT EXTEND THROUGH SLEEVES, UNLESS OTHERWISE SPECIFIED.
- WHERE CAST IRON PIPE IS EMBEDDED IN CONCRETE AT AN EXPANSION JOINT, USE TYPE L/M4.
- WEEP RINGS SHALL HAVE A MINIMUM DIAMETER EQUAL TO THE PIPE DIAMETER PLUS 3 INCHES.
- "TANK SIDE OF WALL" SHALL MEAN SIDE OF WALL NORMALLY EXPOSED TO LIQUID, EARTH, OR OUTSIDE ATMOSPHERE.
- SEAL WITH MASTIC SEALANT WHERE WALL IS EXPOSED TO LIQUID, EARTH, OR AN EXPLOSION HAZARD AREA.

PIPE PENETRATION TYPES

	CONDITION		TYPE		
	FROM	TO	STEEL PIPE	CAST IRON	PLASTIC PIPE
1	TANK	TANK BELOW W.S.	D,E,H, OR K	D,E,F,G, OR J	D OR E
2	TANK	TANK ABOVE W.S.	D OR E	D OR E	D OR E
3	PASSAGE	TANK BELOW W.S.	D,E,H, OR K	D,E,F,G, OR J	D OR E
4	PASSAGE	TANK ABOVE W.S.	A,C,D, OR E	A,C,D, OR E	A,C,D, OR E
5	PASSAGE	PASSAGE	B OR C SEE NOTE 6	B OR C SEE NOTE 6	B OR C SEE NOTE 6
6	PASSAGE	OUTSIDE WALL	D OR E	D,E, OR G	D OR E
7	PASSAGE	ROOF	AS SHOWN		
8	TANK	OUTSIDE WALL	D,E, OR F	D,E,F, OR G	D OR E

NOTE:
NOT ALL OF THE DETAILS SHOWN ON THIS DRAWING PERTAIN TO THIS PROJECT. CONTRACTOR SHALL REVIEW ALL DRAWINGS, AND USE THE PERTINENT DETAILS ACCORDINGLY.

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/12
APPROVED: *[Signature]* DATE: 11/20/12
APPROVED: *[Signature]* DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
DRAWN: PMG
DESIGNED: BC
CHECKED: GLB
CHECKED: *[Signature]*



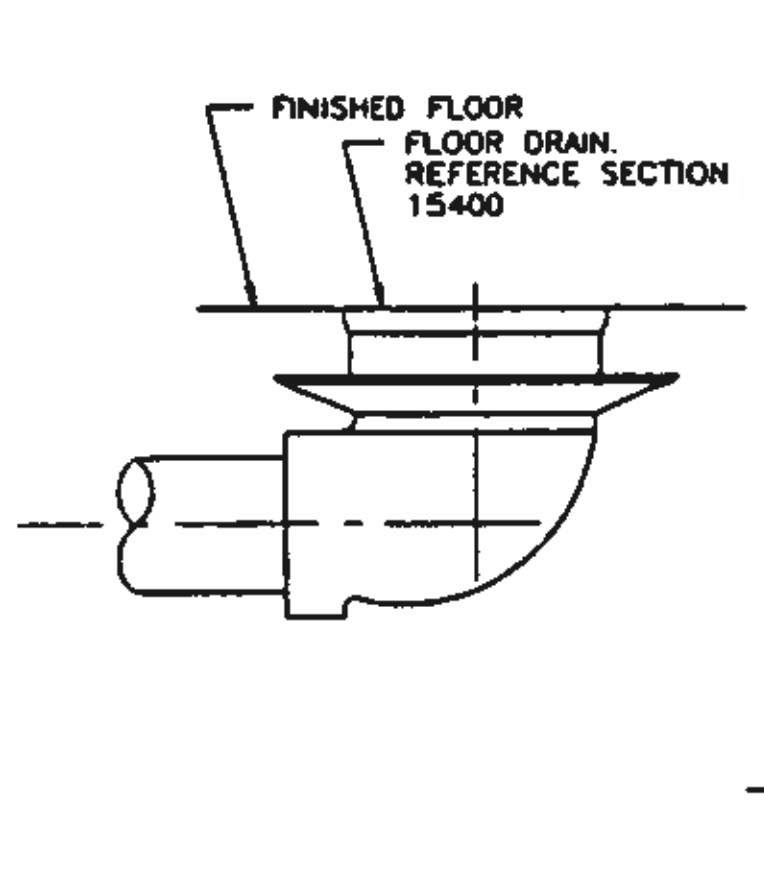
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



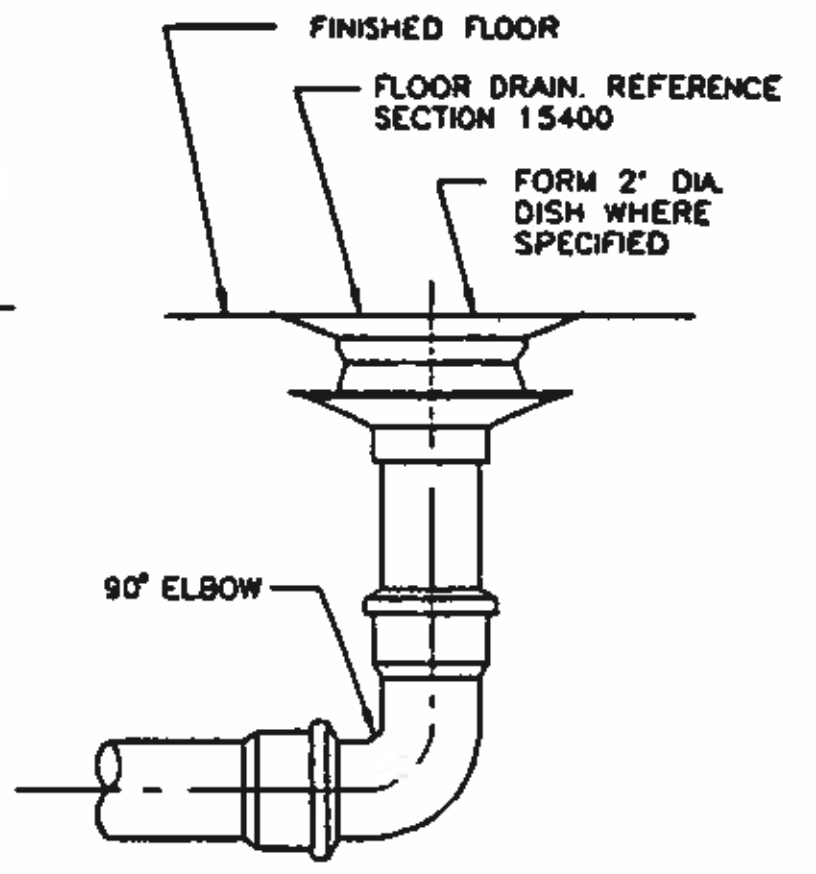
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PIPE PENETRATIONS

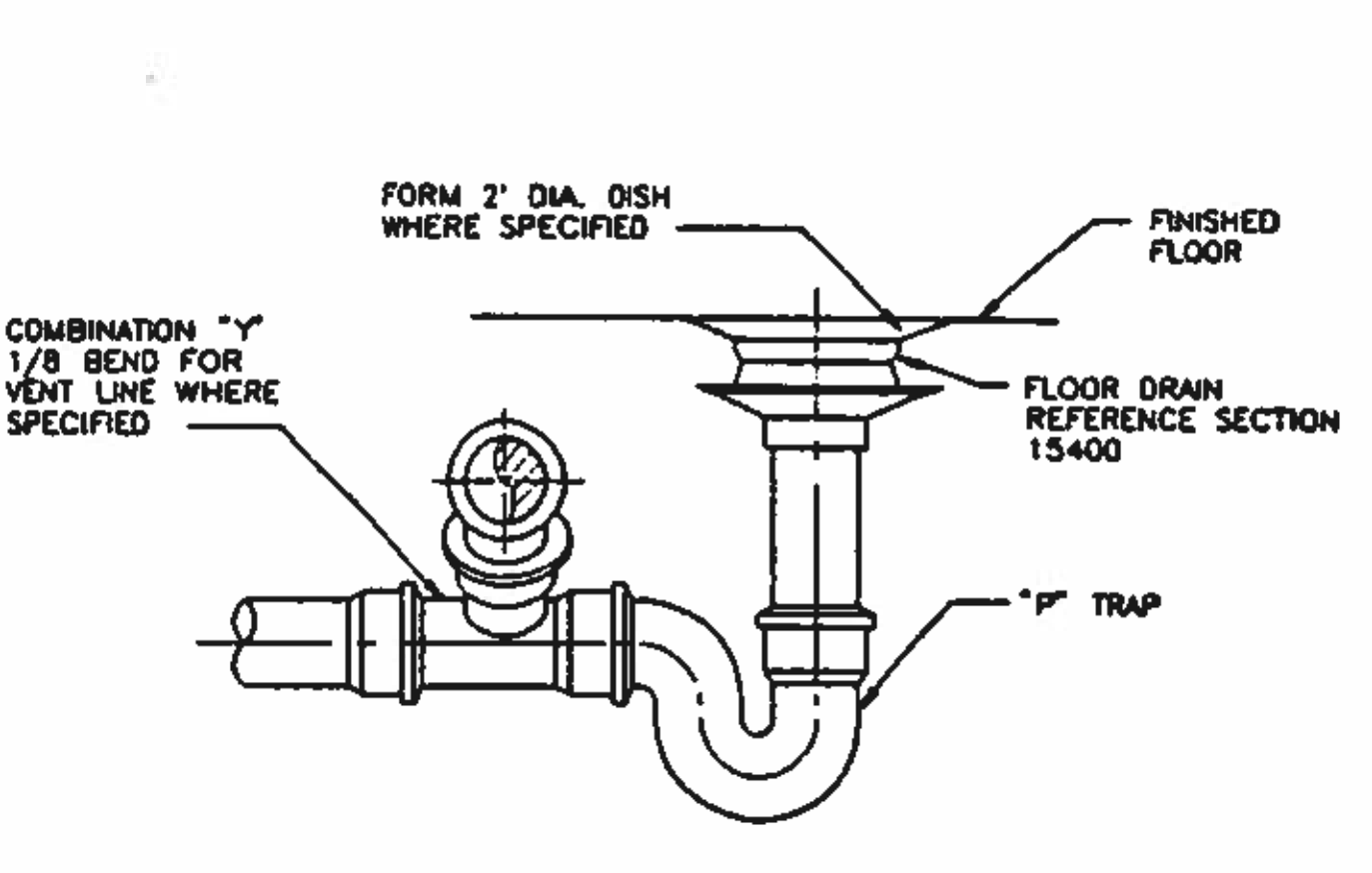
PROJECT NUMBER
DRAWING NUMBER
M4
SHEET NUMBER
215



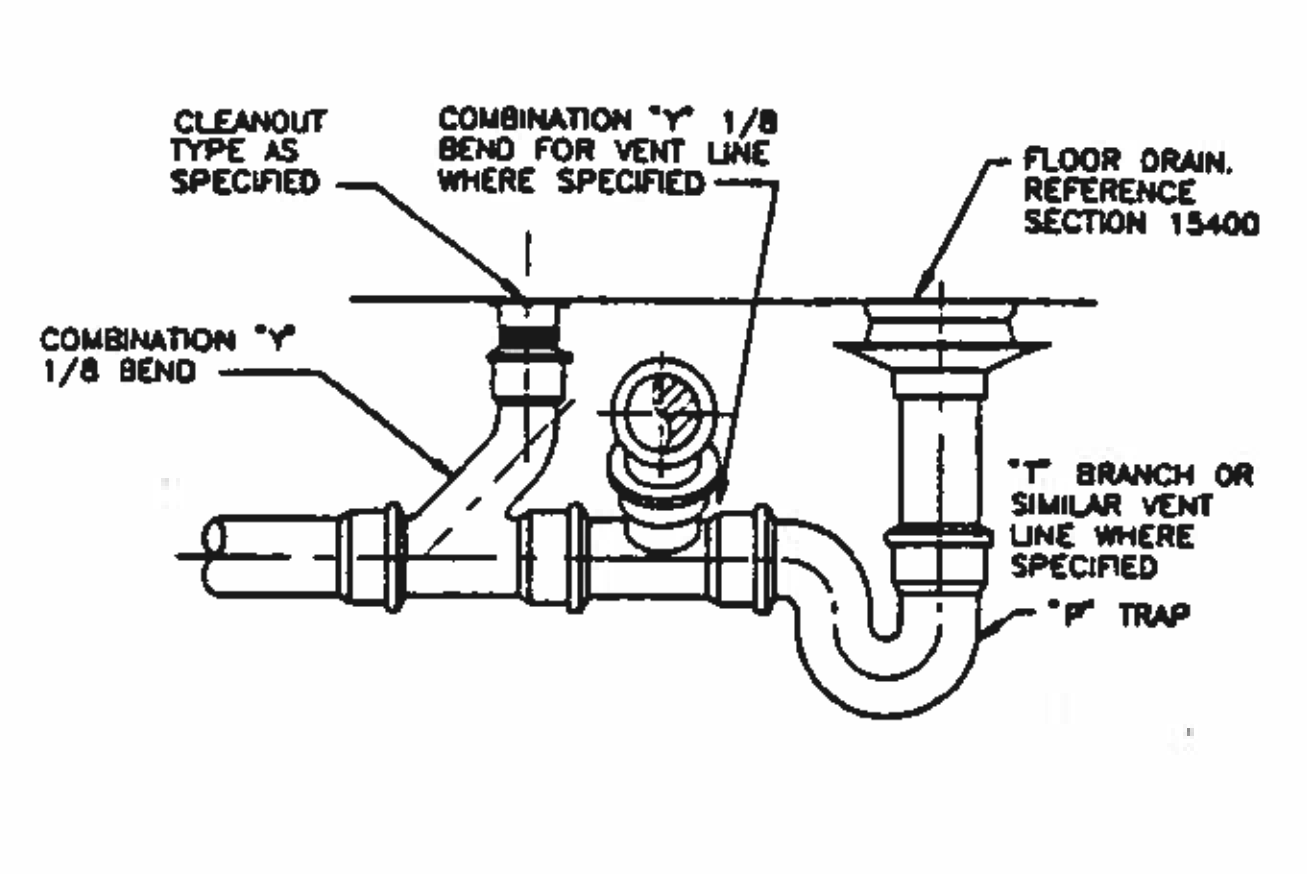
TYPE I DRAIN



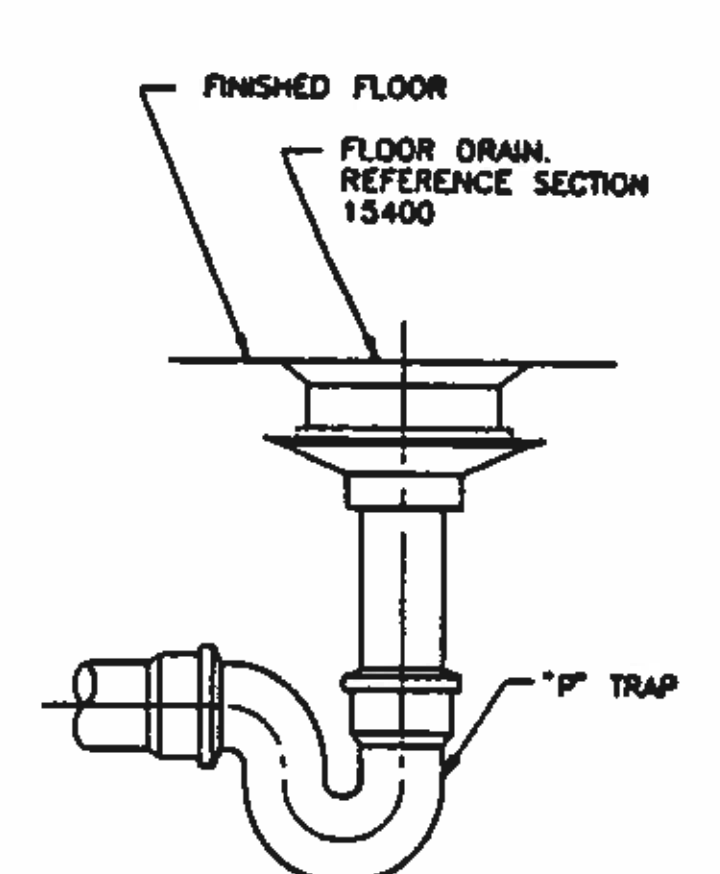
TYPE II FLOOR DRAIN



TYPE III FLOOR DRAIN



TYPE IV FLOOR DRAIN

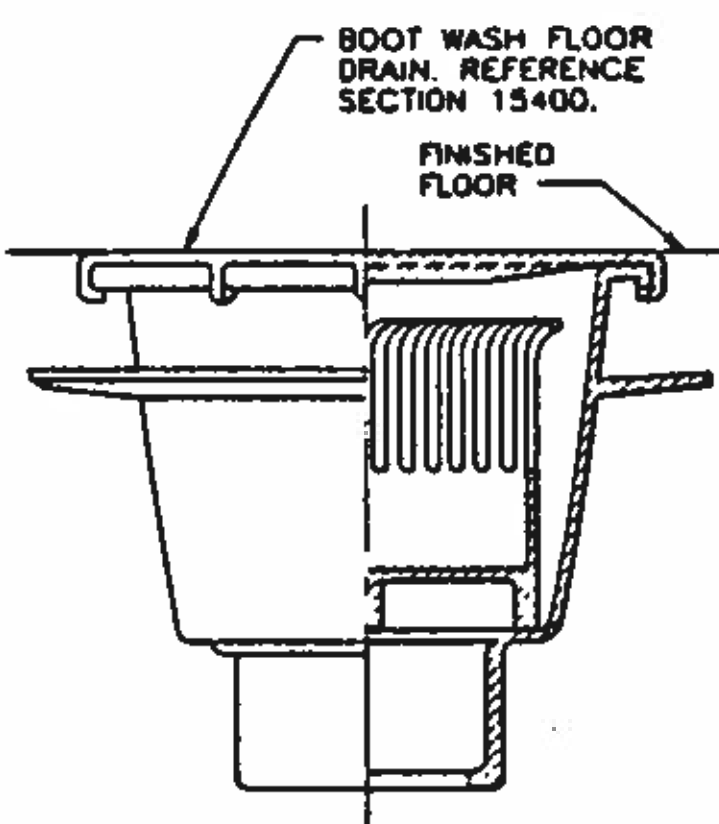


TYPE V DRAIN

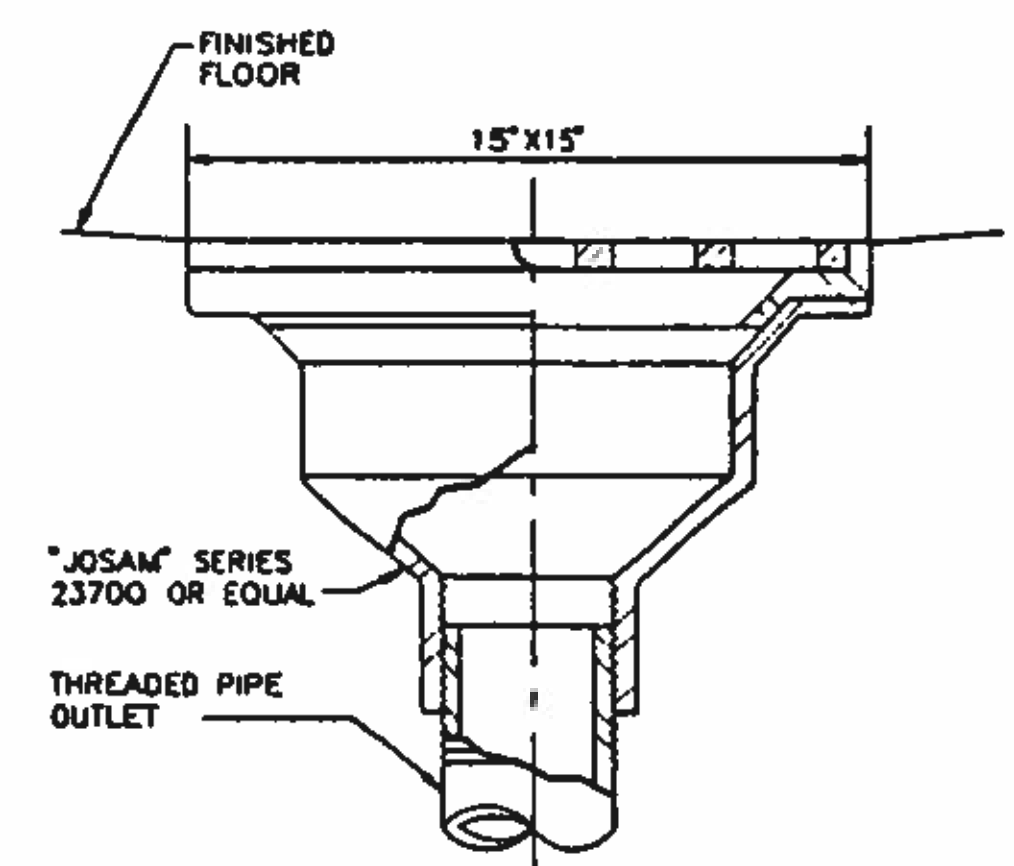
- NOTES:
- UNLESS OTHERWISE SPECIFIED AND EXCEPT IN PEDESTRIAN AREAS SUCH AS OFFICES, LABORATORY AREA, WASHROOMS, JANITOR ROOMS, ETC., ALL FLOOR DRAINS AND CLEANOUTS SHALL BE PROVIDED WITH GALVANIZED DIRMOME DUCTILE GRATES.
 - HORIZONTAL DRAINAGE SHALL HAVE A MINIMUM SLOPE OF 1/4-INCH PER FOOT.
 - CLEANOUTS FOR HORIZONTAL DRAINAGE PIPES SHALL BE PROVIDED IN ACCORDANCE WITH THE PLUMBING CODE.

DRAINAGE ABBREVIATIONS	
CO	CLEANOUT
D	DRAIN
ED	EQUIPMENT DRAIN
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
RD	ROOF DRAIN
SCD	SCUPPER DRAIN
SD	SANITARY DRAIN
SSK	SERVICE SINK
T	TRAP
TP	TRAP PRIMER
V	VENT
VTR	VENT THROUGH ROOF
WCO	WALL CLEANOUT
TCO	YARD CLEANOUT

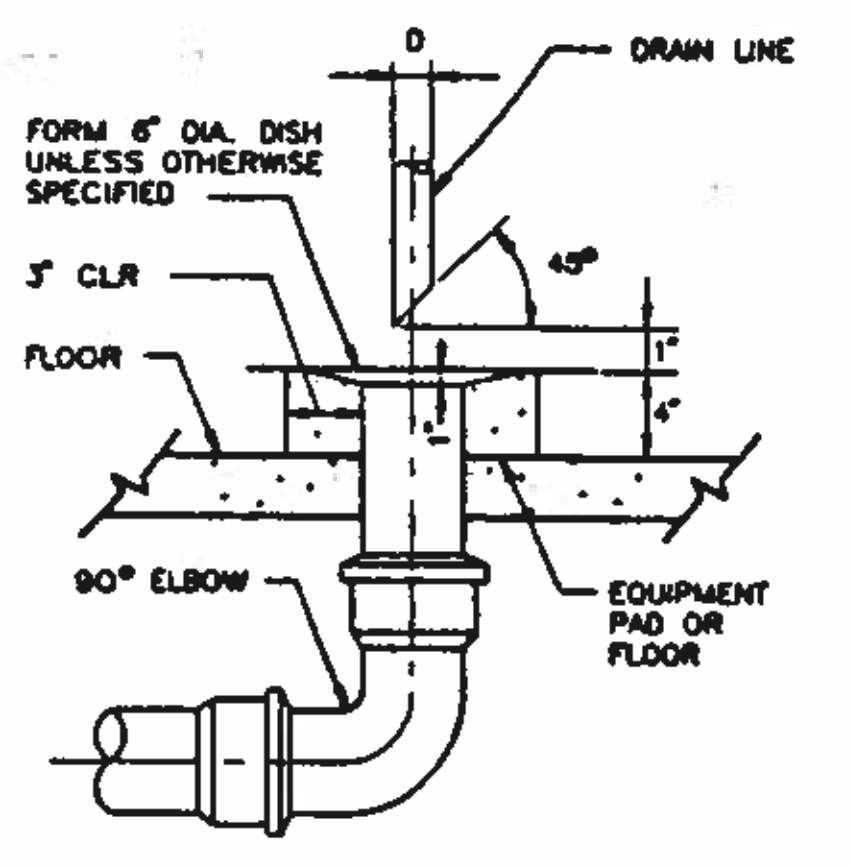
THE CONTRACTOR SHALL PROVIDE ALL WORK REQUIRED, IN ACCORDANCE WITH STATE AND LOCAL PLUMBING CODES.



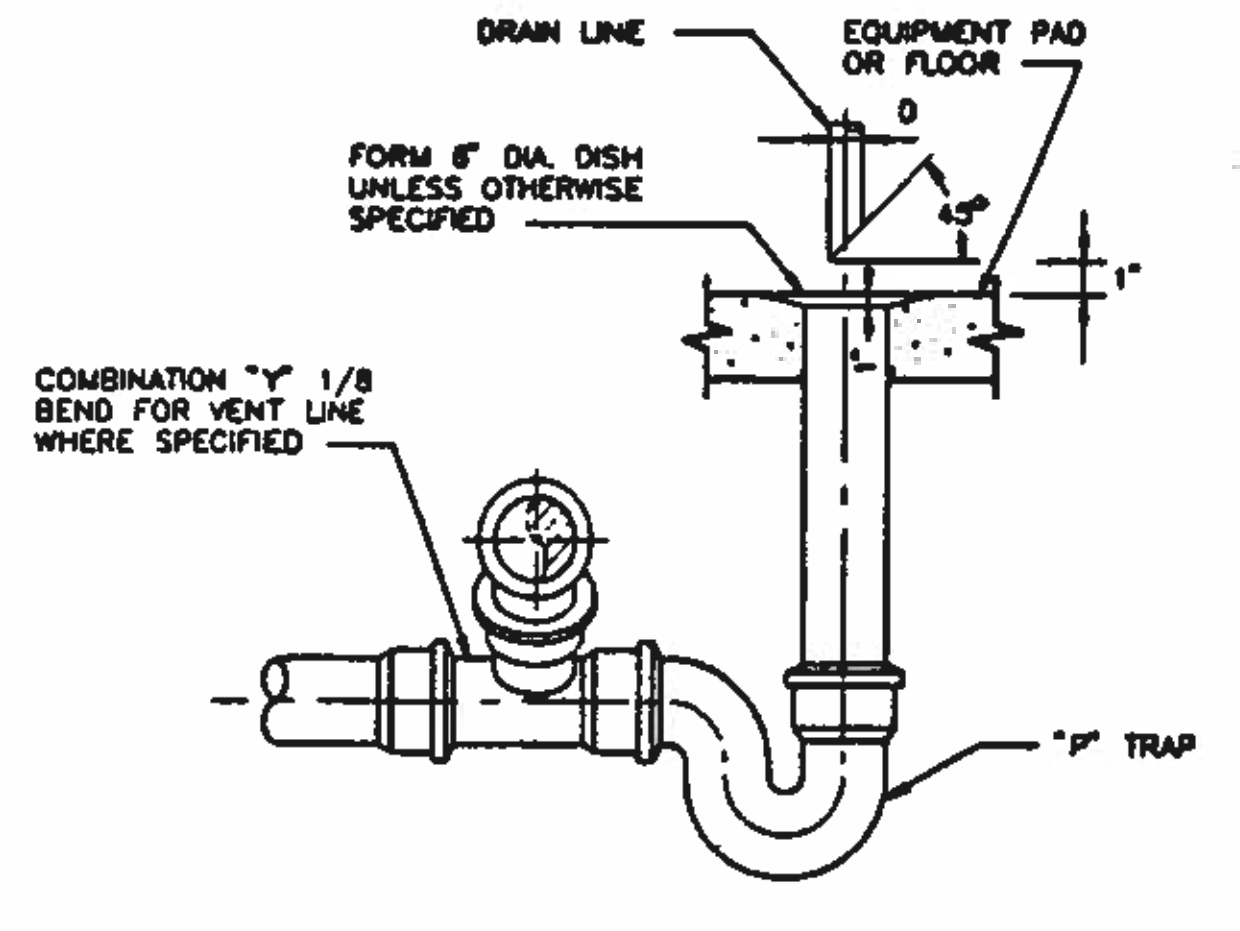
TYPE VI FLOOR DRAIN



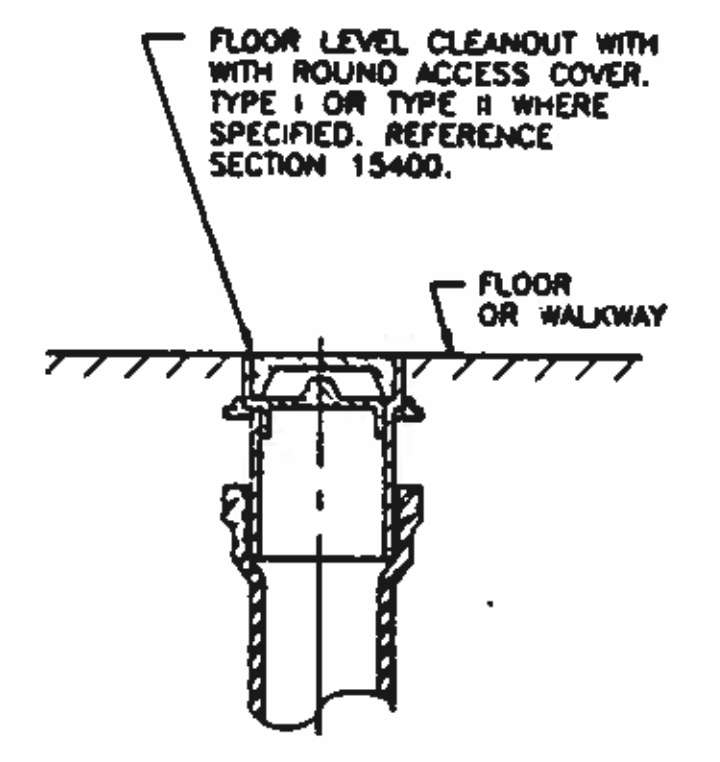
TYPE VII DRAIN



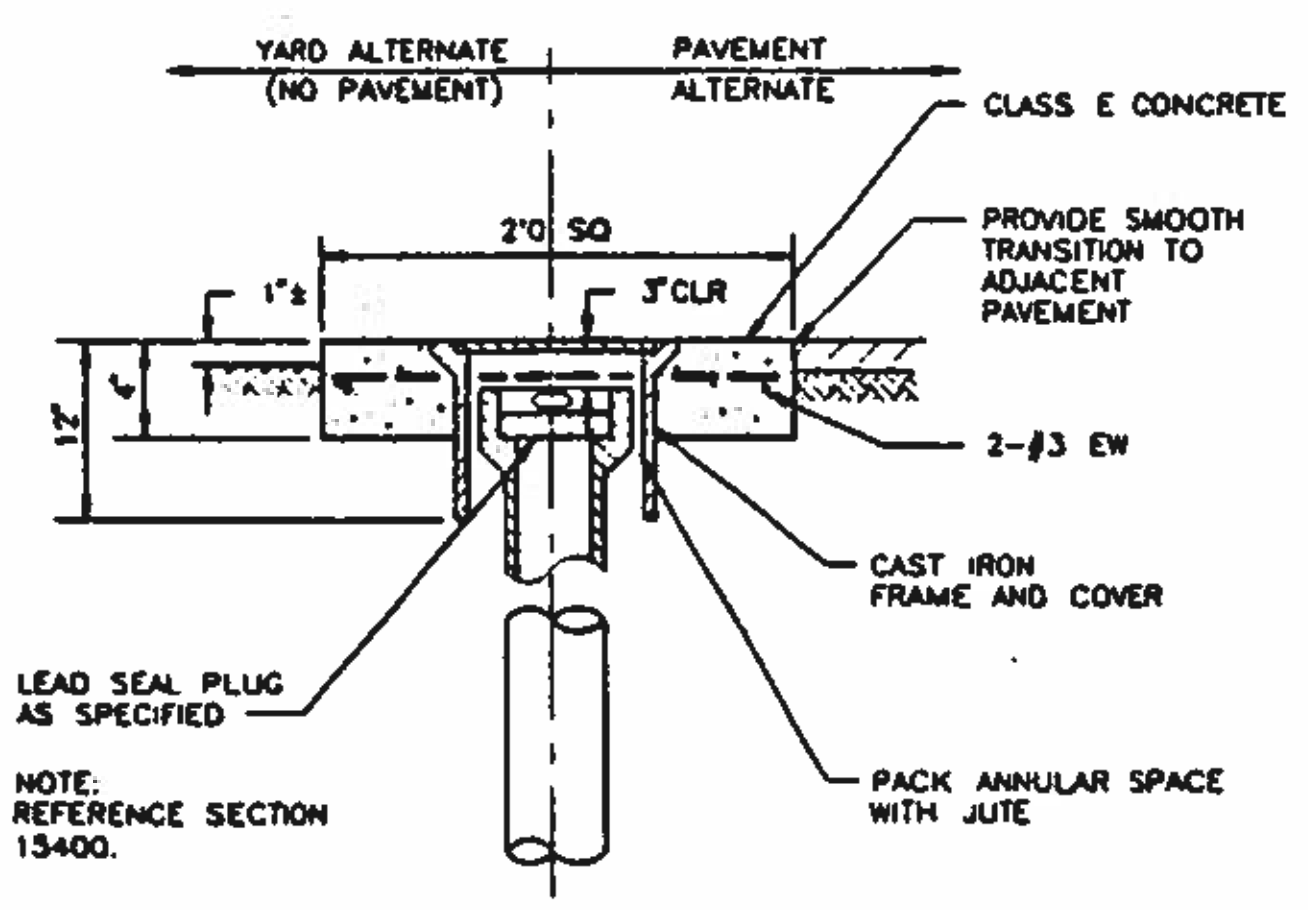
TYPE I EQUIPMENT DRAIN



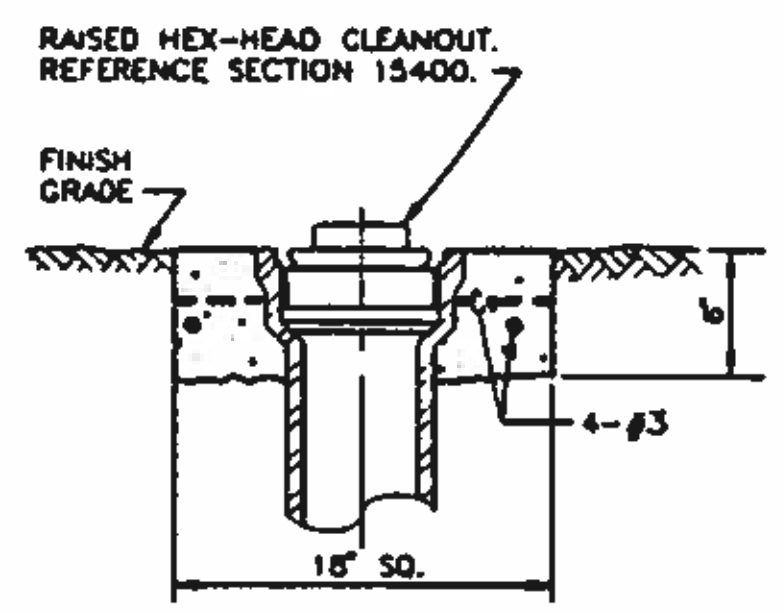
TYPE II EQUIPMENT DRAIN



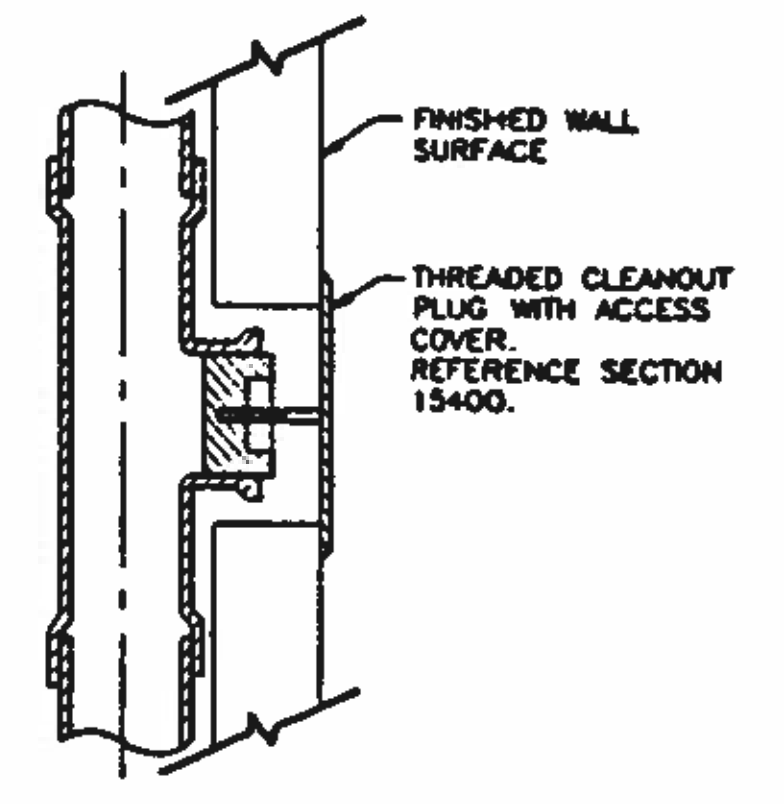
TYPE I AND II CLEANOUT



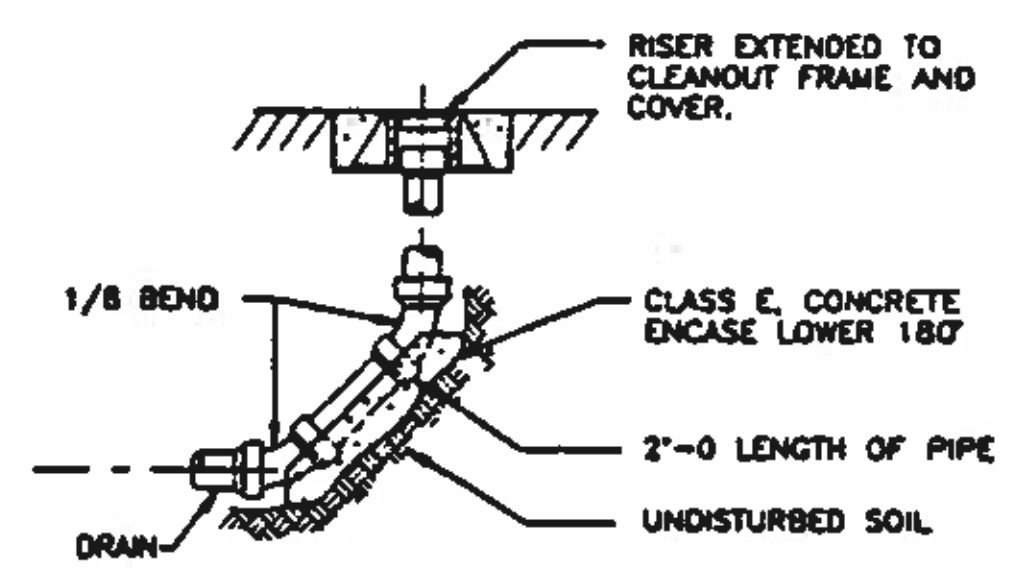
TYPE III CLEANOUT



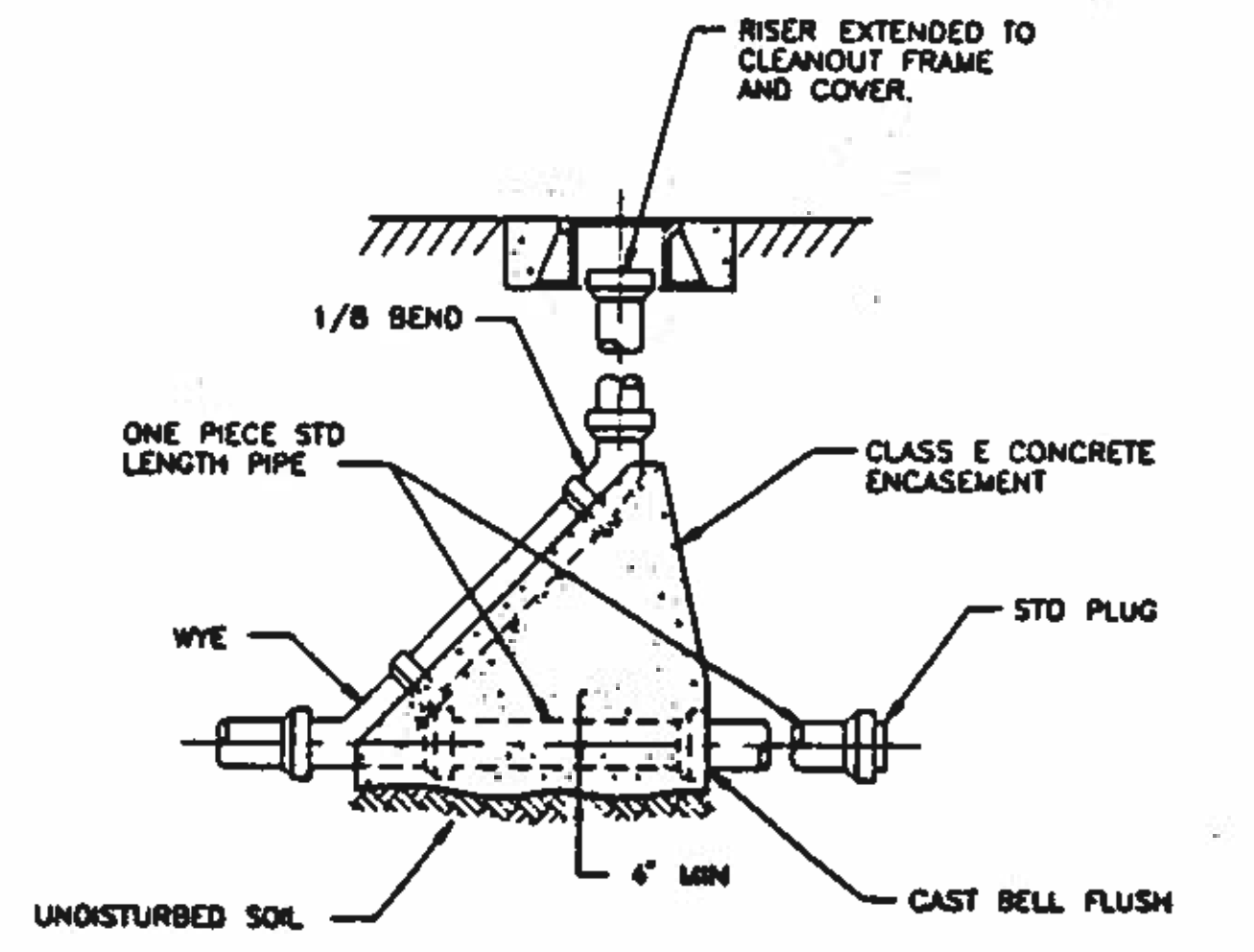
TYPE IV CLEANOUT



TYPE V CLEANOUT



CLEANOUT (LINE END) DETAIL A NO SCALE



CLEANOUT (EXTENDABLE) DETAIL B NO SCALE

NOTE: NOT ALL OF THE DETAILS SHOWN ON THIS DRAWING PERTAIN TO THIS PROJECT. CONTRACTOR SHALL REVIEW ALL DRAWINGS, AND USE THE PERTINENT DETAILS ACCORDINGLY.

BC Brown and Caldwell Consultants
Phoenix, Arizona

DATE: 11/20/92

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)
FILE 5870
DRAWN PMG
DESIGNED BC
CHECKED GCB
CHECKED DA



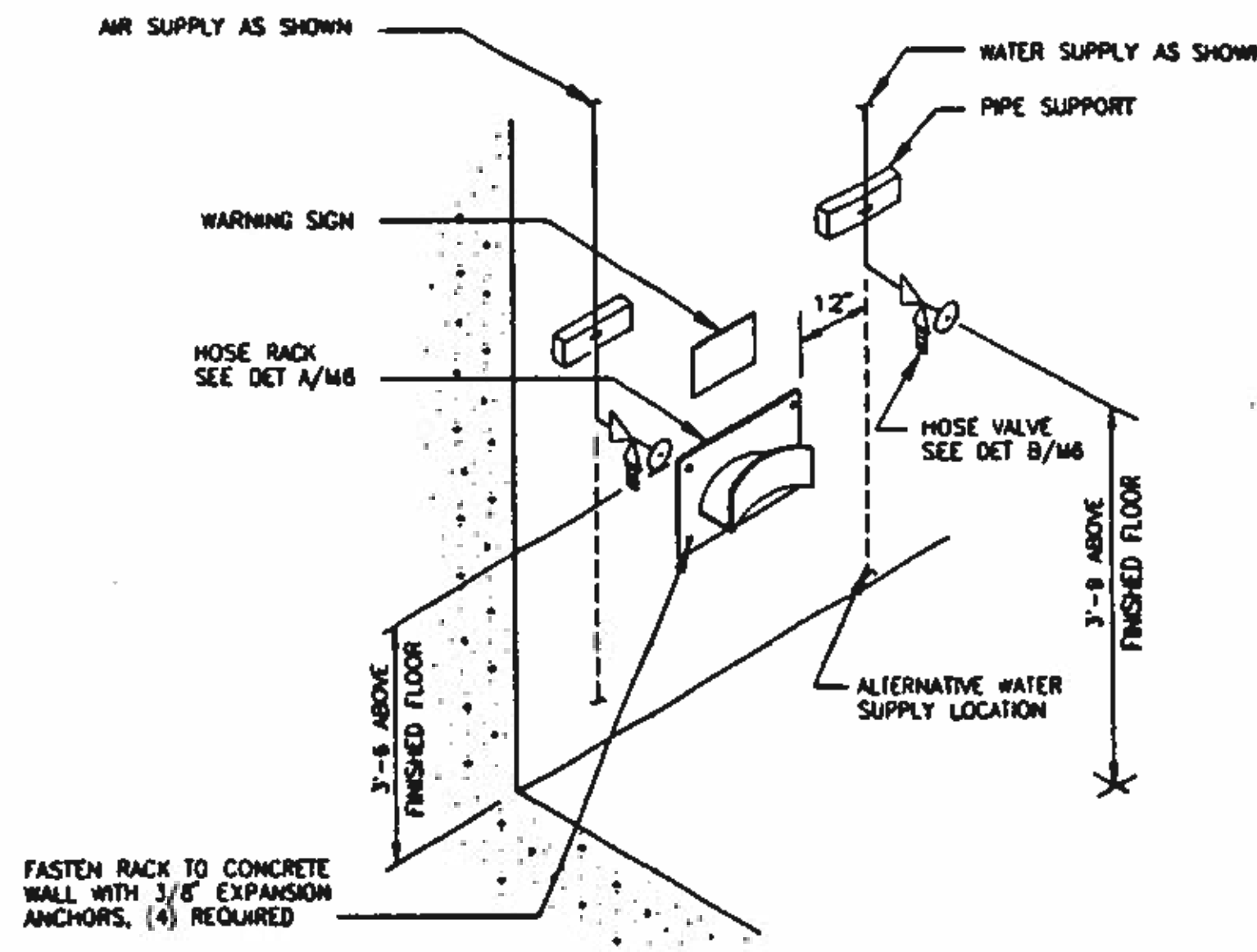
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



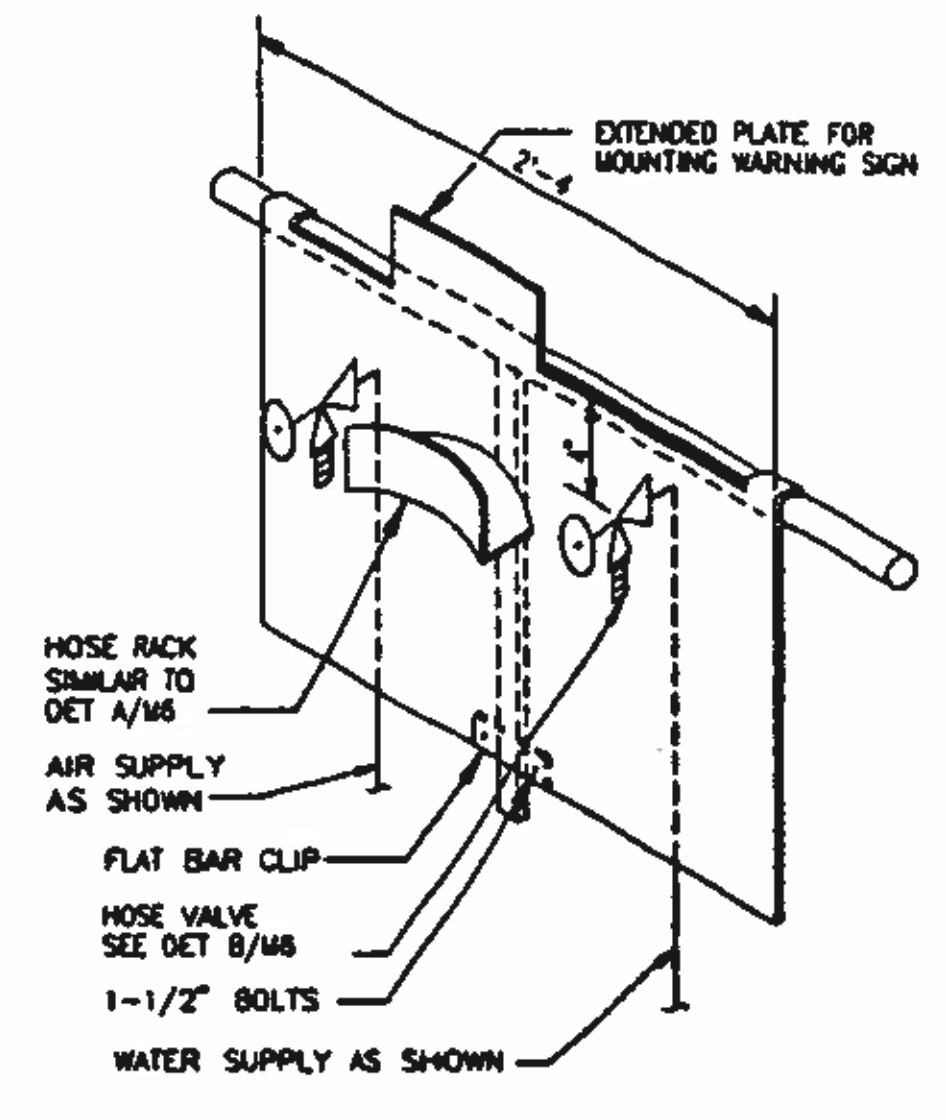
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

DRAINAGE DETAILS AND CLEANOUTS

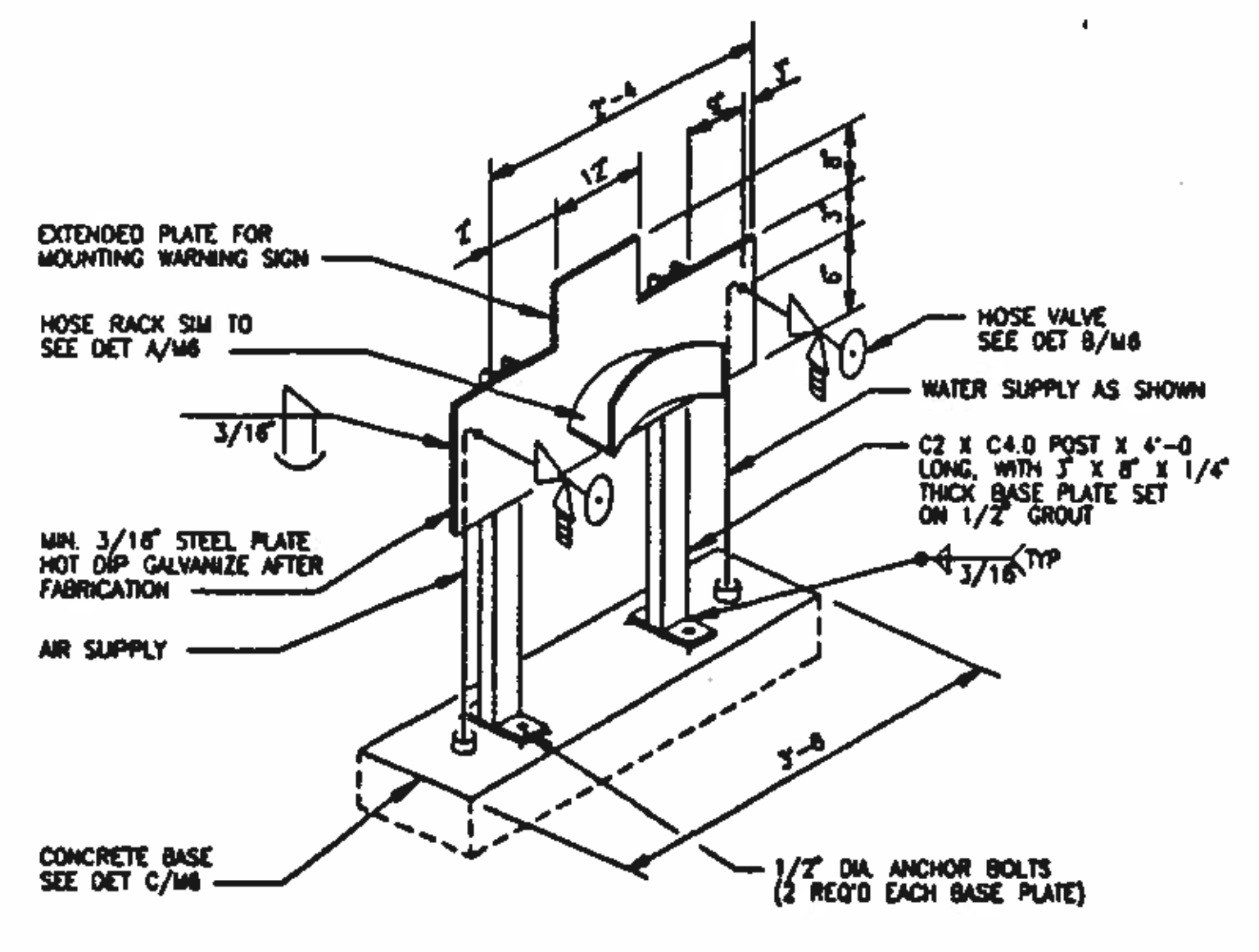
PROJECT NUMBER
DRAWING NUMBER
M5
SHEET NUMBER
218



TYPE A
WALL MOUNTED UTILITY STATION



TYPE B
RAIL MOUNTED UTILITY STATION



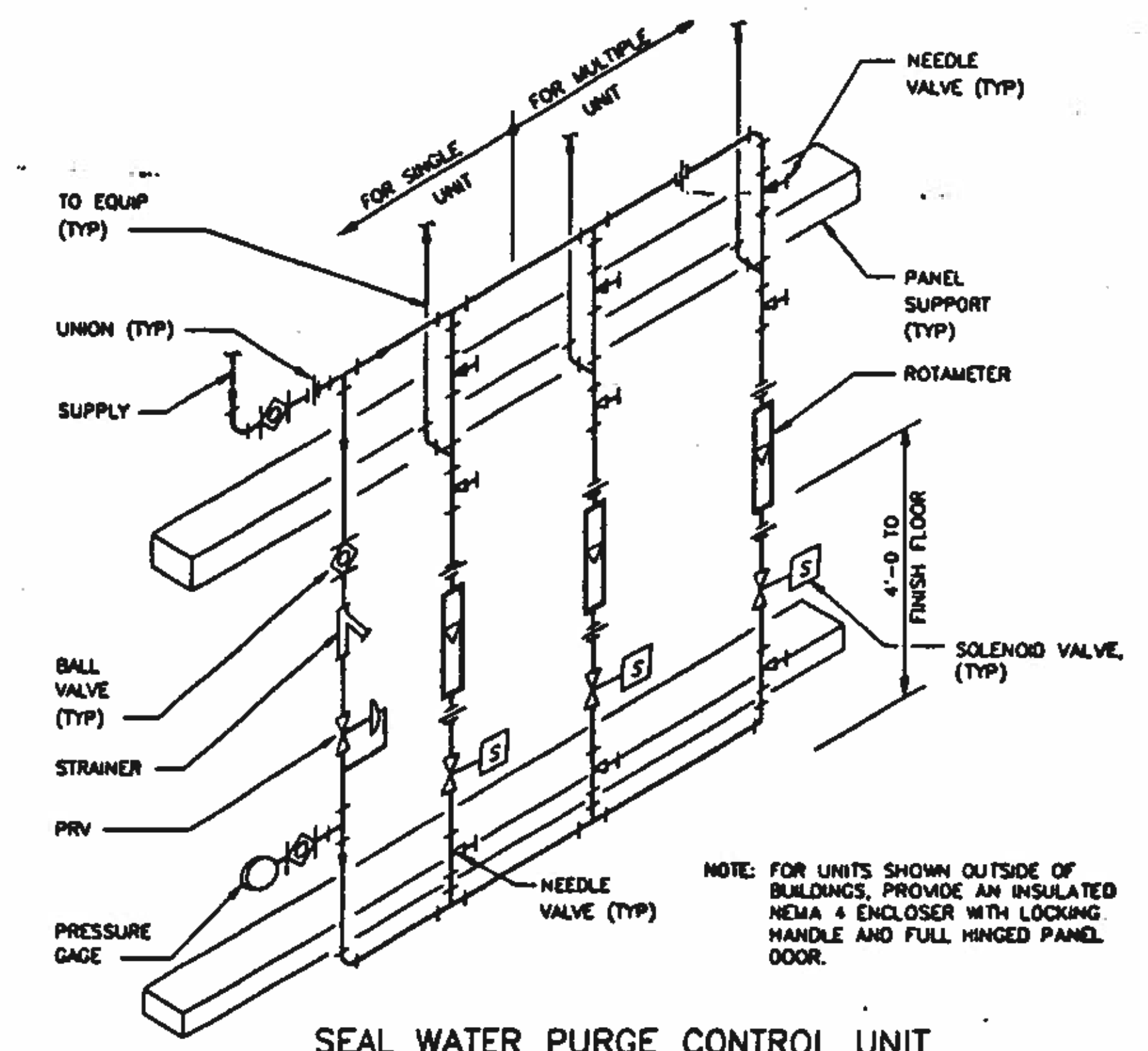
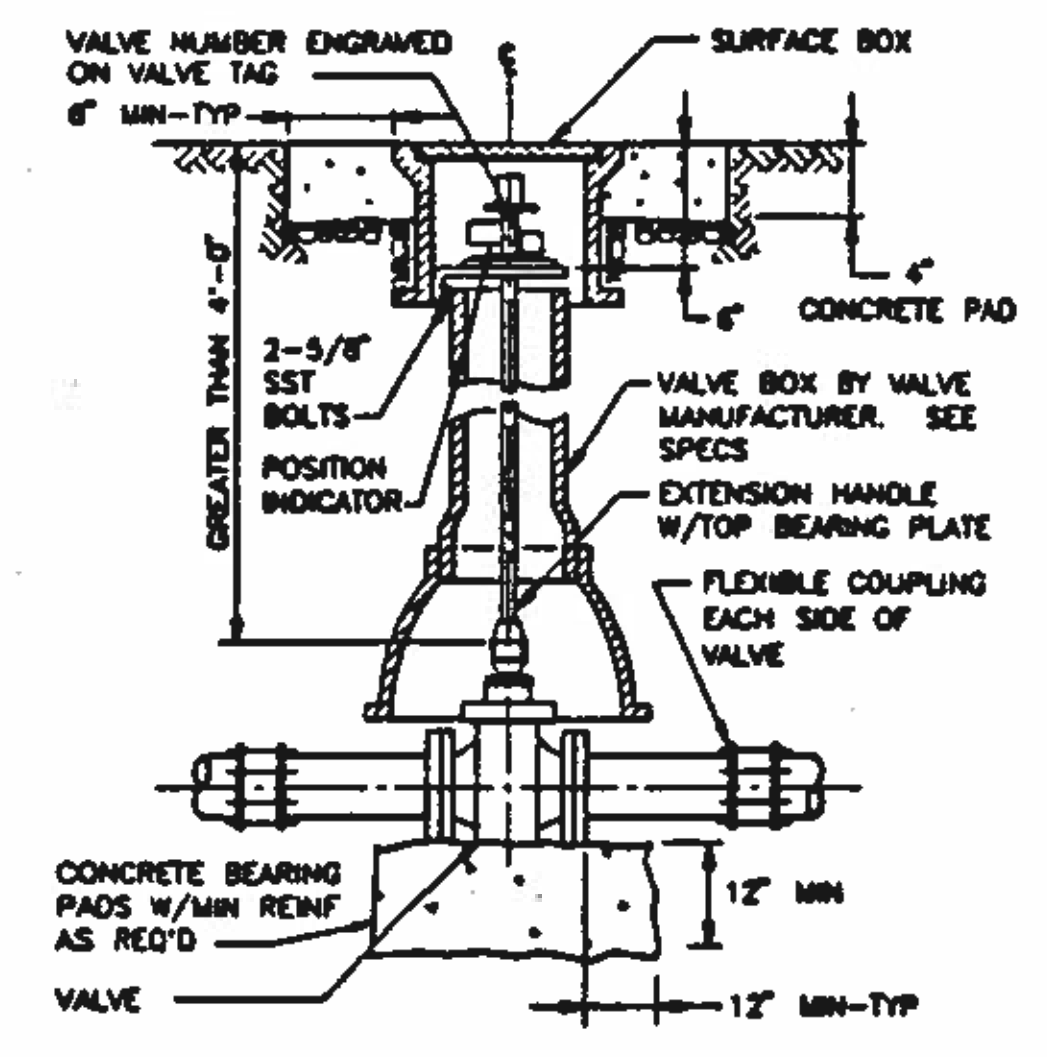
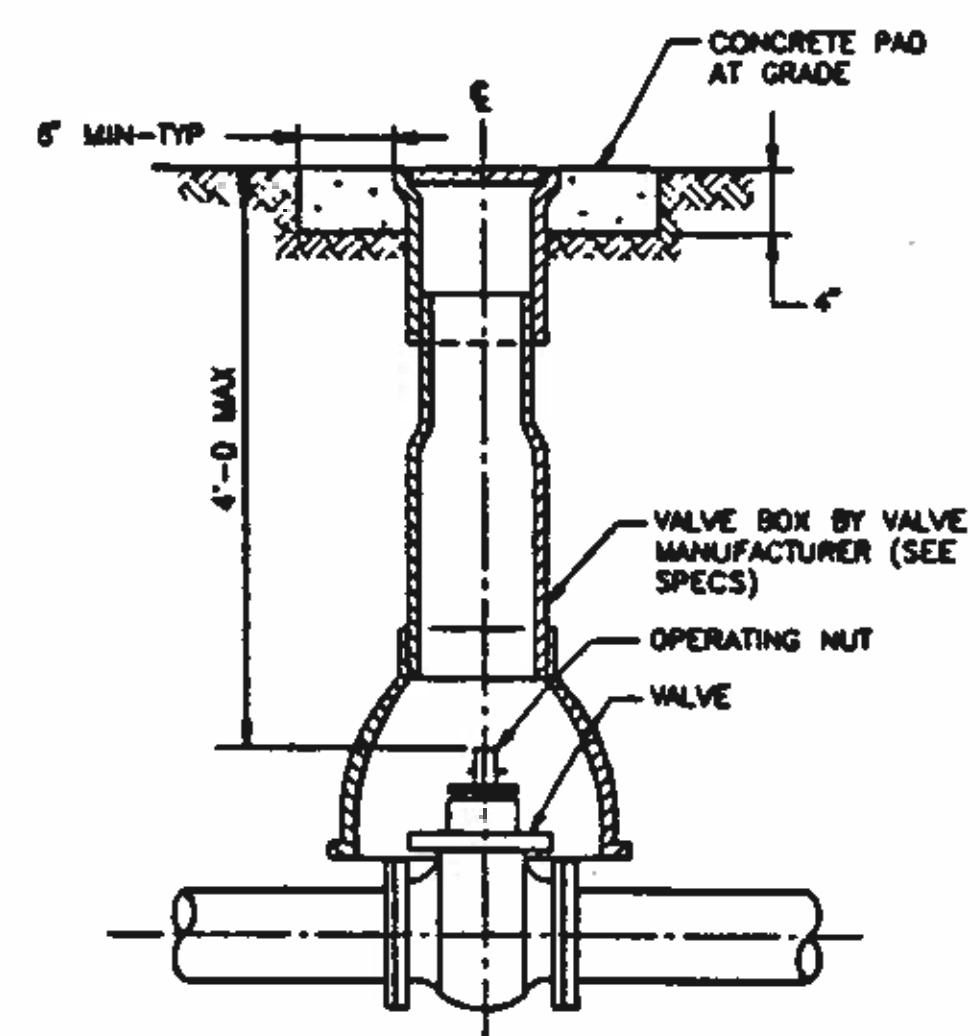
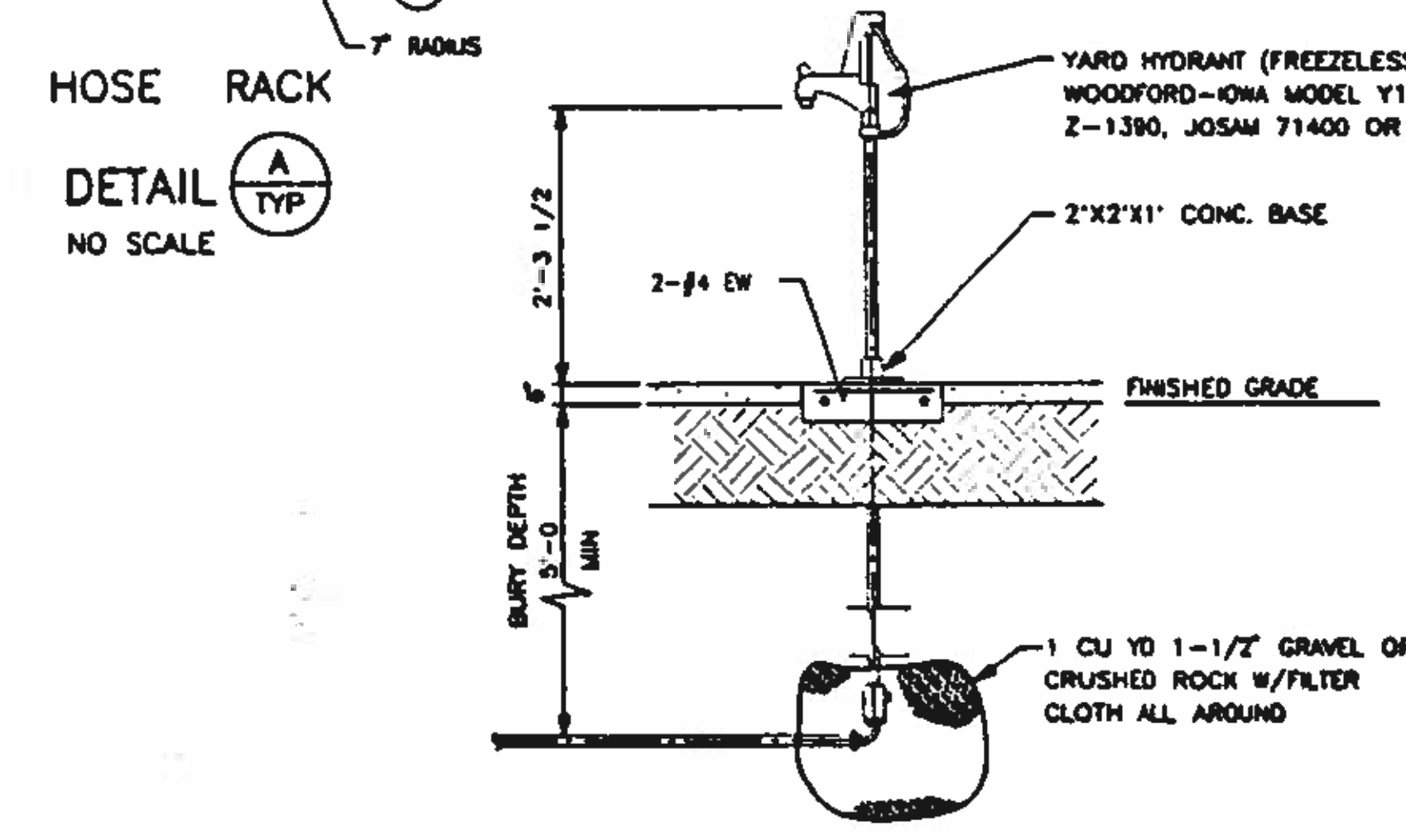
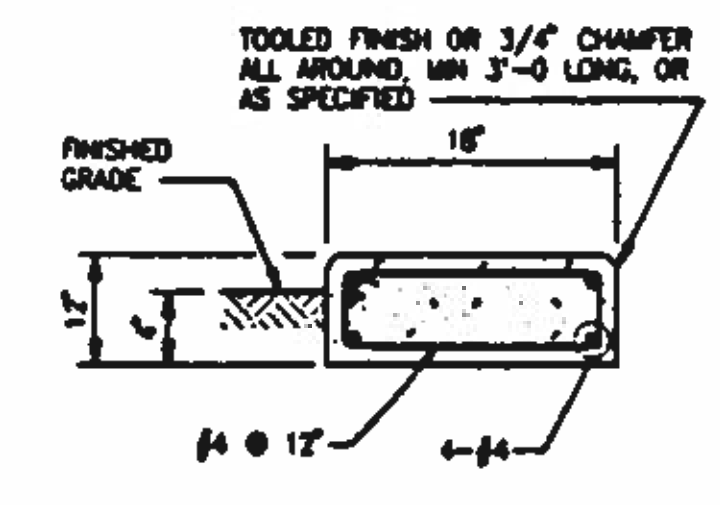
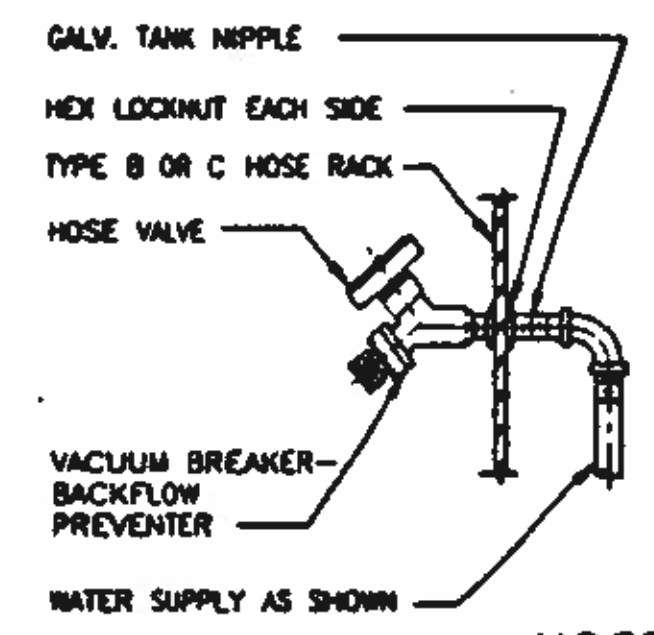
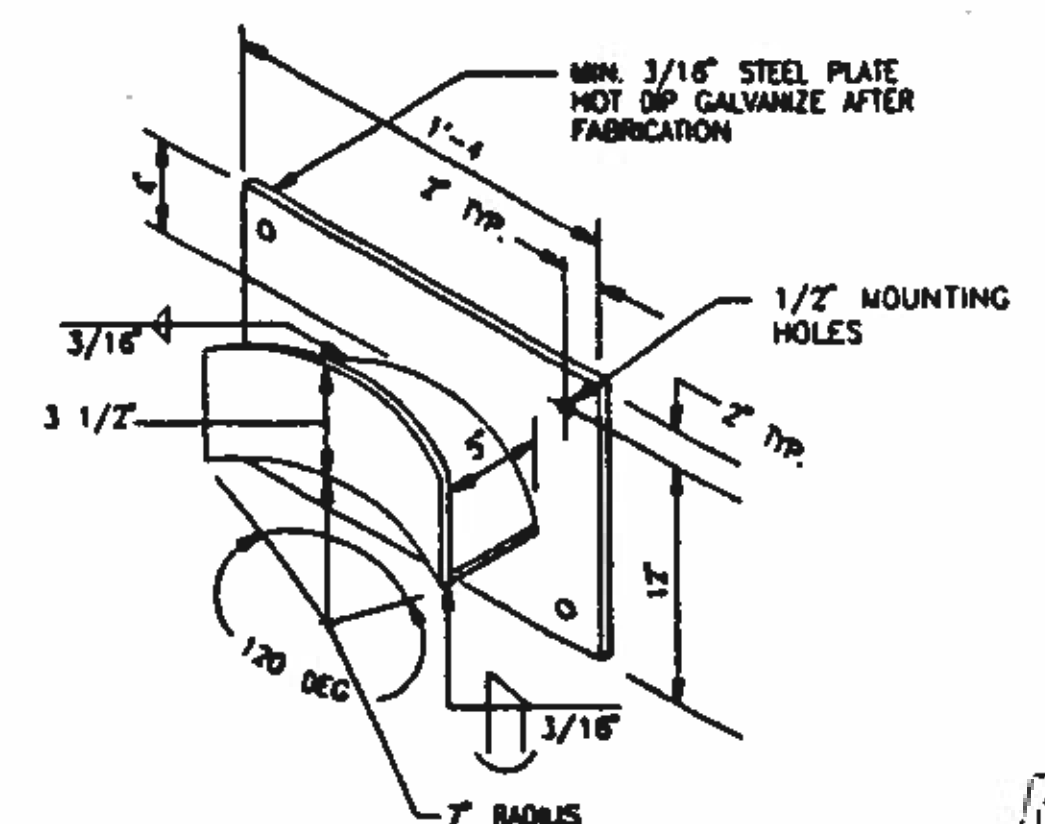
TYPE C
POST MOUNTED UTILITY STATION

- UTILITY STATION NOTES:
- HOSE RACK SHALL BE OF ALL WELDED CONSTRUCTION. MATERIAL SHALL BE MINIMUM OF 3/16 INCH THICK STAINLESS STEEL PLATE.
 - WARNING SIGNS SHALL BE PROVIDED AT EACH UTILITY STATION AND SHALL BE REQUIRED IN THE SPECIFICATIONS.
 - PROVIDE SERVICE AIR CONNECTIONS ONLY TO THE UTILITY STATIONS THAT HAVE SA LINES INDICATED IN THE DRAWINGS.
 - UTILITY STATIONS ARE IDENTIFIED ON THE DRAWINGS AS FOLLOWS:



PURGE CONTROL UNIT NOTES:

- UNIONS SHALL BE USED TO ALLOW ANY SECTION OR RUN OF PIPE TO BE DISCONNECTED WITHOUT TAKING DOWN ADJACENT RUNS.
- UNLESS OTHERWISE SHOWN, PIPING SHALL BE 1/2-INCH.
- UNLESS OTHERWISE SHOWN OR NOTED, ROTAMETERS AND FLOW REGULATORS SHALL BE SIZED IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
- THE LENGTH OF PIPE BETWEEN THE PRV AND THE SOLENOID VALVE SHALL BE KEPT TO A MINIMUM.



NOTE:
NOT ALL OF THE DETAILS SHOWN ON THIS DRAWING PERTAIN TO THIS PROJECT. CONTRACTOR SHALL REVIEW ALL DRAWINGS, AND USE THE PERTINENT DETAILS ACCORDINGLY.

BC Brown and Caldwell Consultants
Phoenix, Arizona

PROJECT: *Northwest Wastewater Treatment Plant Expansion*

SUBMITTED: *[Signature]* DATE: *11/20/12*

APPROVED: *[Signature]* DATE: *11-20-12*

APPROVED: *[Signature]* DATE: *11-20-12*

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE	5870
DRAWN	PMG
DESIGNED	BC
CHECKED	CIB
CHECKED	Pa



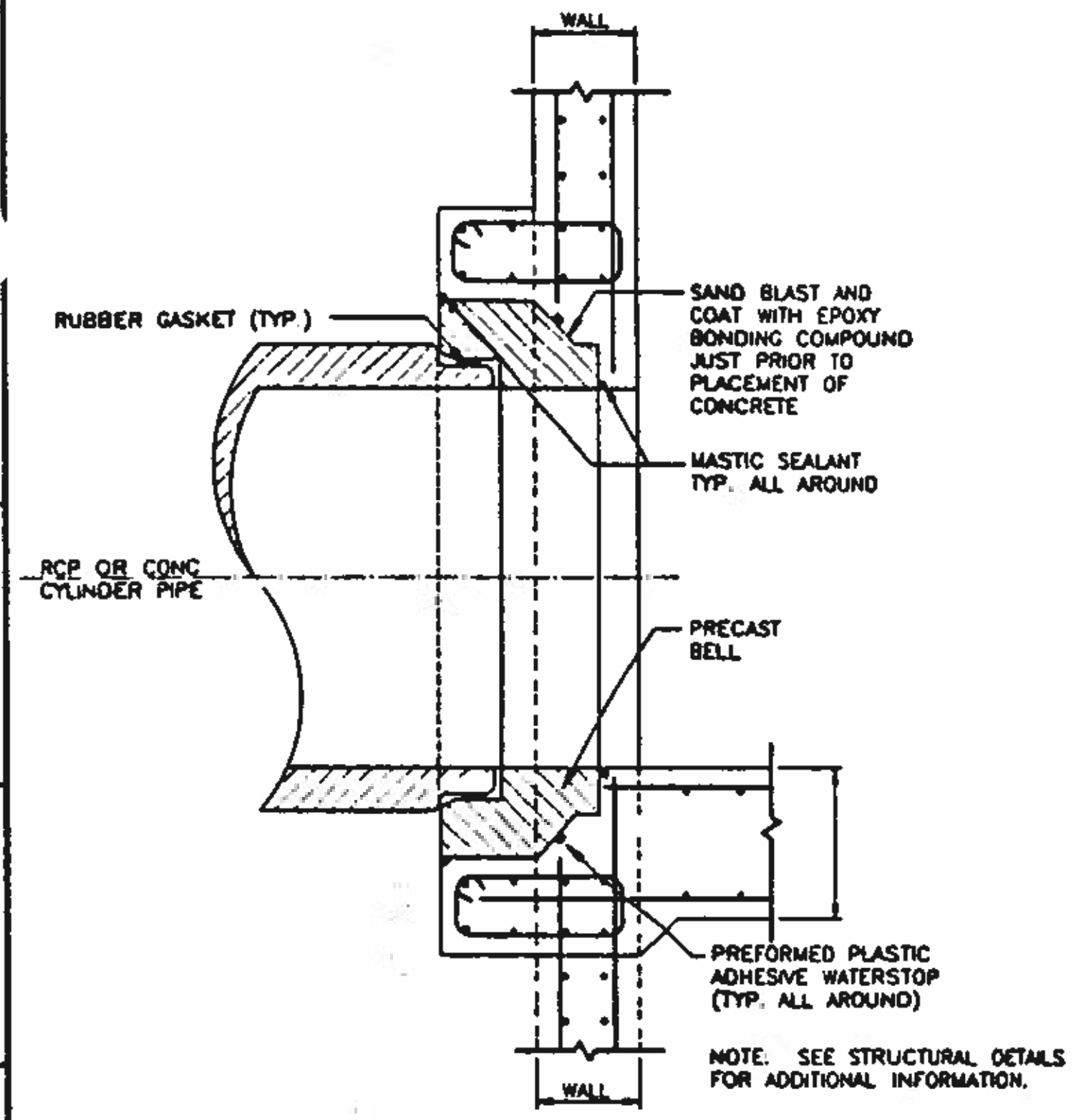
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



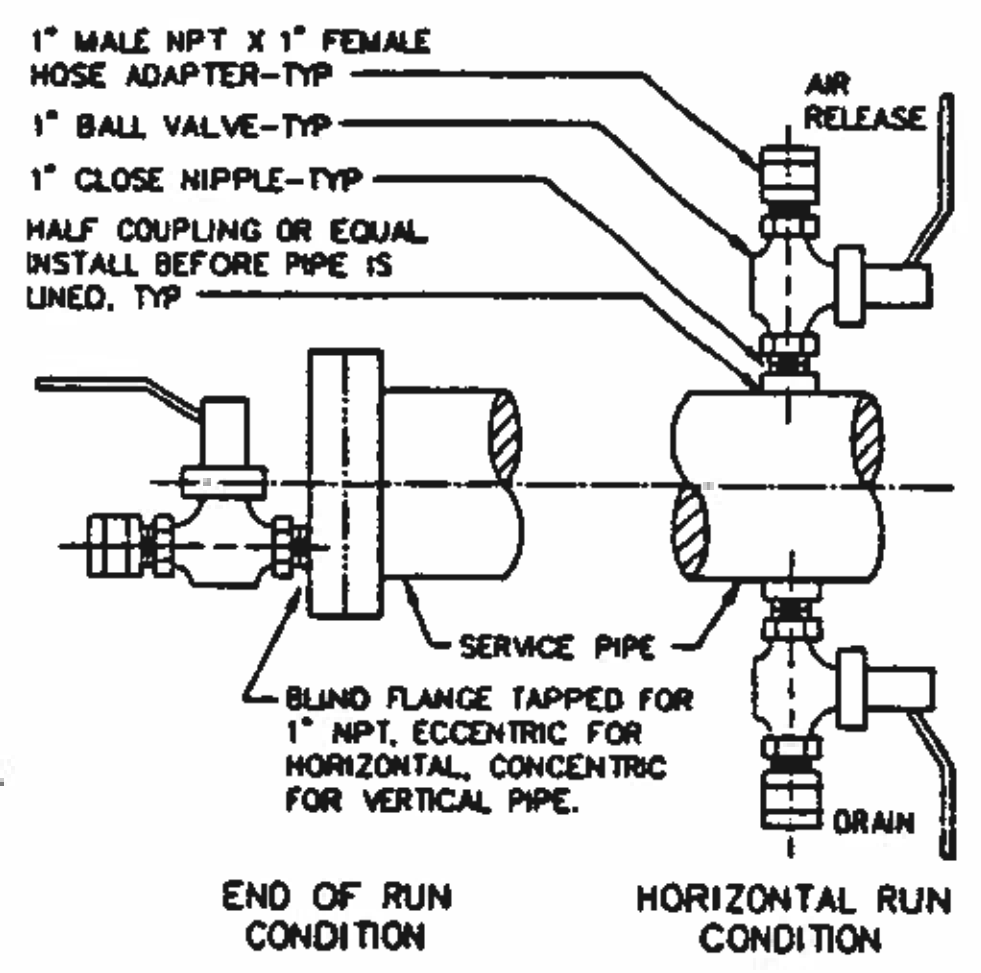
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS DETAILS - 1

PROJECT NUMBER	
DRAWING NUMBER	M6
SHEET NUMBER	217



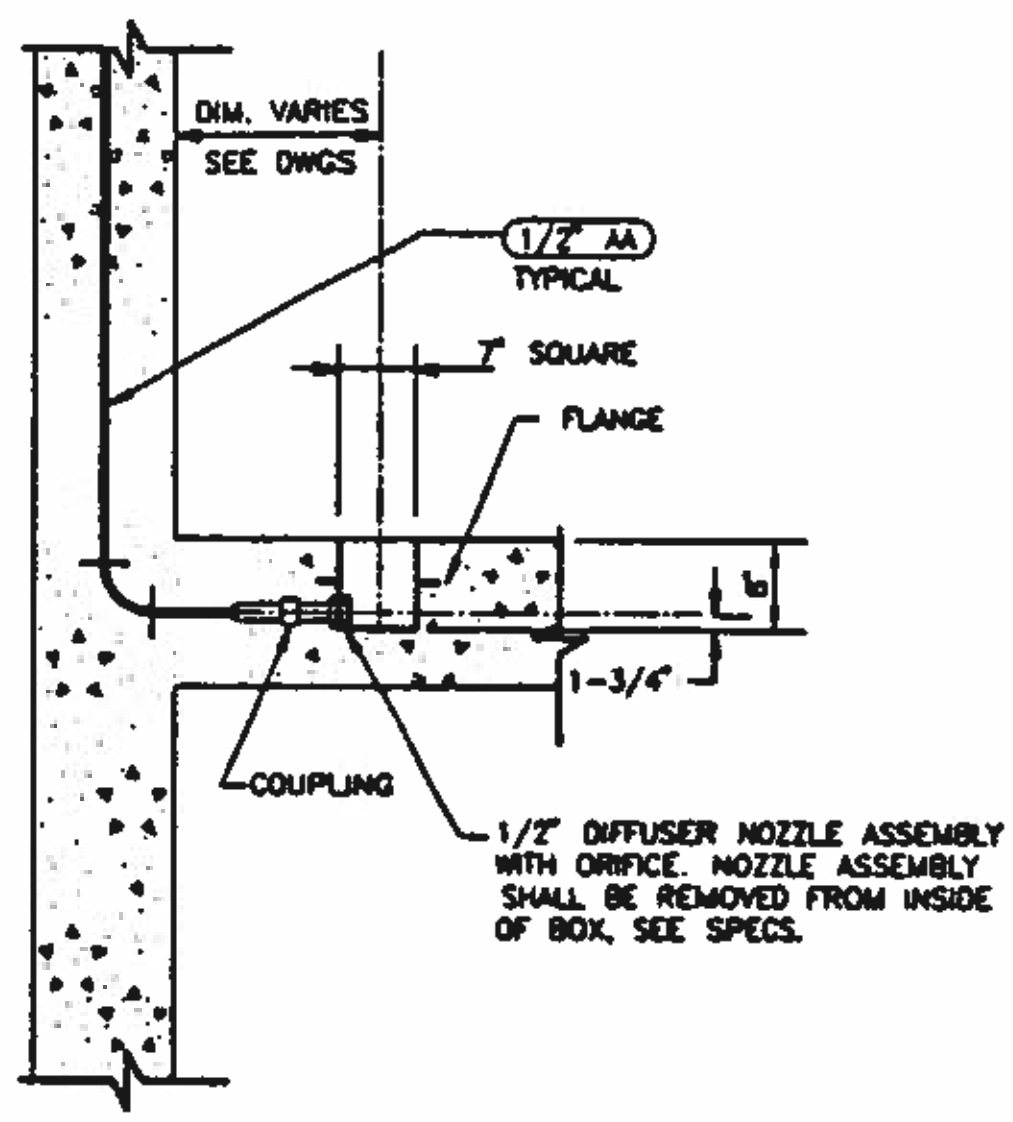
CAST IN PLACE PIPE BELL
 DETAIL (A) TYP
 SCALE: NONE



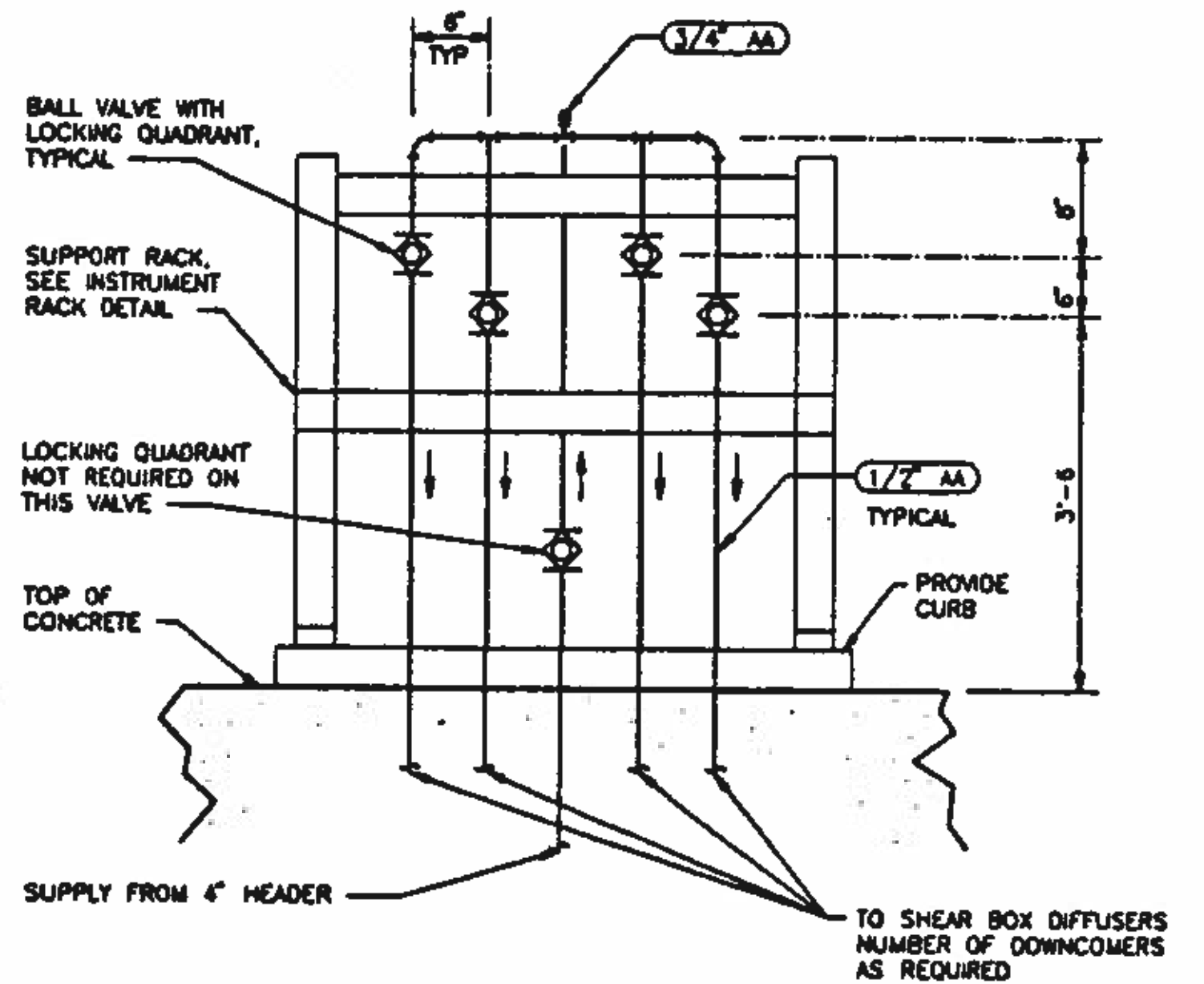
NOTE:
 WHEN SERVICE PIPE IS MORE THAN 6 FEET ABOVE FLOOR,
 DRAIN AND/OR AIR RELEASE SHALL BE PIPED DOWN
 NEAREST WALL WITH VALVE 4 FEET ABOVE FLOOR.

(FOR AIR RELEASE OR DRAIN AS REQUIRED)

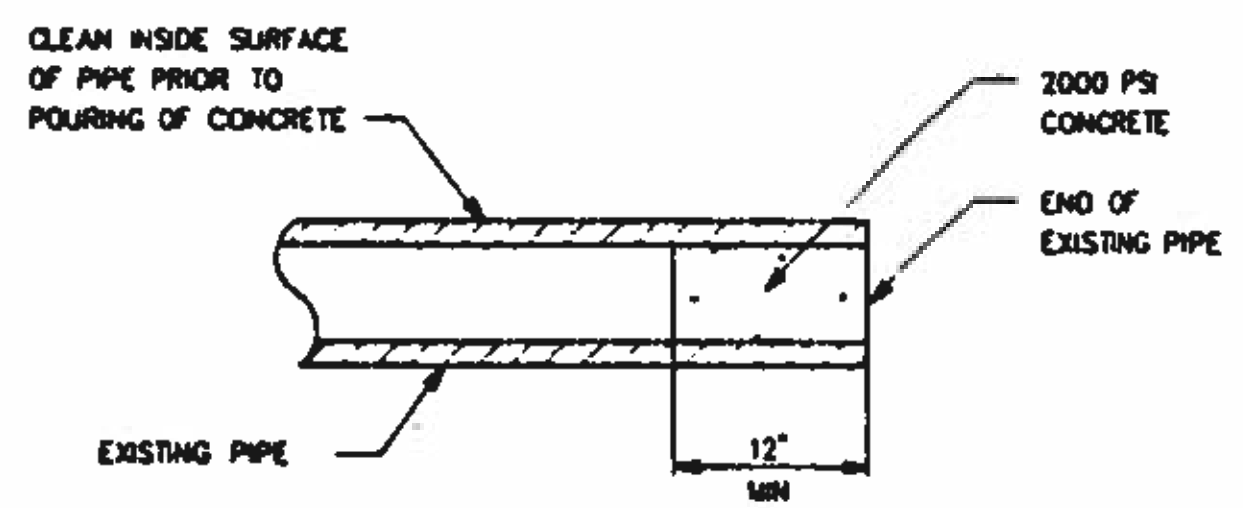
FLUSHING COCK
 DETAIL (B) TYP
 SCALE: NONE



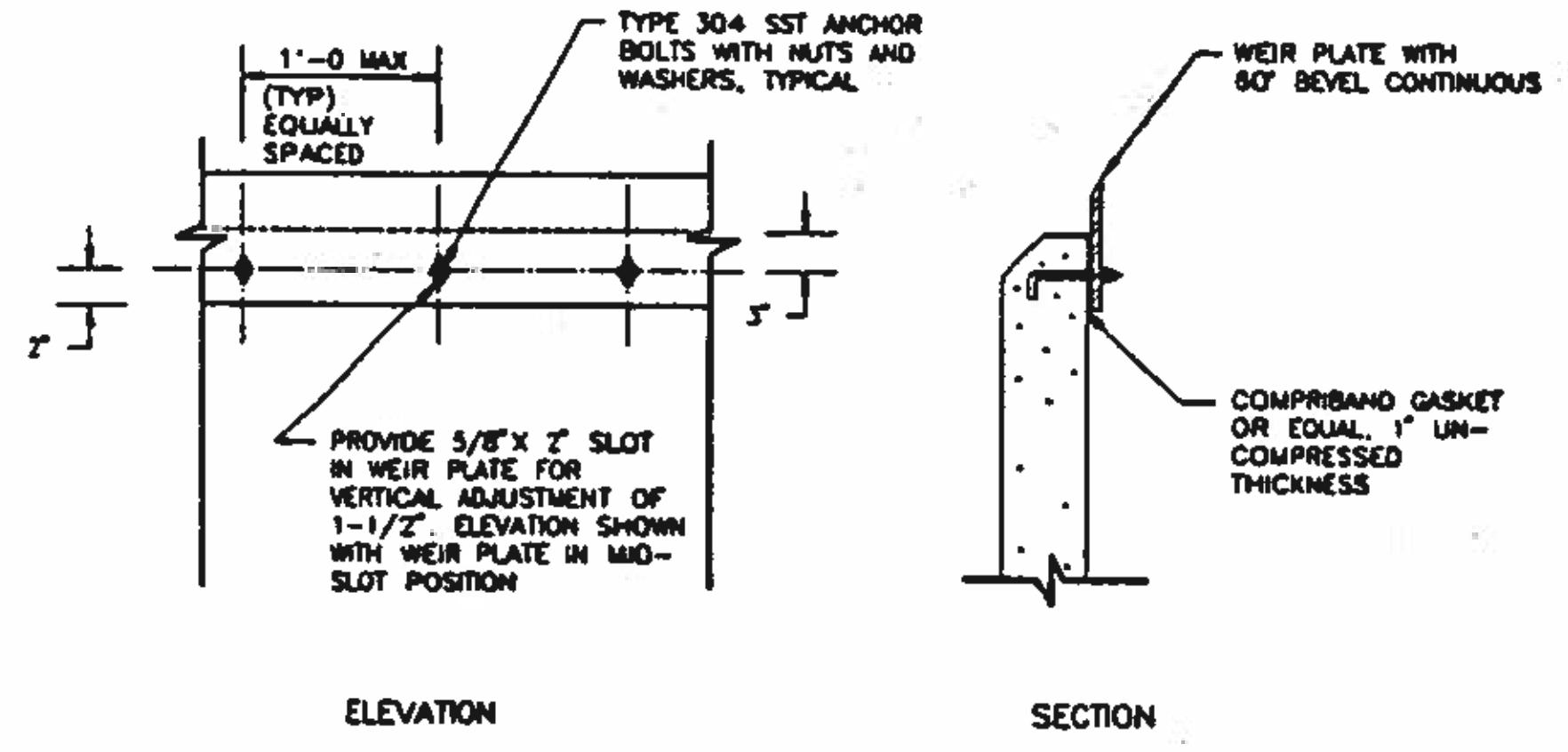
SHEAR BOX DIFFUSER
 DETAIL (C) TYP
 SCALE: NONE



TYPICAL AIR CHANNEL MANIFOLD
 DETAIL (D) TYP
 SCALE: NONE



EXISTING PIPE PLUG
 DETAIL (E) TYP
 SCALE: NONE



WEIR DETAIL
 DETAIL (F) TYP
 SCALE: NONE

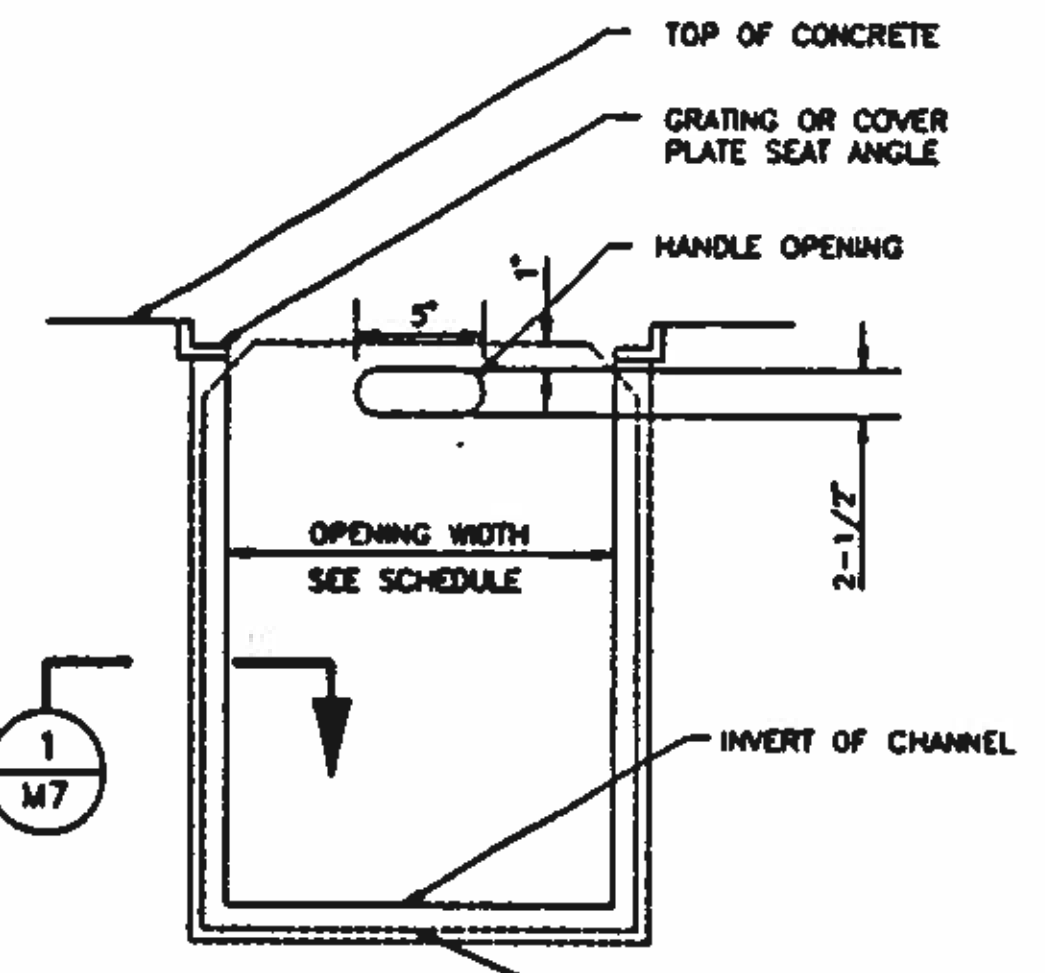
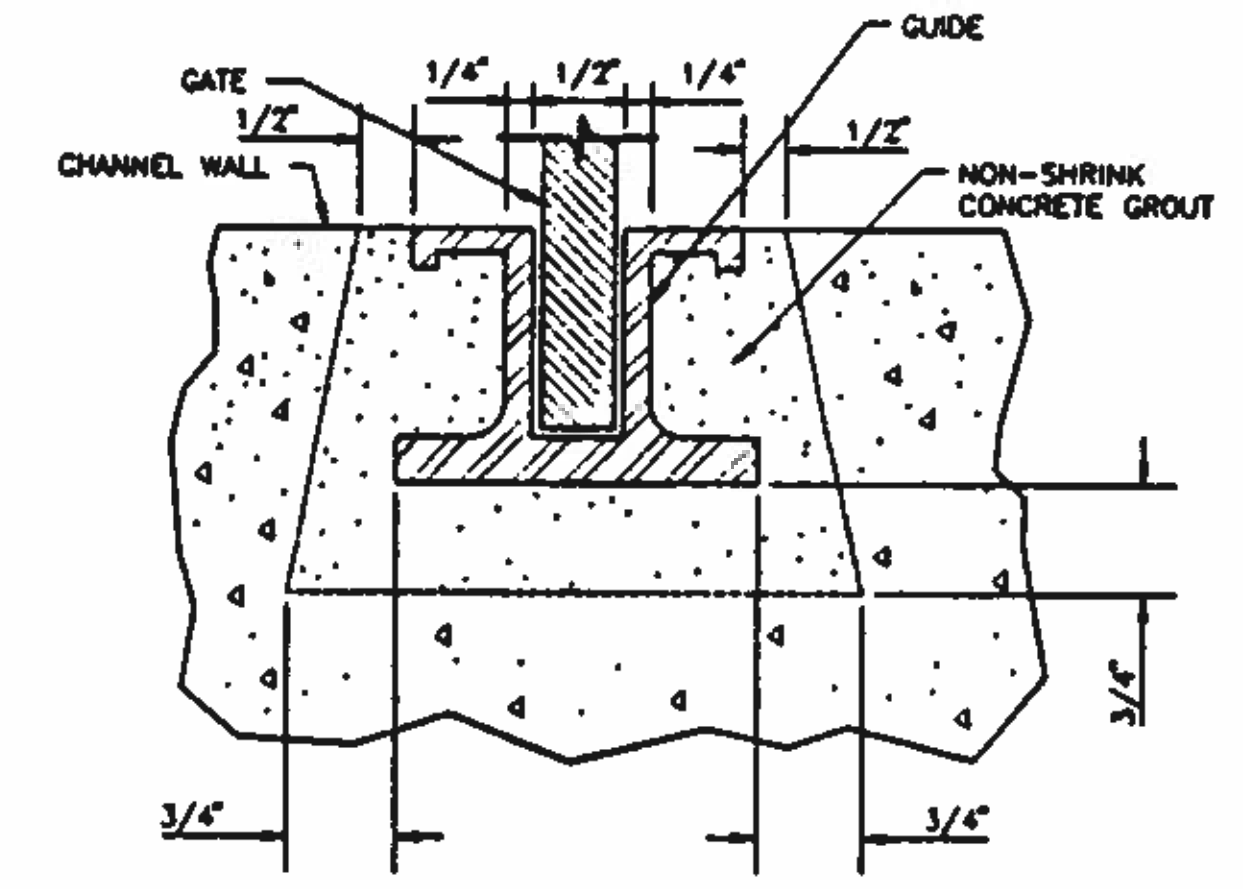


PLATE SLIDE GATE
 DETAIL (G) TYP
 SCALE: NO SCALE



SECTION (I) M7
 SCALE: NO SCALE

BC Brown and Caldwell Consultants
 Phoenix, Arizona
 SUBMITTED: *[Signature]* DATE: 11/22/92
 APPROVED: *[Signature]* DATE: 11/22/92
 APPROVED: *[Signature]* DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2\"/>

FILE	5870
DRAWN	PMG
DESIGNED	GLG
CHECKED	GLG
CHECKED	RL



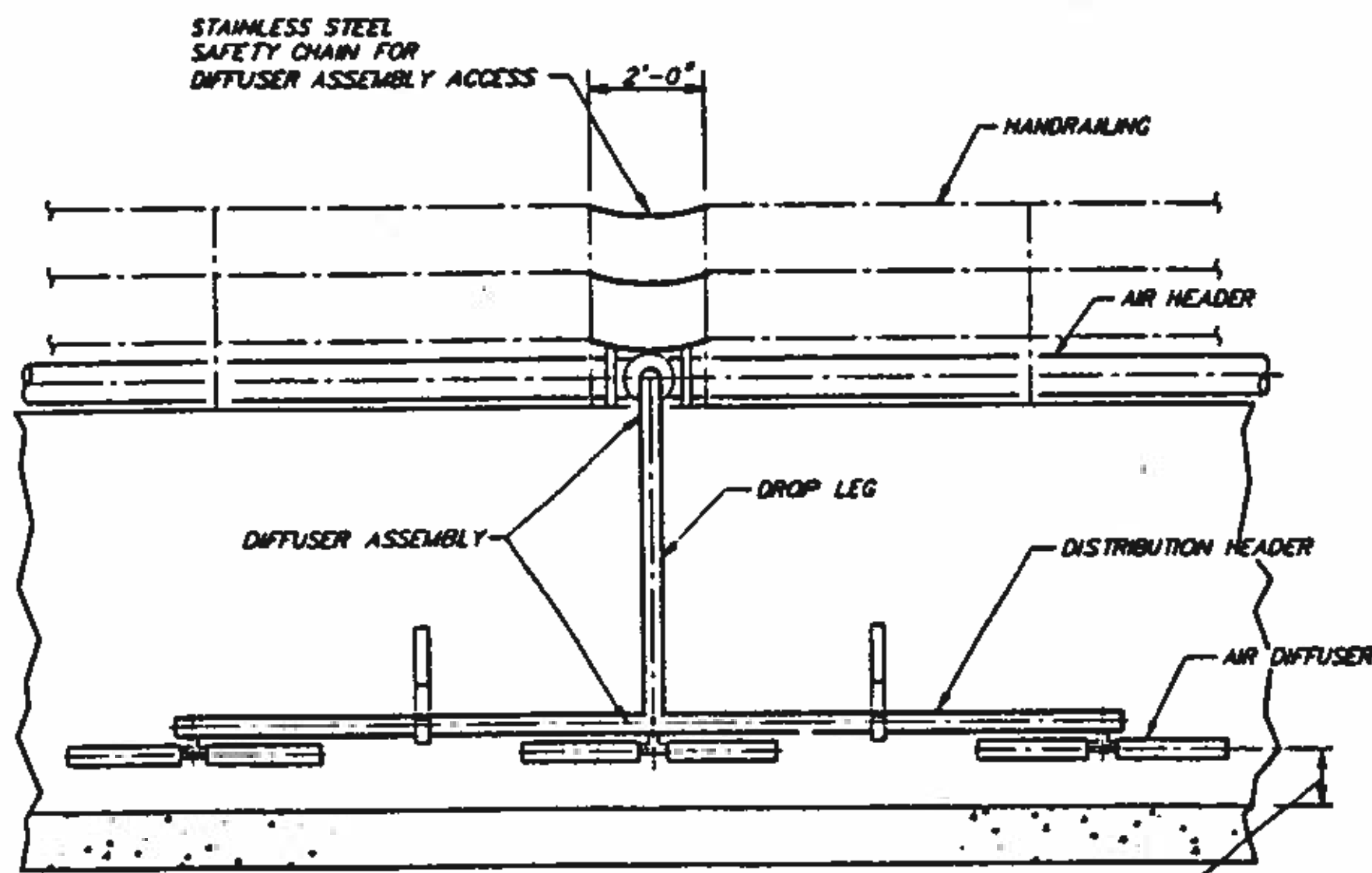
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS DETAILS - 2

PROJECT NUMBER
 DRAWING NUMBER
M7
 SHEET NUMBER
 218



FRONT VIEW

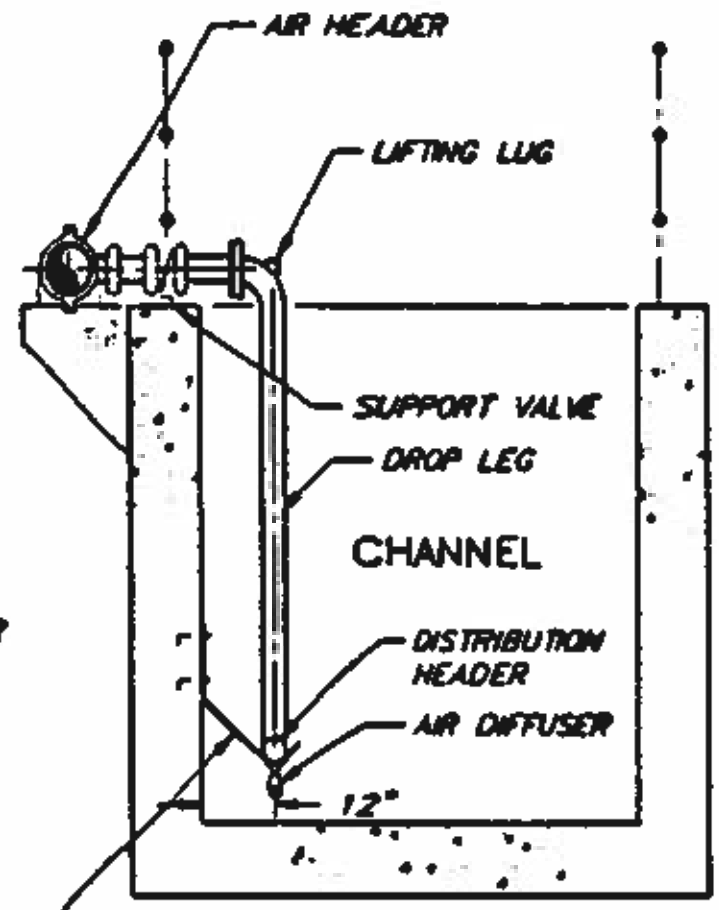
VERIFY WITH DIFFUSER MANUFACTURER

DIFFUSER SUPPORT AND ANCHORING PER MANUFACTURER'S RECOMMENDATION

TYPE H1 REMOVABLE AIR HEADER

DETAIL **H**
TYP

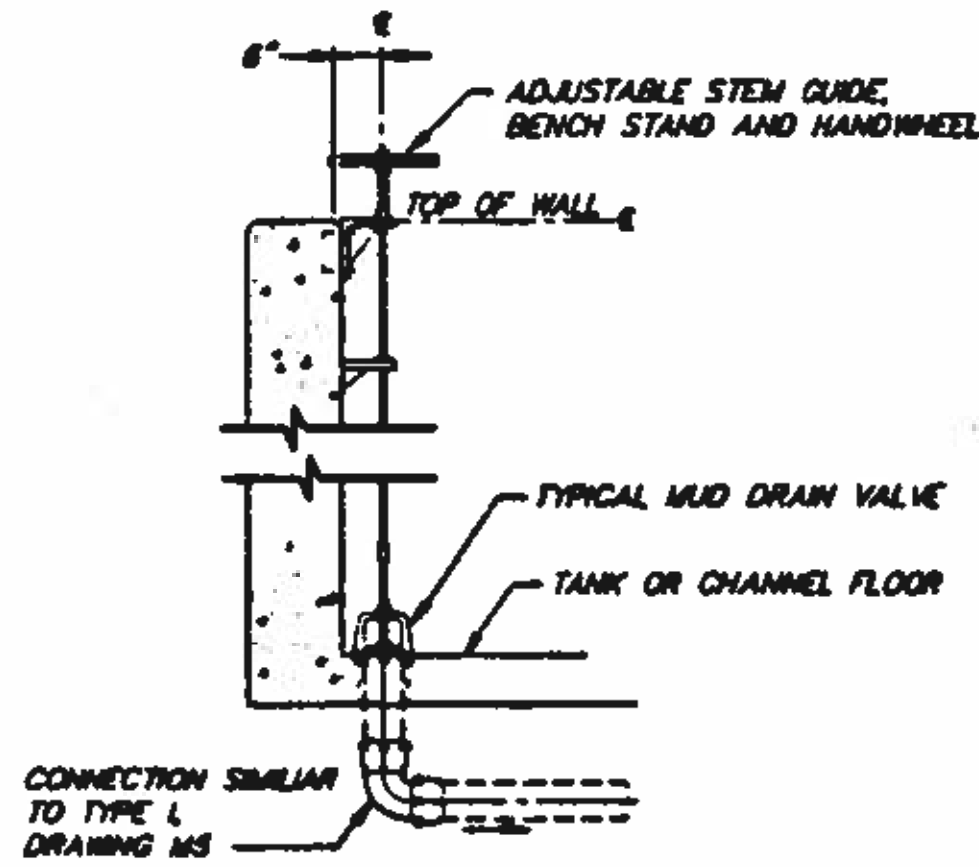
SCALE: NONE



TYPICAL SIDE VIEW

NOTE: THIS VIEW TYPICAL FOR CHANNEL DIFFUSER ASSEMBLIES

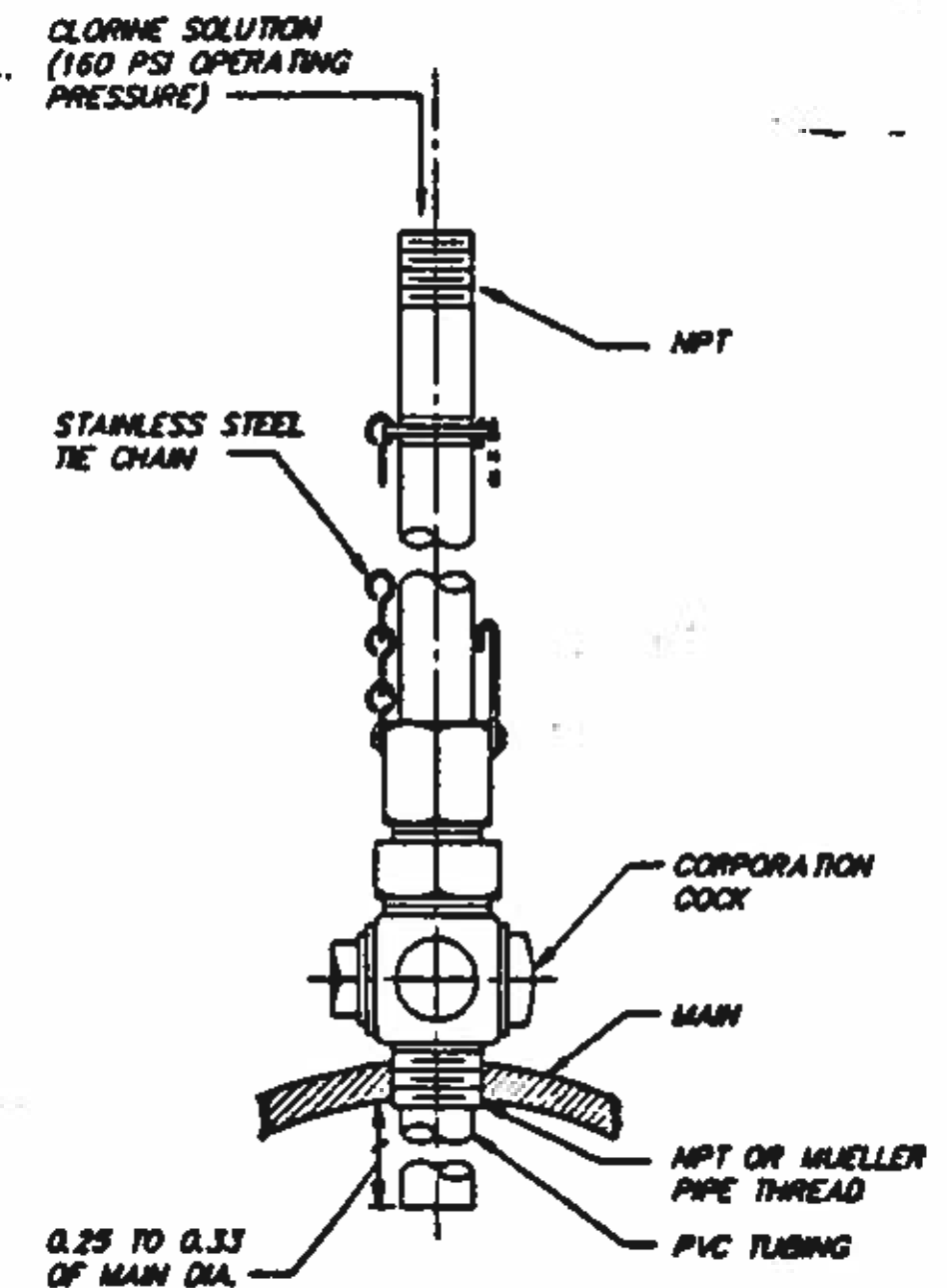
THE CONCRETE CANTILEVER PIPE SUPPORT FOR THE AIR HEADER SHALL BE SIMILAR TO SECTION 6/310, EXCEPT THE CONCRETE CANTILEVER SHALL BE FLAT ON TOP AND THE LENGTH OF THE CANTILEVER FROM THE FACE OF THE WALL SHALL BE 1'-6". SPACING OF THE PIPE SUPPORTS SHALL BE IN ACCORDANCE WITH TABLE A/41. THE AIR HEADER SHALL BE ATTACHED TO THE PIPE SUPPORT USING A TYPE 11 PIPE HANGER.



TYPICAL MUD VALVE TANK DRAIN

DETAIL **J**
TYP

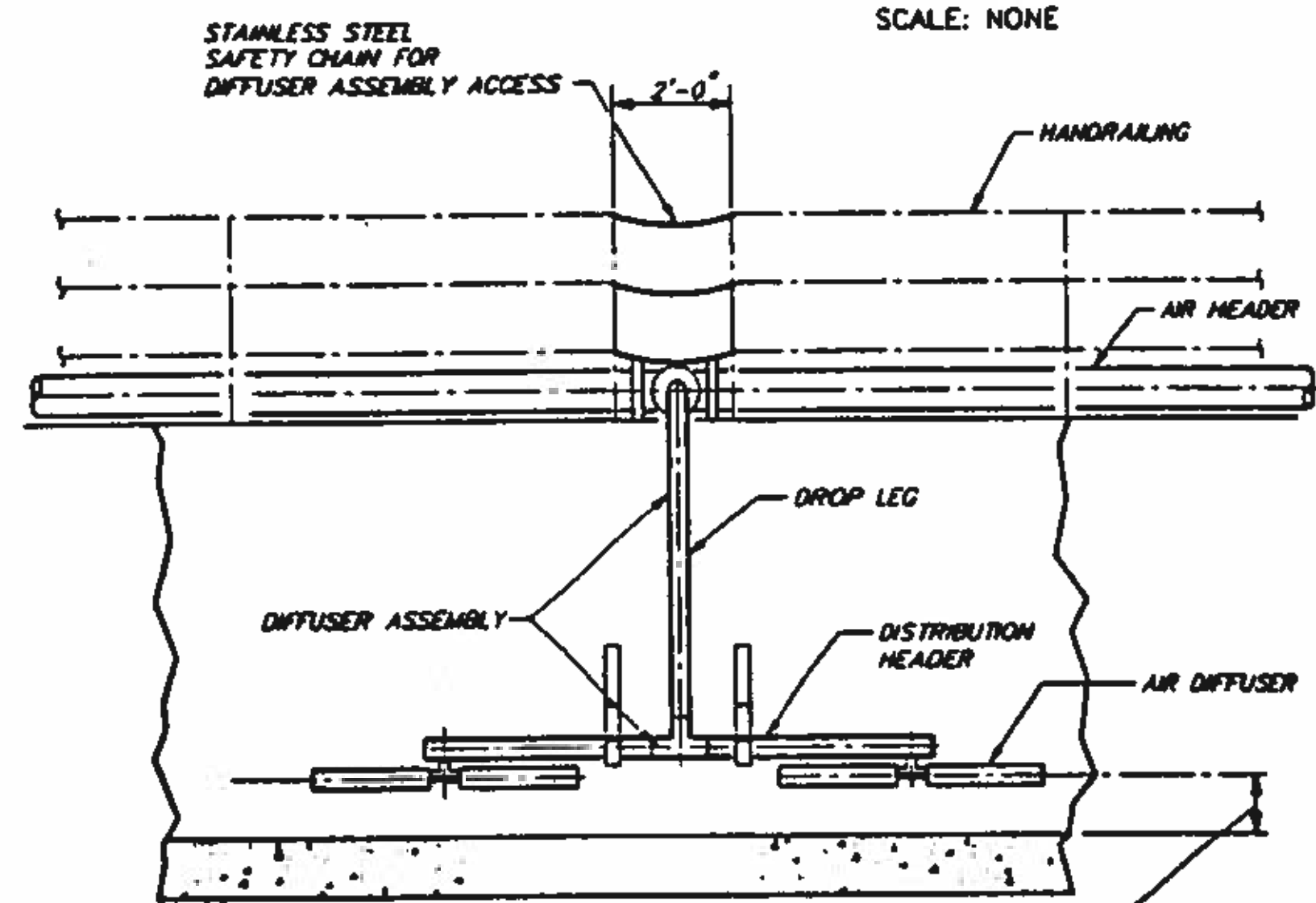
SCALE: 3/8" = 1'-0"



PIPELINE DIFFUSER ASSEMBLY

DETAIL **K**
TYP

SCALE: NONE



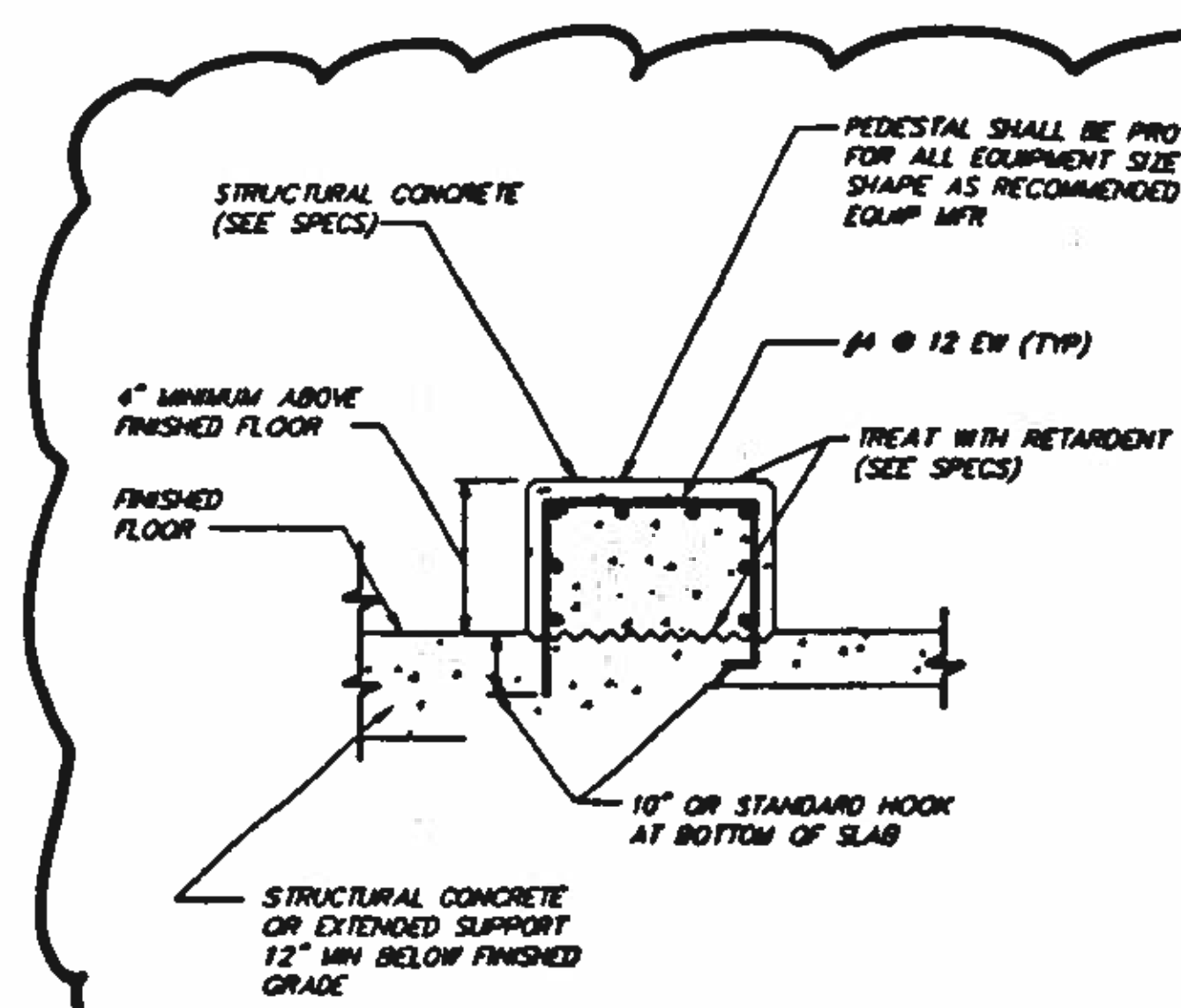
FRONT VIEW

TYPE H2 REMOVABLE AIR HEADER

DETAIL **L**
TYP

SCALE: NONE

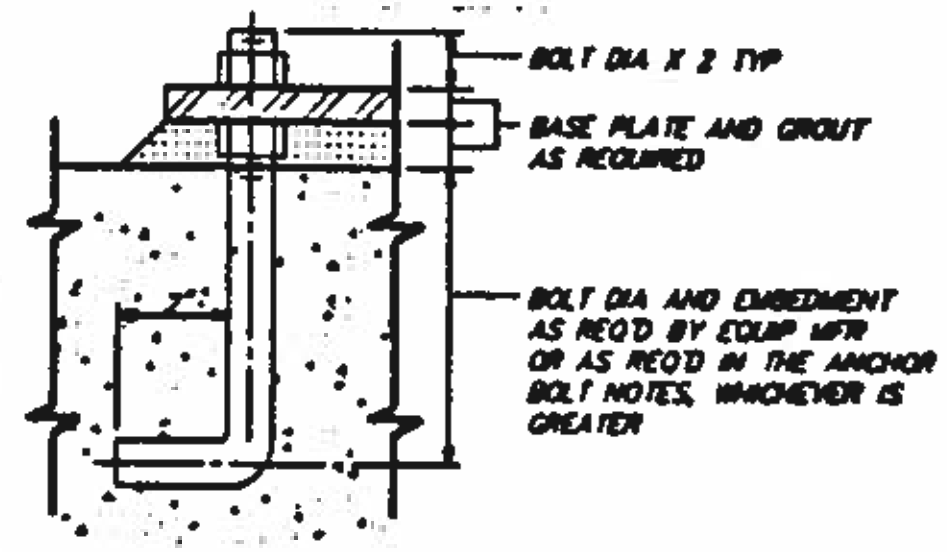
NOTE: CONTRACTOR SHALL SPACE HANDRAIL SO THERE IS A 2 FOOT OPENING CENTERED ON ALL DROP LEGS AND INSTALLATION SO THE THE HANDRAILS DO NOT INTERFERE WITH PIPING DROPS AND VALVING.



EQUIPMENT SUPPORT

DETAIL **M**
TYP

SCALE: NONE

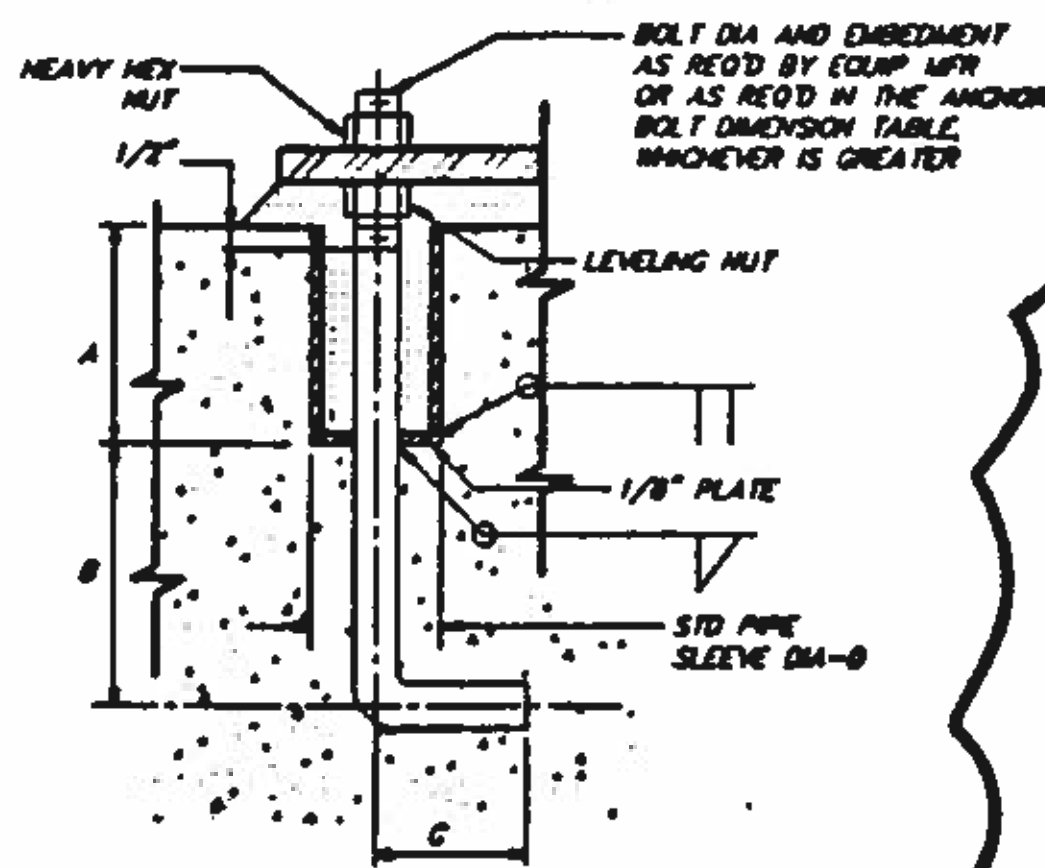


ANCHOR BOLT FOR EQUIPMENT MTD ON COMMON BASE

ANCHOR BOLT NOTES:

USE OF ANCHOR BOLTS SHALL BE GOVERNED BY THE FOLLOWING TABLE:

BOLT DIA	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"
MIN EMBED	6"	6"	5"	6"	7"	8"	8"
ALLOW SHEAR	1000#	1500#	1750#	2075#	2075#	2250#	2850#



ANCHOR BOLT OPTION FOR LARGE EQUIPMENT

BOLT DIA	ANCHOR BOLT DIMENSIONS			
	A	B	C	D
3/4"	6"	6"	6"	5"
7/8"	6"	6"	6"	5"
1"	6"	6"	6"	5"
1 1/8"	6"	10"	6"	6"
1 1/4"	6"	12"	6"	6"
1 1/2"	10"	14"	6"	6"

DETAIL **N**
TYP

SCALE: NONE

BC Brown and Caldwell Consultants
Phoenix, Arizona

PROJECT NUMBER: *11-20-02*
DATE: *11/20/02*

APPROVED: *[Signature]*
DATE: *11/20/02*

APPROVED: *[Signature]*
DATE: *11/20/02*

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
DRAWN: RDM
DESIGNED: *[Signature]*
CHECKED: *[Signature]*
CHECKED: *[Signature]*



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE
M/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	6/93



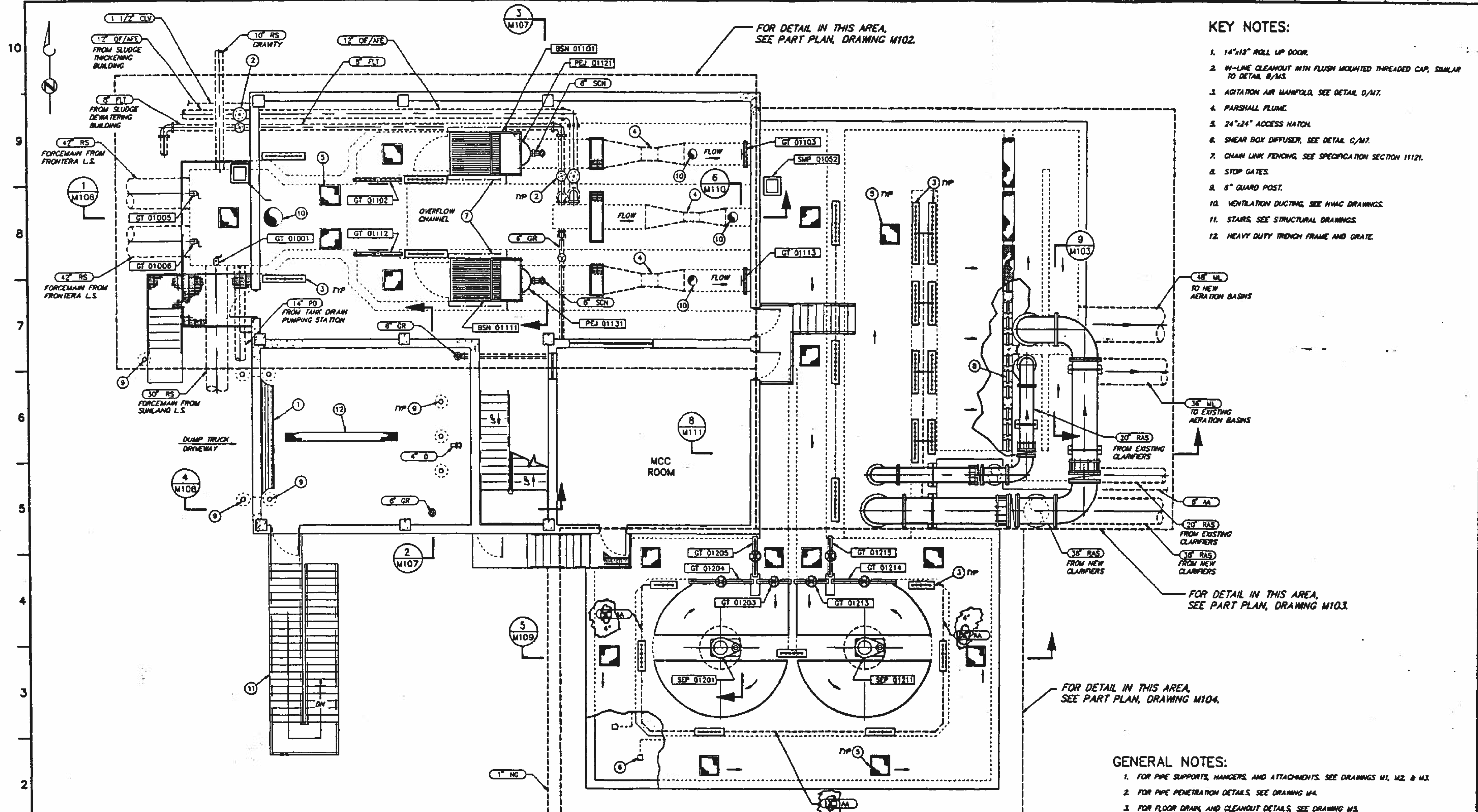
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

MISCELLANEOUS DETAILS - 3

PROJECT NUMBER: *11-20-02*

DRAWING NUMBER: **M8**

SHEET NUMBER: 210



- KEY NOTES:**
1. 14"x18" ROLL UP DOOR.
 2. IN-LINE CLEANOUT WITH FLUSH MOUNTED THREADED CAP, SIMILAR TO DETAIL B/M5.
 3. AGITATION AIR MANIFOLD, SEE DETAIL D/M7.
 4. PARSHALL FLUME.
 5. 24"x24" ACCESS HATCH.
 6. SHEAR BOX DIFFUSER, SEE DETAIL C/M7.
 7. CHAIN LINK FENCING, SEE SPECIFICATION SECTION 11121.
 8. STOP GATES.
 9. 6" GUARD POST.
 10. VENTILATION DUCTING, SEE HVAC DRAWINGS.
 11. STAIRS, SEE STRUCTURAL DRAWINGS.
 12. HEAVY DUTY TRENCH FRAME AND GRATE.

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

- GENERAL NOTES:**
1. FOR PIPE SUPPORTS, HANGERS, AND ATTACHMENTS, SEE DRAWINGS M1, M2, & M3.
 2. FOR PIPE PENETRATION DETAILS, SEE DRAWING M4.
 3. FOR FLOOR DRAIN AND CLEANOUT DETAILS, SEE DRAWING M5.
 4. ALL 2" PIPING ENCASED IN CONCRETE SLAB SHALL BE STAINLESS TUBING WITH A MINIMUM OF 3" OF CONCRETE AROUND ENTIRE PIPE.

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
DRAWN: JA
DESIGNED: JW
CHECKED: GLG & JW
CHECKED: *[Signature]*



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	SK

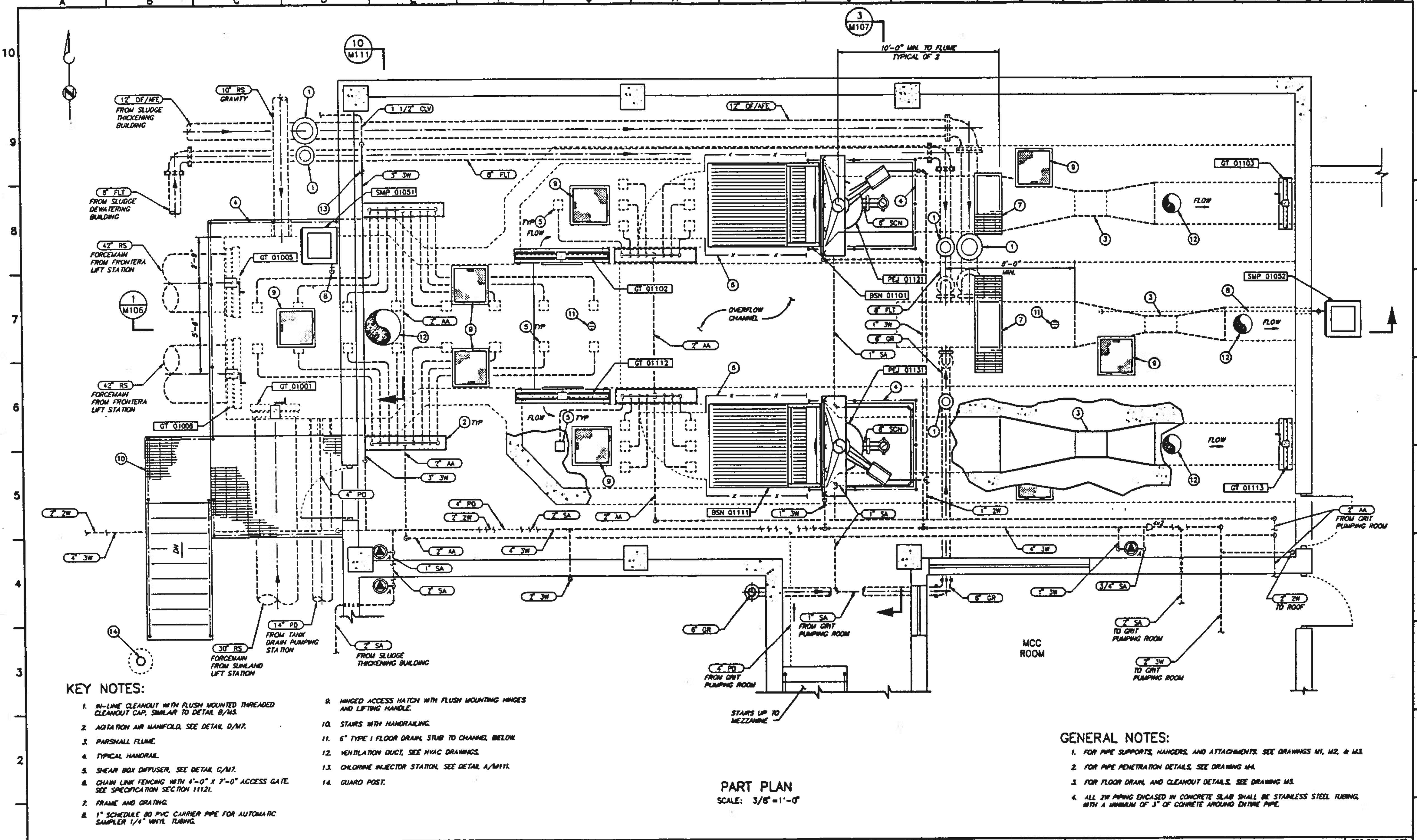
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

FIRST FLOOR PLAN

PROJECT NUMBER: _____
DRAWING NUMBER: **M101**
SHEET NUMBER: 220



KEY NOTES:

1. IN-LINE CLEANOUT WITH FLUSH MOUNTED THREADED CLEANOUT CAP, SIMILAR TO DETAIL B/M5.
2. AGITATION AIR MANFOLD, SEE DETAIL D/M7.
3. PARSHALL FLUME.
4. TYPICAL HANDRAIL.
5. SHEAR BOX DIFFUSER, SEE DETAIL C/M7.
6. CHAIN LINK FENCING WITH 4'-0" X 7'-0" ACCESS GATE. SEE SPECIFICATION SECTION 11121.
7. FRAME AND GRATING.
8. 1" SCHEDULE 80 PVC CARRIER PIPE FOR AUTOMATIC SAMPLER 1/4" VINYL TUBING.
9. HINGED ACCESS HATCH WITH FLUSH MOUNTING HINGES AND LIFTING HANDLE.
10. STAIRS WITH HANDRAILING.
11. 6" TYPE I FLOOR DRAIN STUB TO CHANNEL BELOW.
12. VENTILATION DUCT, SEE HVAC DRAWINGS.
13. CHLORINE INJECTOR STATION, SEE DETAIL A/M111.
14. GUARD POST.

GENERAL NOTES:

1. FOR PIPE SUPPORTS, HANGERS, AND ATTACHMENTS, SEE DRAWINGS M1, M2, & M3.
2. FOR PIPE PENETRATION DETAILS, SEE DRAWING MA.
3. FOR FLOOR DRAIN AND CLEANOUT DETAILS, SEE DRAWING M3.
4. ALL 2W PIPING ENCASED IN CONCRETE SLAB SHALL BE STAINLESS STEEL TUBING WITH A MINIMUM OF 3" OF CONCRETE AROUND ENTIRE PIPE.

PART PLAN
SCALE: 3/8" = 1'-0"

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/24/92
 APPROVED: *[Signature]* DATE: 12/30/92
 APPROVED: *[Signature]* DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE	5870
DRAWN	DRH
DESIGNED	JW
CHECKED	GLG
CHECKED	DA



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



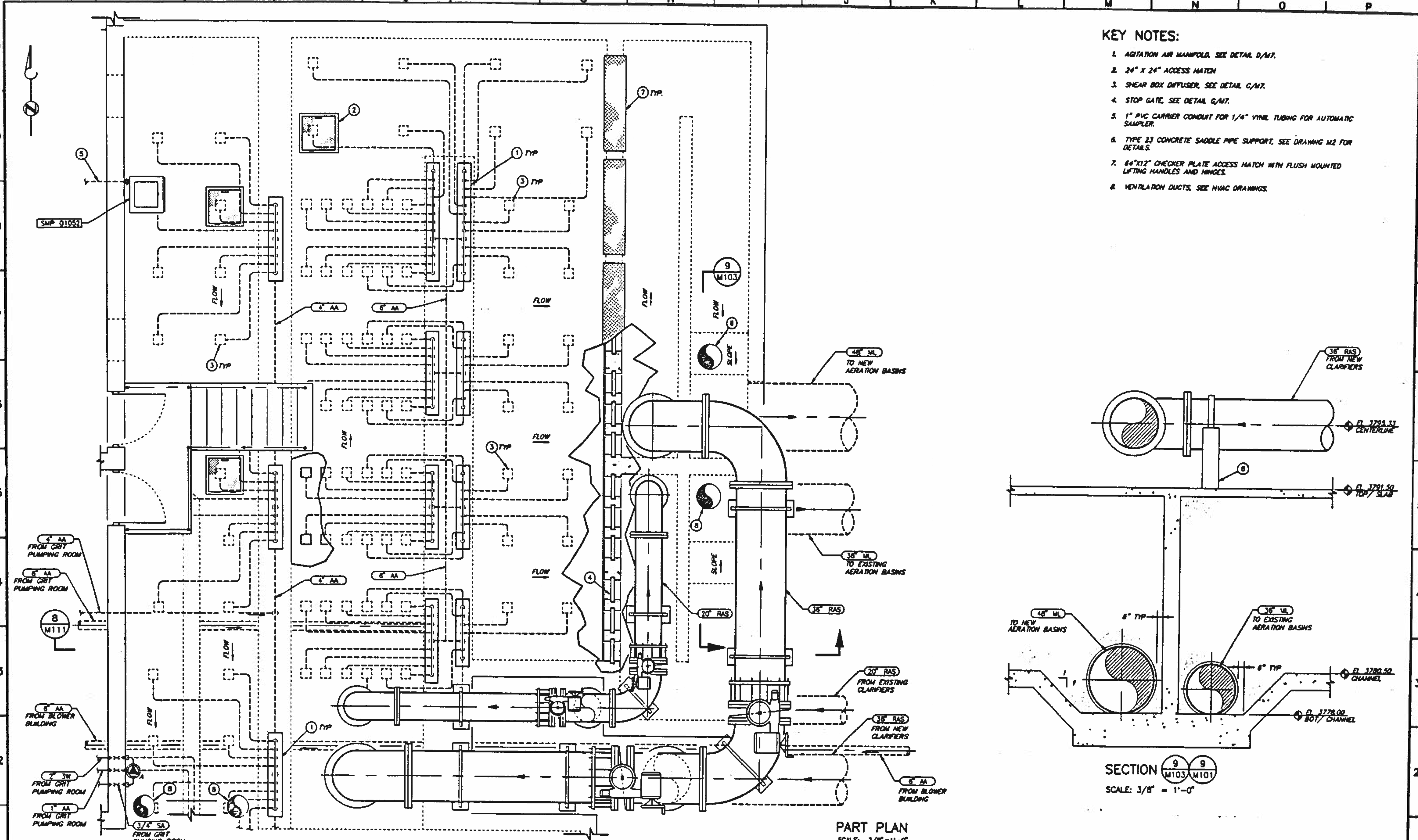
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS BAR SCREEN AREA PART PLAN

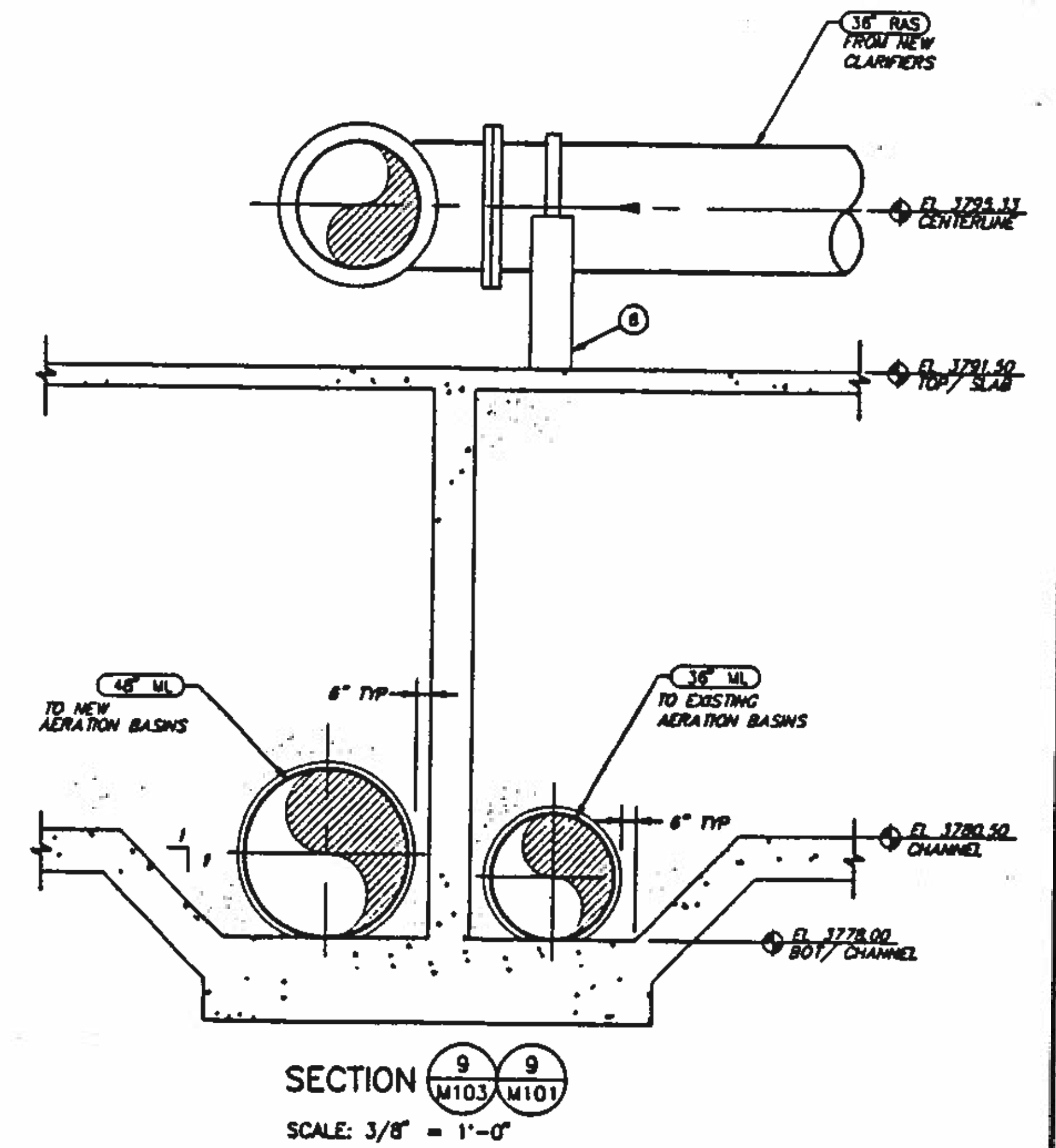
PROJECT NUMBER	
DRAWING NUMBER	M102
SHEET NUMBER	221

KEY NOTES:

1. AGITATION AIR MANIFOLD, SEE DETAIL D/M7.
2. 24" X 24" ACCESS HATCH
3. SHEAR BOX DIFFUSER, SEE DETAIL C/M7.
4. STOP GATE, SEE DETAIL G/M7.
5. 1" PVC CARRIER CONDUIT FOR 1/4" VINYL TUBING FOR AUTOMATIC SAMPLER.
6. TYPE 23 CONCRETE SADDLE PIPE SUPPORT, SEE DRAWING M2 FOR DETAILS.
7. 84" X 12" CHECKER PLATE ACCESS MATCH WITH FLUSH MOUNTED LIFTING HANDLES AND HINGES.
8. VENTILATION DUCTS, SEE HVAC DRAWINGS.



PART PLAN
SCALE: 3/8" = 1'-0"



SECTION 9 9
M103 M101
SCALE: 3/8" = 1'-0"

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/72
APPROVED: *[Signature]* DATE: 11/20/72
APPROVED: _____ DATE: _____

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)

FILE 5870
DRAWN JA & DRH
DESIGNED JW
CHECKED GJG
CHECKED DA



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



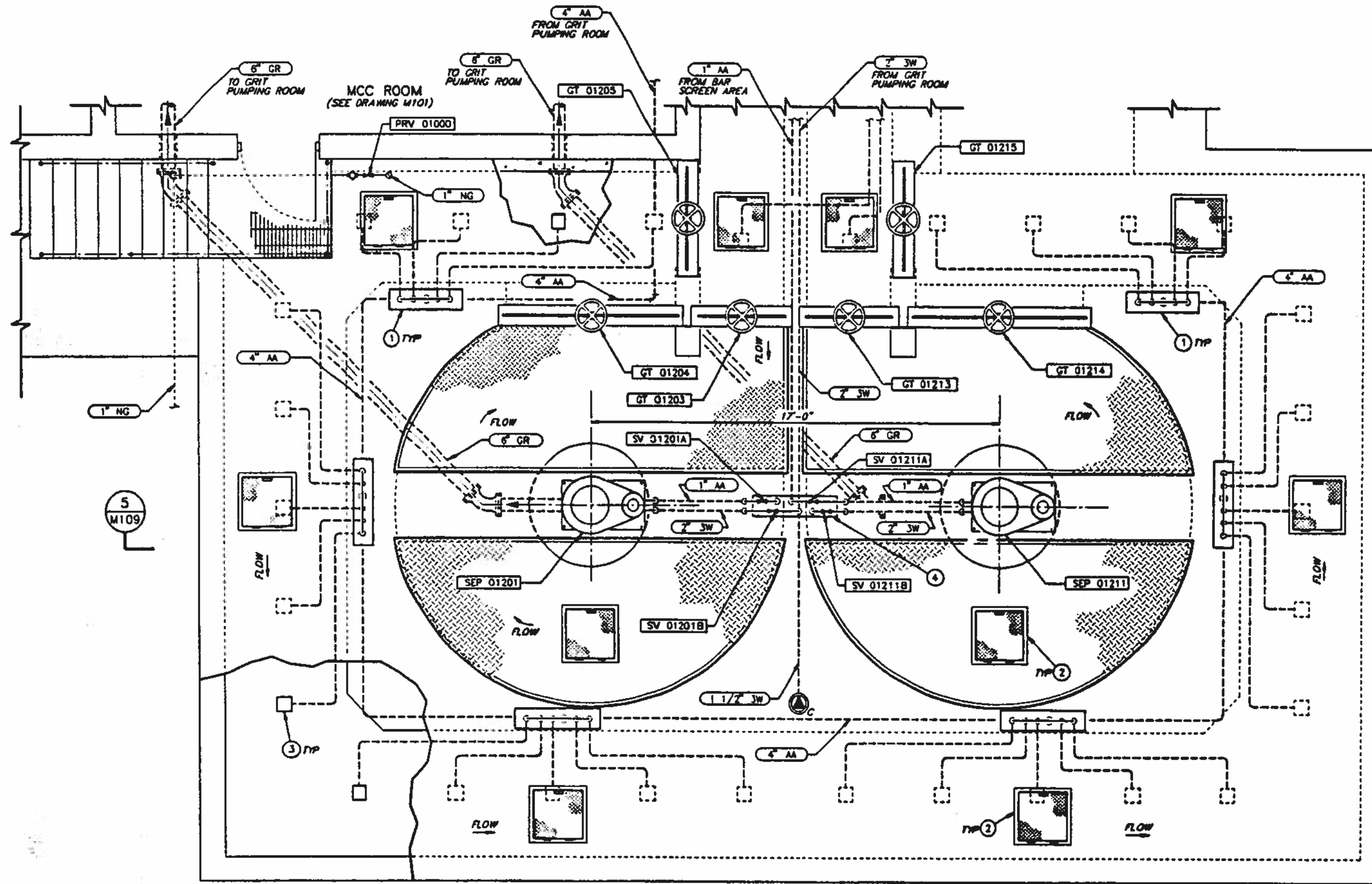
**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

**HEADWORKS
DISTRIBUTION AREA
PART PLAN AND SECTION**

PROJECT NUMBER	
DRAWING NUMBER	M103
SHEET NUMBER	222

KEY NOTES:

1. AGITATION AIR MANIFOLD, SEE DETAIL D/M7.
2. 24"x24" HINGED ACCESS HATCH WITH FLUSH MOUNTED LIFTING HANDLE AND HINGES.
3. SHEAR BOX DIFFUSER (TYP.) SEE DETAIL C/M7.
4. SUPPORT RACK AND PIPING SIMILAR TO DETAIL D/M7 EACH LINE SHALL HAVE A GLOBE VALVE MOUNTED IN THE VERTICAL FOR ISOLATION AND THROTTLING.



PART PLAN
SCALE: 3/8" = 1'-0"

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Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: 11/20/92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
DRAWN: JA & DRH
DESIGNED: JW
CHECKED: *[Signature]*
CHECKED: *[Signature]*



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



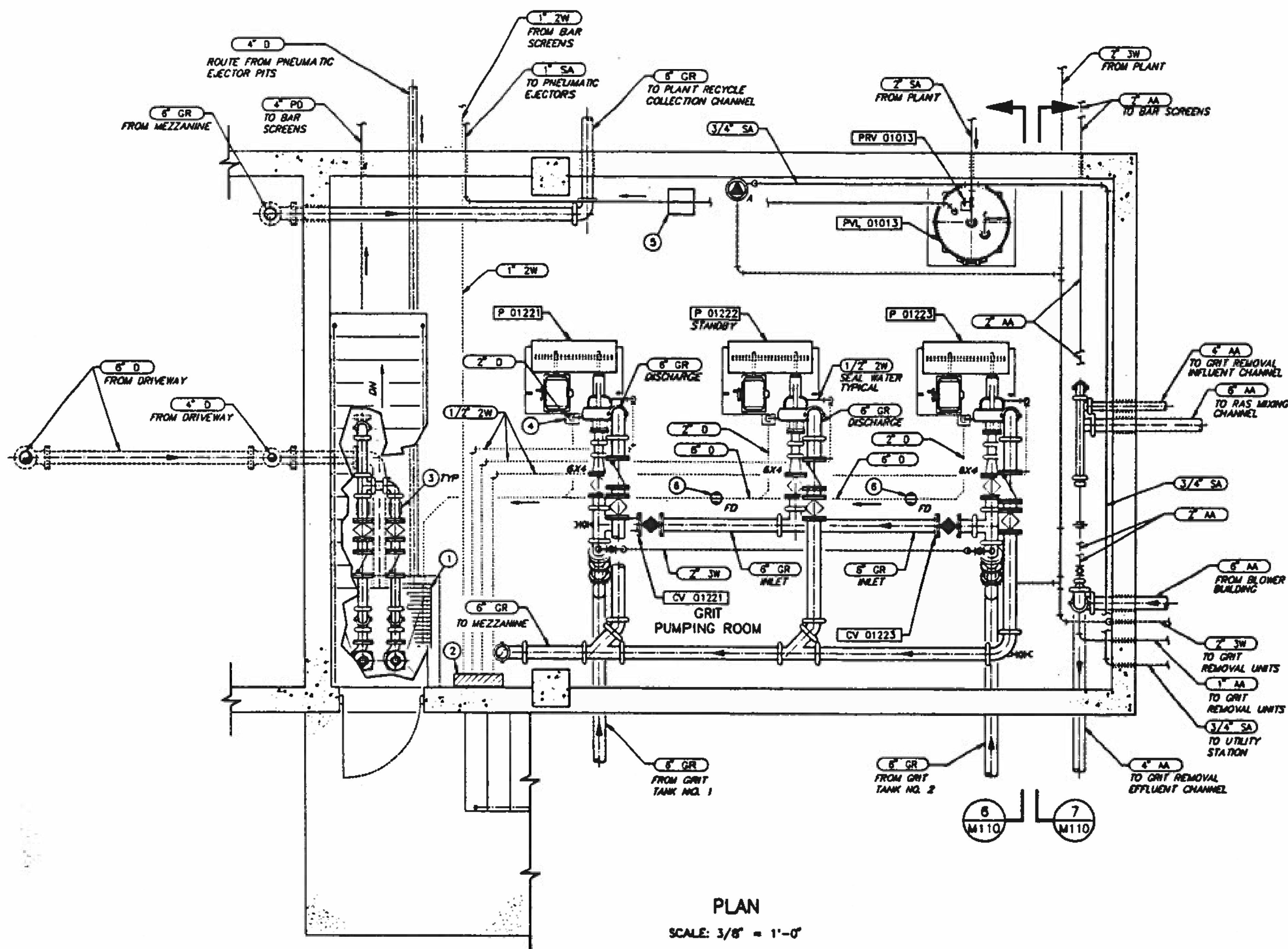
**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

**HEADWORKS
GRIT REMOVAL
PART PLAN**

PROJECT NUMBER
DRAWING NUMBER
M104
SHEET NUMBER
223

KEY NOTES:

1. 4'-0" X 4'-0" X 4'-0" DEEP SUMP WITH ALUMINUM FRAME AND GRATING.
2. SEAL WATER PURGE CONTROL UNIT, SEE DETAIL G/M6.
3. TYPE 23 PIPE SADDLE.
4. 2" TYPE I EQUIPMENT DRAIN, TYPICAL EACH PUMP.
5. AIR DRYER.
6. TYPE II FLOOR DRAIN.



PLAN
SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. FOR PIPE SUPPORTS, HANGERS, AND ATTACHMENTS, SEE DRAWINGS M1, M2, & M3.
2. FOR PIPE PENETRATION DETAILS, SEE DRAWING M4.
3. FOR FLOOR DRAIN, AND CLEANOUT DETAILS, SEE DRAWING M5.
4. ALL 2W PIPING ENCASED IN CONCRETE SLAB SHALL BE STAINLESS TUBING, WITH A MINIMUM OF 3" OF CONCRETE AROUND ENTIRE PIPE.

5. A SPHERICAL MOLDED EXPANSION JOINT OR TWO FLANGED COUPLING ADAPTERS MAY BE PROVIDED IN LIEU OF TWO GROOVED END COUPLINGS AT EACH PUMP CONNECTION. PROVIDE ADEQUATE PIPE RESTRAINT.

BC Brown and Caldwell Consultants
Phoenix, Arizona

FILE: 5870
DRAWN: DRH
DESIGNED: JW
CHECKED: GJB
APPROVED: DA

DATE: 11-1-92
DATE: 11-10-92

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
K/B	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/83	SK



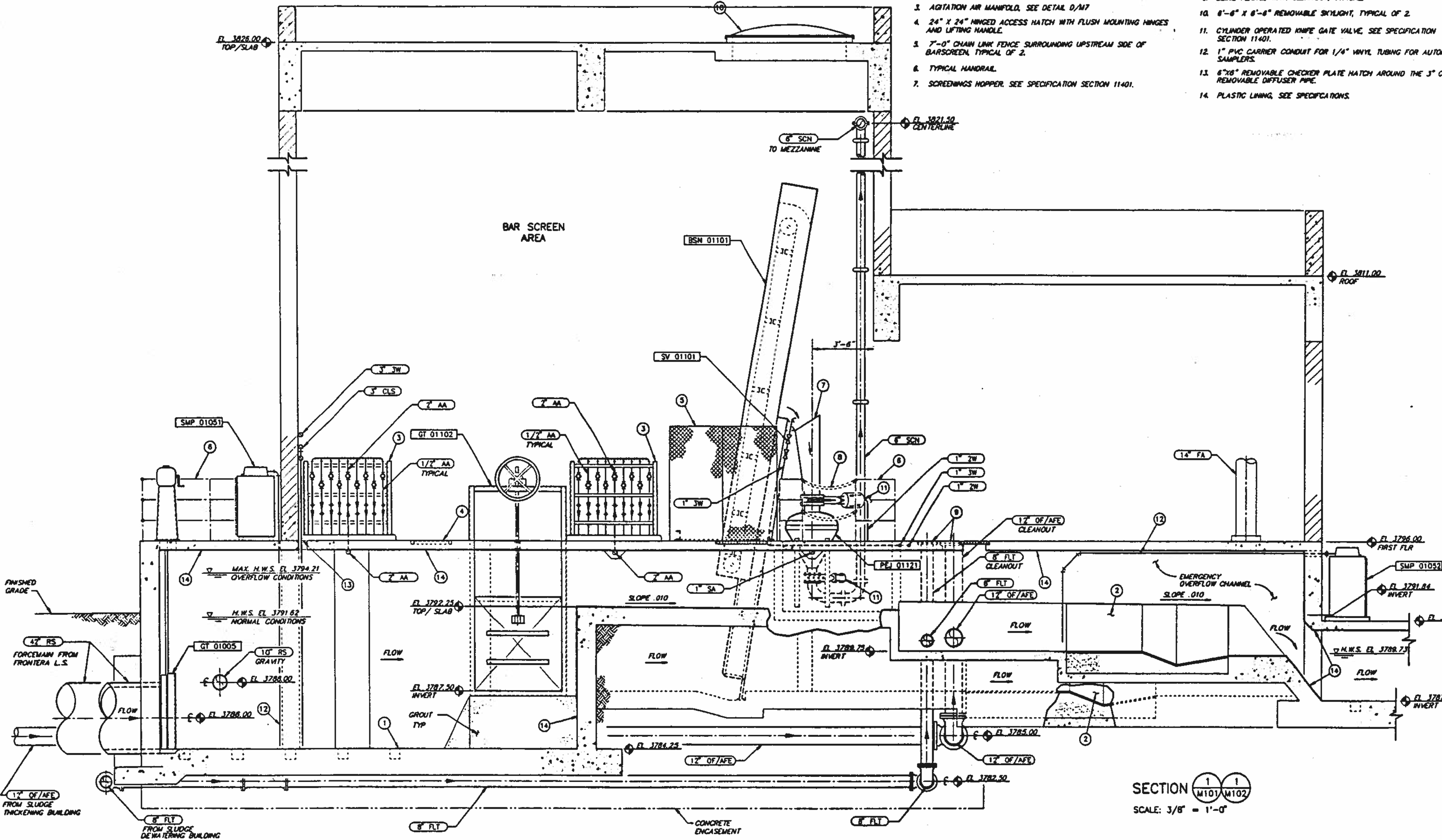
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS GRIT PUMPING ROOM PART PLAN

PROJECT NUMBER	
DRAWING NUMBER	M105
SHEET NUMBER	234

KEY NOTES:

1. SHEAR BOX DIFFUSER, SEE DETAIL C/M7.
2. PARSHALL FLUME.
3. AGITATION AIR MANIFOLD, SEE DETAIL D/M7.
4. 24" X 24" WINGED ACCESS HATCH WITH FLUSH MOUNTING HINGES AND LIFTING HANDLE.
5. 7'-0" CHAIN LINK FENCE SURROUNDING UPSTREAM SIDE OF BARSCREEN, TYPICAL OF 2.
6. TYPICAL HANDRAIL.
7. SCREENINGS HOPPER, SEE SPECIFICATION SECTION 11401.
8. SAFETY CHAIN WITH SWIVEL HOOKS.
9. BLIND FLANGE WITH CLEANOUT, TYPICAL.
10. 6'-6" X 6'-6" REMOVABLE SKYLIGHT, TYPICAL OF 2.
11. CYLINDER OPERATED KNIFE GATE VALVE, SEE SPECIFICATION SECTION 11401.
12. 1" PVC CARRIER CONDUIT FOR 1/4" VINYL TUBING FOR AUTOMATIC SAMPLERS.
13. 6"x6" REMOVABLE CHECKER PLATE HATCH AROUND THE 3" CLS REMOVABLE DIFFUSER PIPE.
14. PLASTIC LINING, SEE SPECIFICATIONS.



SECTION 1 1
M101 M102
SCALE: 3/8" = 1'-0"

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Phoenix, Arizona

SUBMITTED: [Signature] DATE: 11/21/12
APPROVED: [Signature] DATE: 12/11/12
APPROVED: [Signature] DATE: []

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
DRAWN: DRH
DESIGNED: JW
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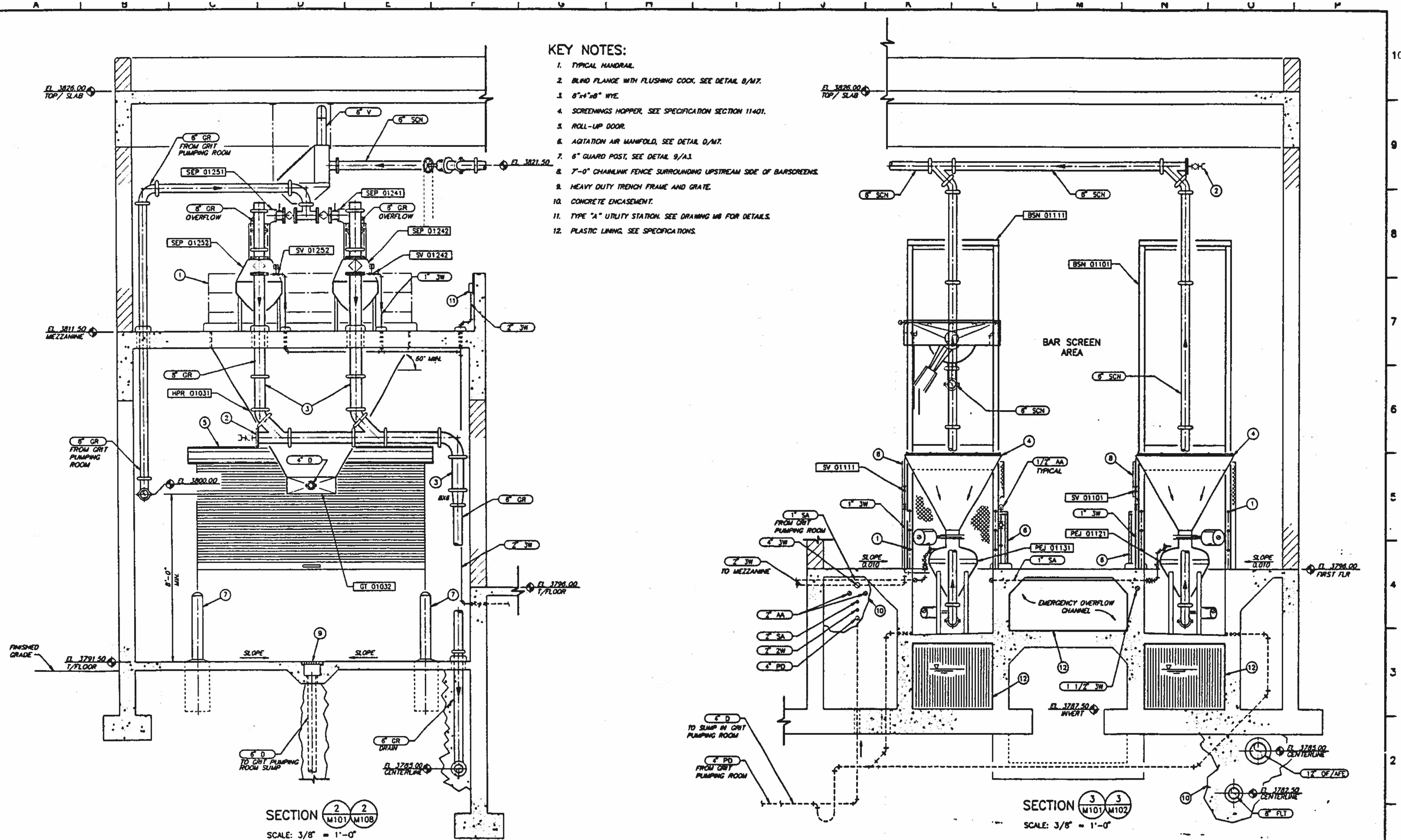
REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS SECTION

PROJECT NUMBER	
DRAWING NUMBER	M106
SHEET NUMBER	228



KEY NOTES:

1. TYPICAL HANDRAIL.
2. BLIND FLANGE WITH FLUSHING COCK, SEE DETAIL 8/M7.
3. 8"-4"x8" WYE.
4. SCREENINGS HOPPER, SEE SPECIFICATION SECTION 11401.
5. ROLL-UP DOOR.
6. AGITATION AIR MANIFOLD, SEE DETAIL 0/M7.
7. 6" GUARD POST, SEE DETAIL 9/A3.
8. 7'-0" CHAINLINK FENCE SURROUNDING UPSTREAM SIDE OF BARSCREENS.
9. HEAVY DUTY TRENCH FRAME AND GRATE.
10. CONCRETE ENCASMENT.
11. TYPE "A" UTILITY STATION. SEE DRAWING M8 FOR DETAILS.
12. PLASTIC LINING. SEE SPECIFICATIONS.

SECTION **2-2**
 M101 M108
 SCALE: 3/8" = 1'-0"

SECTION **3-3**
 M101 M102
 SCALE: 3/8" = 1'-0"

BC Brown and Caldwell
 Consultants
 Phoenix, Arizona

LINE IS 2 INCHES
 AT FULL SIZE
 (IF NOT 2" - SCALE ACCORDINGLY)

FILE: 5870
 DRAWN: DRH/KCG
 DESIGNED: JW
 CHECKED: GJK
 CHECKED: Dd



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

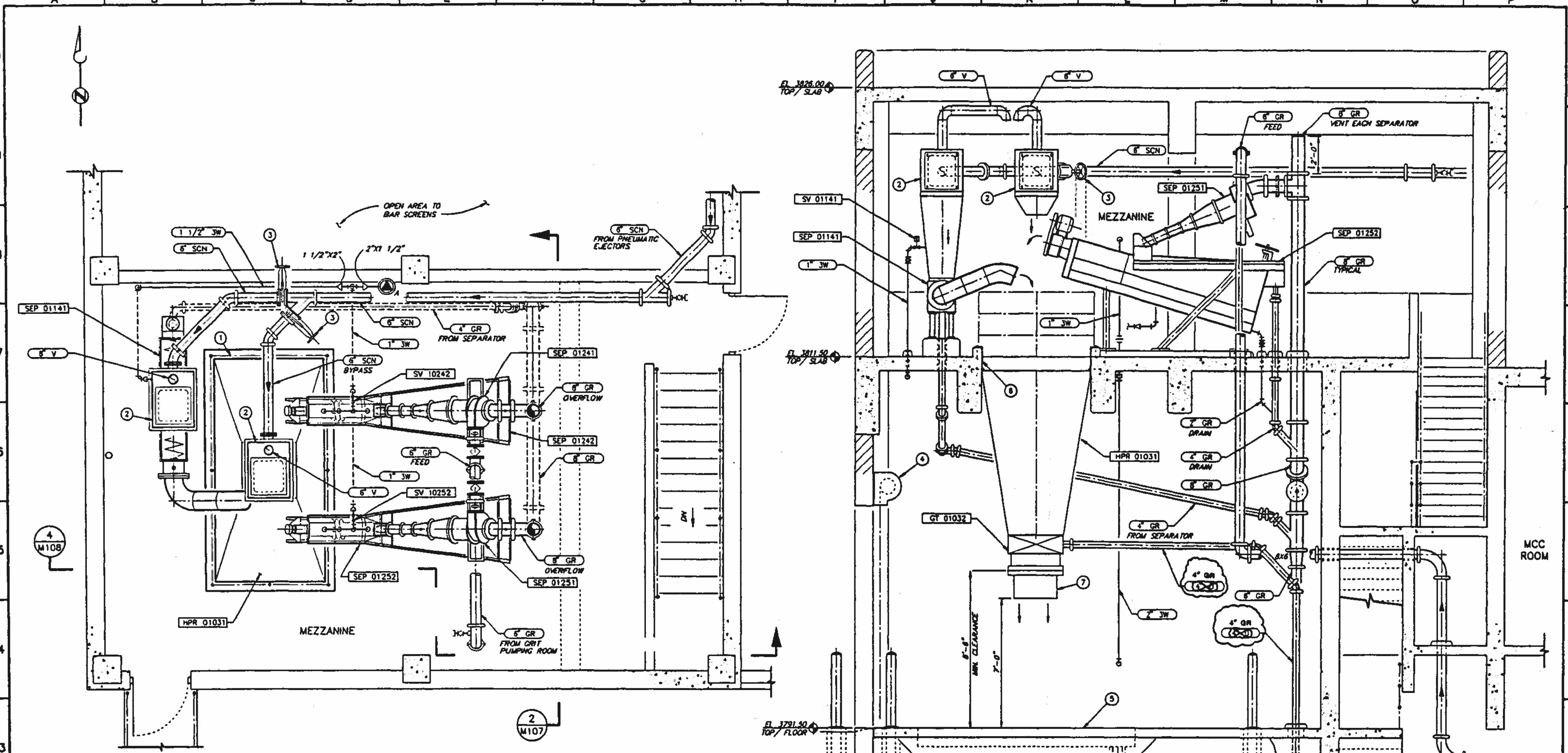


**NORTHWEST WASTEWATER
 TREATMENT PLANT
 EXPANSION**

**HEADWORKS
 SECTION**

PROJECT NUMBER
 DRAWING NUMBER
M107
 SHEET NUMBER
 228

SUBMITTED: [Signature] DATE: 1/24/12
 APPROVED: [Signature] DATE: 1/24/12
 APPROVED: [Signature] DATE: []



PART PLAN
SCALE: 3/8" = 1'-0"

KEY NOTES:

1. MANUAL.
2. ENERGY DISSIPATION STRUCTURE, SEE SPECIFICATION SECTION 11401.
3. KNIFE GATE VALVE WITH CHAIN OPERATOR.
4. ROLL UP DOOR.
5. HEAVY DUTY TRENCH FRAME AND GRATE.
6. ANCHOR AND SUPPORT PER HOPPER MANUFACTURER'S RECOMMENDATION.
7. FLEXIBLE BOOT.

SECTION 4/4
M108/M101
SCALE: 3/8" = 1'-0"

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/24/92
APPROVED: *[Signature]* DATE: 12/10/92
APPROVED: *[Signature]* DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

FILE	5870
DRAWN	DRH
DESIGNED	JW
CHECKED	DLG
CHECKED	DA



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	BR



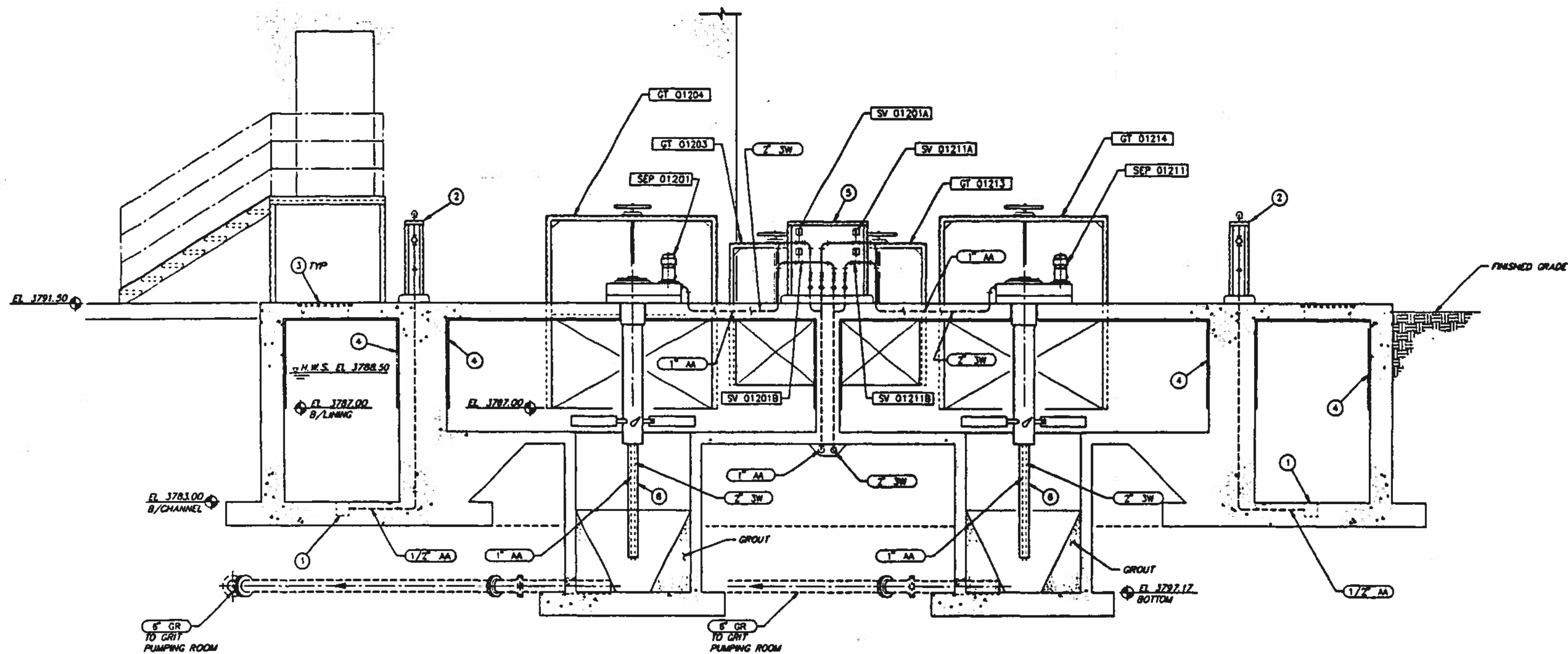
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

**HEADWORKS
MEZZANINE
PART PLAN AND SECTION**

PROJECT NUMBER	
DRAWING NUMBER	M108
SHEET NUMBER	227

KEY NOTES:

1. SHEAR BOX DIFFUSER, SEE DETAIL C/M7.
2. AGITATION AIR MANIFOLD, SEE DETAIL D/M7
3. 24" x 24" HINGED ACCESS HATCH WITH LIFTING HANDLE.
4. PLASTIC LINING, SEE SPECIFICATIONS.
5. SUPPORT RACK AND PIPING SIMILAR TO DETAIL D/M7. EACH LINE SHALL HAVE A GLOBE VALVE MOUNTED IN THE VERTICAL.
6. 4" DIAMETER CONDUIT ENCASUREMENT PIPE FOR 1" AA AND 2" SW LINES. ANCHOR LINES TO CONDUIT CASING.



SECTION $\frac{5}{M104}$ $\frac{5}{M101}$
SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. WATER SURFACE ELEVATIONS SHOWN ARE MAXIMUM ELEVATIONS.

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: 10/30/92
APPROVED: *[Signature]* DATE:

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 1"=SCALE ACCORDINGLY)

FILE 5870
DRAWN DRH
DESIGNED JW
CHECKED *[Signature]*
CHECKED *[Signature]*



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



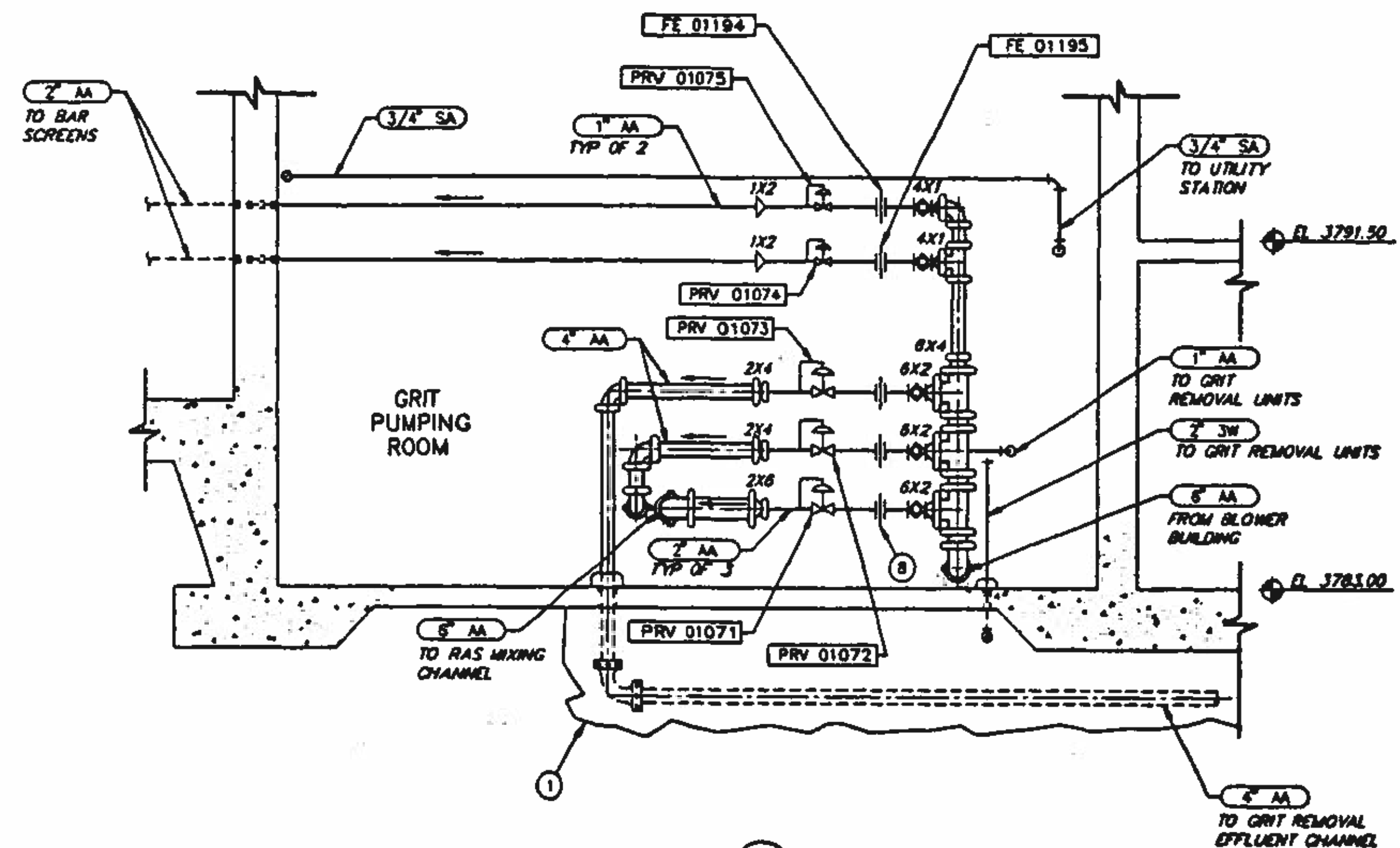
**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

HEADWORKS

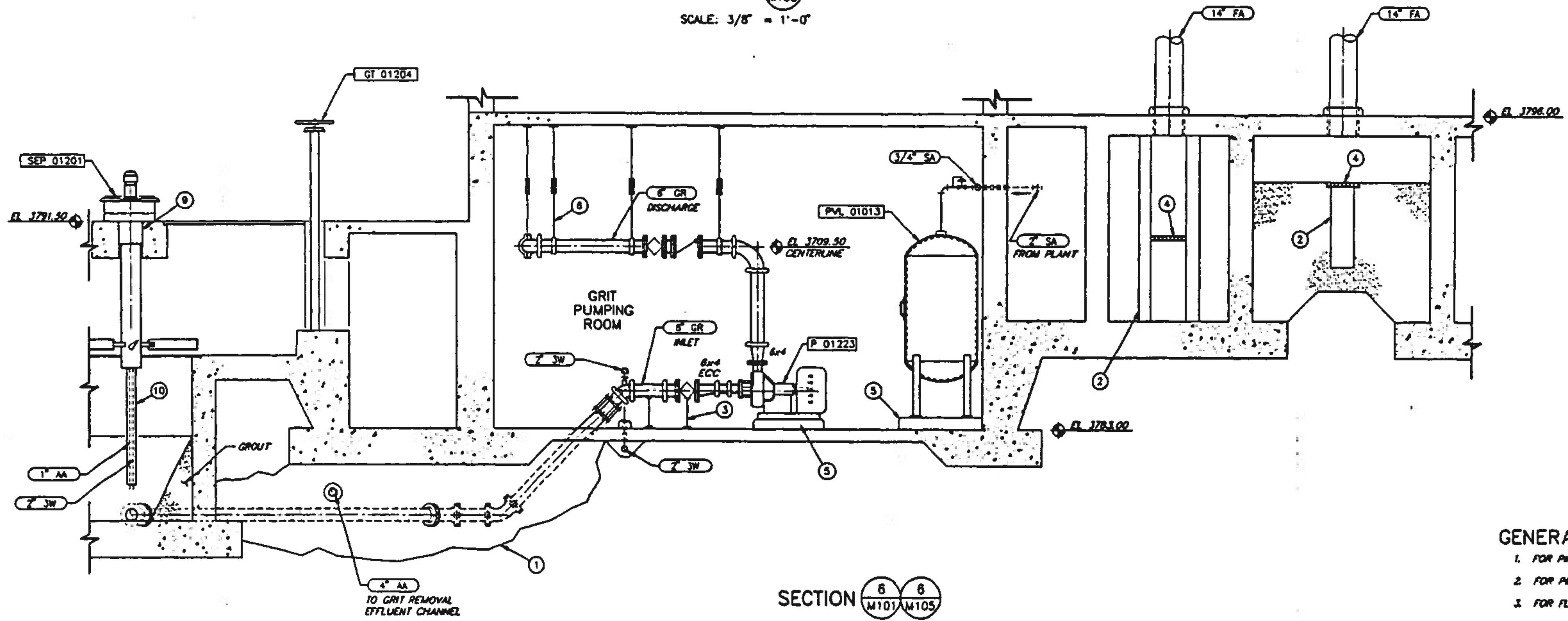
SECTION

PROJECT NUMBER
DRAWING NUMBER
M109
SHEET NUMBER
228

10
9
8
7
6
5
4
3
2



SECTION 7
M105
SCALE: 3/8" = 1'-0"



SECTION 6
M101 M105
SCALE: 3/8" = 1'-0"

- KEY NOTES:**
1. CONCRETE ENCASMENT.
 2. PARSHALL FLUME.
 3. PIPE SUPPORT.
 4. FIBERGLASS GRATING WITH FRAME.
 5. CONCRETE EQUIPMENT BASE, SEE STRUCTURAL DRAWINGS.
 6. PIPE HANGER, SEE DRAWING M2.
 7. PLASTIC LINING, SEE SPECIFICATIONS.
 8. 2" TAP FOR RETRACTABLE FLOW ELEMENT, TYP OF 3.
 9. VERIFY OPENING WITH EQUIPMENT MANUFACTURER.
 10. 4" DIAMETER PIPE CONDUIT FOR 1" AA AND 2" SW.

- GENERAL NOTES:**
1. FOR PIPE SUPPORTS, HANGERS, AND ATTACHMENTS, SEE DRAWINGS M1, M2, & M3.
 2. FOR PIPE PENETRATION DETAILS, SEE DRAWING M4.
 3. FOR FLOOR DRAIN, AND CLEANOUT DETAILS, SEE DRAWING M5.
 4. ALL 2W PIPING ENCASED IN CONCRETE SLAB SHALL BE STAINLESS TUBING WITH A MINIMUM OF 3" OF CONCRETE AROUND ENTIRE PIPE.

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"=SCALE ACCORDINGLY)

FILE: _____
DRAWN: KCG
DESIGNED: JLW
CHECKED: GJP
CHECKED: OJA



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



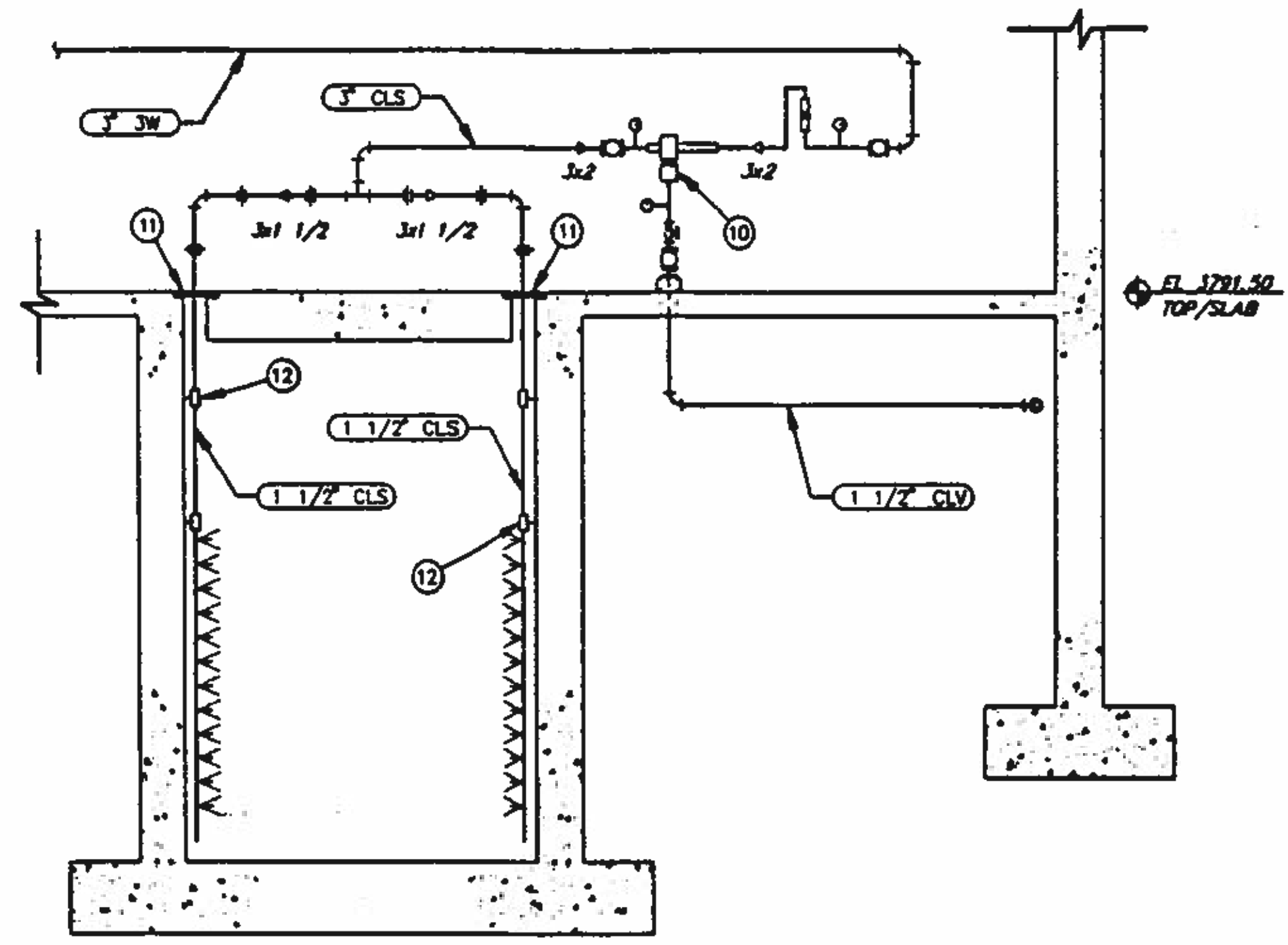
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

GRIT PUMPNG ROOM SECTIONS

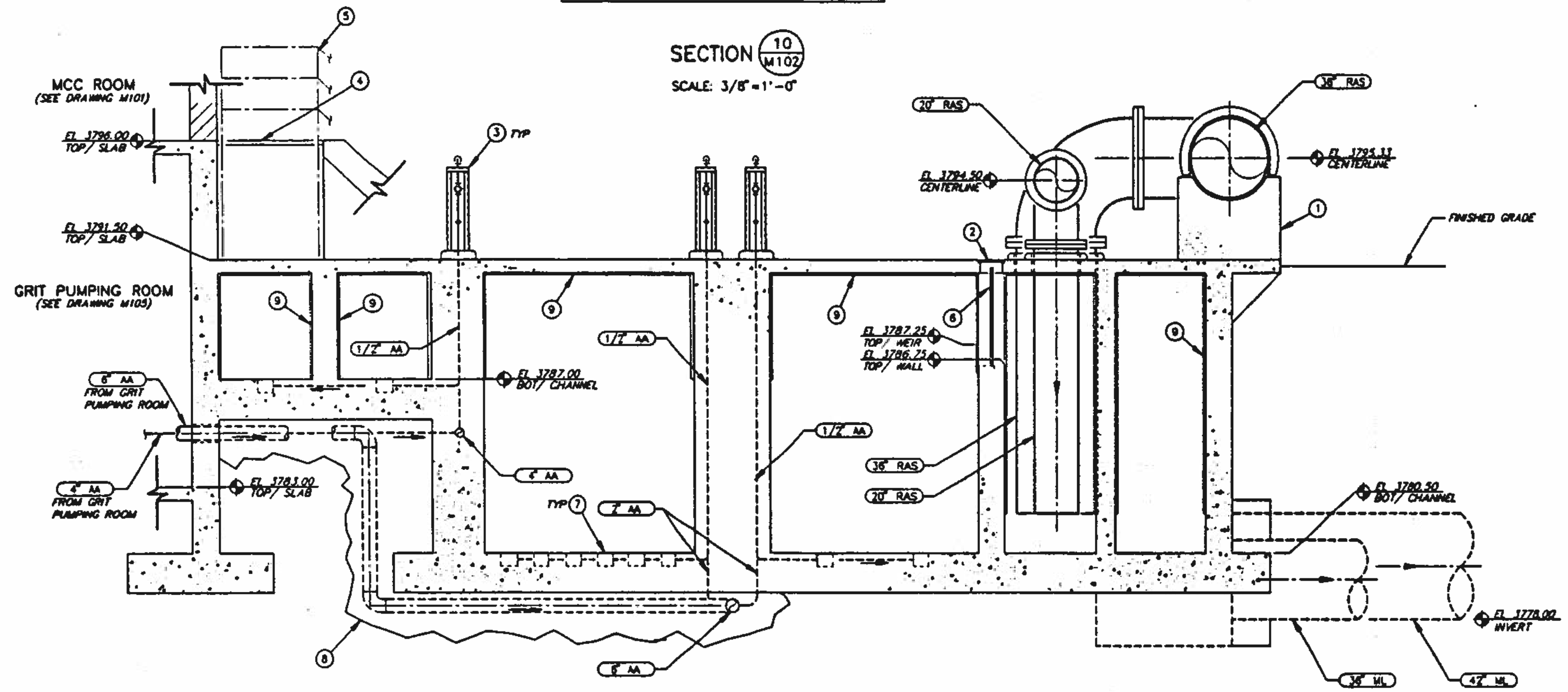
PROJECT NUMBER: _____
DRAWING NUMBER: **M110**
SHEET NUMBER: 229

KEY NOTES

1. TYPE 23 CONCRETE SADDLE PIPE SUPPORT, SEE DRAWING M2 FOR DETAILS.
2. WINGED CHECKERPLATE COVER FOR STOP PLATES, FLUSH MOUNTED.
3. AGITATION AIR MANFOLD, SEE DETAIL D/M7.
4. ACCESS PLATFORM TO MCC ROOM.
5. HANDRAIL.
6. 14" x 36" STOP PLATE, SEE DETAIL G/M7.
7. SHEAR BOX DIFFUSER, SEE DETAIL G/M7.
8. CONCRETE ENCASEMENT.
9. PLASTIC LINING, SEE SPECIFICATIONS.
10. CHLORINE EJECTOR.
11. 8"x8" REMOVABLE CHECKER PLATE MATCH.
12. PIPE GUIDE.



SECTION **10**
M102
SCALE: 3/8"=1'-0"



SECTION **8 B**
M101/M103
SCALE: 3/8"=1'-0"

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/12
APPROVED: *[Signature]* DATE: 11/29/12
APPROVED: *[Signature]* DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE _____
DRAWN: KCG
DESIGNED: JLW/GLG
CHECKED: *[Signature]*
CHECKED: *[Signature]*



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

SECTION AND DETAIL

PROJECT NUMBER _____
DRAWING NUMBER **M111**
SHEET NUMBER 230

MISCELLANEOUS ABBREVIATIONS

BD BALANCING DAMPER
 CMU CONCRETE MASONRY UNIT
 CO CLEAN OUT
 CONN CONNECTION
 CONT CONTINUED
 DET DETAIL
 DIA DIAMETER
 EID EQUIPMENT IDENTIFICATION NUMBER
 EMB EMBEDMENT
 EXAM EXAMPLE
 EXP EXPANSION
 EXIST EXISTING
 FCO FLOOR CLEAN OUT
 FF FINISH FLOOR
 FUT FUTURE
 GPM GALLONS PER MINUTE
 ISO ISOLATION
 IPS IRON PIPE SIZE
 MB MACHINE BOLT
 MBH THOUSAND BRITISH THERMAL UNITS PER HOUR
 MFR MANUFACTURED
 MH MANHOLE
 NC NORMALLY CLOSED
 NIC NOT IN CONTRACT
 NIO NORMALLY OPEN
 OSA OUTSIDE AIR
 POC POINT OF CONNECTION
 PORTBL PORTABLE
 RECD REQUIRED
 SEC SECONDARY
 SS STAINLESS STEEL
 SUM SUMMER
 TYP TYPICAL
 WCO WALL CLEAN OUT
 WW WINTER
 W/ WITH
 Δ REVISION

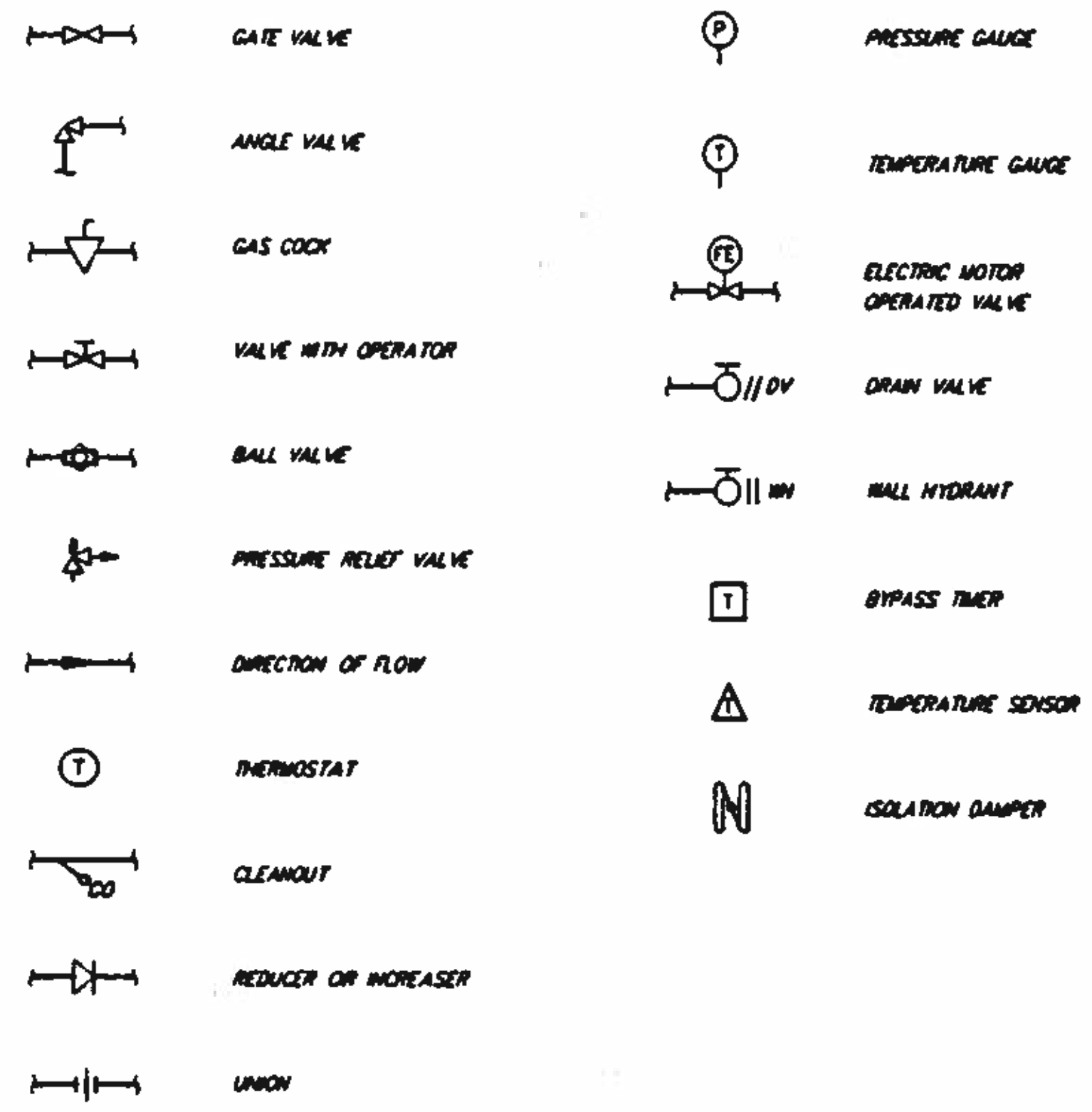
EQUIPMENT PREFIXES

ACH AIR CONDITIONING/HEATING UNIT
 ACU AIR CONDITIONING UNIT
 CRP CEILING RETURN/EXHAUST REGISTER
 CSD CEILING SUPPLY DIFFUSER
 DAMP DAMPER
 DS DISCONNECT
 DV DRAIN VALVE
 EF EXHAUST FAN
 EWC ELECTRIC WATER COOLER
 EWH ELECTRIC WATER HEATER
 FCF FAN-COIL FURNACE UNIT
 FLT FILTER
 GUM GAS UNIT HEATER
 MB HOSE BIBB
 LAV LAVATORY
 L LOUVER
 LVR LOUVER
 MAU MAKE-UP AIR UNIT
 P. PMP PUMP
 PRV PRESSURE REGULATING VALVE
 P/T PRESSURE/TEMPERATURE VALVE
 SF SUPPLY FAN
 SS SERVICE SINK
 VEN VENTILATOR
 WC WATER CLOSET
 WH WALL HYDRANT

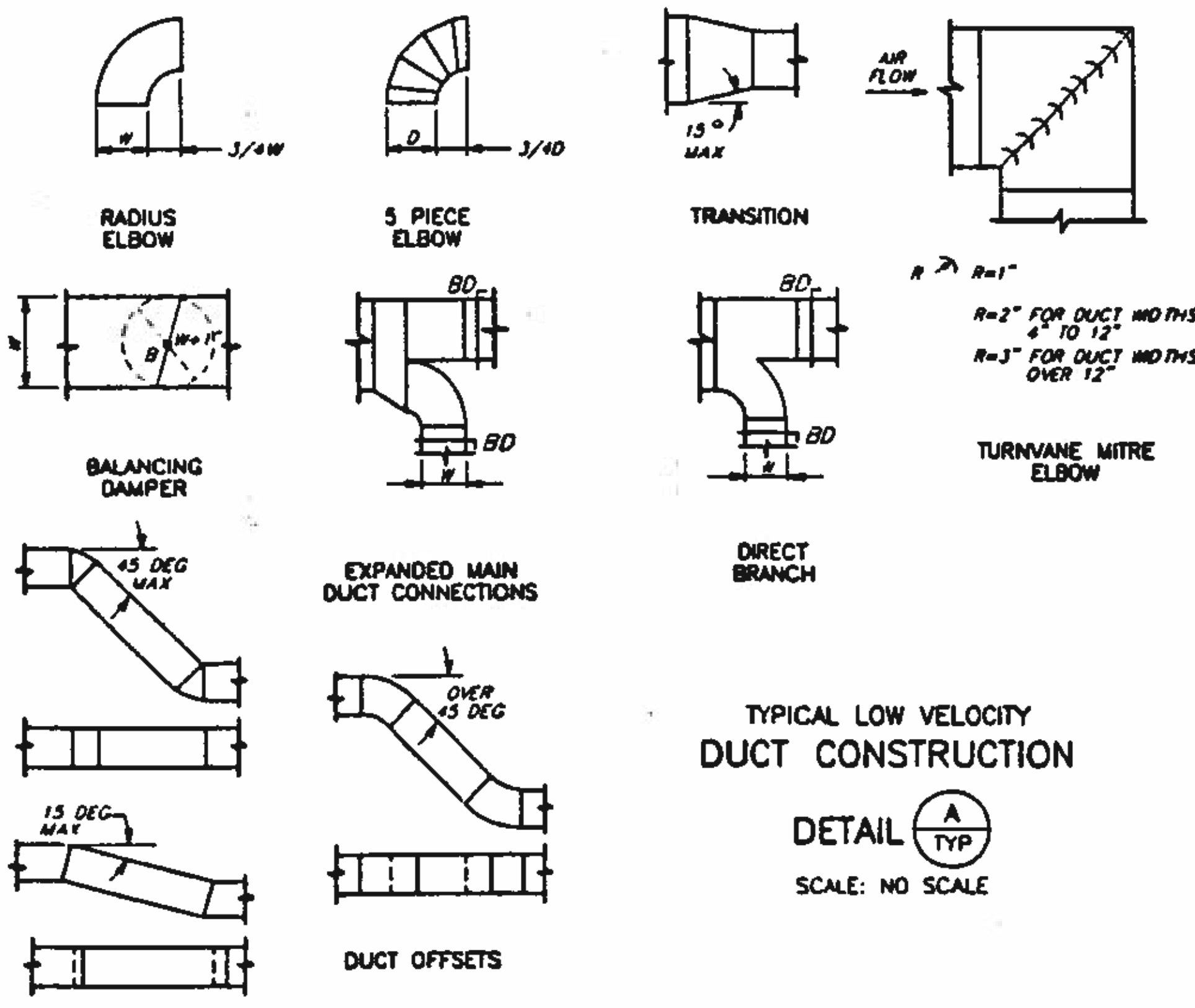
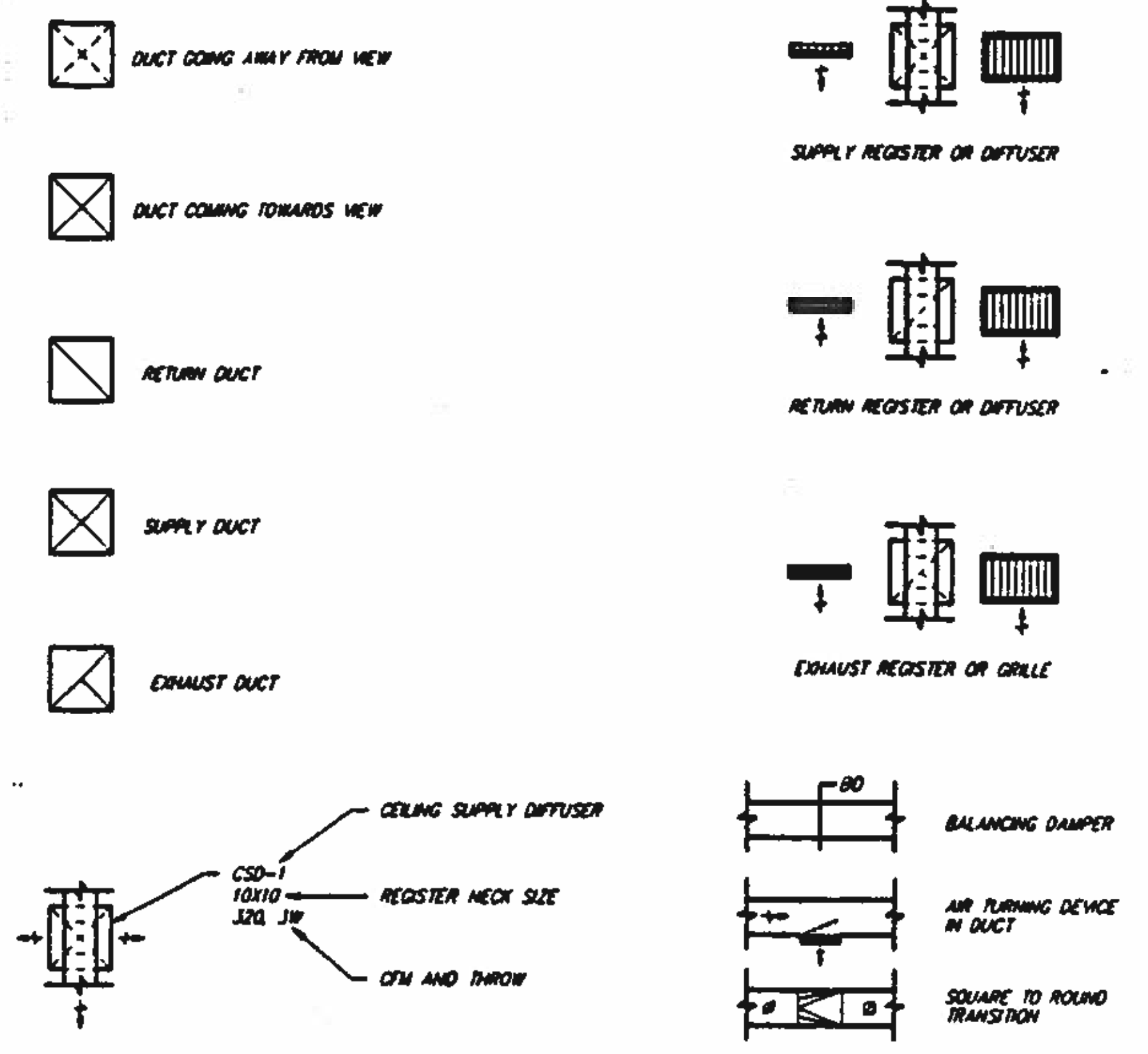
PIPING ABBREVIATIONS

CA CONTROL AIR
 CW POTABLE COLD WATER
 D DRAIN
 HW POTABLE HOT WATER
 MW MAKEUP WATER
 NG NATURAL GAS
 SD SANITARY DRAIN
 V VENT
 VTR VENT THRU ROOF

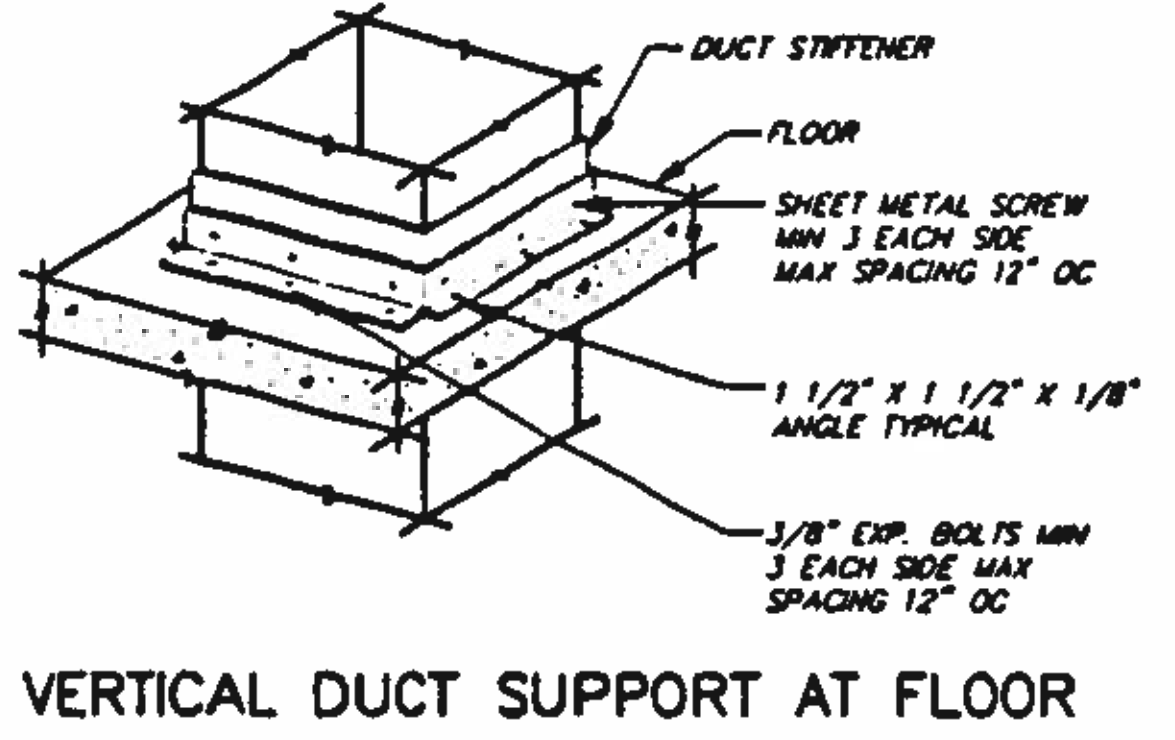
MECHANICAL AND HVAC SYMBOLS



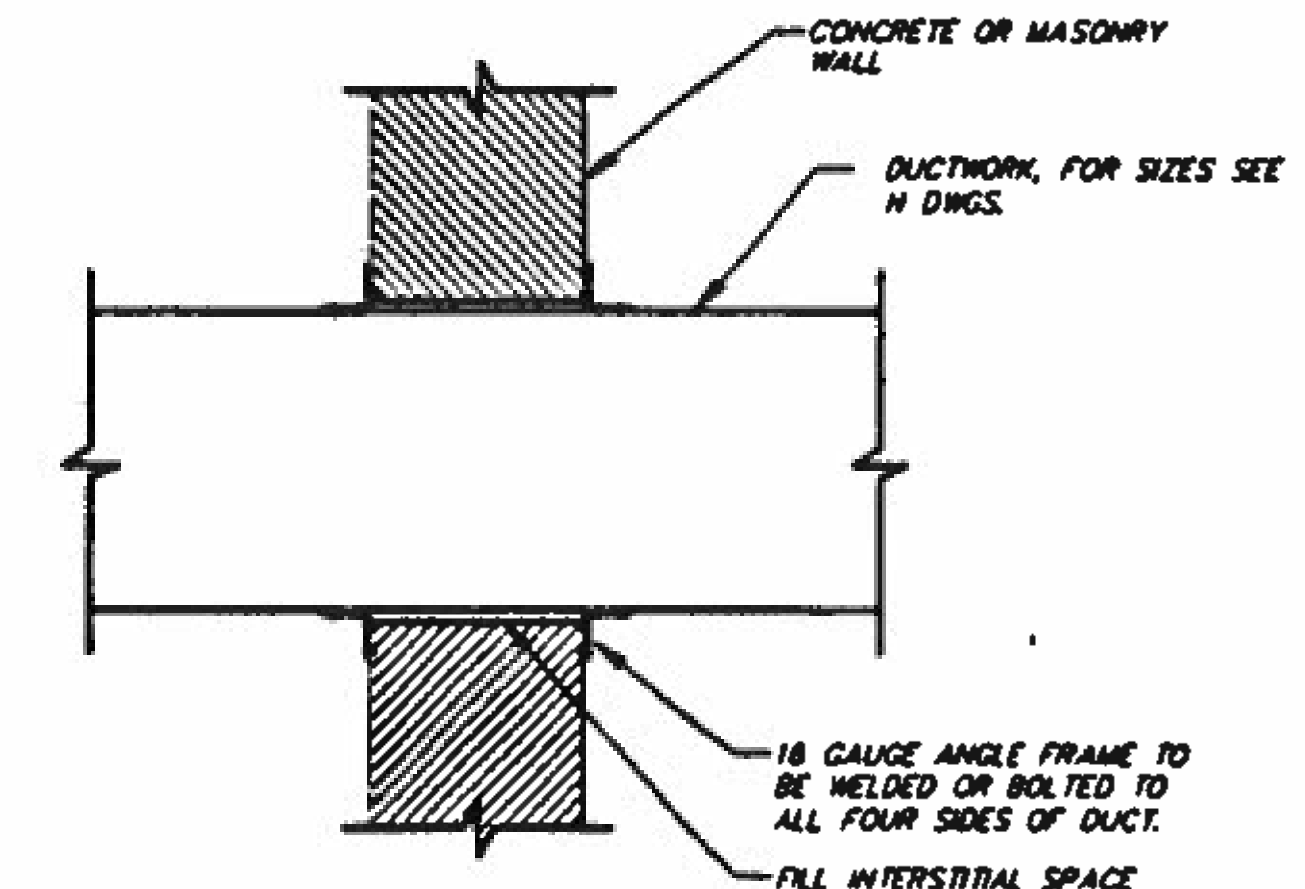
DUCT / REGISTER SYMBOLS



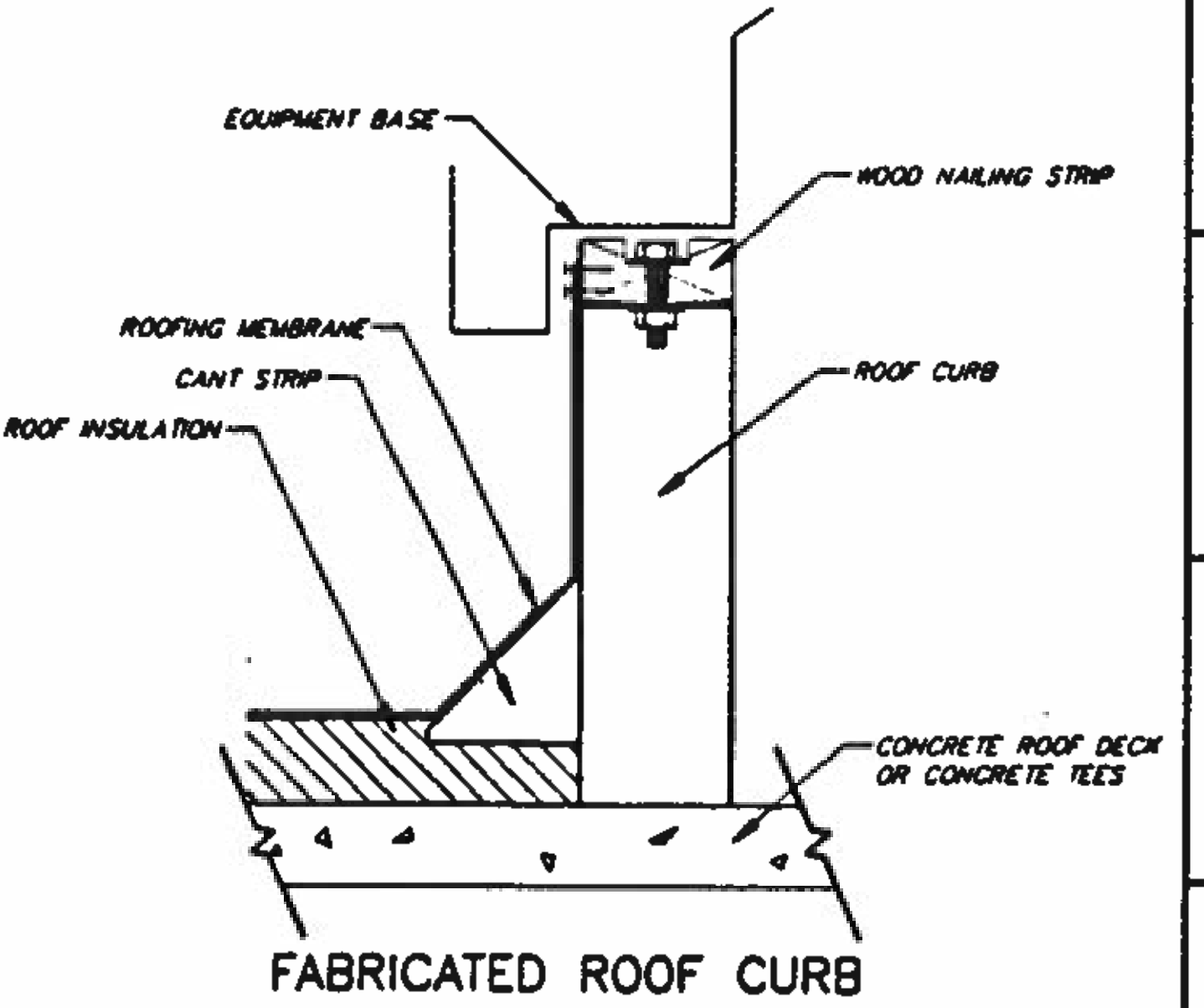
TYPICAL LOW VELOCITY DUCT CONSTRUCTION
 DETAIL A TYP SCALE: NO SCALE



VERTICAL DUCT SUPPORT AT FLOOR
 DETAIL B TYP SCALE: NO SCALE



TYPICAL DUCT PENETRATION THROUGH CONCRETE OR MASONRY
 DETAIL C TYP SCALE: NO SCALE



FABRICATED ROOF CURB
 DETAIL D TYP SCALE: NO SCALE

BC Brown and Caldwell Consultants
 Phoenix, Arizona
 SUBMITTED: [Signature] DATE: 11/21/12
 APPROVED: [Signature] DATE: 11-22-12
 APPROVED: [Signature] DATE:

LINE IS 3 INCHES AT FULL SIZE
 IF NOT 2" SCALE AT DRAWING

FILE	5870
DRAWN	GJM
DESIGNED	GJM/NDQ
CHECKED	RCB
CHECKED	DD



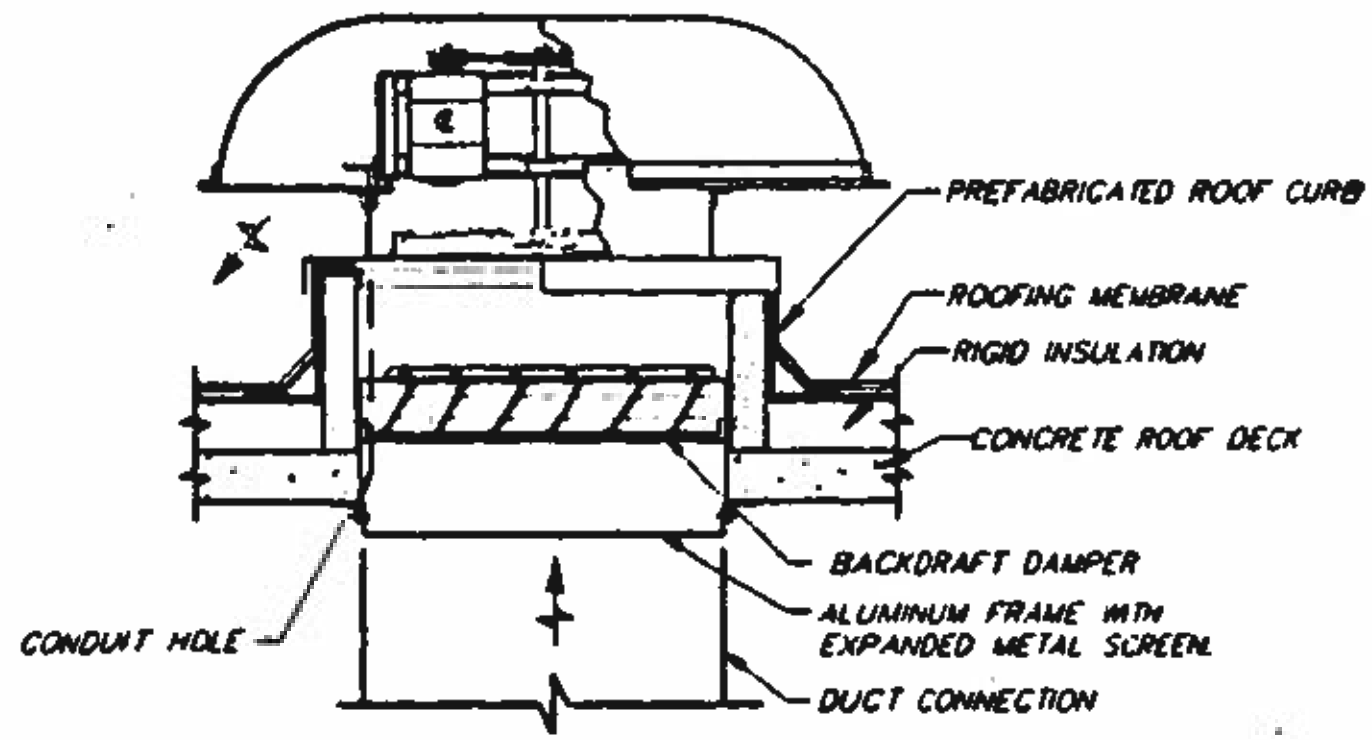
REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

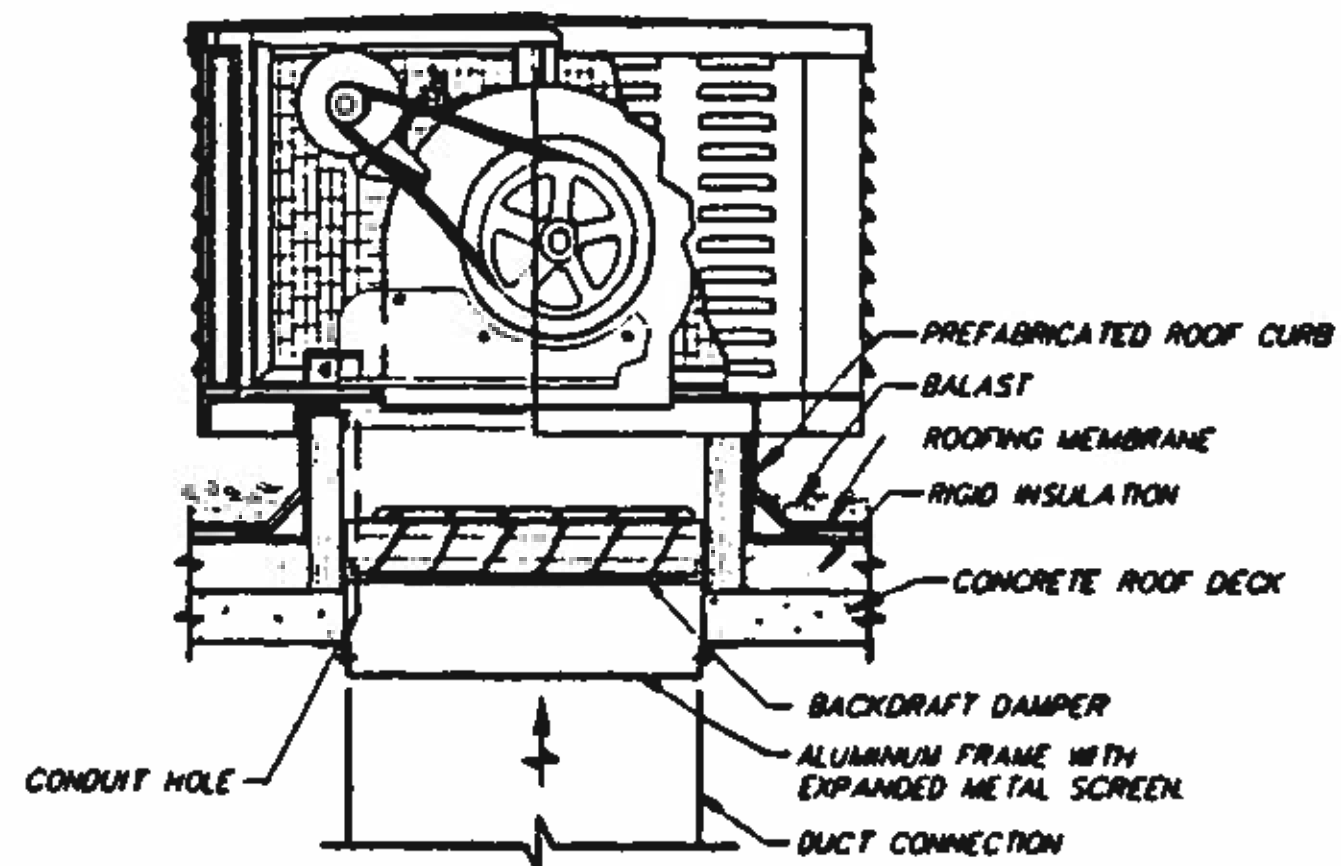
DETAILS - 1
SYMBOLS AND ABBREVIATIONS

PROJECT NUMBER	
DRAWING NUMBER	H1
SHEET NUMBER	304



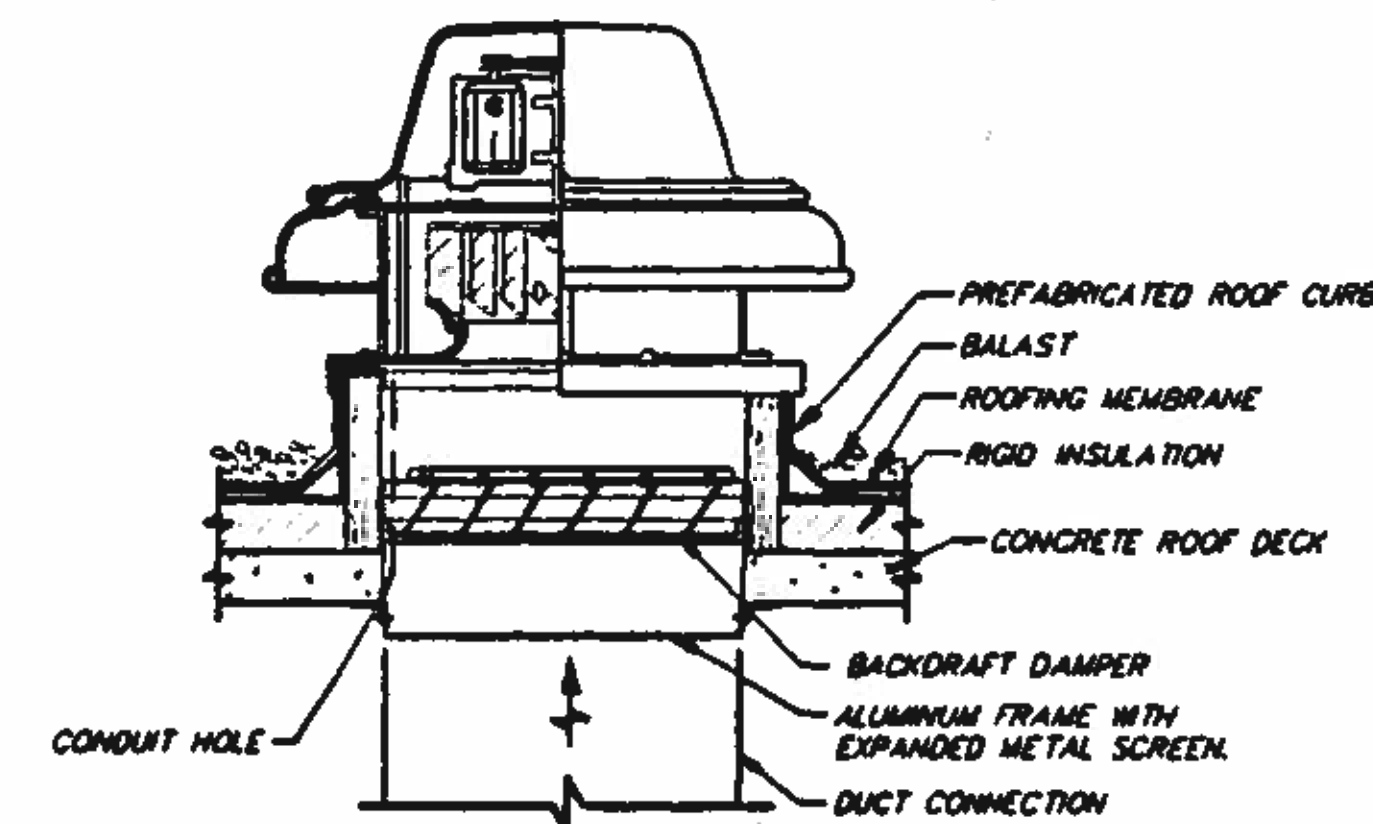
AXIAL ROOF EXHAUST FAN INSTALLATION

DETAIL **A**
NO SCALE TYP



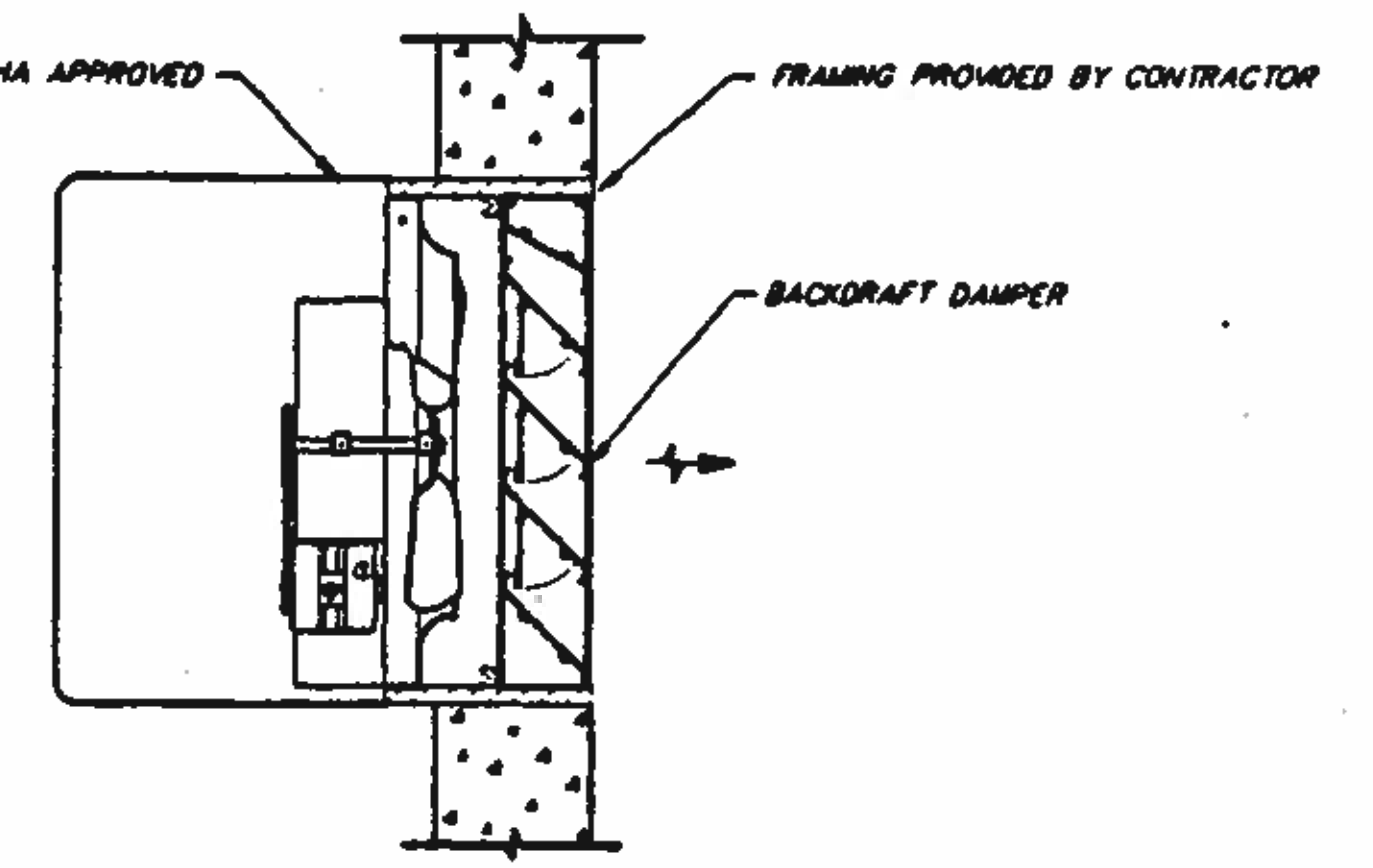
CENTRIFUGAL ROOF SUPPLY FAN INSTALLATION

DETAIL **B**
NO SCALE TYP



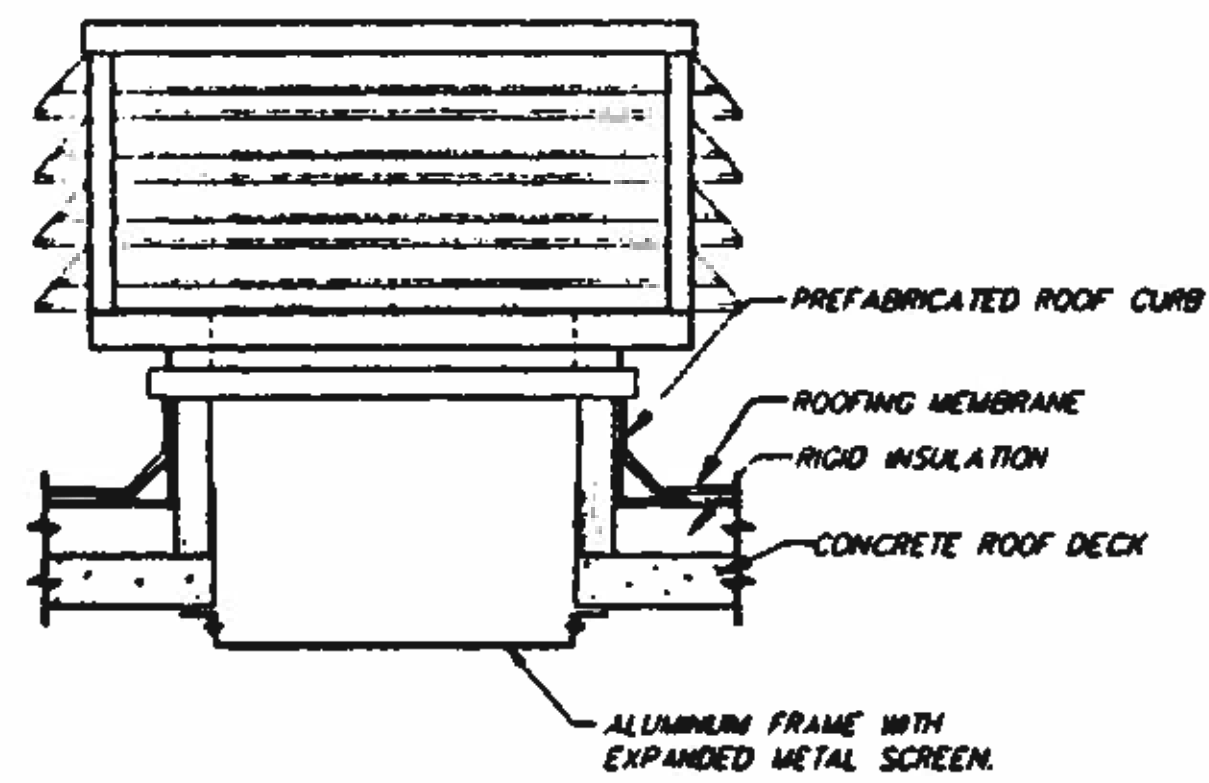
CENTRIFUGAL ROOF EXHAUST INSTALLATION

DETAIL **C**
NO SCALE TYP



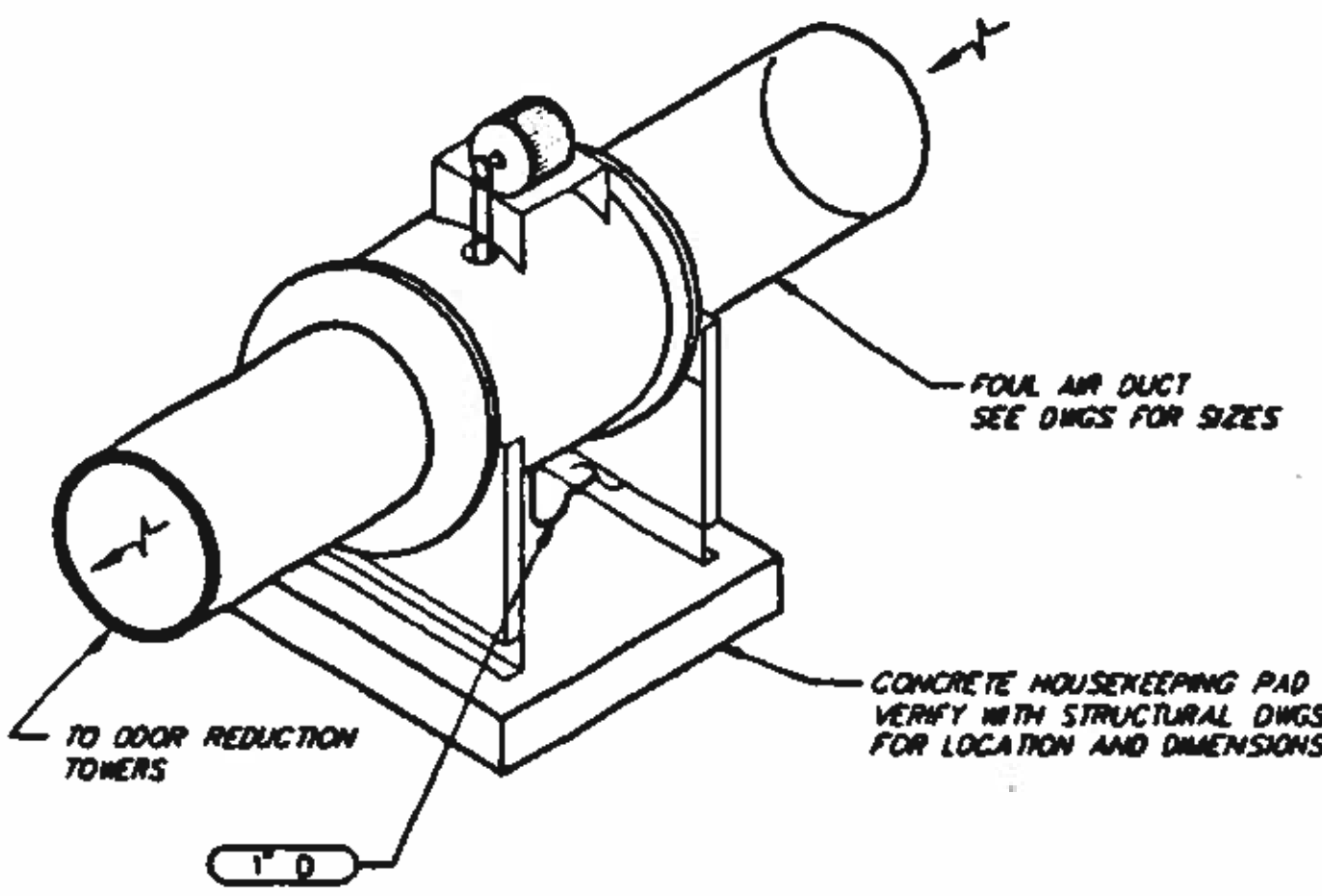
AXIAL WALL SUPPLY/EXHAUST FAN INSTALLATION

DETAIL **D**
NO SCALE TYP



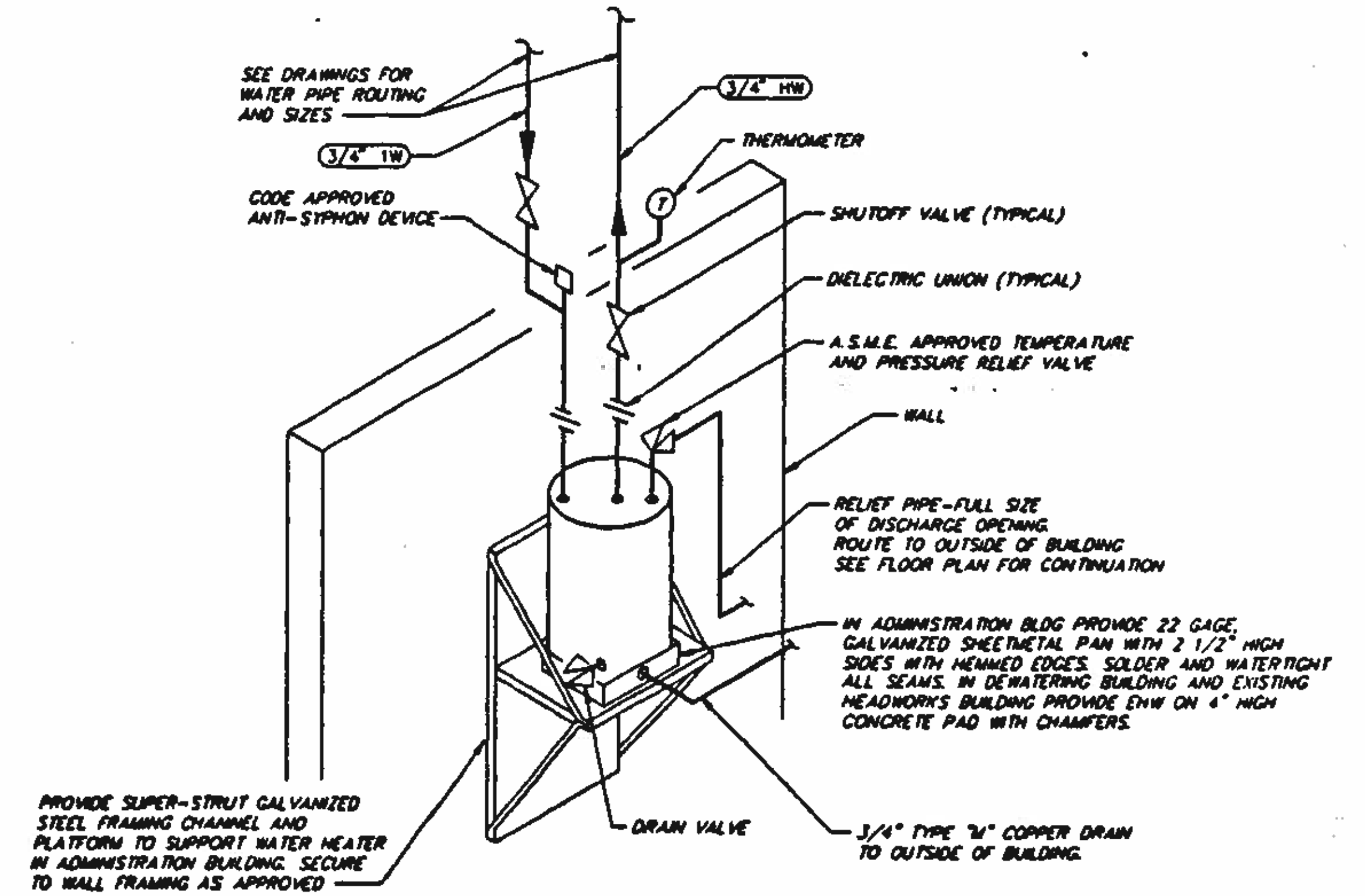
GRAVITY VENTILATOR

DETAIL **E**
NO SCALE TYP



RTP FOUL AIR FAN INSTALLATION

DETAIL **F**
NO SCALE TYP



ELECTRIC WATER HEATER INSTALLATION

DETAIL **G**
NO SCALE TYP

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED *Robert S. Caldwell* DATE 2/20/92
APPROVED *Samuel S. Steiner* DATE 11-20-92
APPROVED _____ DATE _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ALL DIMENSIONS)

FILE 5870
DRAWN SAB/GJM
DESIGNED NDD/GJM
CHECKED *RCB*
CHECKED *CO*



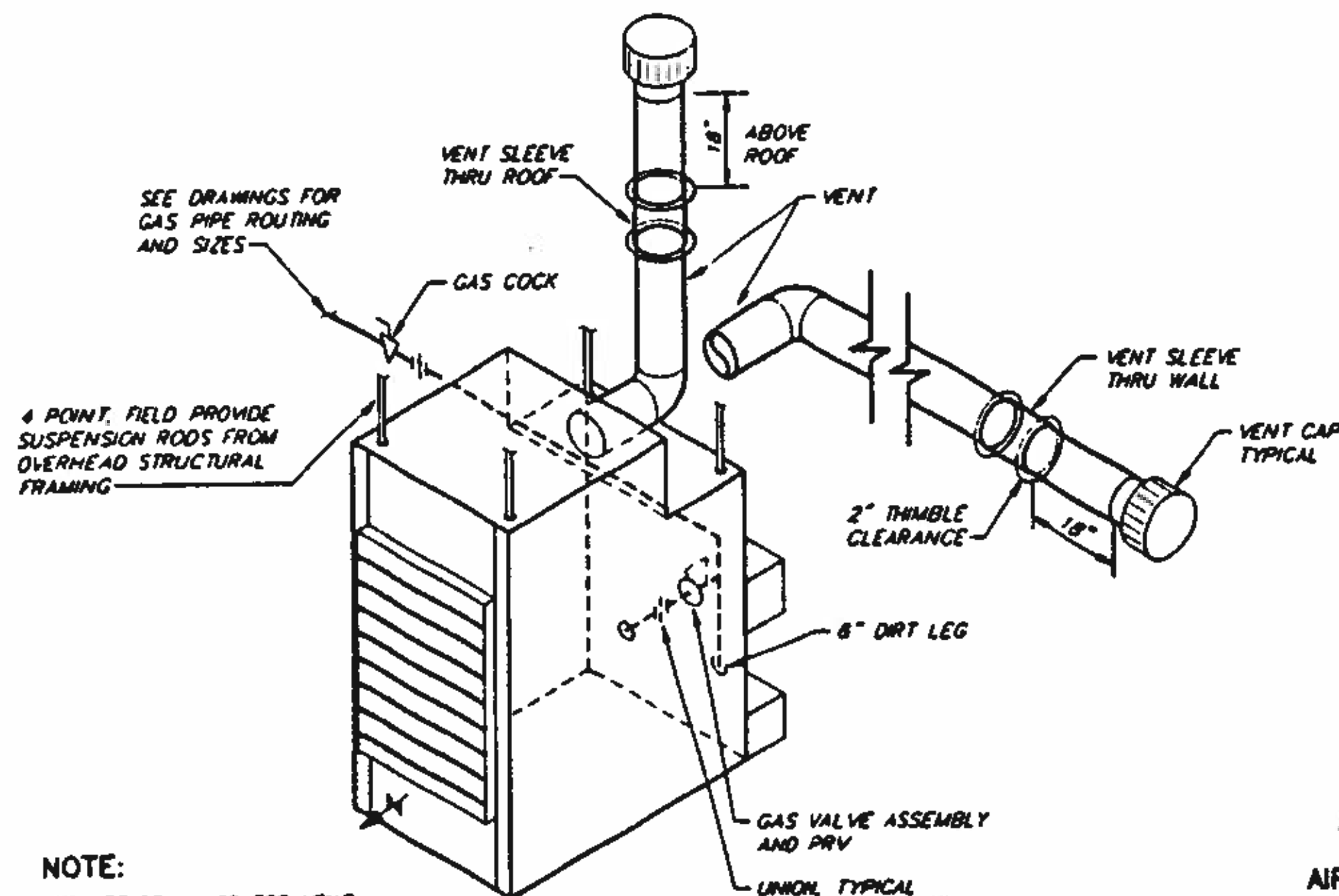
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

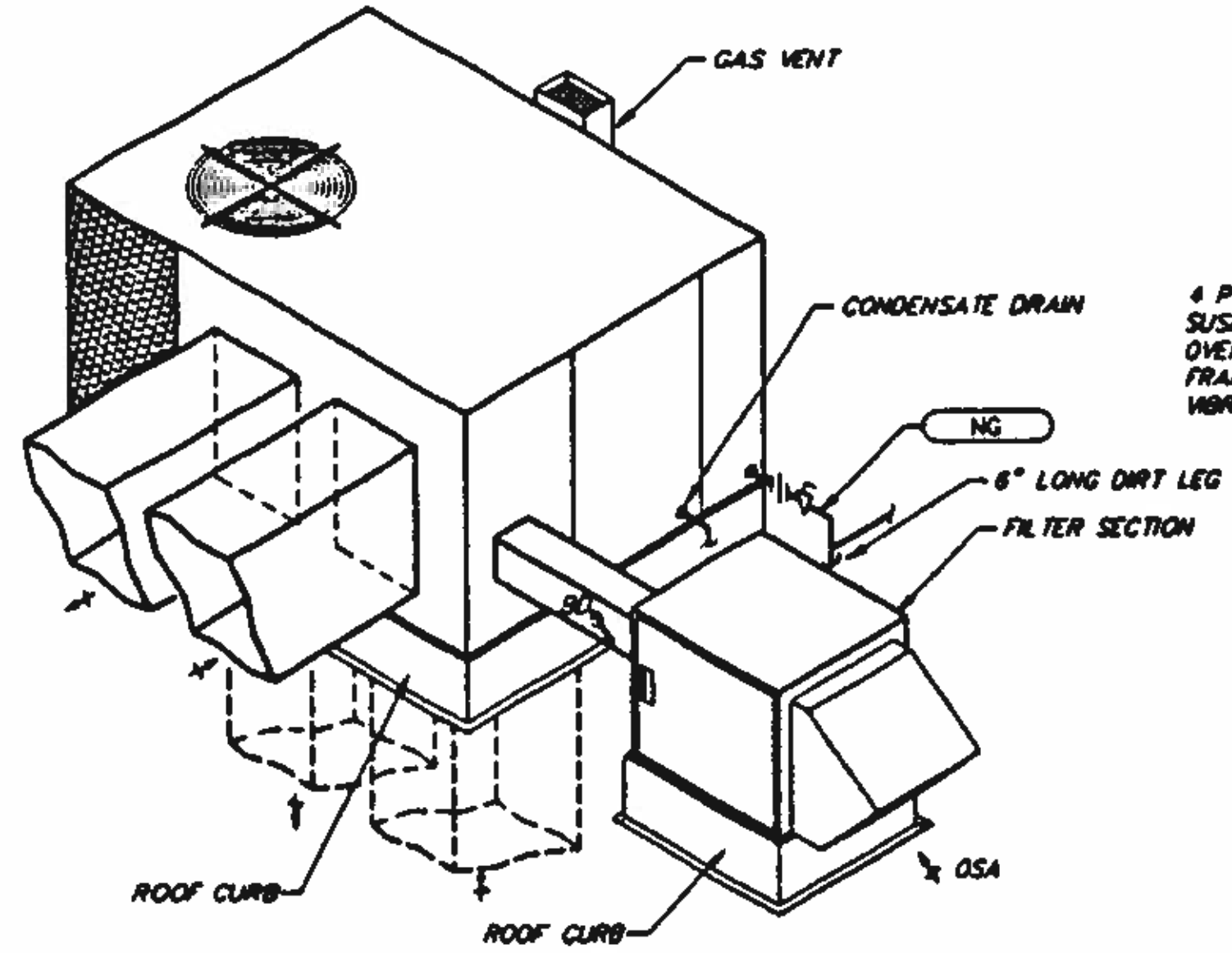
DETAILS-2

PROJECT NUMBER
DRAWING NUMBER **H2**
SHEET NUMBER **305**

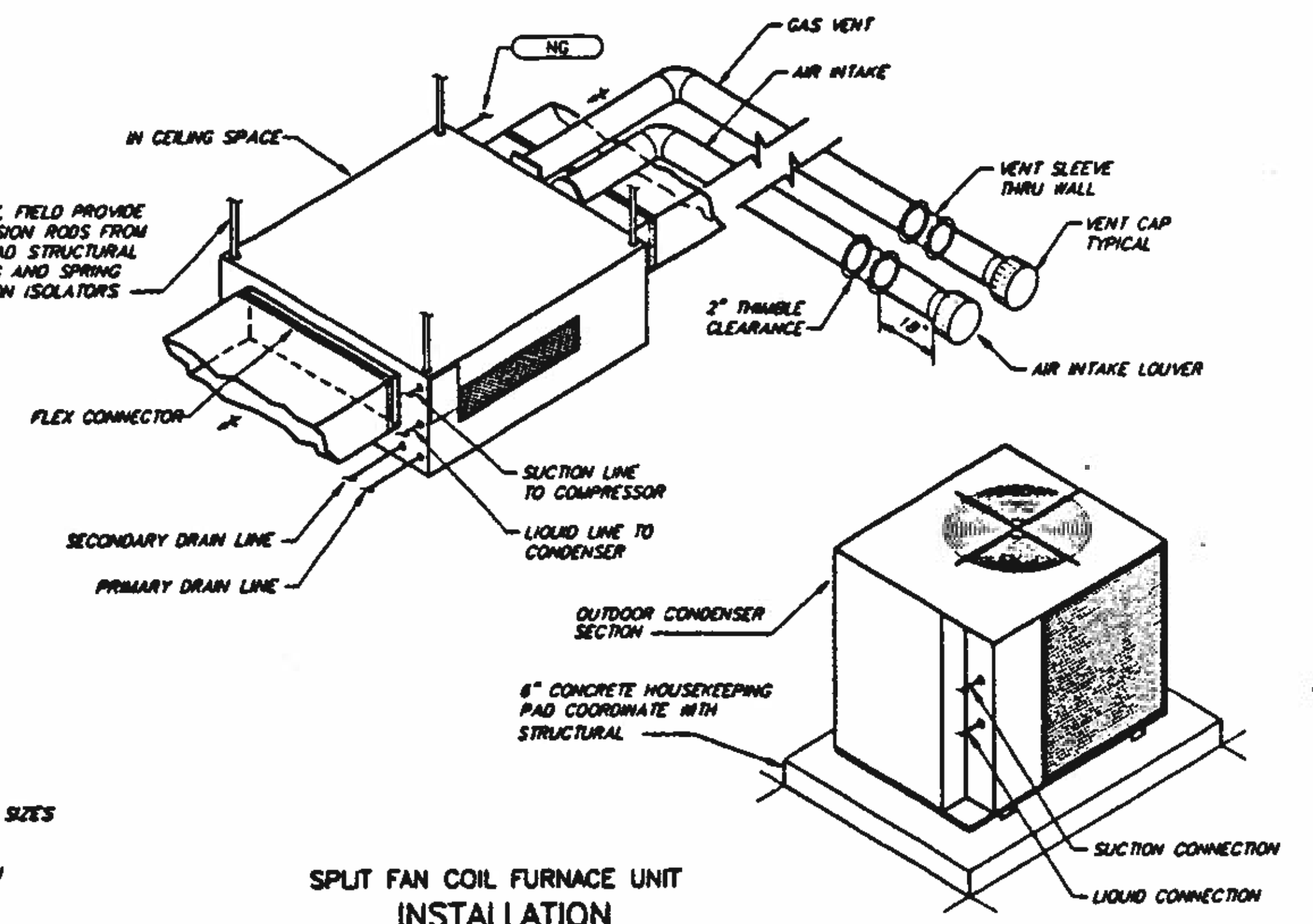


NOTE:
1. SEE DRAWINGS FOR VENT ROUTING AND SIZE. DETAIL SHOWS VENT THRU ROOF OR VENT THRU WALL

GAS UNIT HEATER INSTALLATION
DETAIL (A) TYP
SCALE: NO SCALE

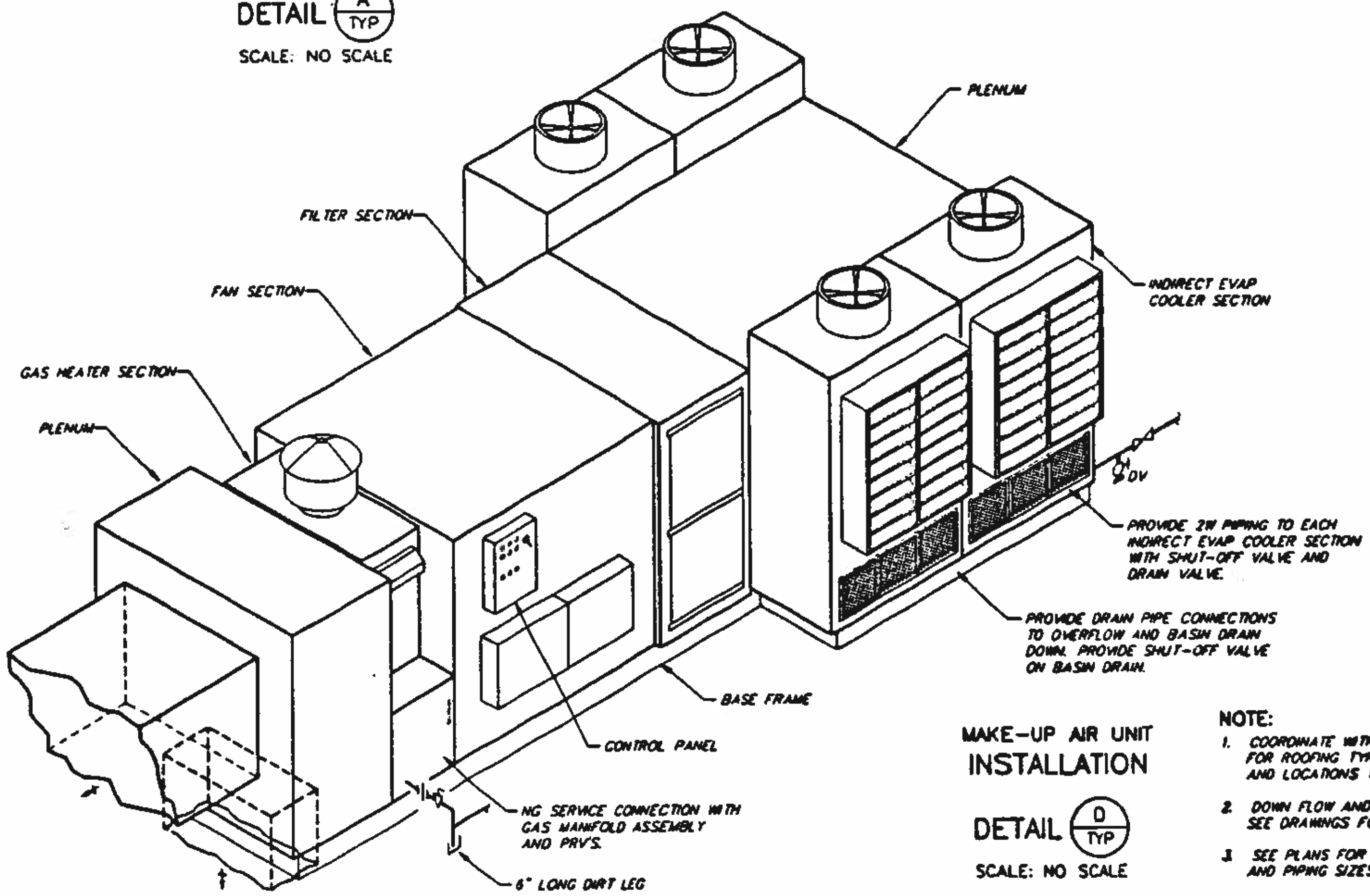


AIR CONDITIONING / HEATING UNIT INSTALLATION
DETAIL (B) TYP
SCALE: NO SCALE



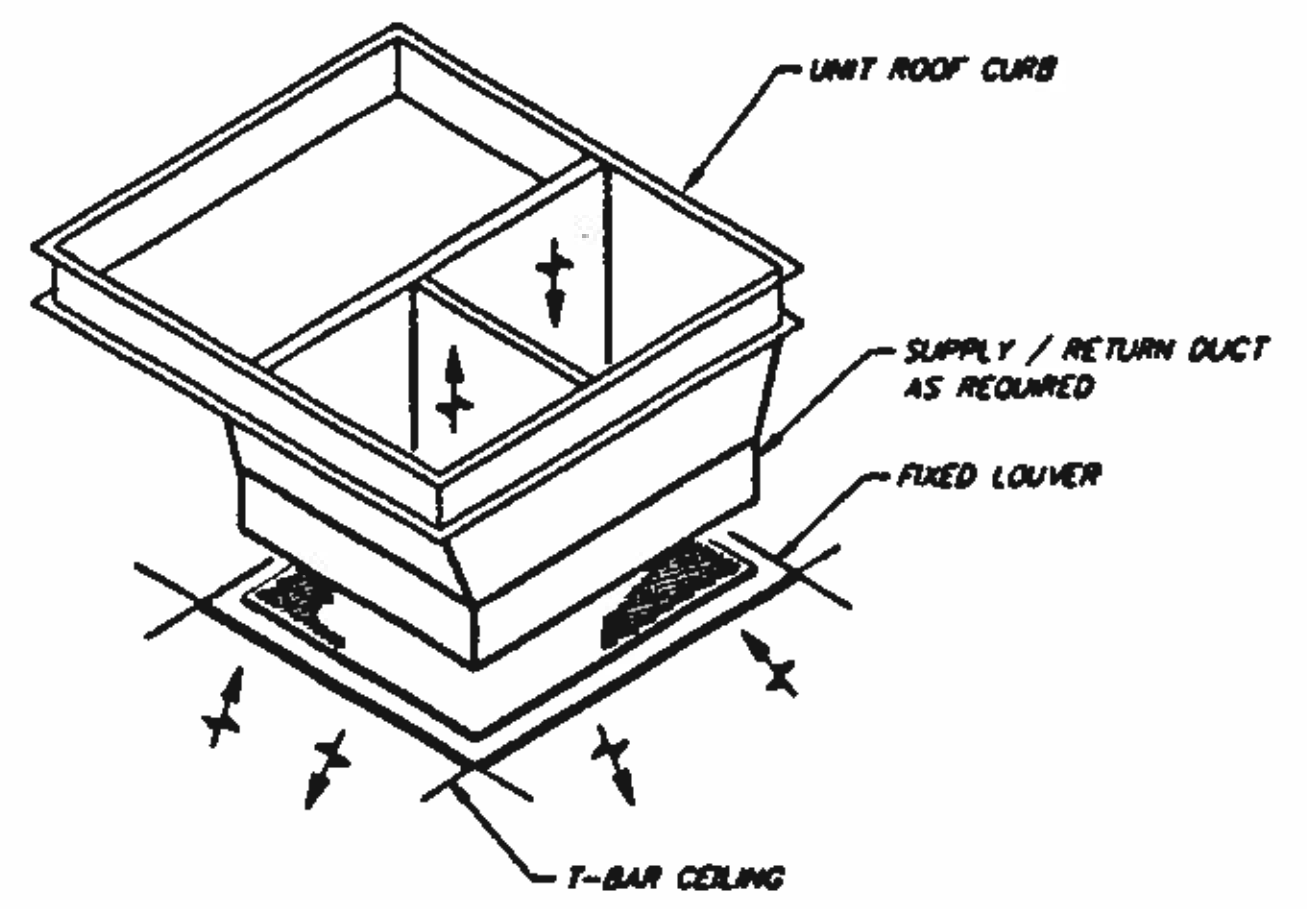
NOTE:
1. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ROOFING TYPE. COORDINATE ROOF OPENING SIZES AND LOCATIONS WITH STRUCTURAL DRAWINGS.
2. DOWN FLOW AND HORIZONTAL FLOW ARE SHOWN SEE DRAWINGS FOR CORRECT CONFIGURATION.
3. GAS VENT AND GAS PIPE CONNECTION SHOWN FOR ACH UNITS ONLY.
4. SEE PLANS FOR UNIT, DUCT AND PIPING SIZES.

SPLIT FAN COIL FURNACE UNIT INSTALLATION
DETAIL (C) TYP
SCALE: NO SCALE



MAKE-UP AIR UNIT INSTALLATION
DETAIL (D) TYP
SCALE: NO SCALE

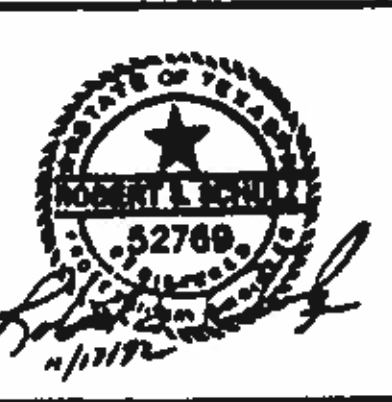
NOTE:
1. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ROOFING TYPE. COORDINATE ROOF OPENING SIZES AND LOCATIONS WITH STRUCTURAL DRAWINGS.
2. DOWN FLOW AND HORIZONTAL FLOW ARE SHOWN SEE DRAWINGS FOR CORRECT CONFIGURATION.
3. SEE PLANS FOR UNIT CONFIGURATION, DUCT AND PIPING SIZES.



COMBINATION SUPPLY / RETURN LOUVER INSTALLATION
DETAIL (E) TYP
SCALE: NO SCALE

BC Brown and Caldwell Consultants
Phoenix, Arizona
SUBMITTED: [Signature] DATE: 4/1/12
APPROVED: [Signature] DATE: 11/20/12
APPROVED: [Signature] DATE: []

LINE IS 2 INCHES AT FULL SIZE
FILE: 5870
DRAWN: GJM
DESIGNED: GJM/NDD
CHECKED: RCB
CHECKED: [Signature]



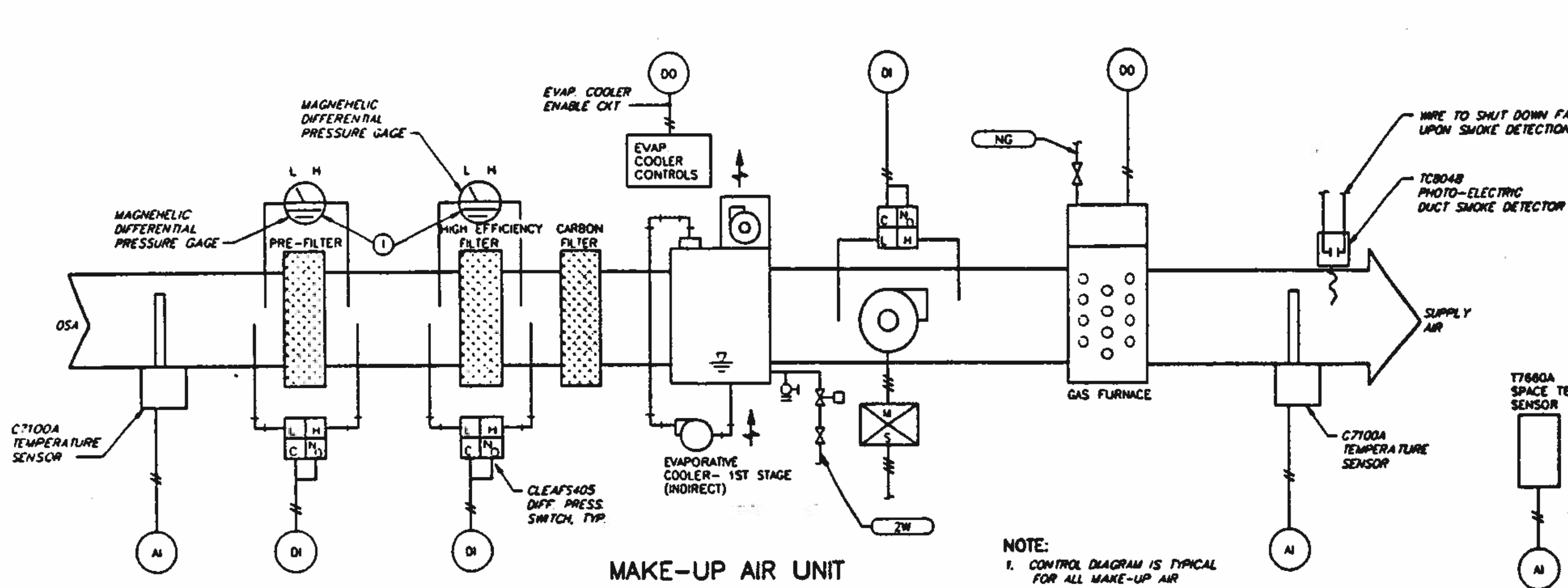
REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

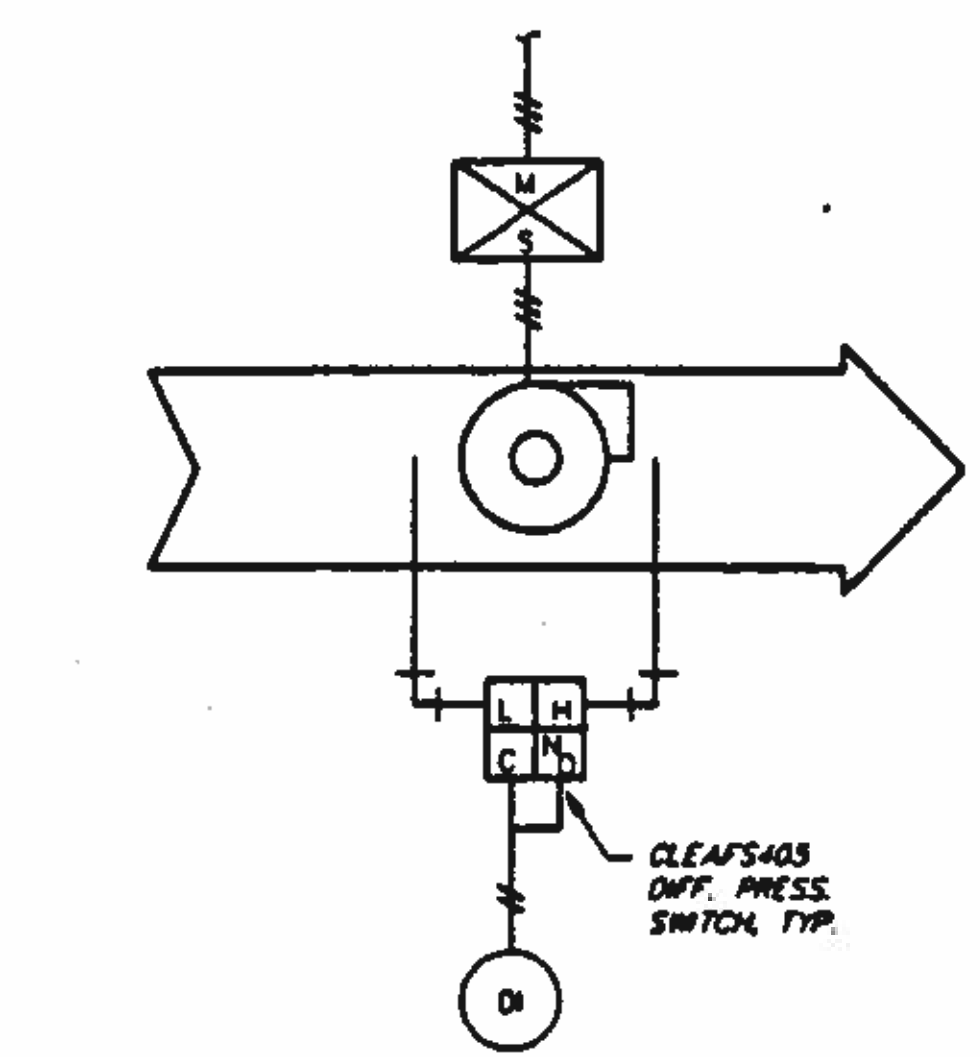
DETAILS - 3

PROJECT NUMBER	
DRAWING NUMBER	H3
SHEET NUMBER	308



MAKE-UP AIR UNIT CONTROL DIAGRAM
NO SCALE

NOTE:
1. CONTROL DIAGRAM IS TYPICAL FOR ALL MAKE-UP AIR UNITS EXCEPT MAU 07043



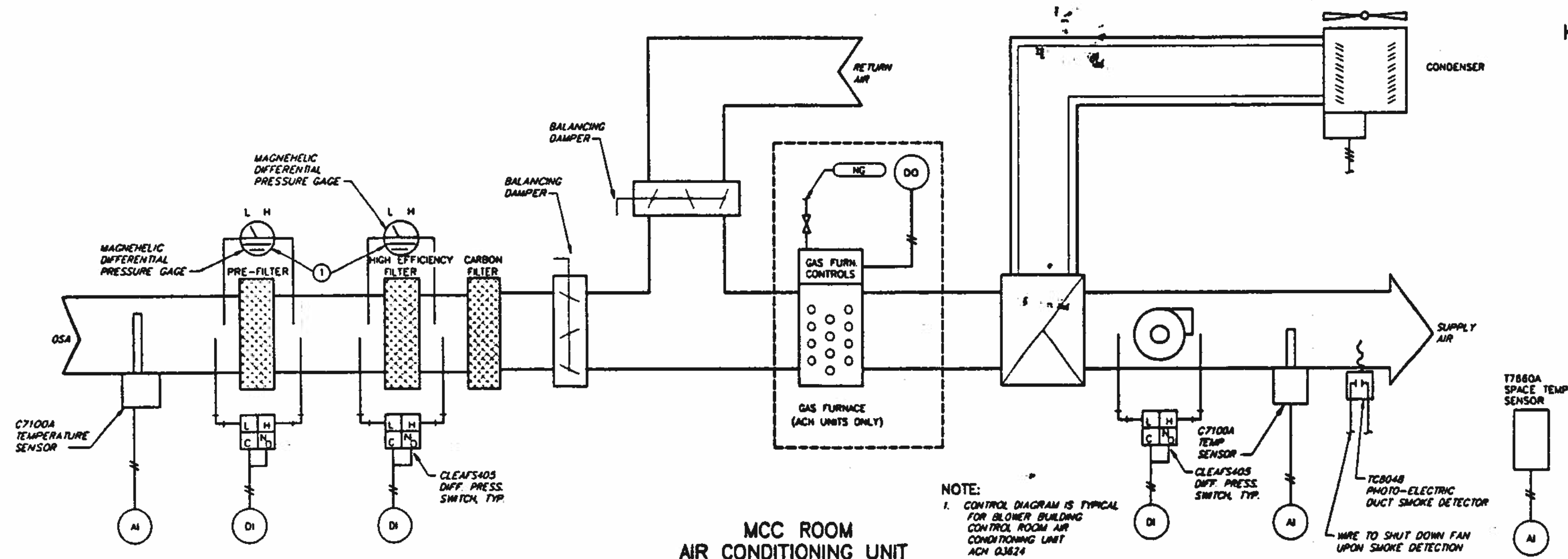
CENTRIFUGAL SUPPLY OR EXHAUST FAN STATUS DIAGRAM
NO SCALE

GENERAL NOTES:

1. ALL EQUIPMENT NUMBERS SHOWN ARE HONEYWELL. EQUIPMENT NUMBERS ARE SHOWN FOR REFERENCE ONLY.
2. ALL INPUT AND OUTPUT SIGNALS SHALL BE ELECTRICAL UNLESS OTHERWISE SPECIFIED.

KEY NOTES:

1. EQUIPMENT IS NOT REQUIRED TO BE PROVIDED BY CONTROLS CONTRACTOR. EQUIPMENT IS PROVIDED BY HVAC UNIT MANUFACTURER.



MCC ROOM AIR CONDITIONING UNIT CONTROL DIAGRAM
NO SCALE

NOTE:
1. CONTROL DIAGRAM IS TYPICAL FOR BLOWER BUILDING CONTROL ROOM AIR CONDITIONING UNIT ACH 03624

LEGEND:

- AI ANALOG INPUT
- DI DIGITAL INPUT
- AO ANALOG OUTPUT
- DO DIGITAL OUTPUT
- M/S MOTOR STARTER
- L LOW
- H HIGH
- C CONTACT
- NO NORMAL OPEN

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/12/92
APPROVED: *[Signature]* DATE: 11/30/92
APPROVED: *[Signature]* DATE:

LINE IS 3 INCHES AT FULL SIZE
IF NOT 2" DIA. ALL DIMENSIONS

FILE 5870
DRAWN PMG
DESIGNED RCB
CHECKED DO
CHECKED RCB



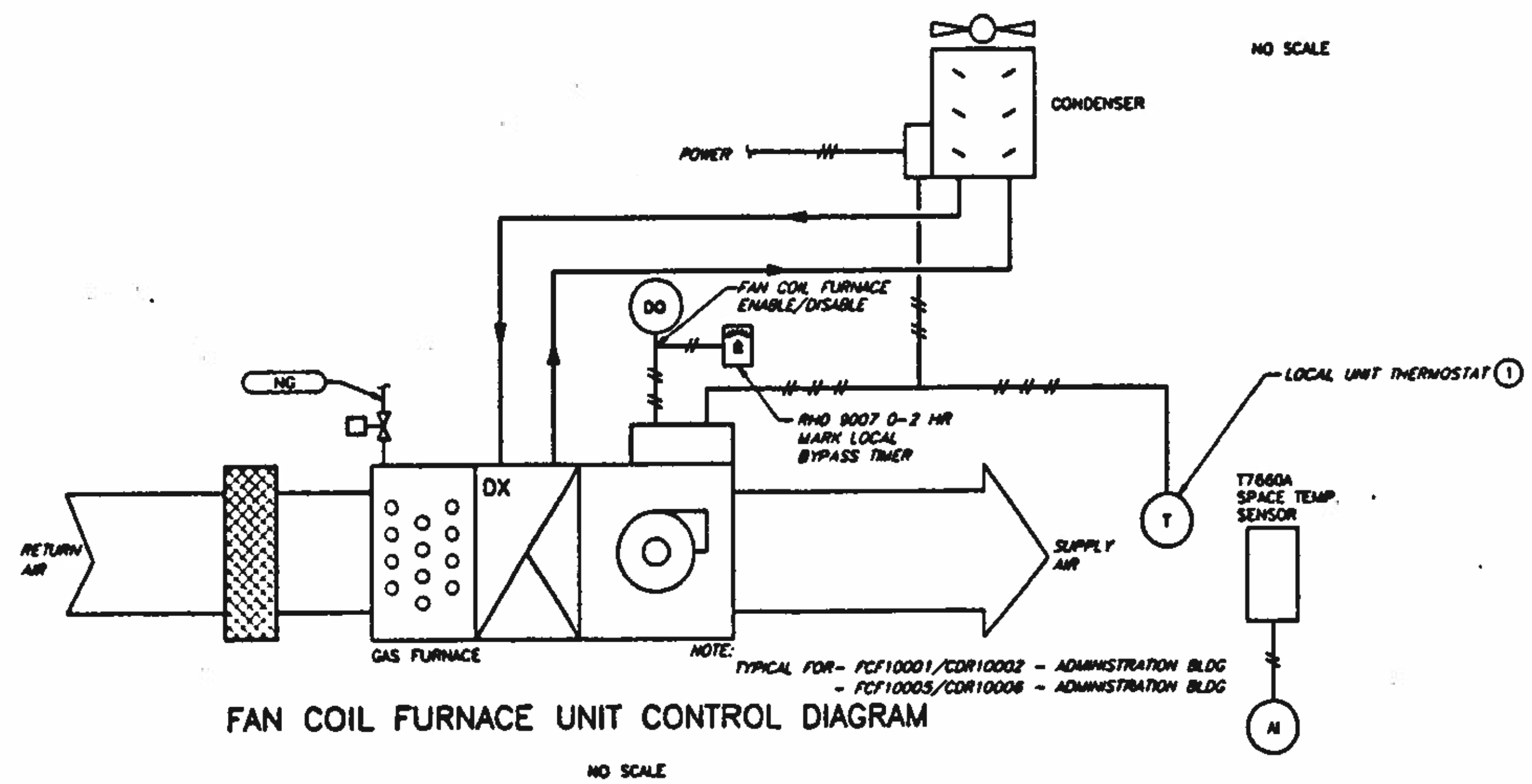
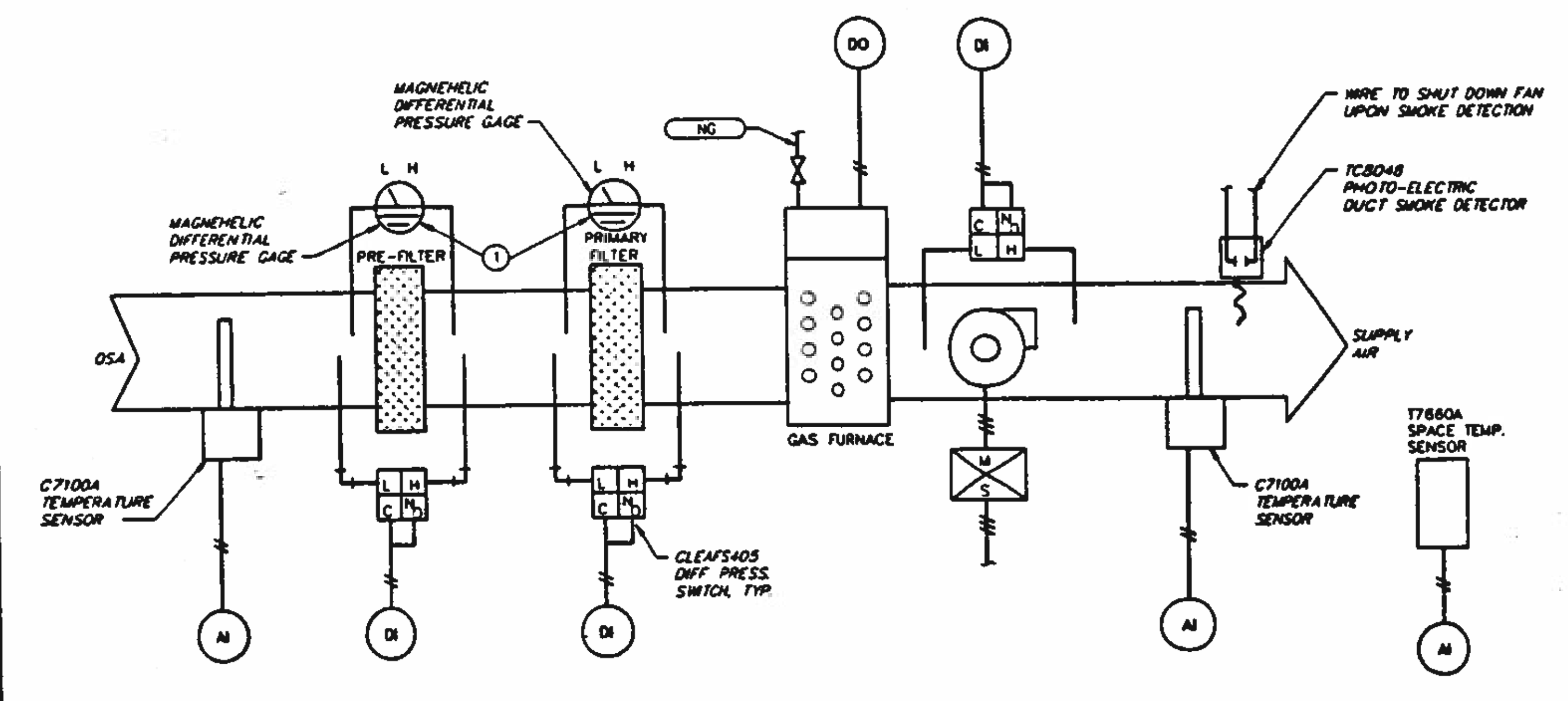
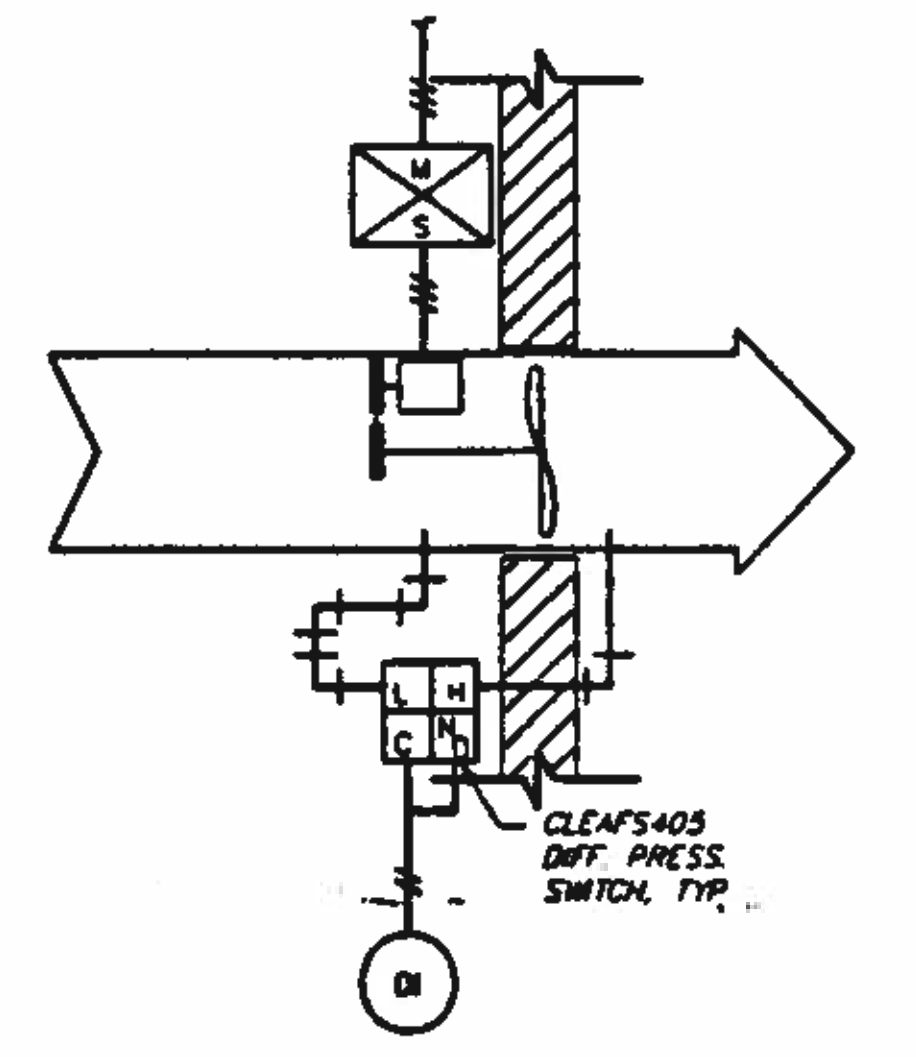
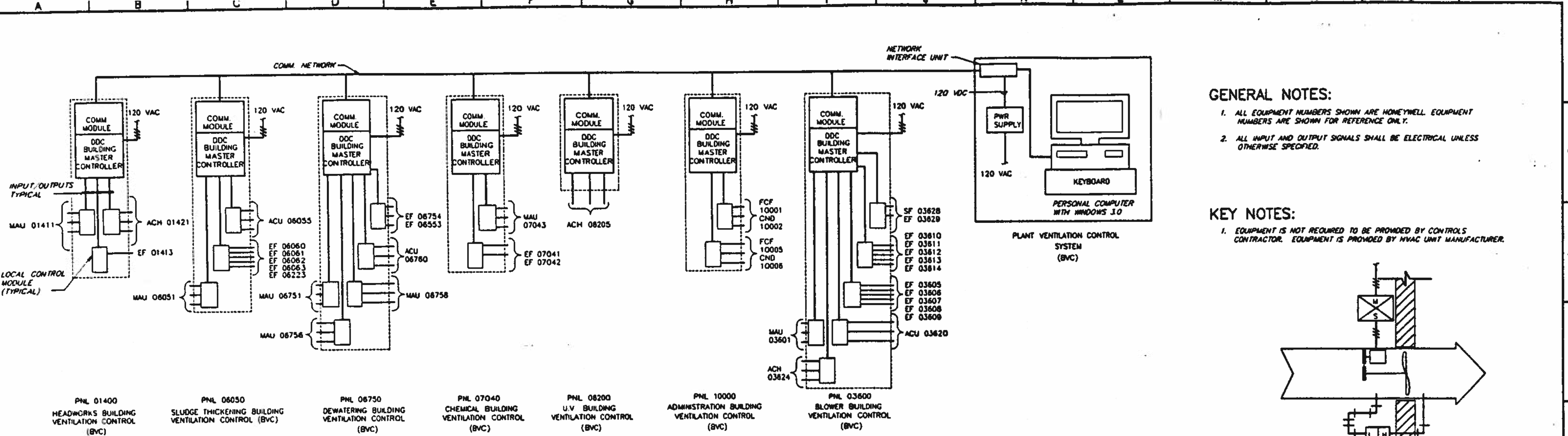
REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

CONTROL DIAGRAMS TYPICAL HVAC

PROJECT NUMBER
DRAWING NUMBER
H4
SHEET NUMBER
307



BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: *11/22/93*
APPROVED: *[Signature]* DATE: *12/21/93*

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDING #1)

FILE: 5870
DRAWN: PMG
DESIGNED: RCB
CHECKED: *[Signature]*
DATE: *11/17/93*



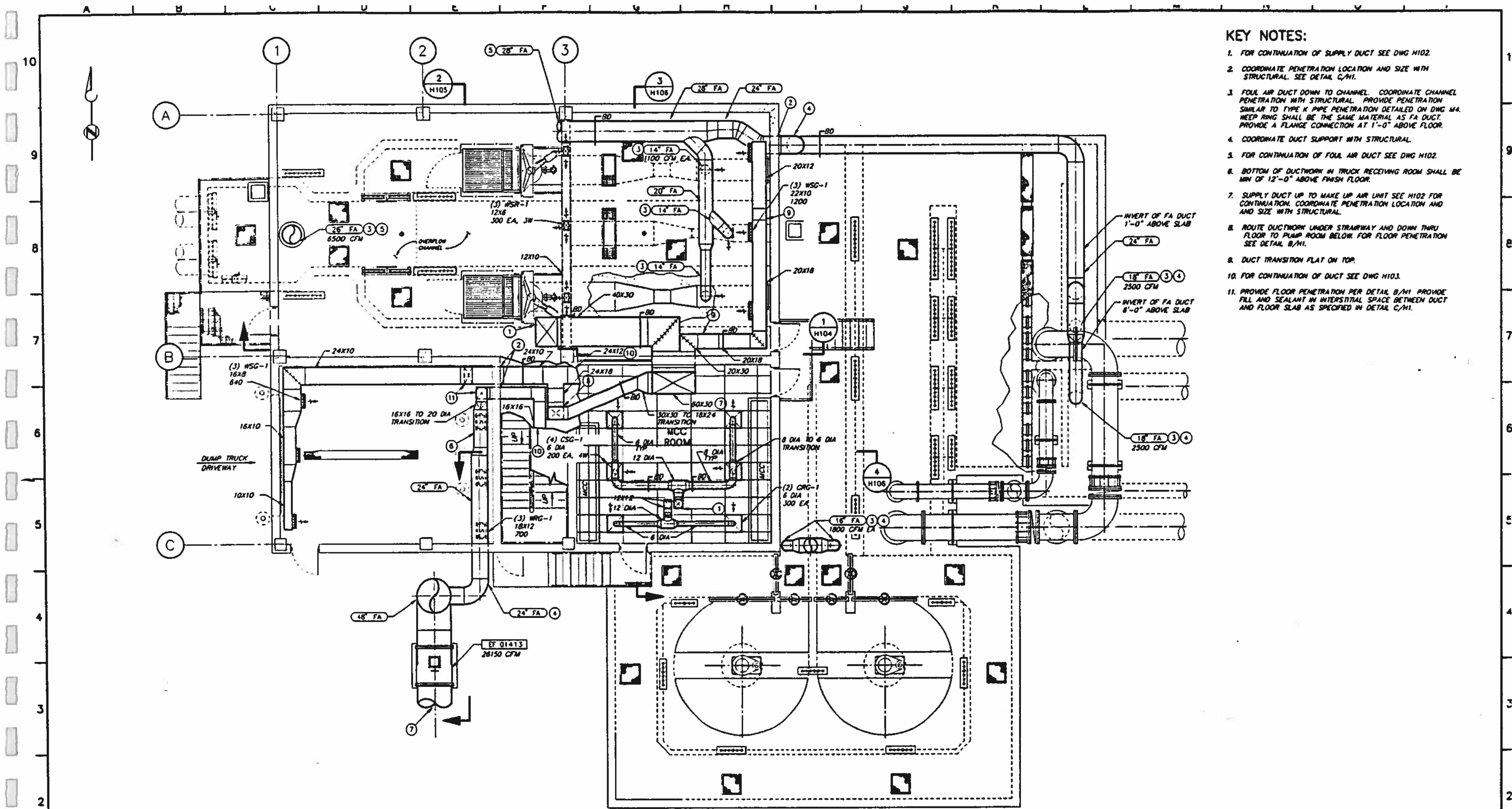
REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

ADMINISTRATION BUILDING CONTROL DIAGRAMS

PROJECT NUMBER
DRAWING NUMBER
H5
SHEET NUMBER
308



- KEY NOTES:**
1. FOR CONTINUATION OF SUPPLY DUCT SEE DWG H102.
 2. COORDINATE PENETRATION LOCATION AND SIZE WITH STRUCTURAL. SEE DETAIL C/H1.
 3. FOUR AIR DUCT DOWN TO CHANNEL. COORDINATE CHANNEL PENETRATION WITH STRUCTURAL. PROVIDE PENETRATION SIMILAR TO TYPE K PIPE PENETRATION DETAILED ON DWG M.A. WEEP RING SHALL BE THE SAME MATERIAL AS FA DUCT. PROVIDE A FLANGE CONNECTION AT 1'-0" ABOVE FLOOR.
 4. COORDINATE DUCT SUPPORT WITH STRUCTURAL.
 5. FOR CONTINUATION OF FOUR AIR DUCT SEE DWG H102.
 6. BOTTOM OF DUCTWORK IN TRUCK RECEIVING ROOM SHALL BE MIN OF 12'-0" ABOVE FINISH FLOOR.
 7. SUPPLY DUCT UP TO MAKE UP AIR UNIT SEE H102 FOR CONTINUATION. COORDINATE PENETRATION LOCATION AND SIZE WITH STRUCTURAL.
 8. ROUTE DUCTWORK UNDER STRAIRWAY AND DOWN THRU FLOOR TO PUMP ROOM BELOW FOR FLOOR PENETRATION SEE DETAIL B/H1.
 9. DUCT TRANSITION FLAT ON TOP.
 10. FOR CONTINUATION OF DUCT SEE DWG H103.
 11. PROVIDE FLOOR PENETRATION PER DETAIL B/H1. PROVIDE FILL AND SEALANT IN INTERSTITIAL SPACE BETWEEN DUCT AND FLOOR SLAB AS SPECIFIED IN DETAIL C/H1.

LOWER LEVEL PLAN
SCALE: 3/16"=1'-0"

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 4/1/02
APPROVED: *[Signature]* DATE: 4/20/02

LINE IS 3/16 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE	5870
DRAWN	GJM
DESIGNED	RCB/GJM
CHECKED	DD
APPROVED	DD



REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS

LOWER LEVEL PLAN

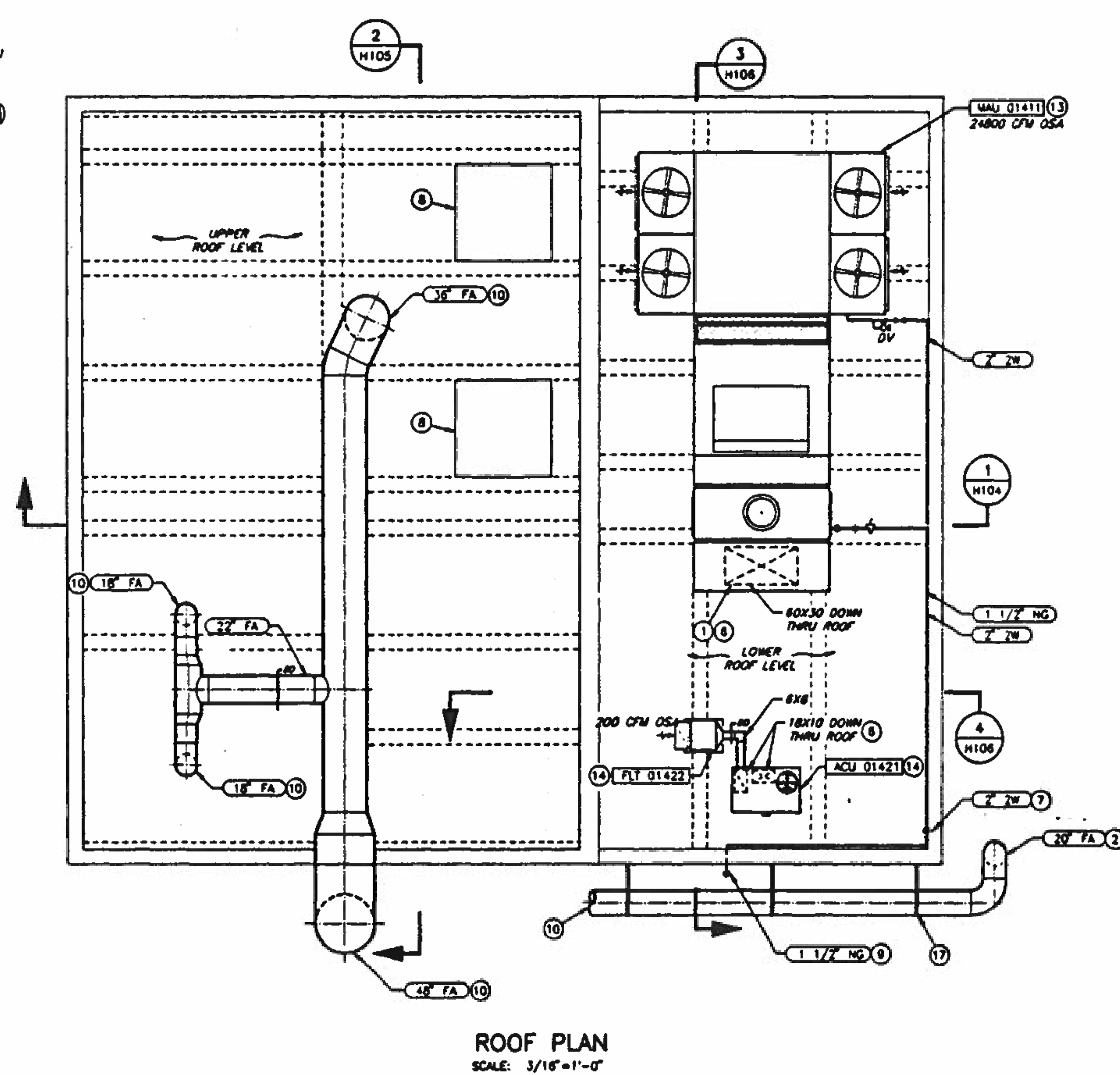
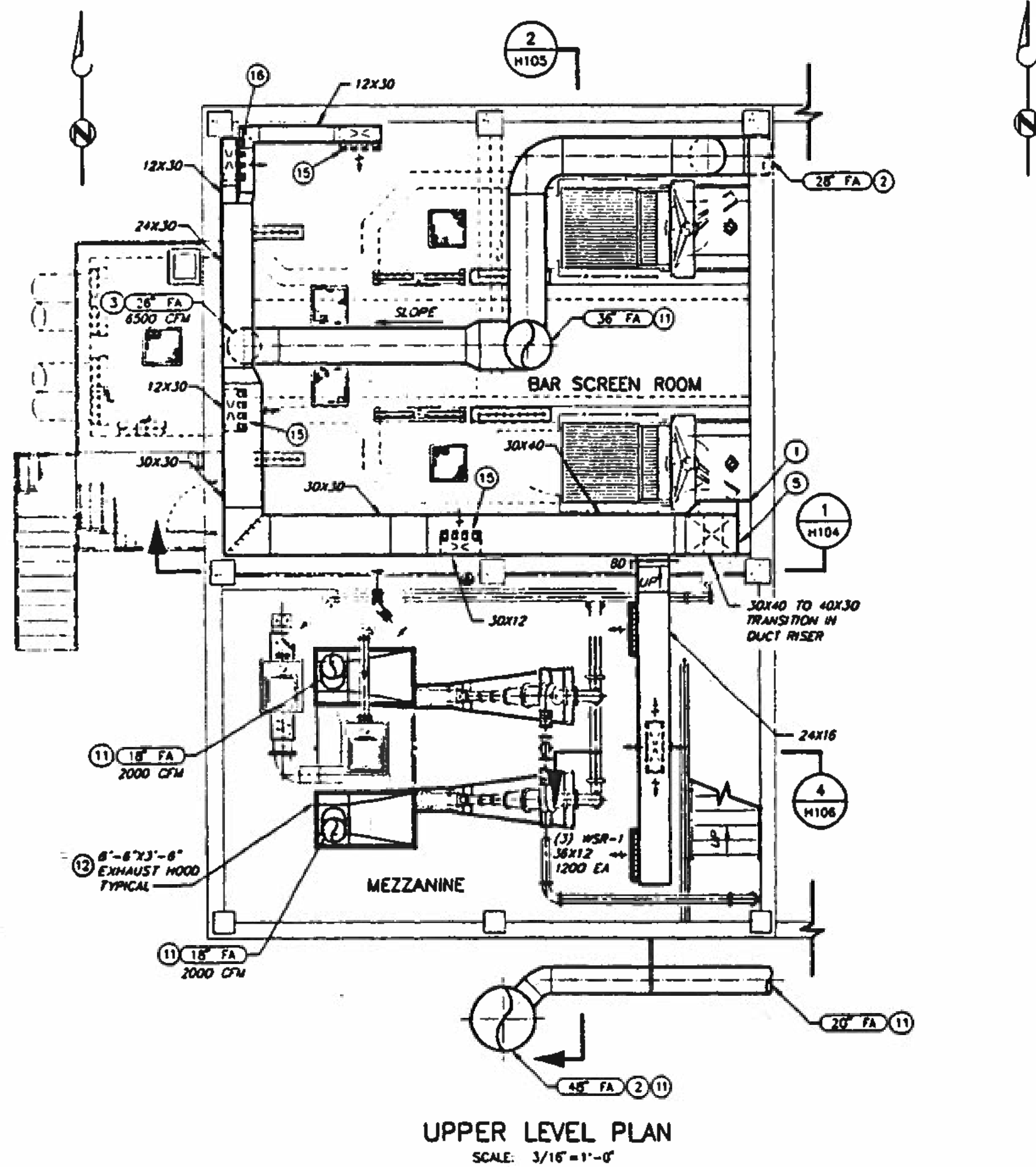
PROJECT NUMBER	
DRAWING NUMBER	H101
SHEET NUMBER	300

EXTERIOR DUCT INSTALLATION NOTES:

1. LINE ALL ROOF INSTALLED DUCT WORK STARTING FROM UNDER ROOF STRUCTURE UP TO EQUIPMENT DUCT CONNECTIONS WITH 2 INCH THICK SPECIFIED DUCT LINER. DUCT DIMENSIONS ARE NET INSIDE DUCT LINER.
2. SEAL DUCT JOINTS AND SEAMS ABOVE ROOF LINE WATERTIGHT. SEE SPECIFICATION SECTION 15891.
3. TOP PLANE OF DUCT WORK SHALL BE CANTED TO PREVENT STANDING WATER.
4. DUCT SURFACES SHALL BE COATED WITH ONE PRIMER COAT AND TWO FIELD APPLIED COATS, SUITABLE FOR NON-FERROUS METAL UNDER EXTERIOR CONDITIONS. SEE SPECIFICATION SECTION 09900.
5. PROVIDE OVERLAPPING ALUMINUM SHEET METAL SHIELDS OVER FLEX CONNECTOR THAT ARE WATERTIGHT AND ALLOW FLEX CONNECTORS TO FUNCTION PROPERLY.
6. PROVIDE DUCTWORK ON ROOF AS SHOWN AND INSTALL PER STRUCTURAL SUPPORT SYSTEM. SEE STRUCTURAL DETAIL 2/5854.

KEY NOTES:

1. FOR CONTINUATION OF SUPPLY DUCT SEE DWG H101.
2. FOR CONTINUATION OF FOUL AIR DUCT SEE DWG H101.
3. FOUL AIR DUCT DOWN TO CHANNEL. COORDINATE PENETRATION WITH STRUCTURAL.
4. NOT USED.
5. OFFSET DUCT AS SHOWN ON SEC 1/H104 TO CLEAR PIPE.
6. COORDINATE ROOF PENETRATION LOCATION AND SIZE WITH STRUCTURAL.
7. FOR CONTINUATION OF 2W PIPING SEE DWG M102.
8. SKY LIGHT FOR BAR SCREEN REMOVAL.
9. FOR CONTINUATION OF NG PIPING SEE DWG M101.
10. FOR CONTINUATION OF FOUL AIR DUCT SEE UPPER LEVEL PLAN.
11. FOR CONTINUATION OF FOUL AIR DUCT SEE ROOF PLAN.
12. SUSPEND EXHAUST HOOD 7'-8" FROM FLOOR TO BOTTOM OF HOOD.
13. FOR MAKE UP AIR MOUNTING SEE DETAIL D/M3.
14. FOR AIR CONDITIONING UNIT AND FILTER MOUNTING SEE DETAIL B/M3.
15. VERTICAL DUCT DOWN TO 1'-6" ABOVE FLOOR. PROVIDE THREE WSR-2 AT 1100 CFM EA IN VERTICAL DUCT.
16. VERTICAL DUCT DOWN TO 6'-0" ABOVE FLOOR. PROVIDE TWO WSR-2 AT 1850 CFM EA IN VERTICAL DUCT.
17. COORDINATE DUCT SUPPORT WITH STRUCTURAL.



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Phoenix, Arizona

FILE: 5870
DRAWN: GJM
DESIGNED: RCB/GJM
CHECKED: RO
CHECKED: RCB

SUBMITTED: [Signature] DATE: 11/12/12
APPROVED: [Signature] DATE: 11/20/12

REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE

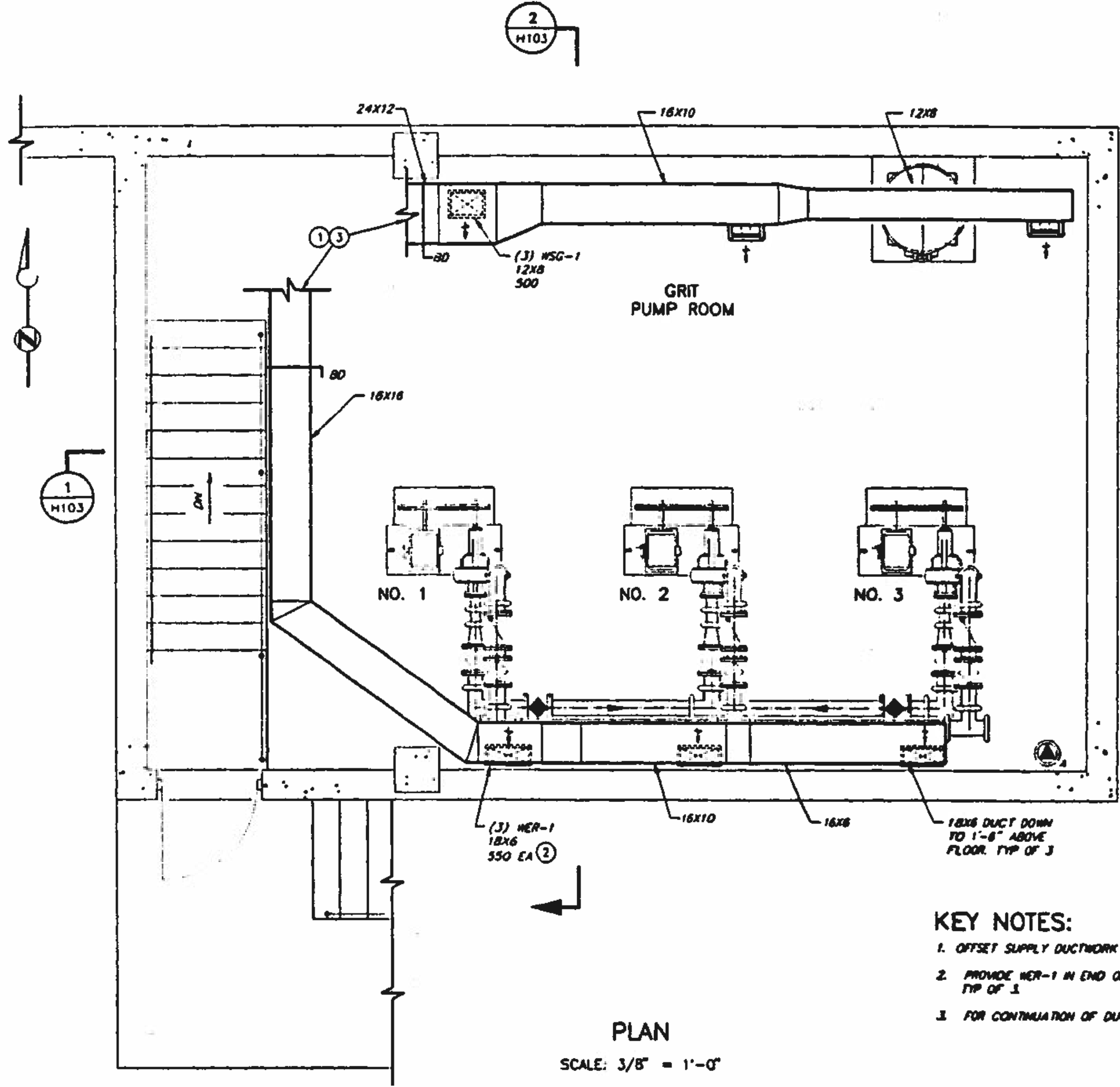
EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

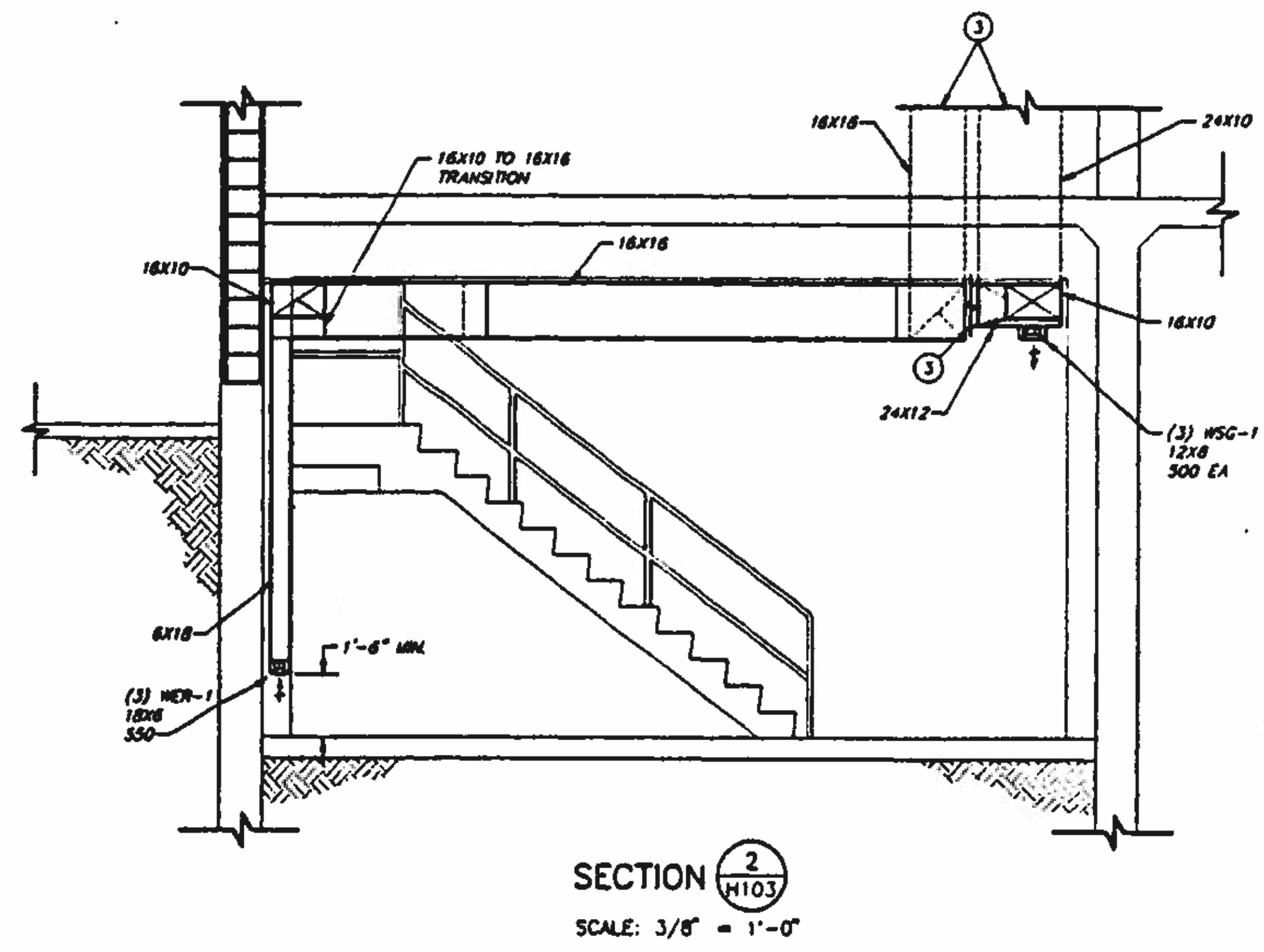
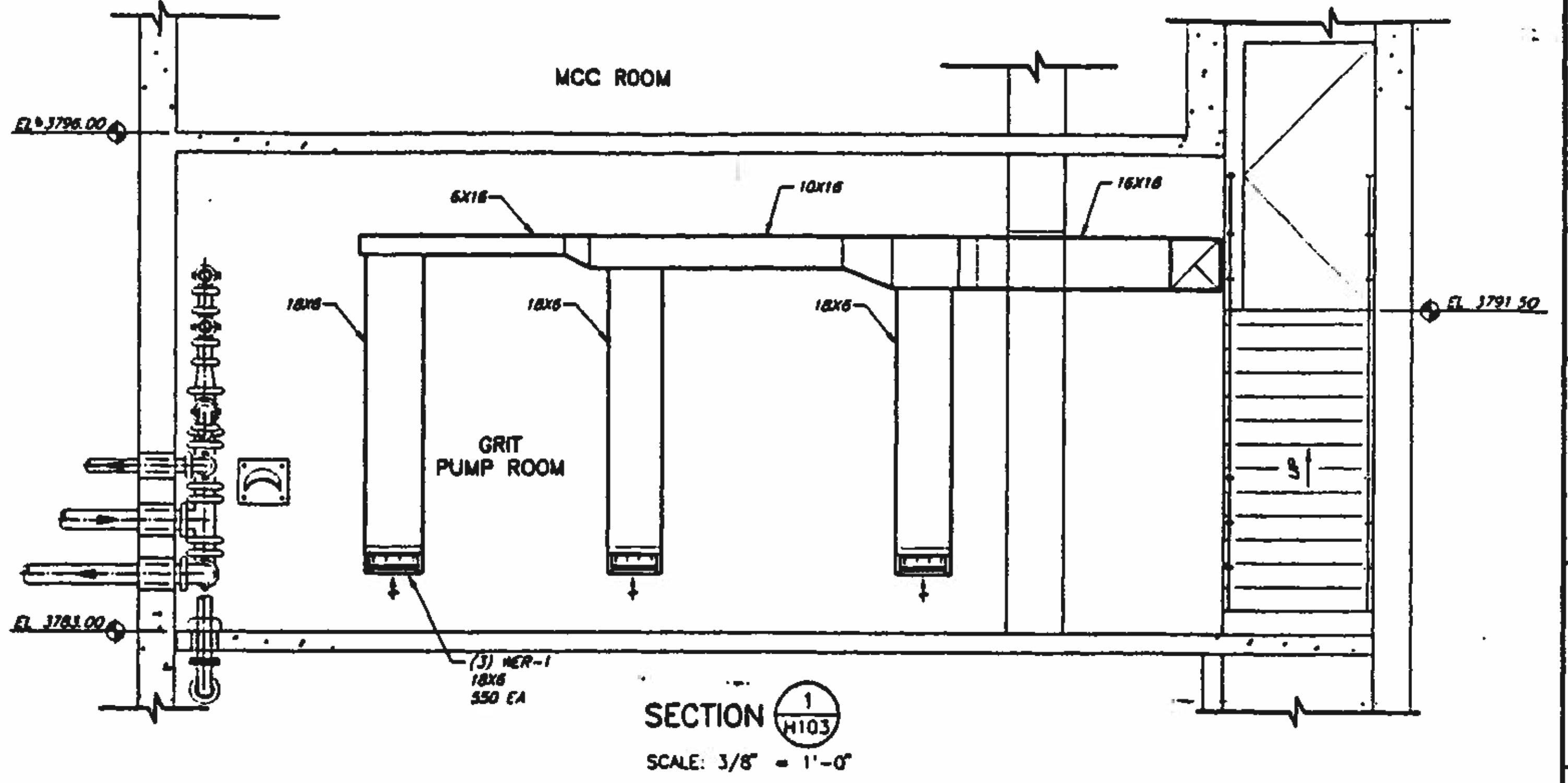
HEADWORKS

UPPER LEVEL AND ROOF PLANS

PROJECT NUMBER: H102
DRAWING NUMBER: H102
SHEET NUMBER: 310



- KEY NOTES:**
1. OFFSET SUPPLY DUCTWORK TO CLEAR UNDER BEAM.
 2. PROVIDE HER-1 IN END OF VERTICAL DUCT, TYP OF 1.
 3. FOR CONTINUATION OF DUCT, SEE DWG H101.



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Phoenix, Arizona

SUBMITTED: [Signature] DATE: 4/12/12
APPROVED: [Signature] DATE: 4/12/12
APPROVED: [Signature] DATE:

LINE IS 2 INCHES AT FULL SIZE UNLESS NOTED OTHERWISE

FILE: 5870
DRAWN: GJM
DESIGNED: GJM
CHECKED: ACR
CHECKED: CO



REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



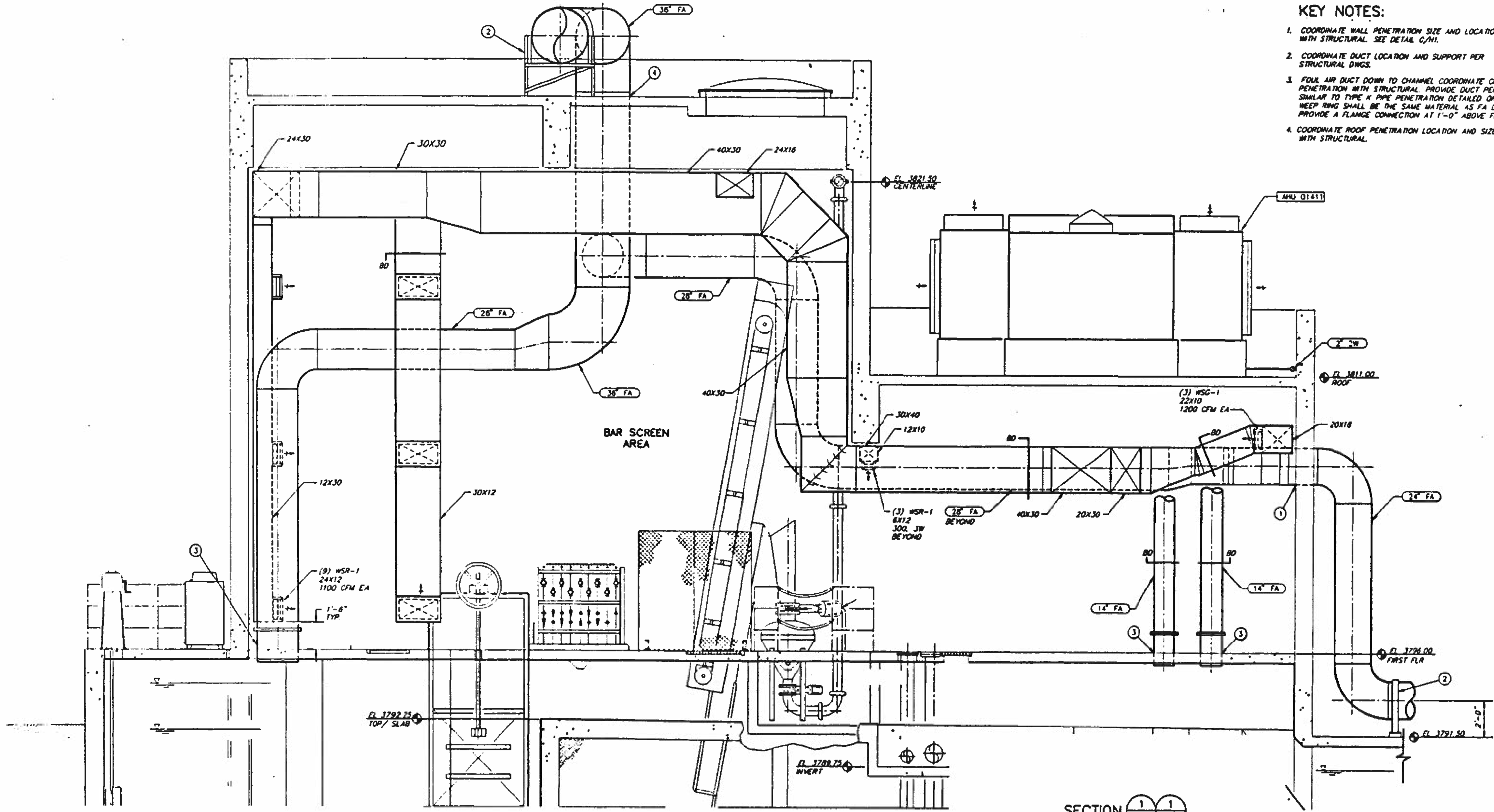
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS GRIT PUMPING ROOM PART PLAN AND SECTIONS

PROJECT NUMBER: [Blank]
DRAWING NUMBER: **H103**
SHEET NUMBER: 311

KEY NOTES:

1. COORDINATE WALL PENETRATION SIZE AND LOCATION WITH STRUCTURAL. SEE DETAIL C/MI.
2. COORDINATE DUCT LOCATION AND SUPPORT PER STRUCTURAL DWGS.
3. FOLK AIR DUCT DOWN TO CHANNEL COORDINATE CHANNEL PENETRATION WITH STRUCTURAL. PROVIDE DUCT PENETRATION SIMILAR TO TYPE K PIPE PENETRATION DETAILED ON DWG M-4. WEEP RING SHALL BE THE SAME MATERIAL AS FA DUCT. PROVIDE A FLANGE CONNECTION AT 1'-0" ABOVE FLOOR.
4. COORDINATE ROOF PENETRATION LOCATION AND SIZE WITH STRUCTURAL.



SECTION $\frac{1}{H101} \frac{1}{H102}$
 SCALE: 3/8" = 1'-0"

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 Consultants
 Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: *4/1/02*
 APPROVED: *[Signature]* DATE: *4/20/02*
 APPROVED: _____ DATE: _____

LINE IS 3/16 INCHES AT FULL SIZE (IF NOT OTHERWISE INDICATED)

FILE	5870
DRAWN	GJM
DESIGNED	RCB/GJM
CHECKED	GO
CHECKED	RCB



REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



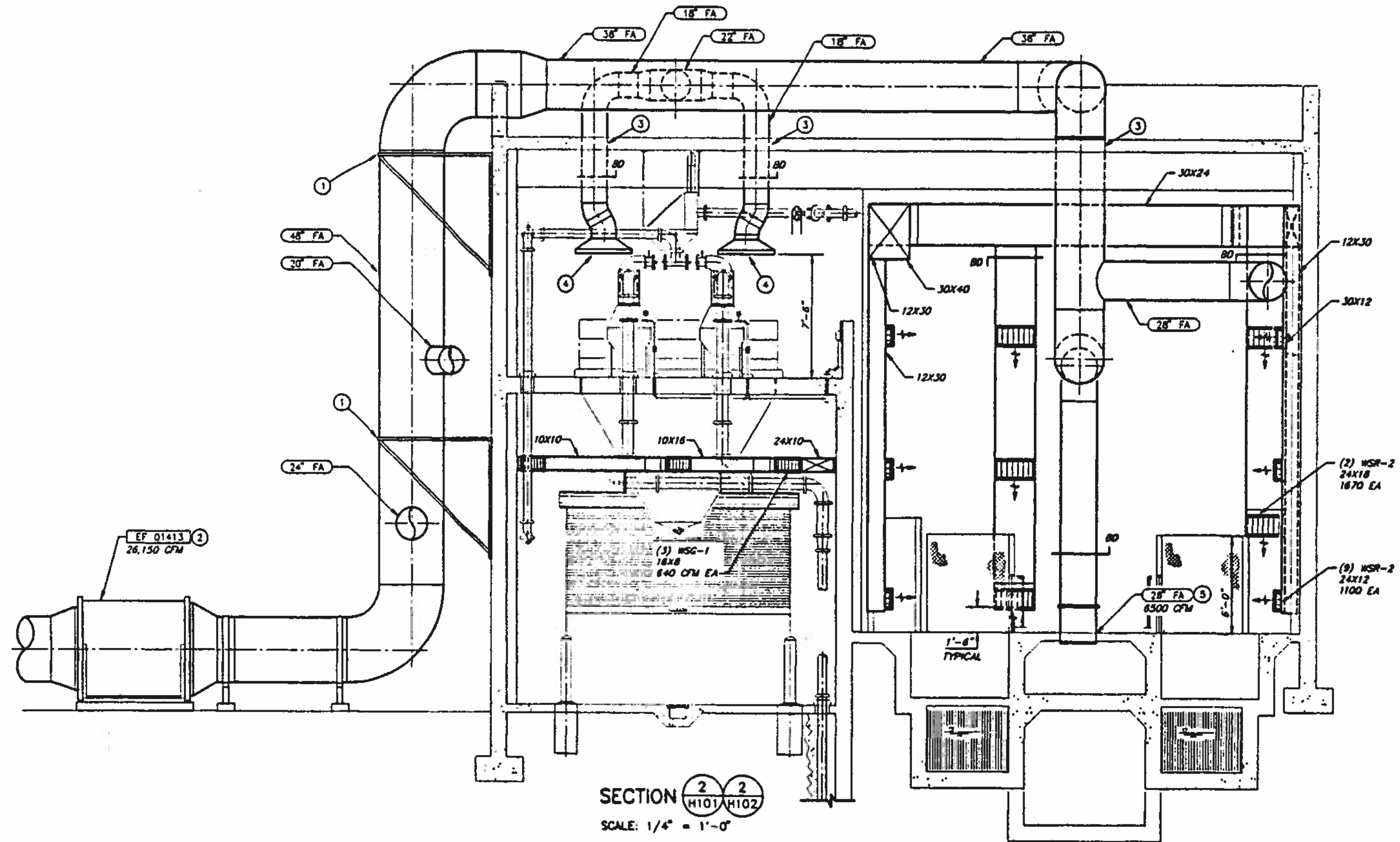
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS
 SECTION

PROJECT NUMBER	
DRAWING NUMBER	H104
SHEET NUMBER	312

KEY NOTES:

1. COORDINATE DUCT SUPPORT SYSTEM WITH STRUCTURAL
2. FOR FOUL AIR FAN MOUNTING SEE DETAIL F/M2
3. COORDINATE ROOF PENETRATION LOCATION AND SIZE WITH STRUCTURAL
4. 6'-6" BY 3'-6" EXHAUST HOOD AT 2000 CFM SUSPENDED FROM ROOF DECK ABOVE.
5. COORDINATE PENETRATION LOCATION AND SIZE WITH STRUCTURAL



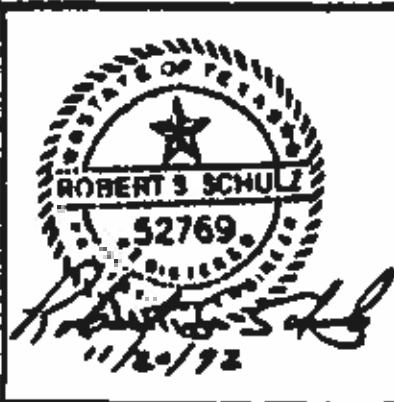
SECTION $\frac{2}{H101} \frac{2}{H102}$
SCALE: 1/4" = 1'-0"

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/20/92
APPROVED: *[Signature]* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" SCALE ACCORDING TO)

FILE 5870
DRAWN GJM
DESIGNED RCB/GJM
CHECKED _____
CHECKED _____



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



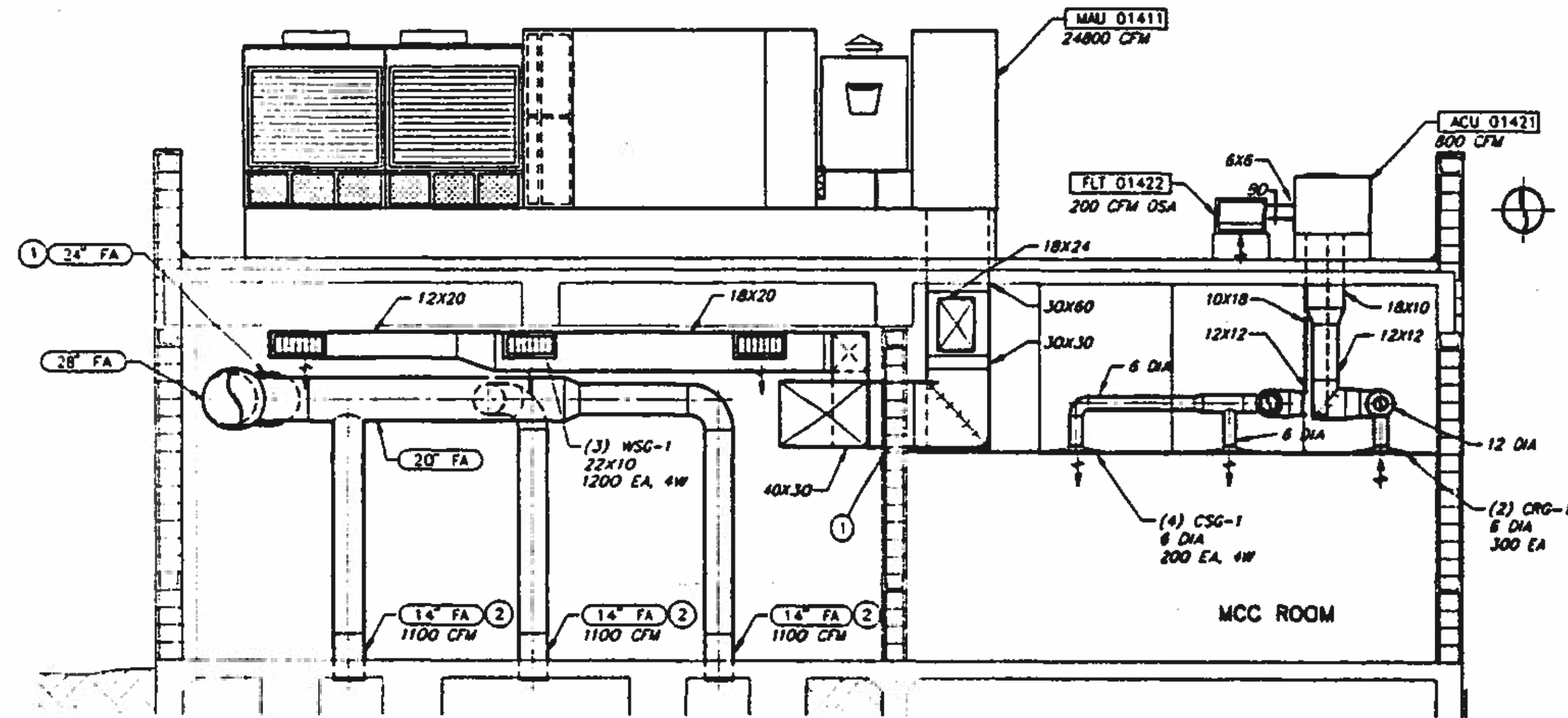
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS
SECTION

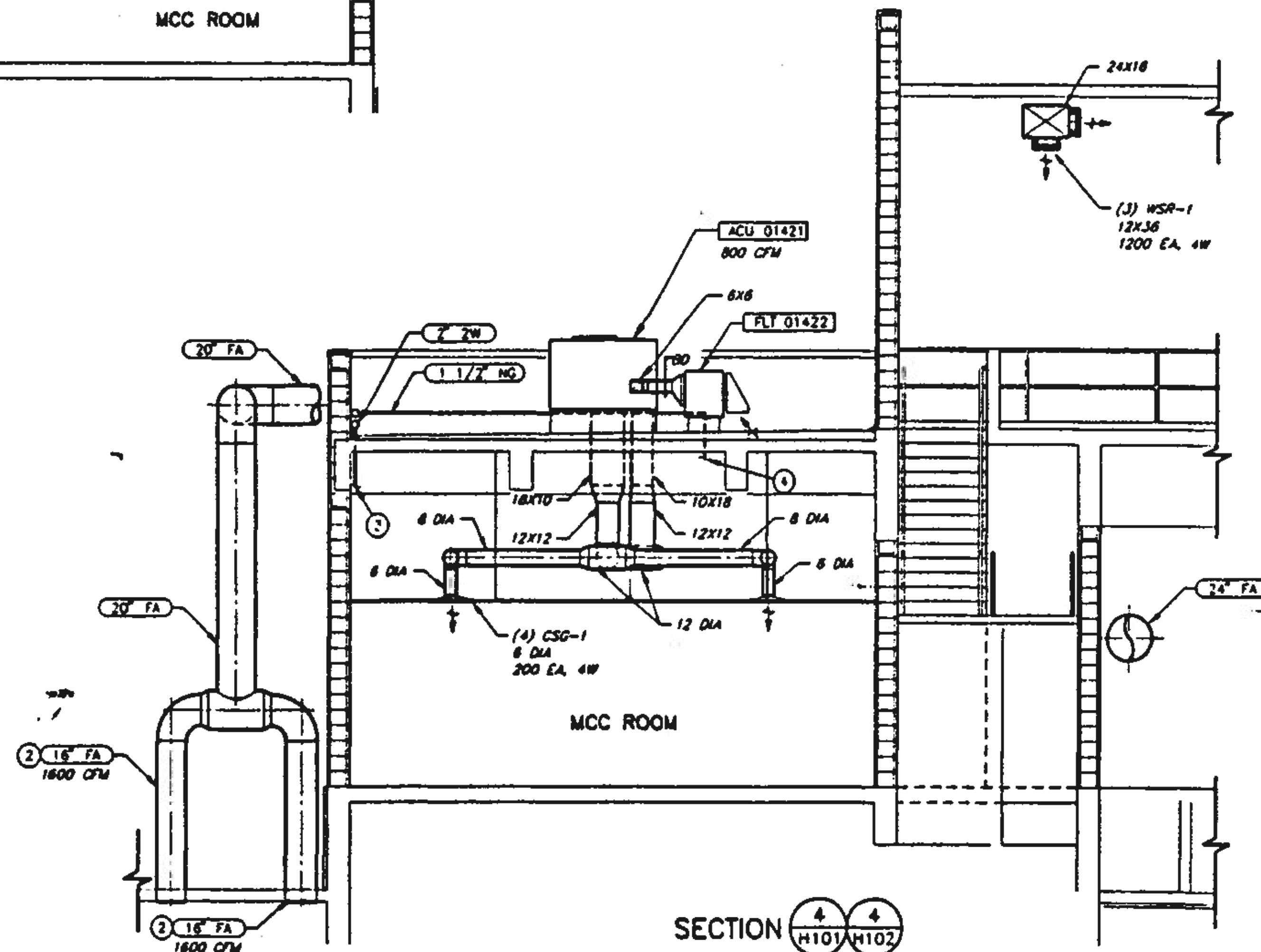
PROJECT NUMBER
DRAWING NUMBER
H105
SHEET NUMBER
313

KEY NOTES:

1. COORDINATE PENETRATION LOCATION AND SIZE WITH STRUCTURAL. SEE DETAIL G/HI.
2. FOLLOW AIR DUCT DOWN TO CHANNEL. COORDINATE CHANNEL PENETRATION WITH STRUCTURAL. PROVIDE PENETRATION SIMILAR TO TYPE K PIPE PENETRATION DETAILED ON M4. WEEP RING SHALL BE THE SAME MATERIAL AS FA DUCT. PROVIDE A FLANGE CONNECTION AT 1'-0" ABOVE FLOOR.
3. FOR CONTINUATION OF ZW PIPING SEE DWG. M102.
4. FOR CONTINUATION OF NG PIPING SEE DWG. M101.



SECTION 3-3
H101 H102
SCALE: 1/4" = 1'-0"



SECTION 4-4
H101 H102
SCALE: 1/4" = 1'-0"

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Phoenix, Arizona

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" SCALE ACCORDINGLY)

FILE 5870
DRAWN GJM
DESIGNED RCB/GJM
CHECKED [Signature]
CHECKED [Signature]



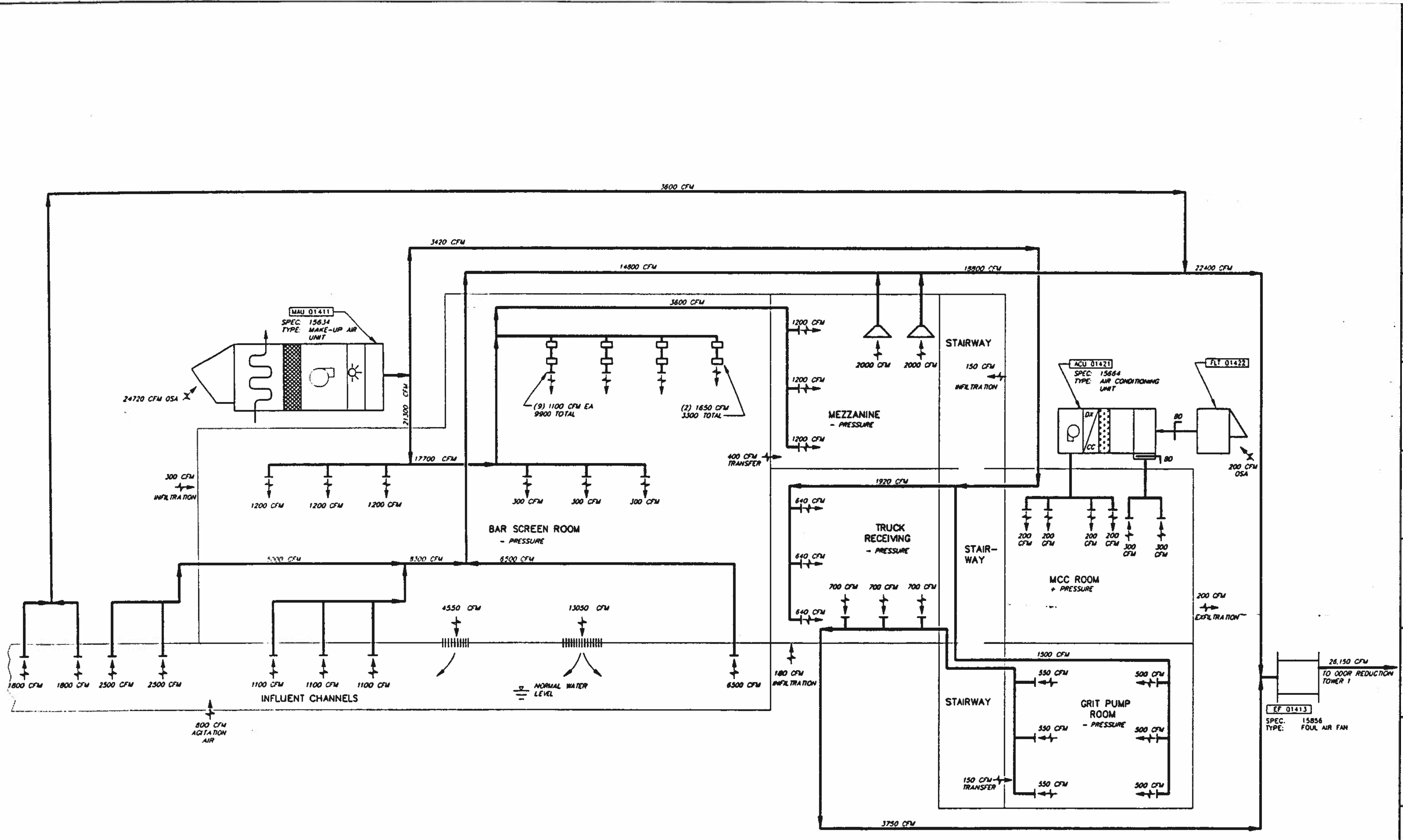
REVISIONS					
ZONE	REV.	DATE	DESCRIPTION	BY	APP.



**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

**HEADWORKS
SECTIONS**

PROJECT NUMBER
DRAWING NUMBER
H106
SHEET NUMBER
314



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 Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: *11/10/92*
 APPROVED: *[Signature]* DATE: *11/10/92*
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE
 (IF NOT 2" SCALE, APPROXIMATE)

FILE: 5870
 DRAWN: PMG
 DESIGNED: GJM/RCB
 CHECKED: *[Signature]*
 CHECKED: *[Signature]*



REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

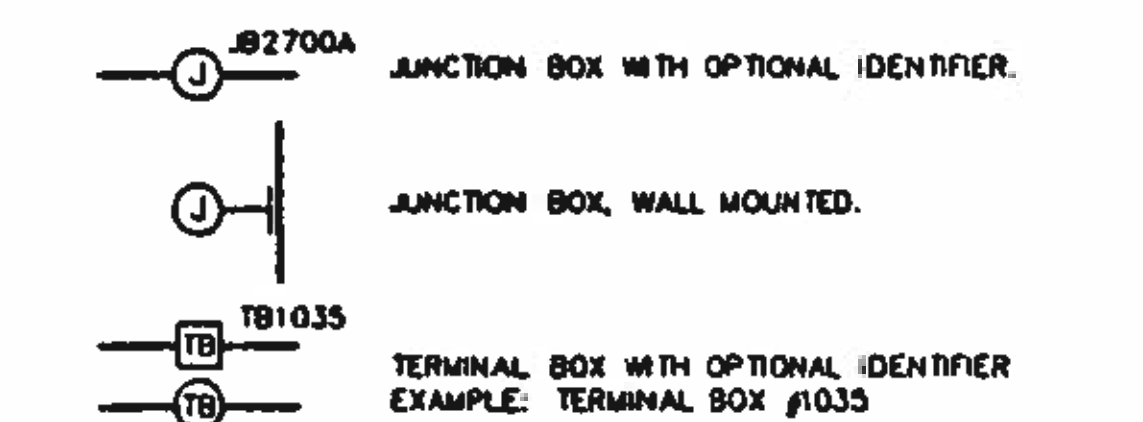
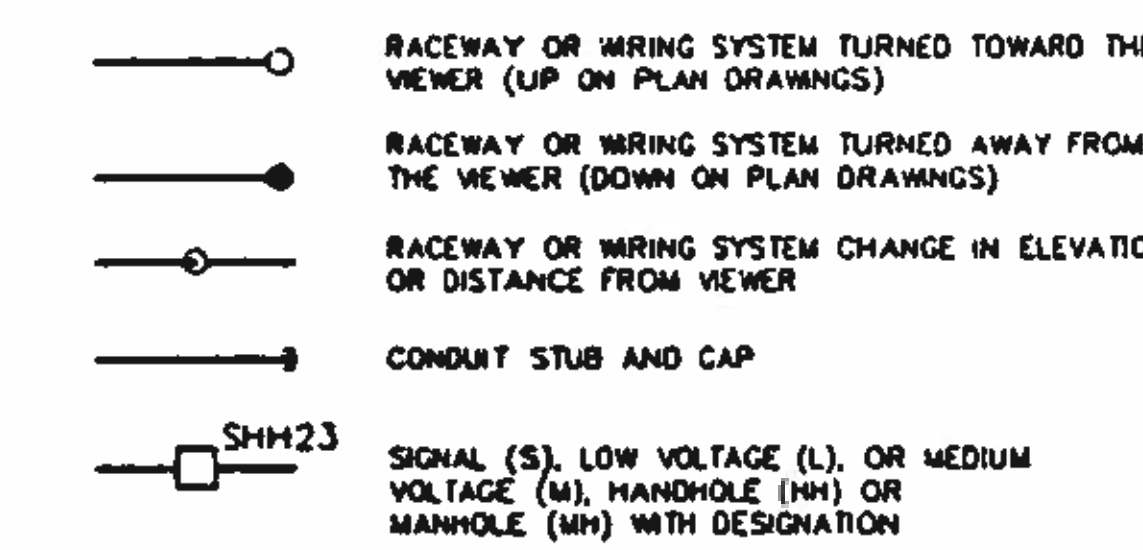
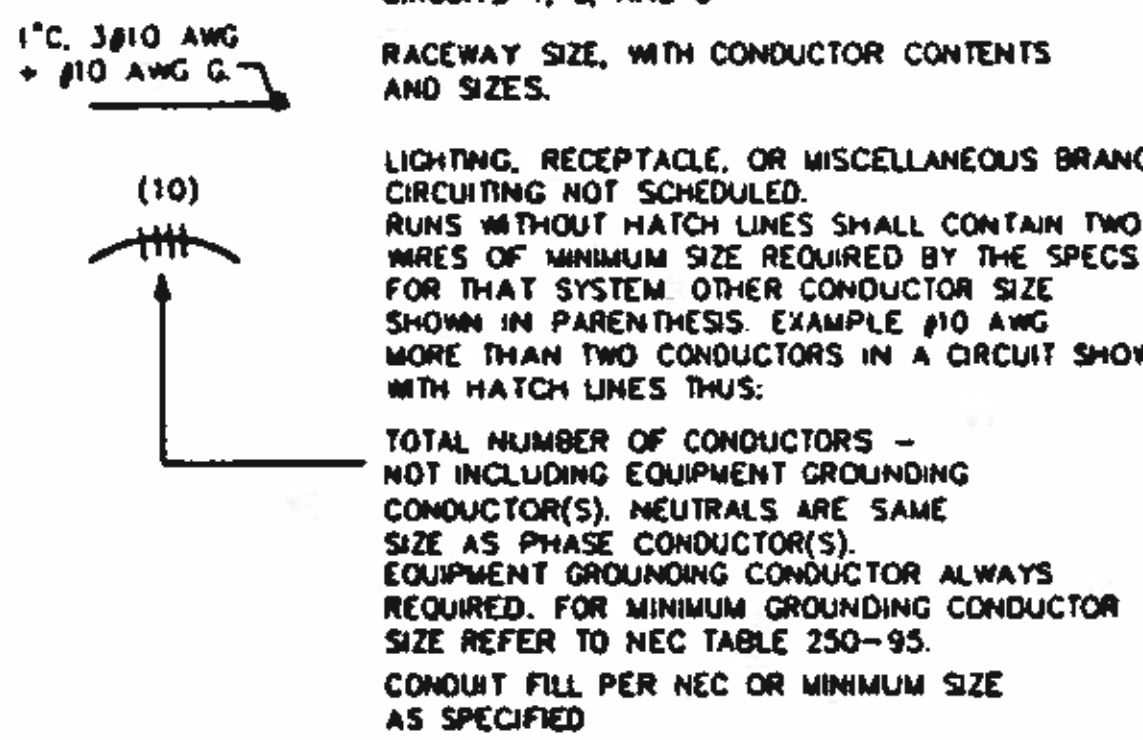
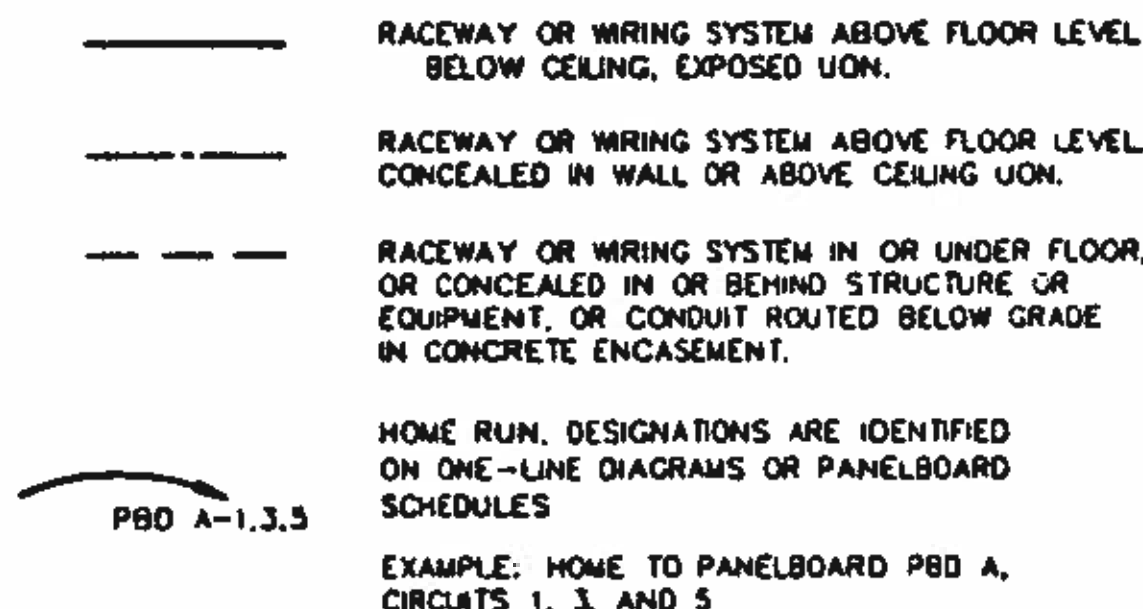
HEADWORKS

AIRFLOW SCHEMATIC

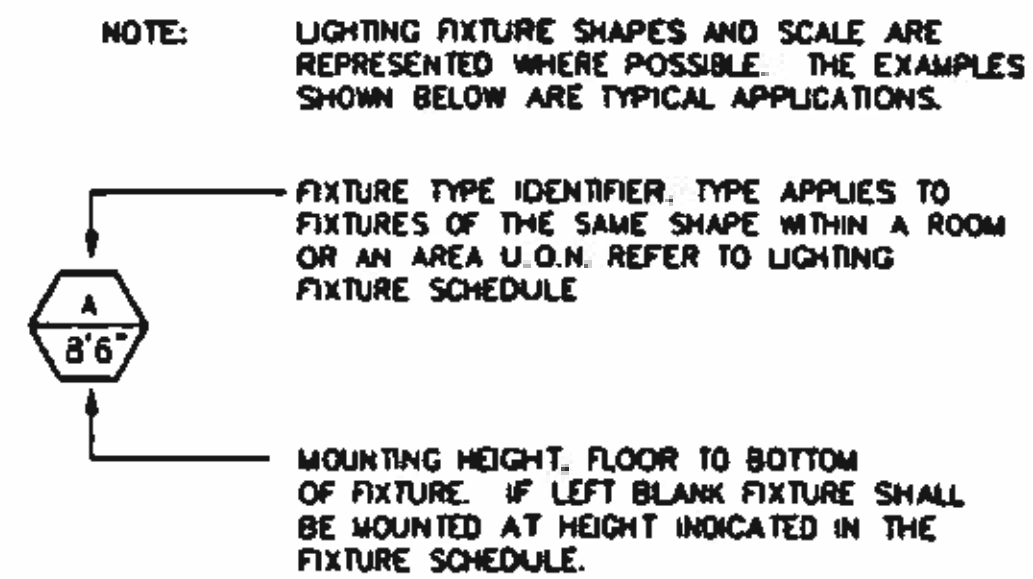
PROJECT NUMBER	
DRAWING NUMBER	H107
SHEET NUMBER	315

PLAN DRAWINGS:

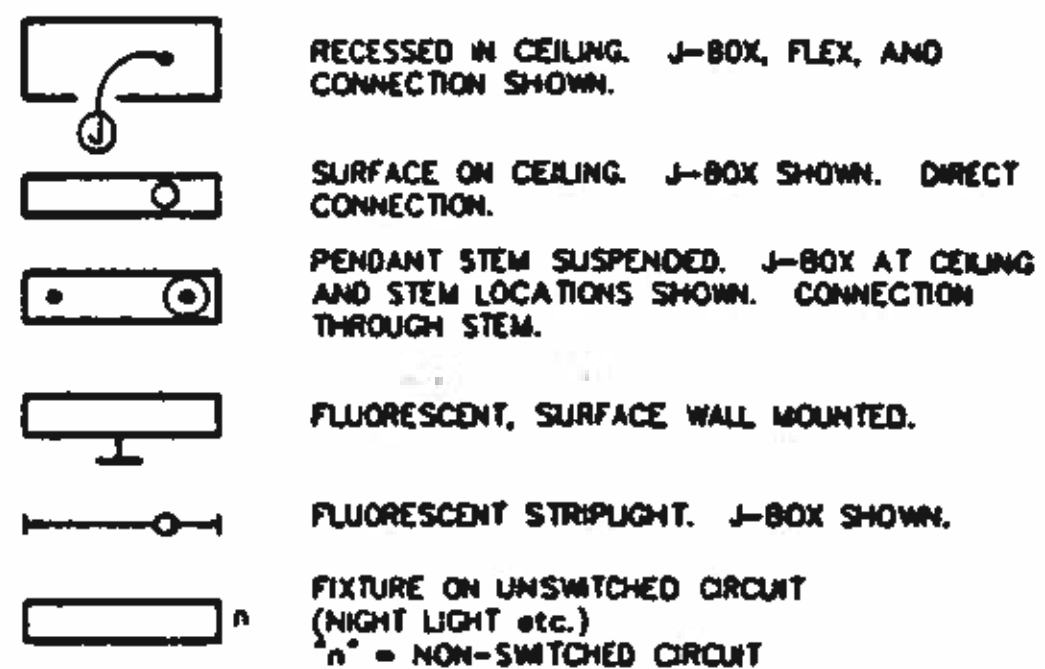
CIRCUIT AND RACEWAY SYMBOLS:



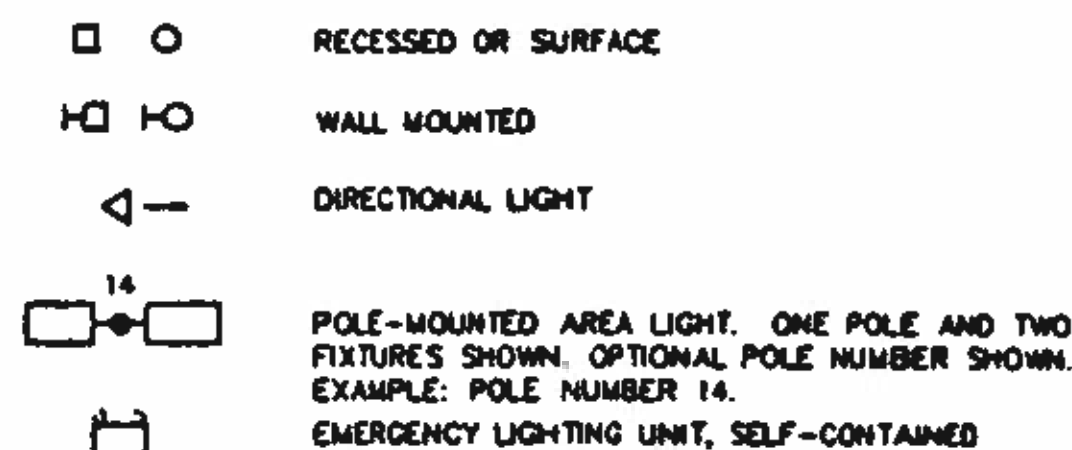
LIGHTING SYMBOLS:



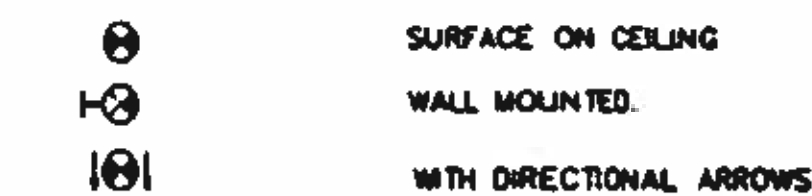
FLUORESCENT FIXTURES:



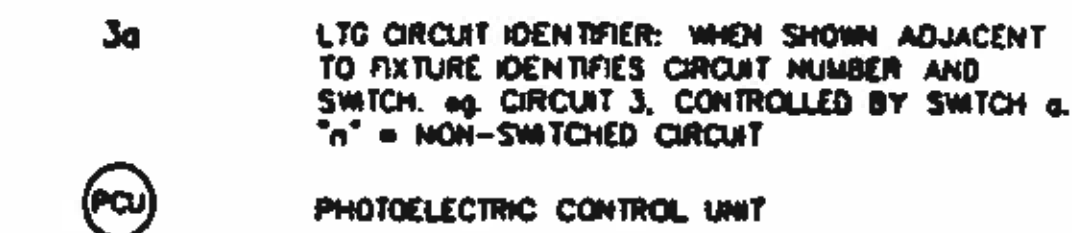
INCANDESCENT/HID FIXTURES:



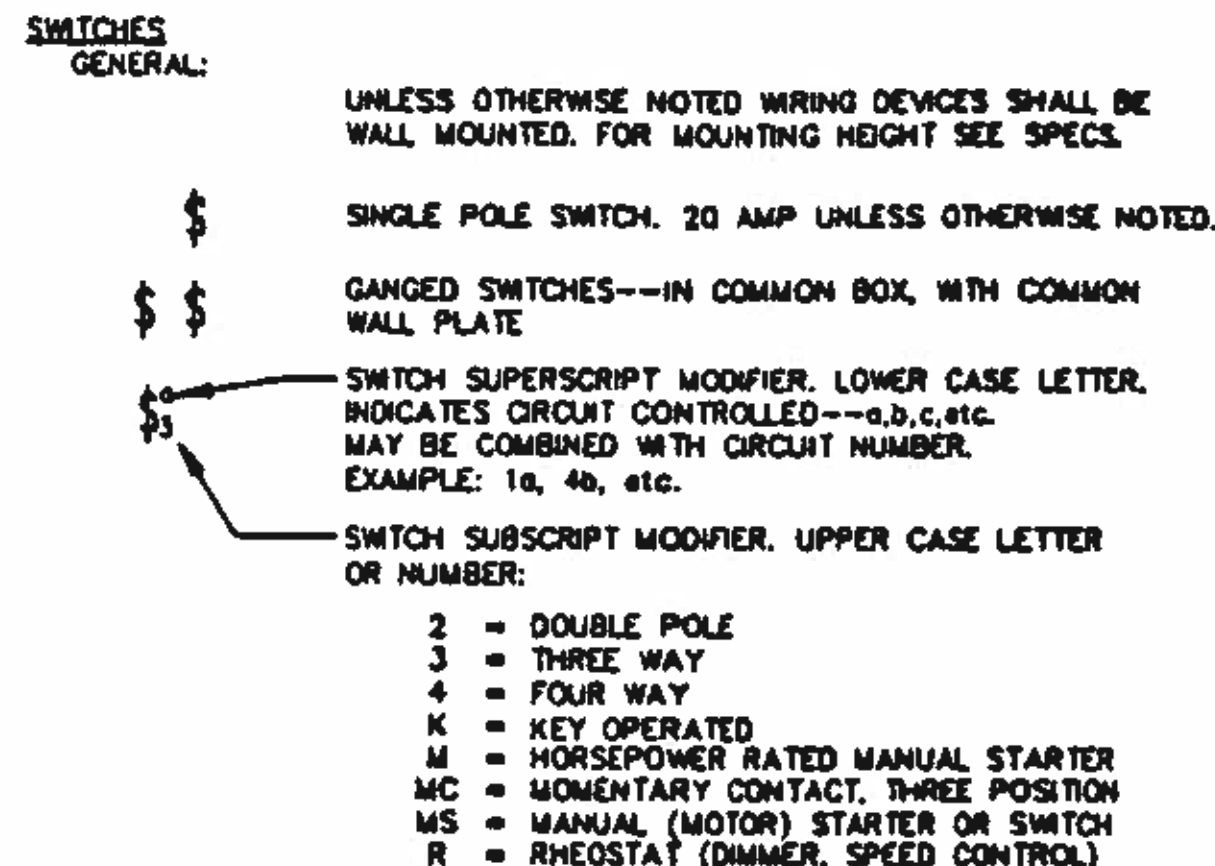
EXIT LIGHTS. DARK QUADRANTS INDICATE FACES ILLUMINATED:



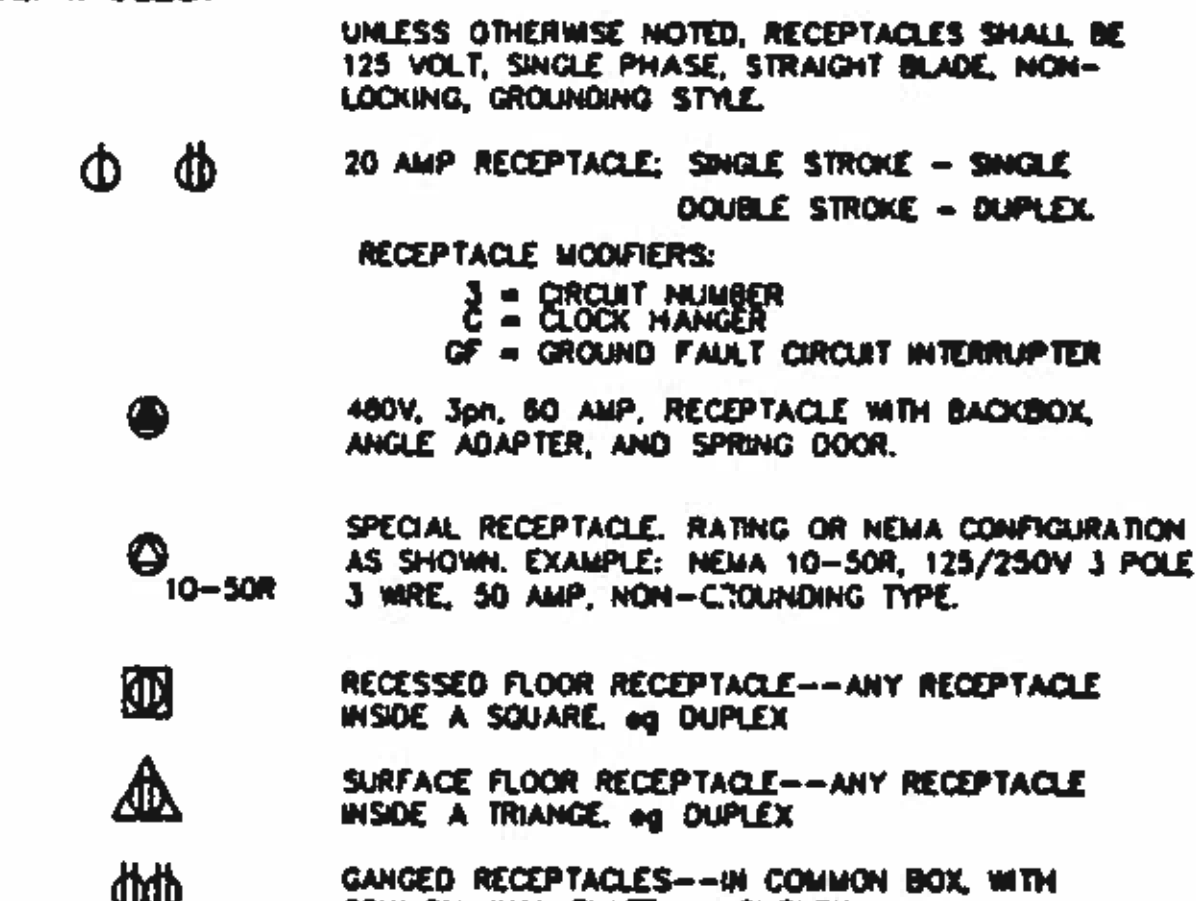
LIGHTING CONTROL:



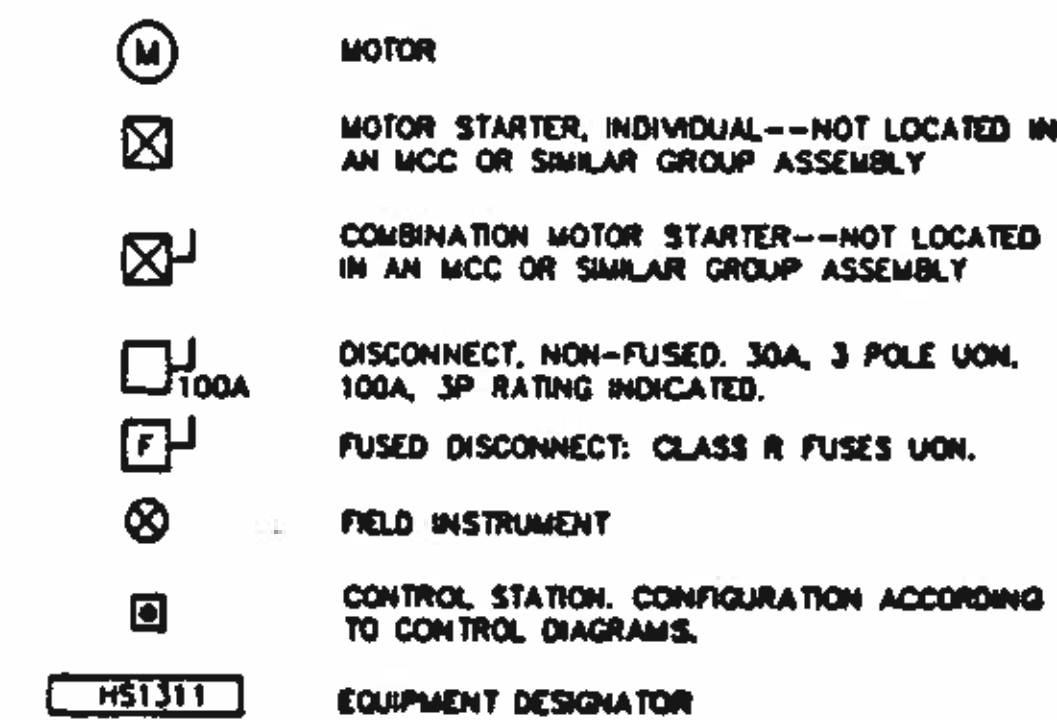
WIRING DEVICE SYMBOLS:



RECEPTACLES:



MOTOR AND EQUIPMENT SYMBOLS:



GENERAL ABBREVIATIONS:

NOTES: 1. IN GENERAL, ABBREVIATIONS USED IN ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ANSI Y1.1-1972...

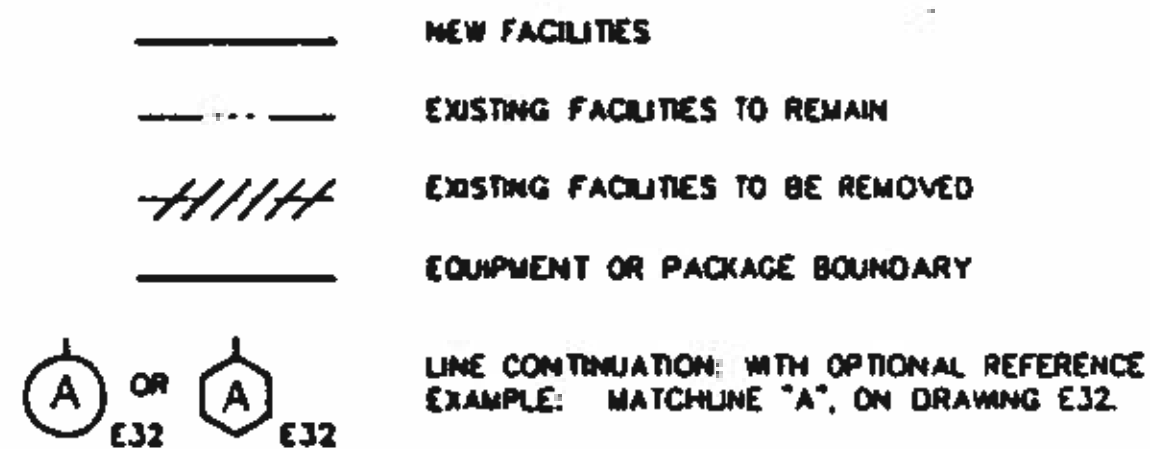
2. THE FOLLOWING ABBREVIATIONS ARE NOT TO BE CONFUSED WITH EQUIPMENT NUMBERING PREFIXES LISTED ON DRAWING G2 OR OTHER CONTRACT DOCUMENTS.

Table of general abbreviations with columns for symbol, description, and unit. Includes terms like AMP, AC, AFF, AHAP, AIC, AL, ARCH, ASC, ASYM, ATS, AUTO, AUX, AWG, BC, BLDG, BOT, C, CB, CKT, CLG, CM, CND, CO, CONC, CNTL, CT, CU, DB, DC, DCU, DET, DIAG, DWG, EA, ECP, EL, ELEC, EMER, ENCL, EQUIP, EX, FDR, FLA, FLEX, FO, FUT, GDR, GEC, GF, GF1, GND, GRS, H, HGT, HH, HID, HP, H-O-A, HTR, HV, HVAC, HZ, IO, IMC, IMC, INTLK, INST, I/O, JB, KCML, KV, KVA, KVAR, KW, KWH, L, LCP, LHM, LHM, LP, LT, LTO, LV, M, MBS, MCC, MCM, MCP, MCDH, MFR, MH, MIC, MIS, MISC, MM, MMH, MOV, MTS, MV, MVMC, N/A, NEUT, NF, NHC, NO, NOM, NP, NTS, OCC, OCC, OD, OH, OT, OWS, P, PB, PCB, PCP, PF, PH, PLC, PNL, PR, PRI, PT, PVC, PWR, RCPT, REF, REQD, RE STL, RMS, RTD, SCH, SCR, SEC, SEL, SHH, SPEC, SPKR, ST, SUB, SW, SWBD, SWGR, SYMM, SYS, TB, TCB, TEL, TEMP, TFR, TR, TV, TYP, TVSS, U/G, UON, V, VA, VAR, VFD, VSD, XFMR, XNTR, W, W/, W/O, WW, XP, Z.

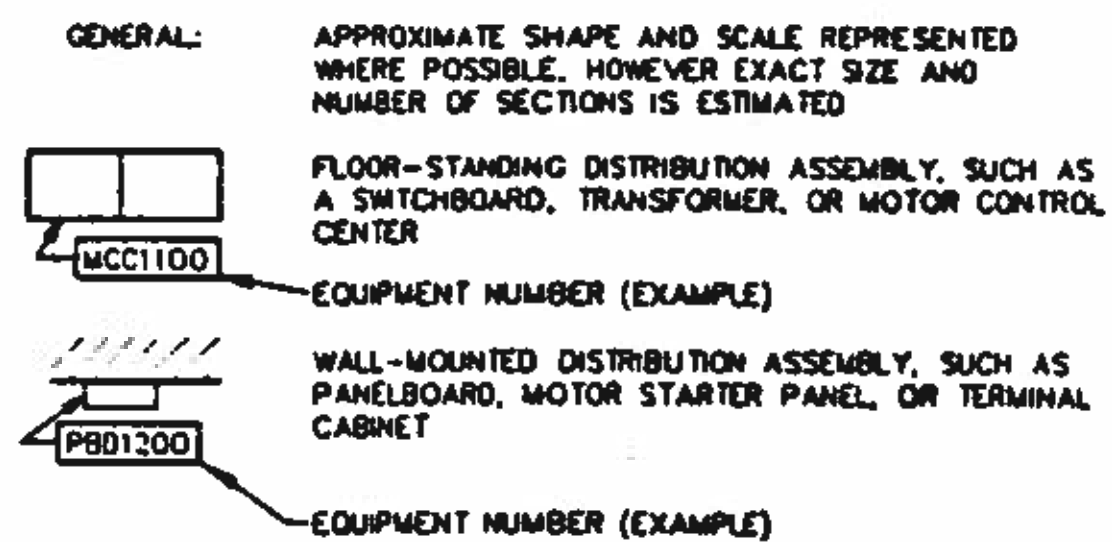
GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE. NOT ALL SYMBOLS SHOWN ON THIS DRAWING ARE USED IN SUBSEQUENT DRAWINGS.

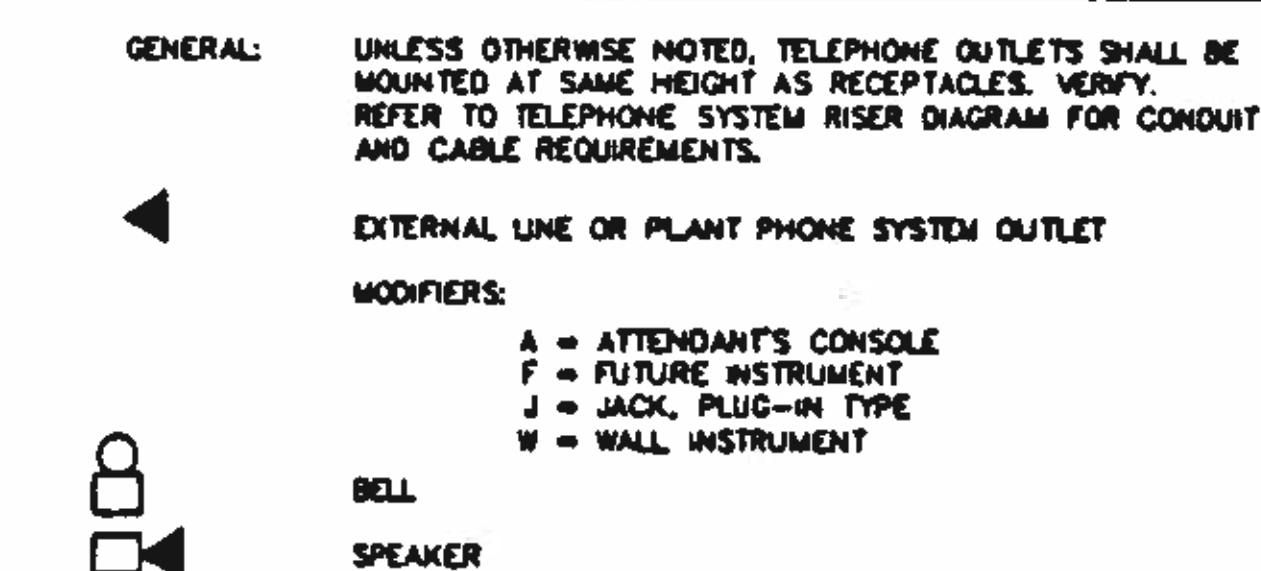
GENERAL LINEWORK:



DISTRIBUTION EQUIPMENT SYMBOLS:



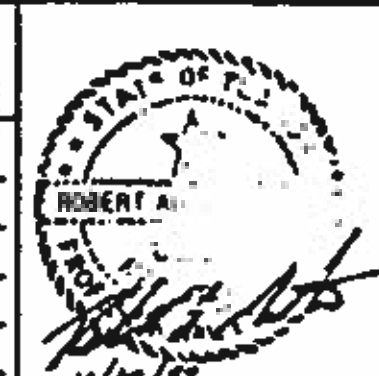
TELEPHONE SYSTEM SYMBOLS:



BC Brown and Caldwell Consultants Phoenix, Arizona

SUBMITTED: DATE: 11/17/92 APPROVED: DATE: 11-20-92

LINE IS 3 INCHES AT FULL SIZE FILE: 5870 DRAWN: DOH DESIGNED: RAM CHECKED: RAM



REVISIONS table with columns: ZONE, REV., DESCRIPTION, BY, DATE, APP.

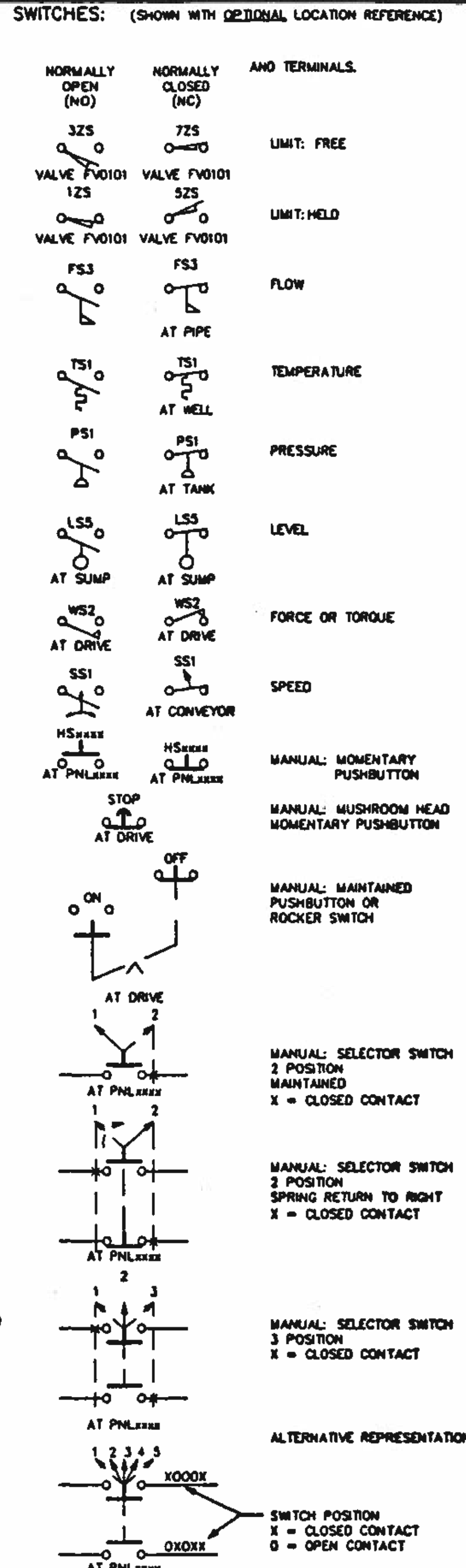
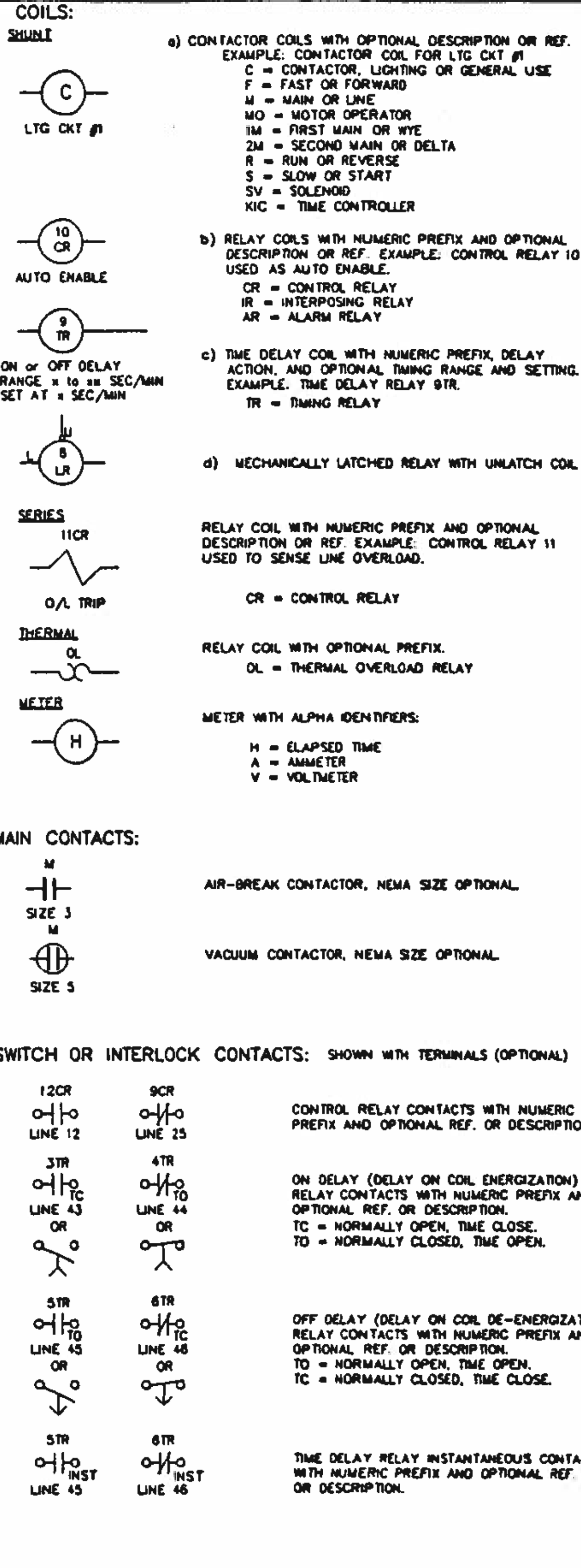
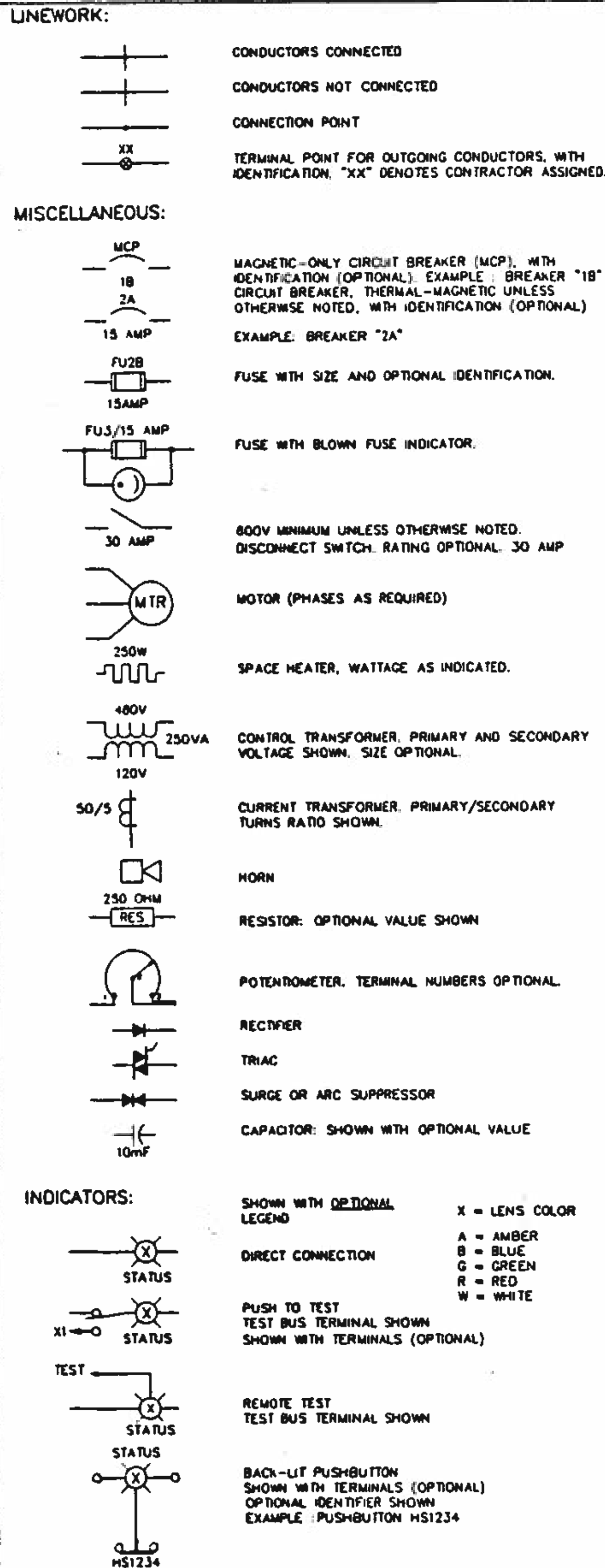


NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

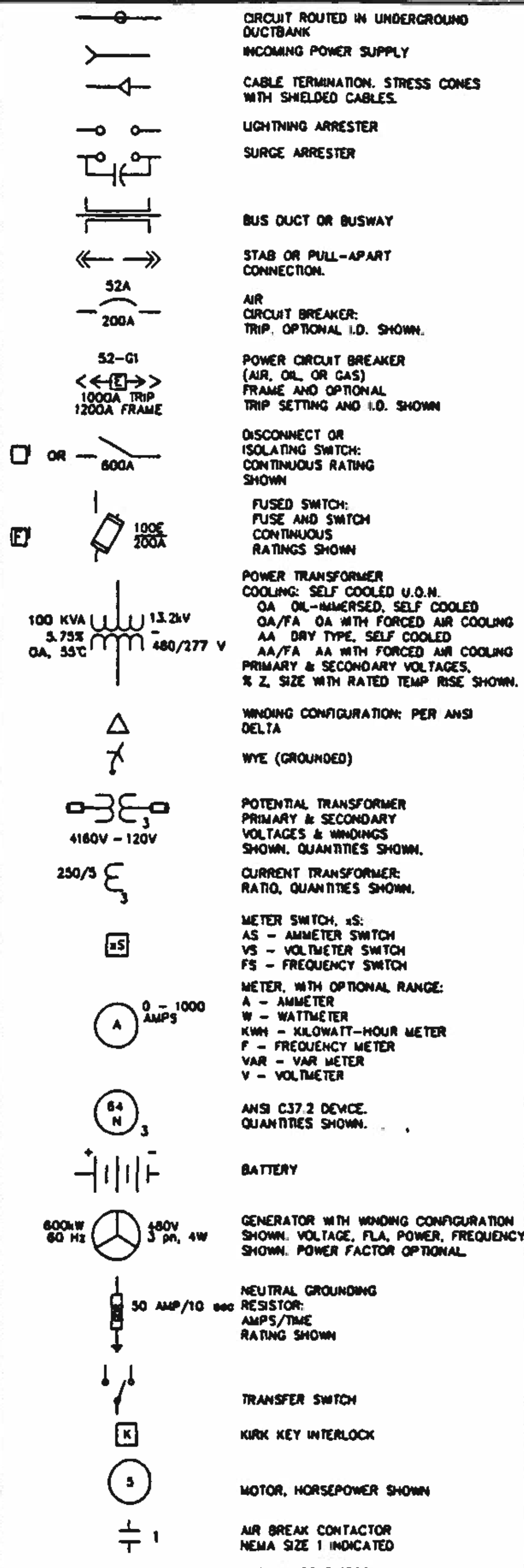
SYMBOL LEGEND AND ABBREVIATIONS

PROJECT NUMBER: DRAWING NUMBER: E1 SHEET NUMBER: 342

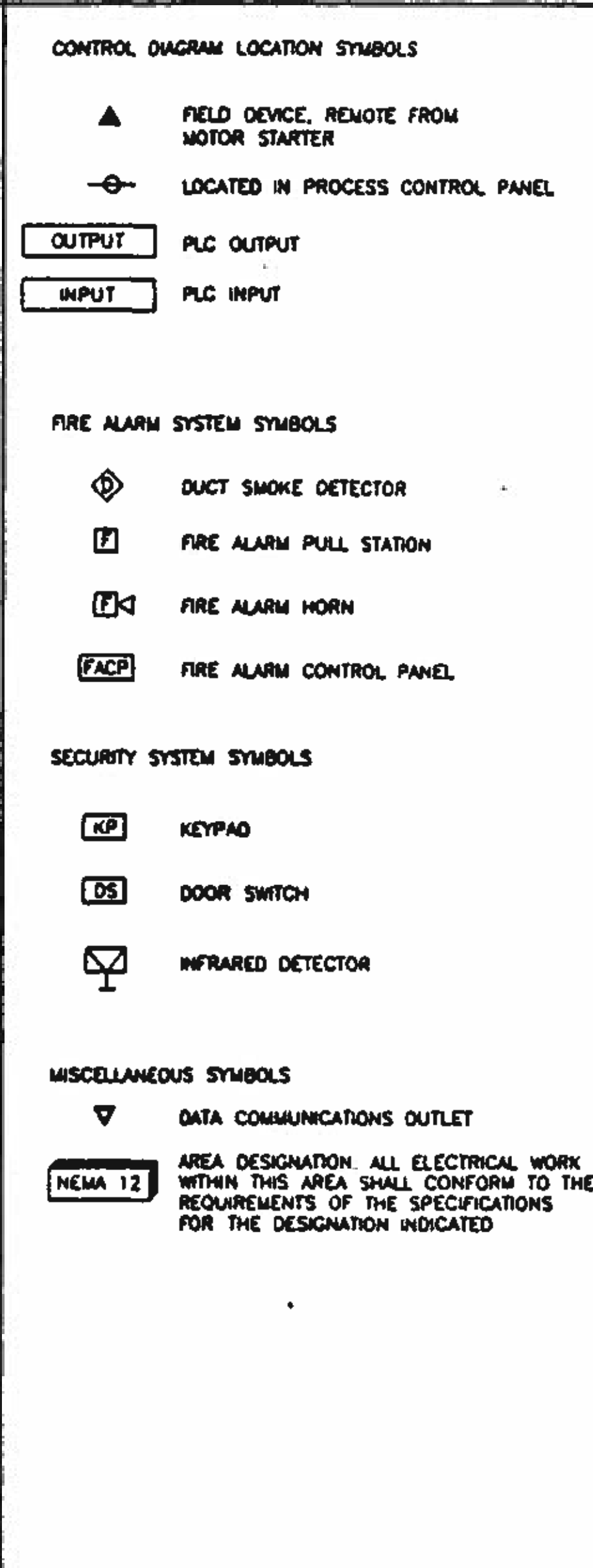
CONTROL DIAGRAMS:



ONE LINE DIAGRAMS:



PROJECT SPECIFIC SYMBOLS:



GENERAL NOTES:

- THIS DRAWING IS GENERAL IN NATURE; NOT ALL SYMBOLS SHOWN ON THIS DRAWING ARE USED IN SUBSEQUENT DRAWINGS.
- ELECTRICAL WORK TO BE PERFORMED AS WORK OF DEDUCT ALTERNATE "CLARIFIER NO. 3 DEDUCT" SHALL BE AS DESCRIBED ON DRAWINGS E401, E402, E801, AND E806. WORK OF THE DEDUCT ALTERNATE SHALL INCLUDE THE ASSOCIATED RAS PUMP ASC'S, ALL ELECTRICAL EQUIPMENT PHYSICALLY LOCATED ON THE CLARIFIER STRUCTURE, AND PORTIONS OF THE RACEWAY SYSTEMS AS DELINEATED ON THE DRAWINGS. BASE BID WORK SHALL INCLUDE ALL ASSOCIATED MCC WORK, PLC INPUT AND OUTPUT POINTS AND RACEWAY SYSTEMS AS DELINEATED ON THE DRAWINGS.

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Phoenix, Arizona

FILE: 5870
DRAWN: DOH
DESIGNED: RAM
CHECKED: RAM
CHECKED: RAM

SUBMITTED: [Signature] DATE: 11/12/12
APPROVED: [Signature] DATE: 11-20-12
APPROVED: [Signature] DATE: []

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)



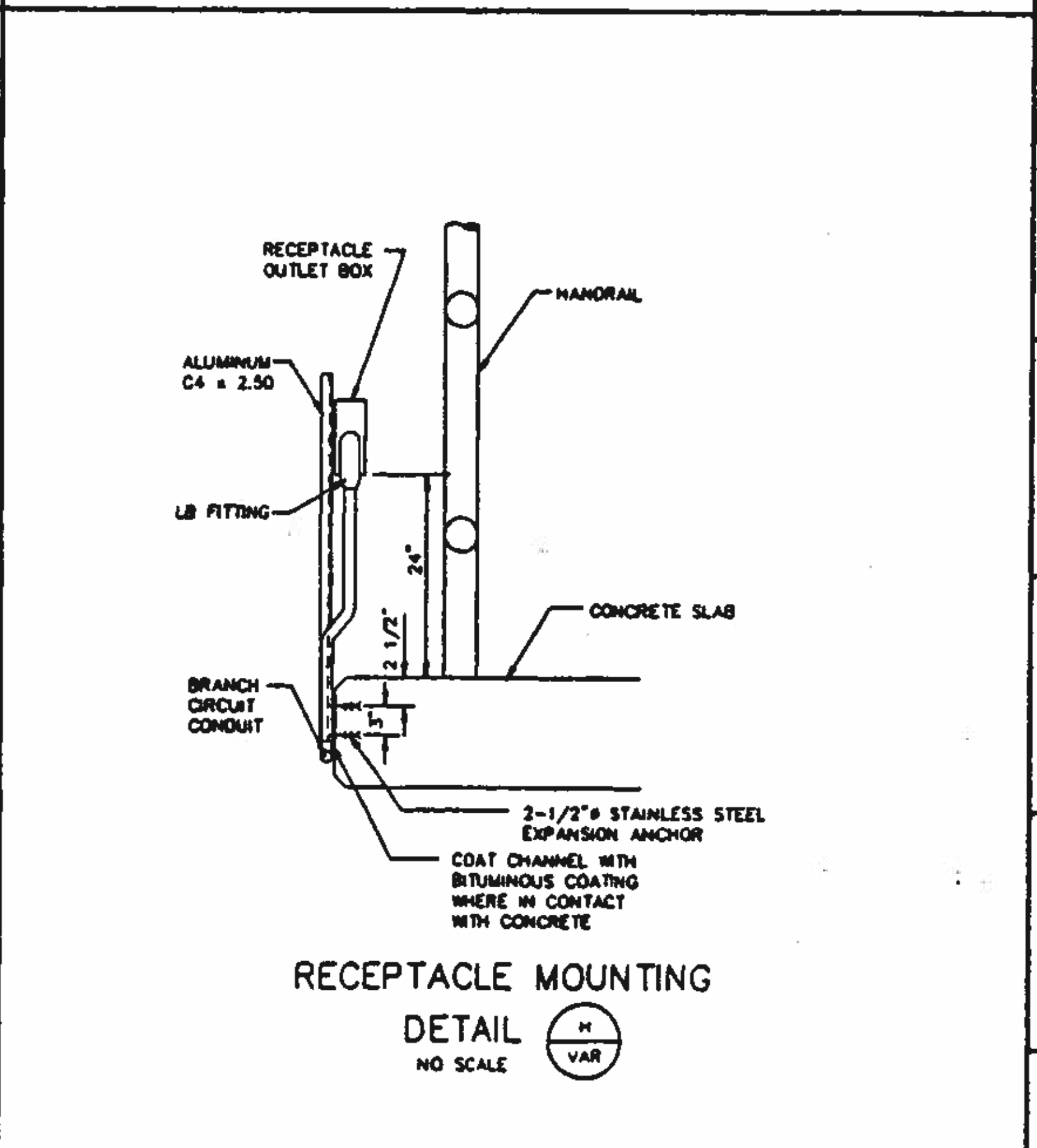
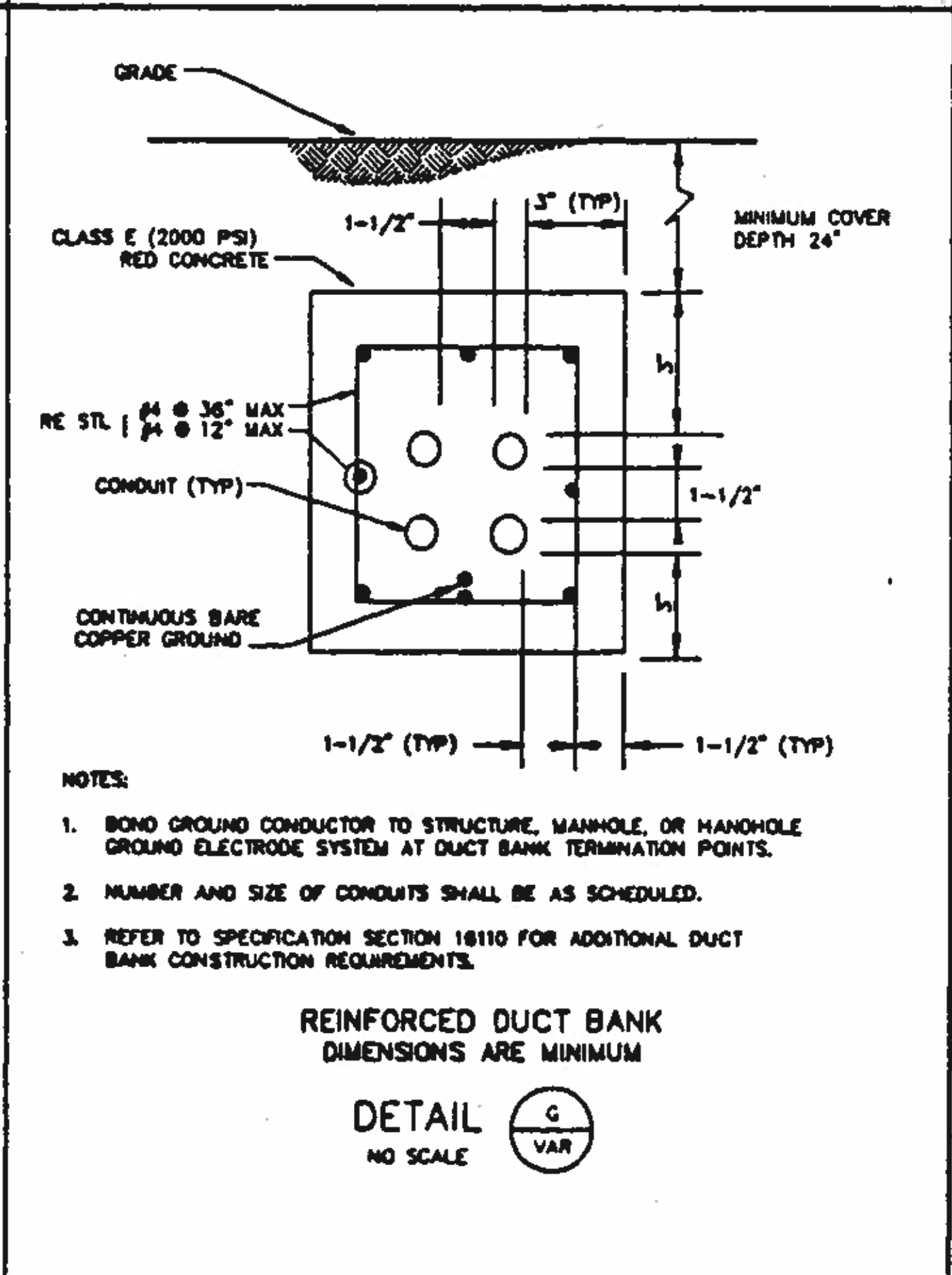
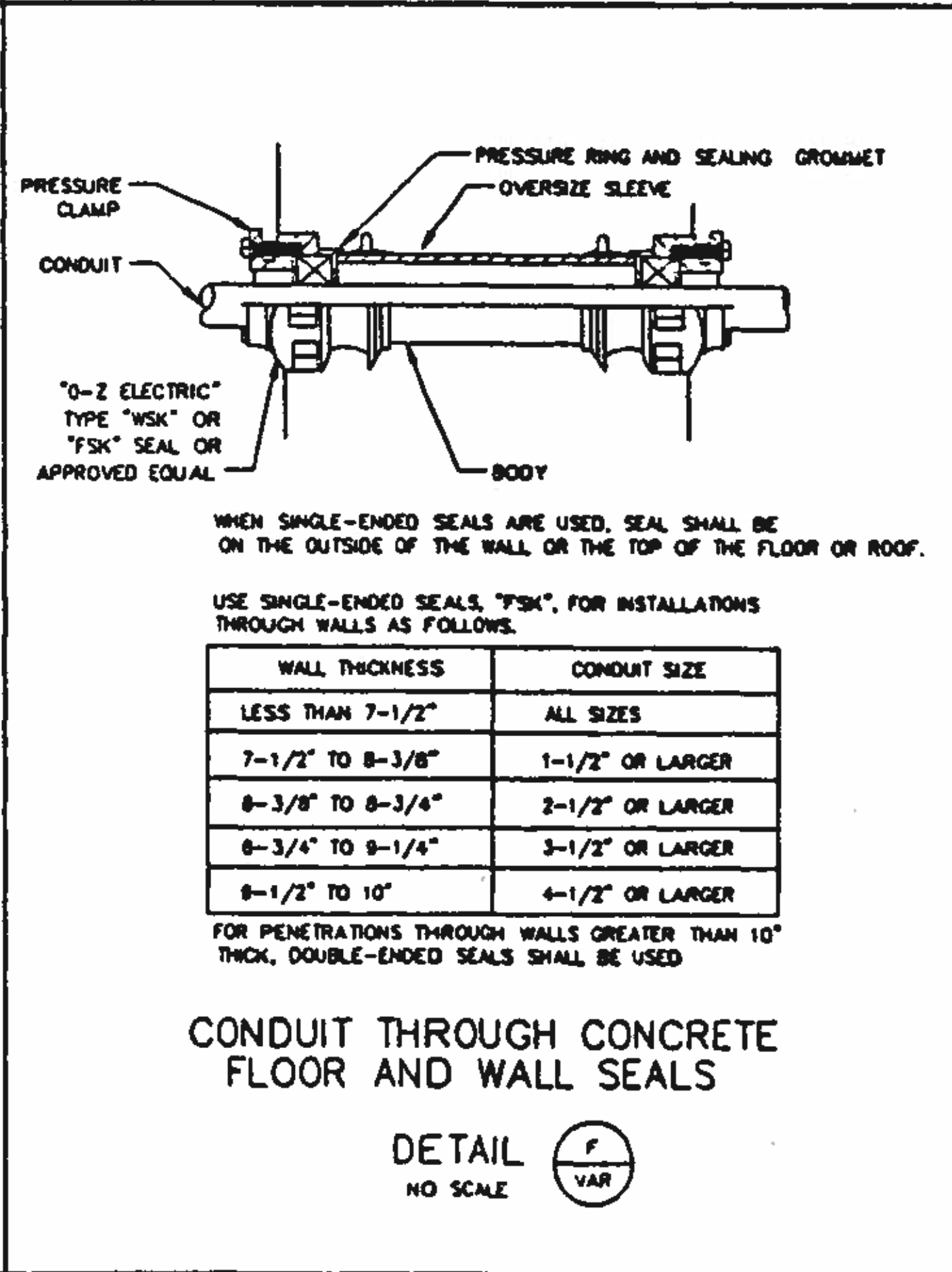
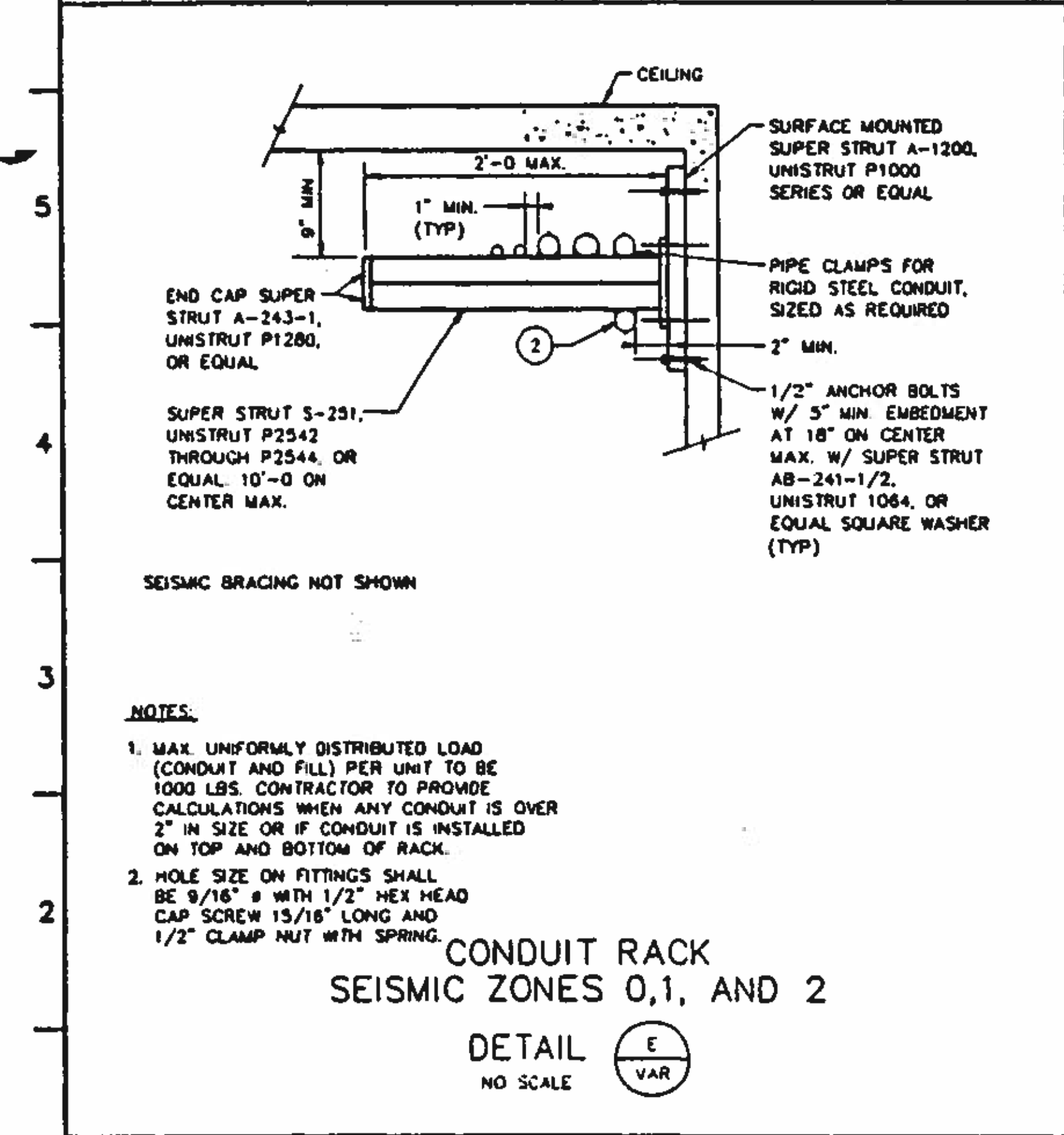
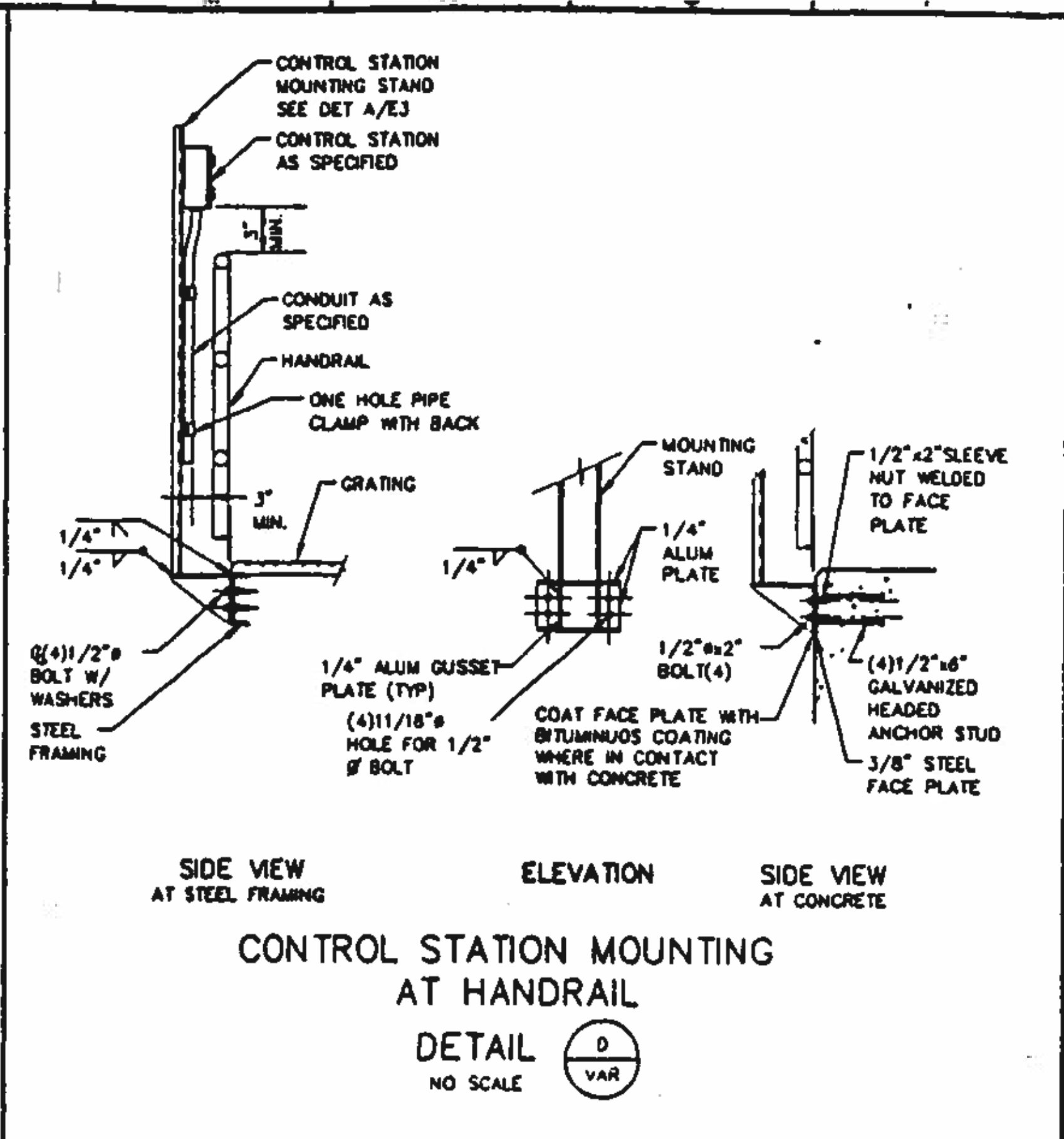
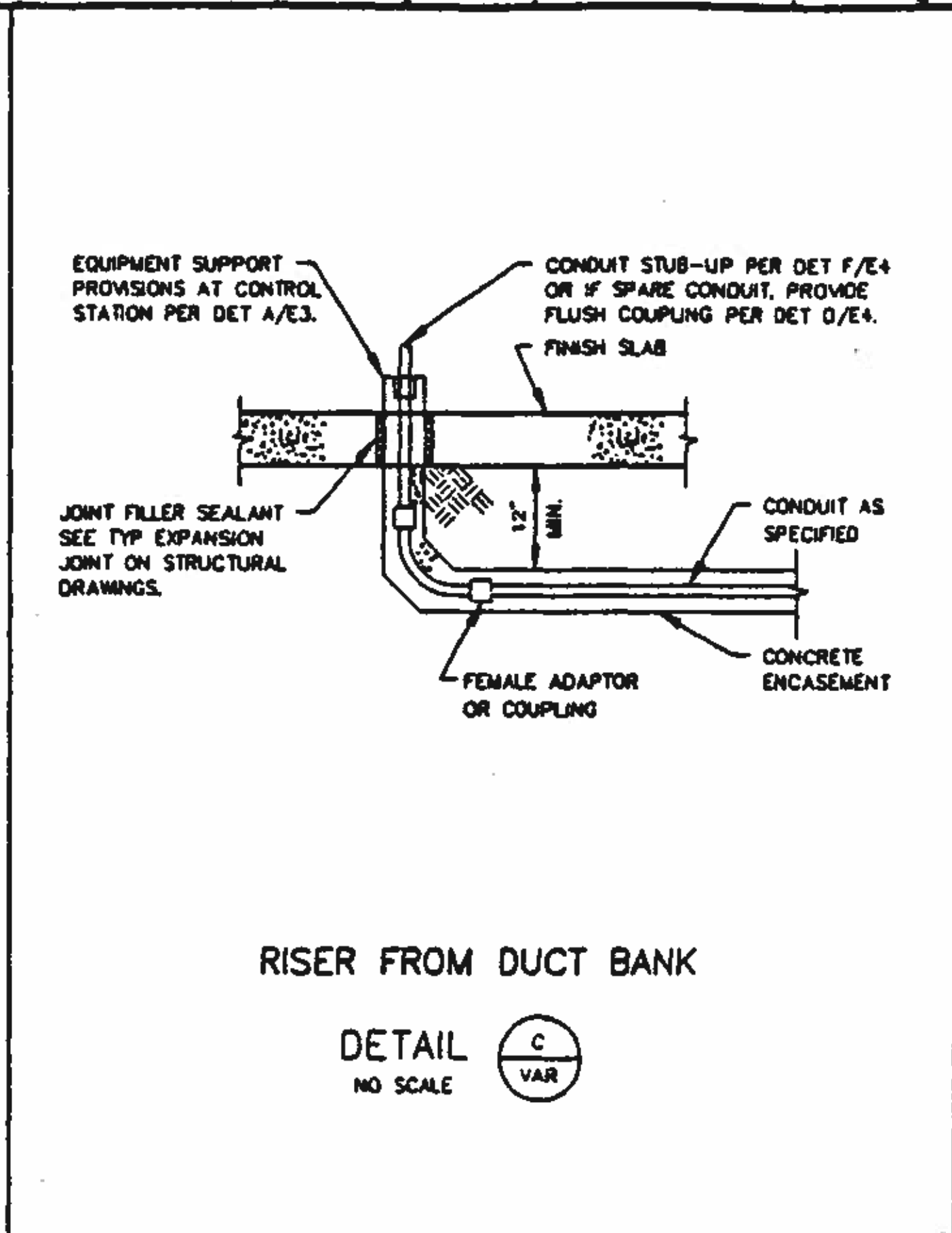
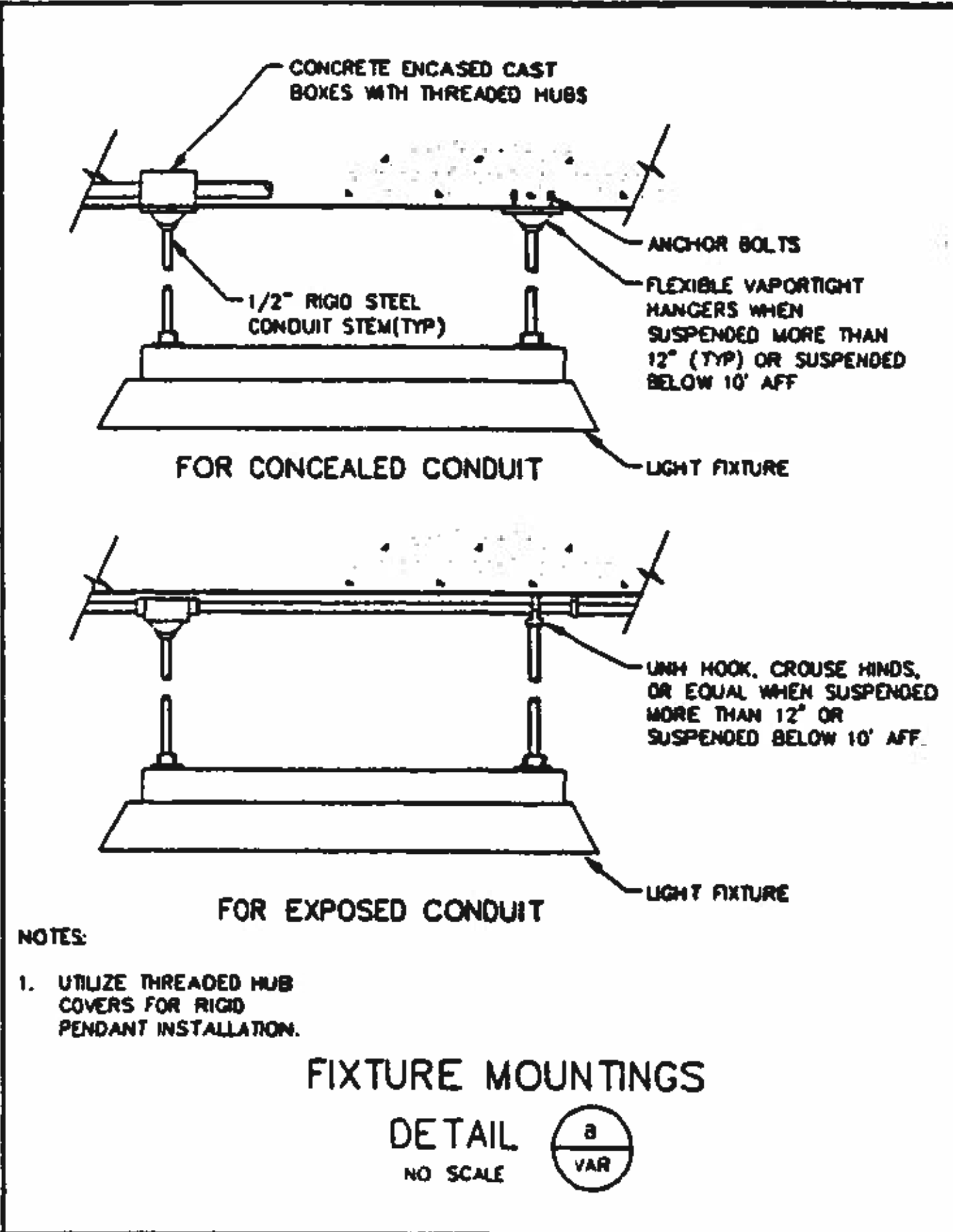
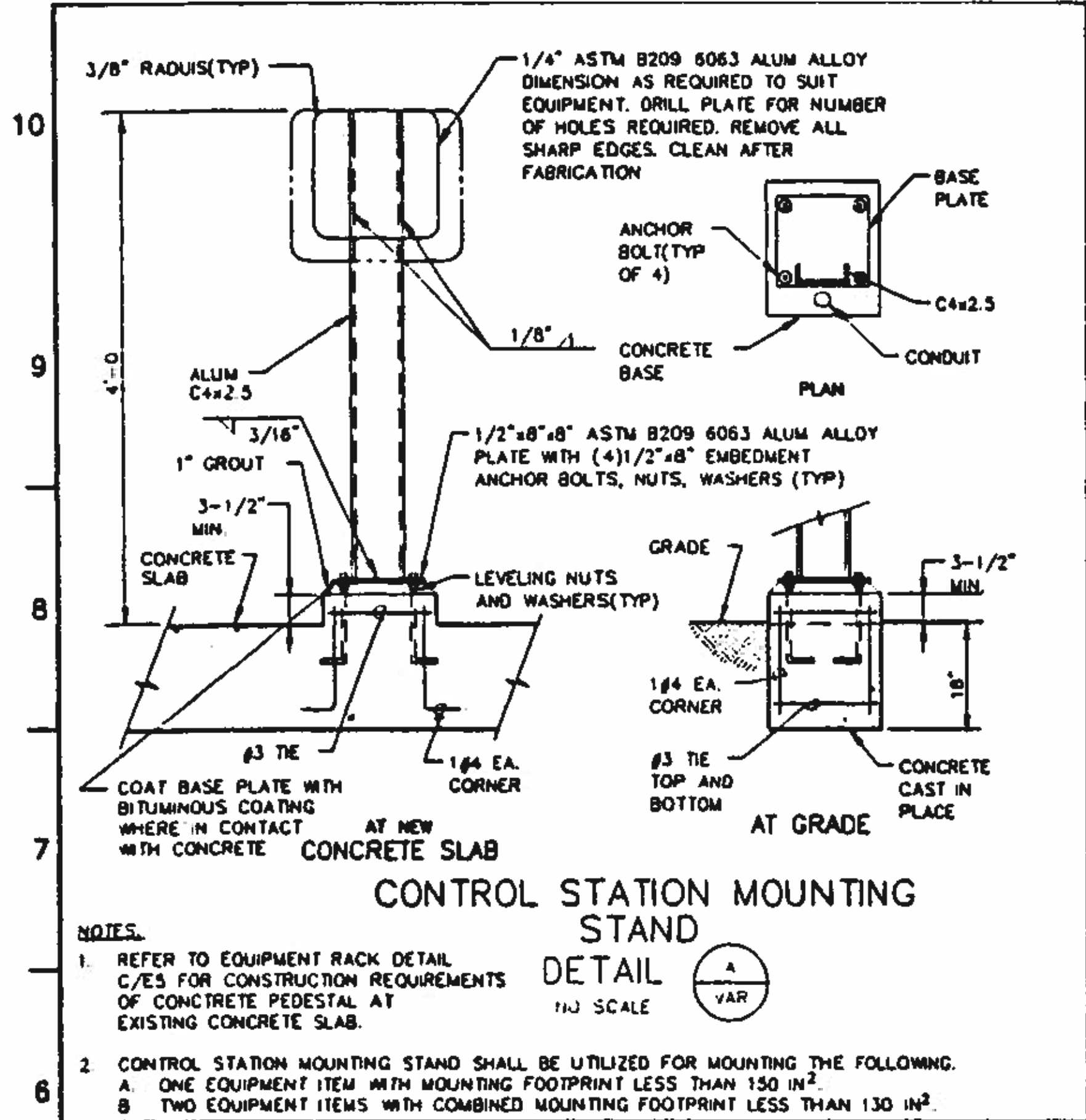
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

STANDARD ELECTRICAL SYMBOLS

PROJECT NUMBER: []
DRAWING NUMBER: **E2**
SHEET NUMBER: 343

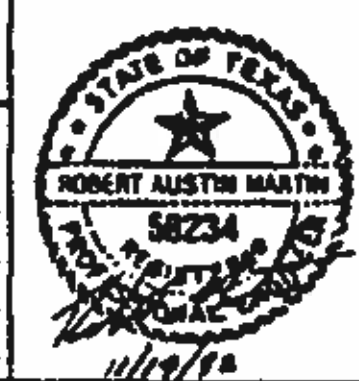


BC Brown and Caldwell Consultants
Phoenix, Arizona

FILE: 5870
DRAWN: KCG
DESIGNED: RAM
CHECKED: RAM
CHECKED: RAM

SUBMITTED: *[Signature]* DATE: 11/01/92
APPROVED: *[Signature]* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)



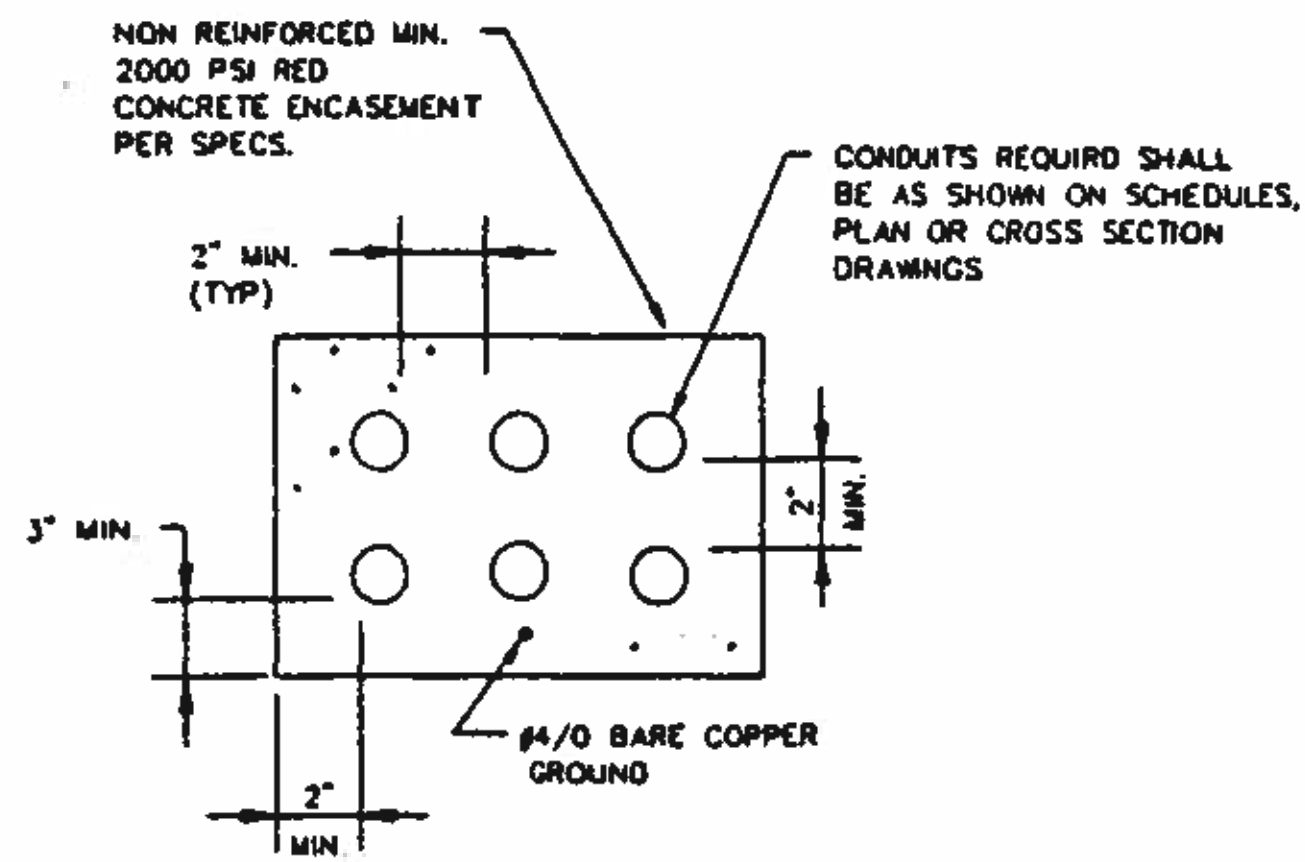
REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

EL PASO WATER UTILITIES

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

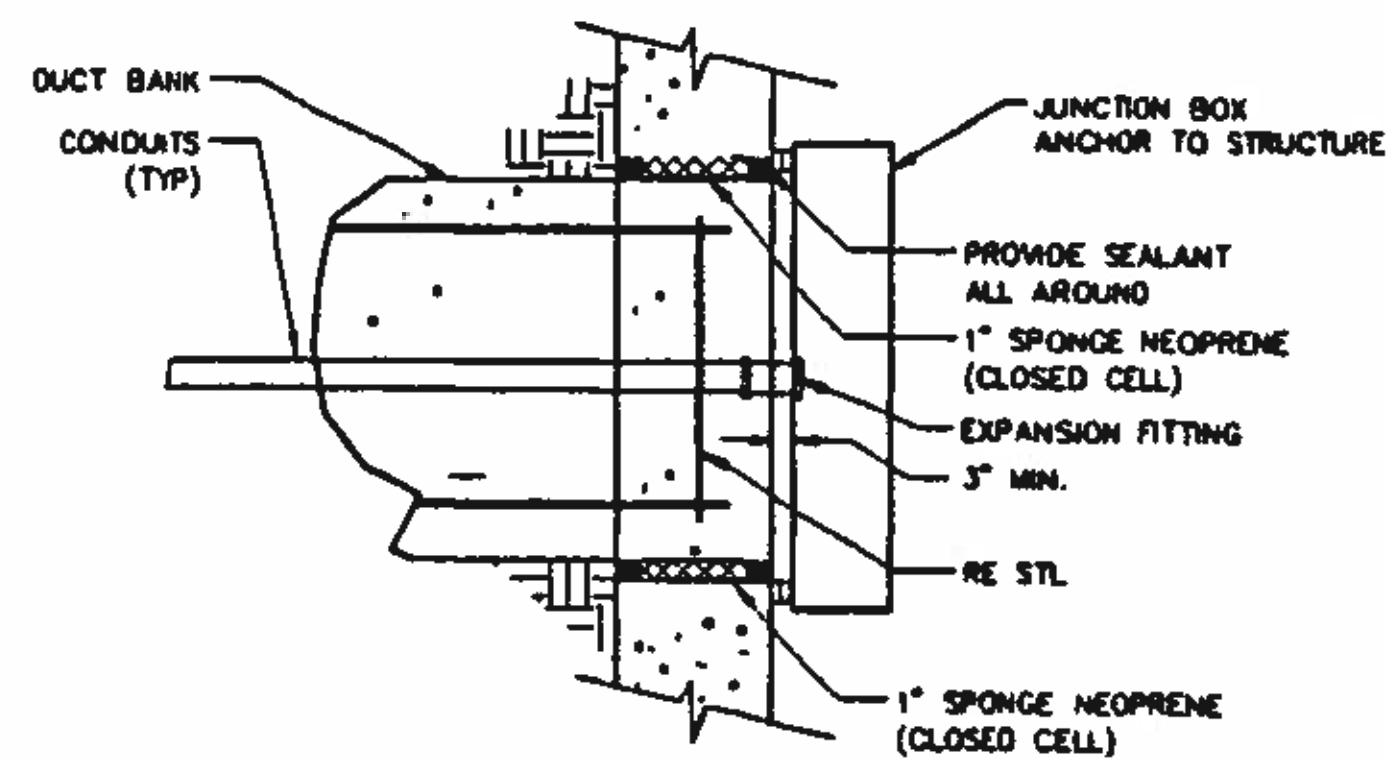
PROJECT NUMBER: _____
DRAWING NUMBER: **E3**
SHEET NUMBER: 344

STANDARD DETAILS - 1



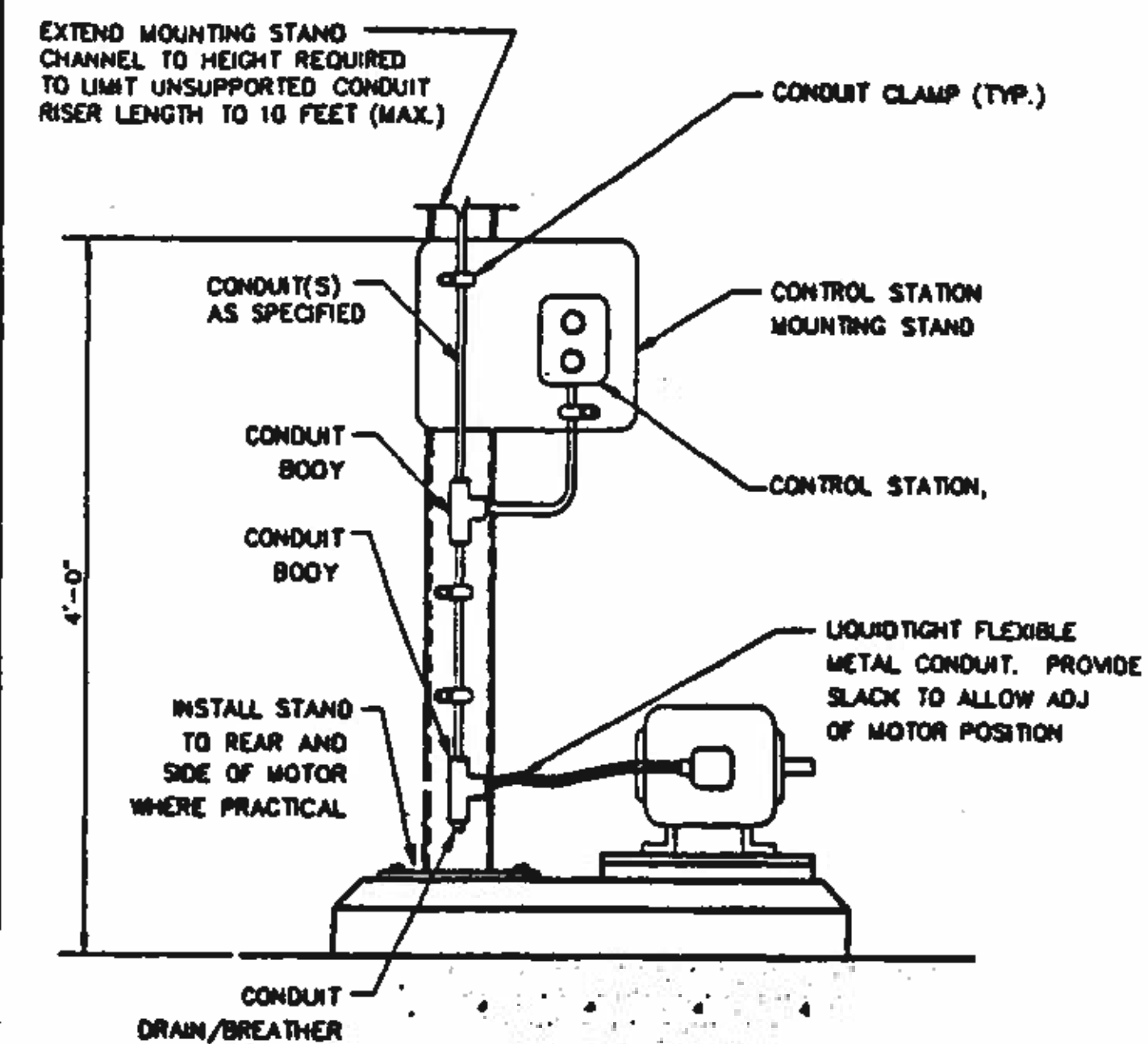
TYPICAL NON-REINFORCED CONCRETE ENCASED DUCT BANK

DETAIL A
NO SCALE VAR



DUCT BANK AT STRUCTURES

DETAIL B
NO SCALE VAR

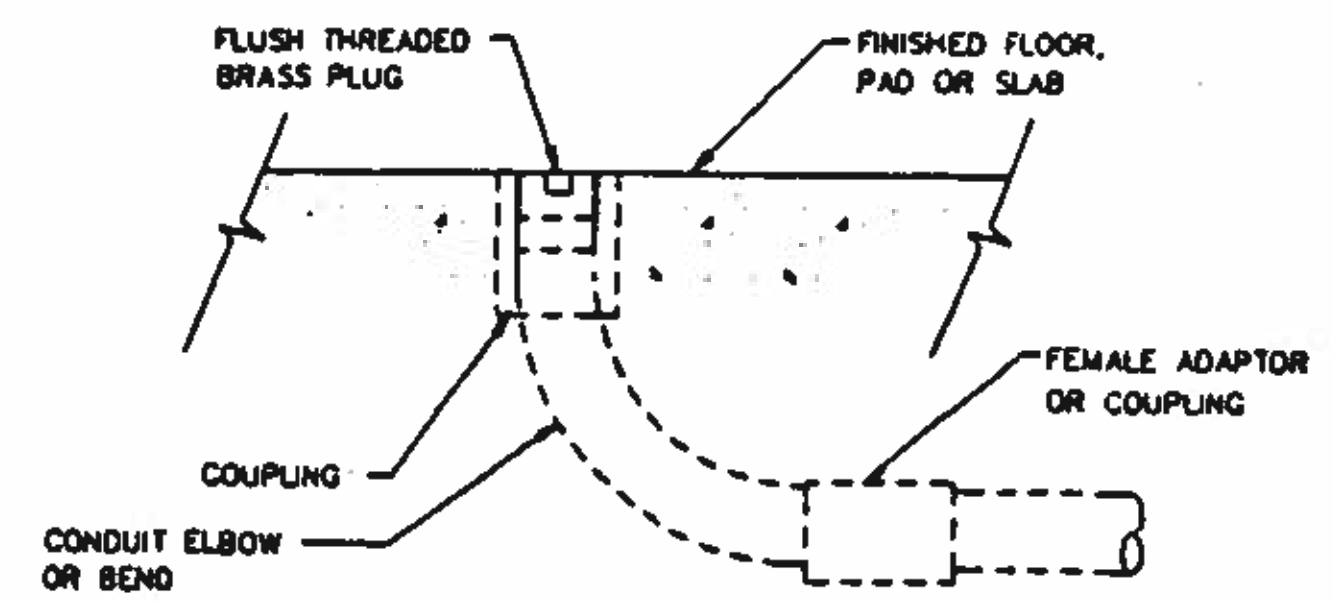


NOTES:

1. CONDUIT SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAM.
2. MOUNTING STAND REQUIREMENTS VARY WITH EQUIPMENT SIZE. REFER TO DETAILS A/E3 AND C/E3.

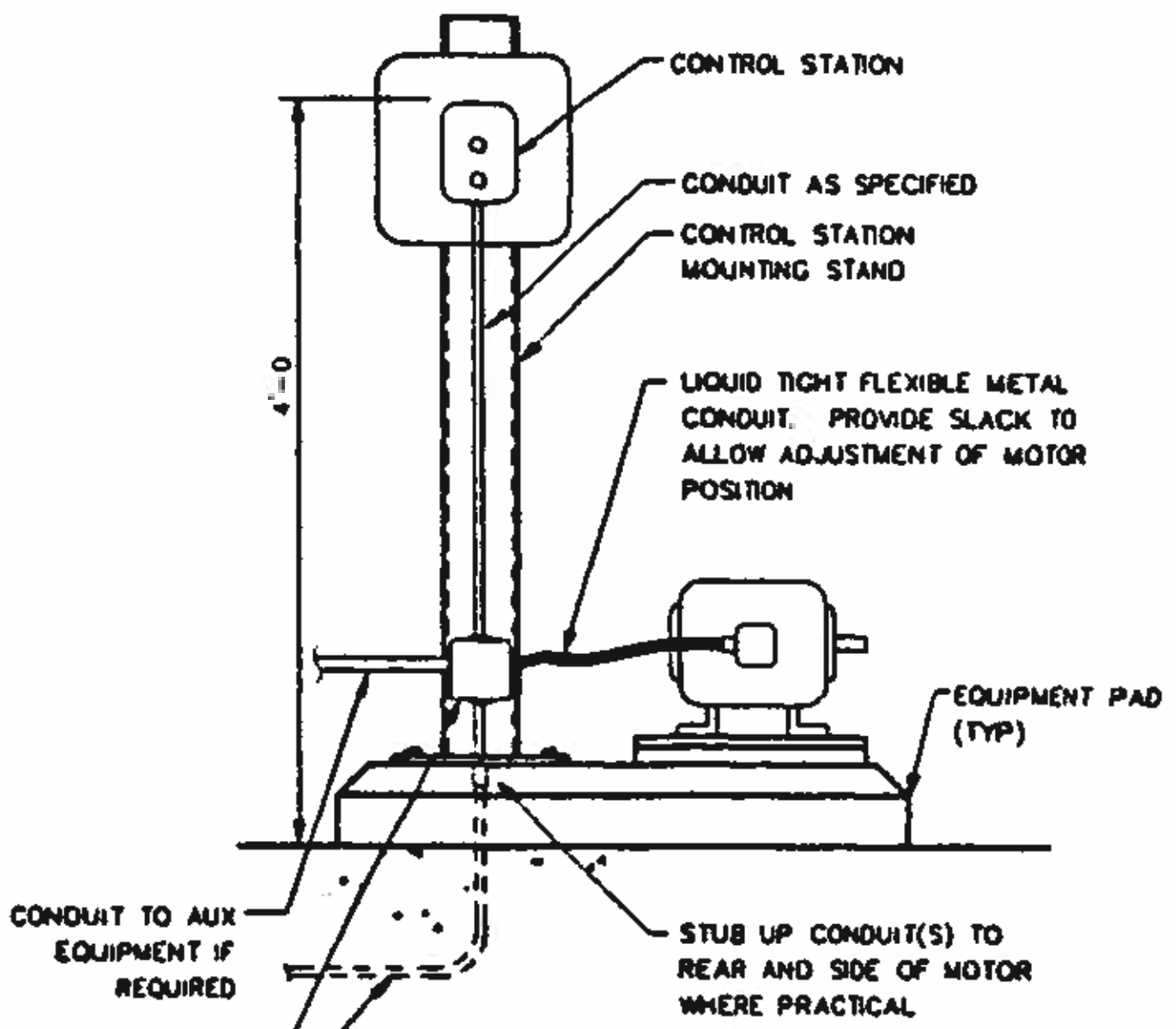
OVERHEAD MOTOR FEED

DETAIL C
NO SCALE VAR



FLUSH CONDUIT TERMINATION IN SLAB

DETAIL D
NO SCALE VAR

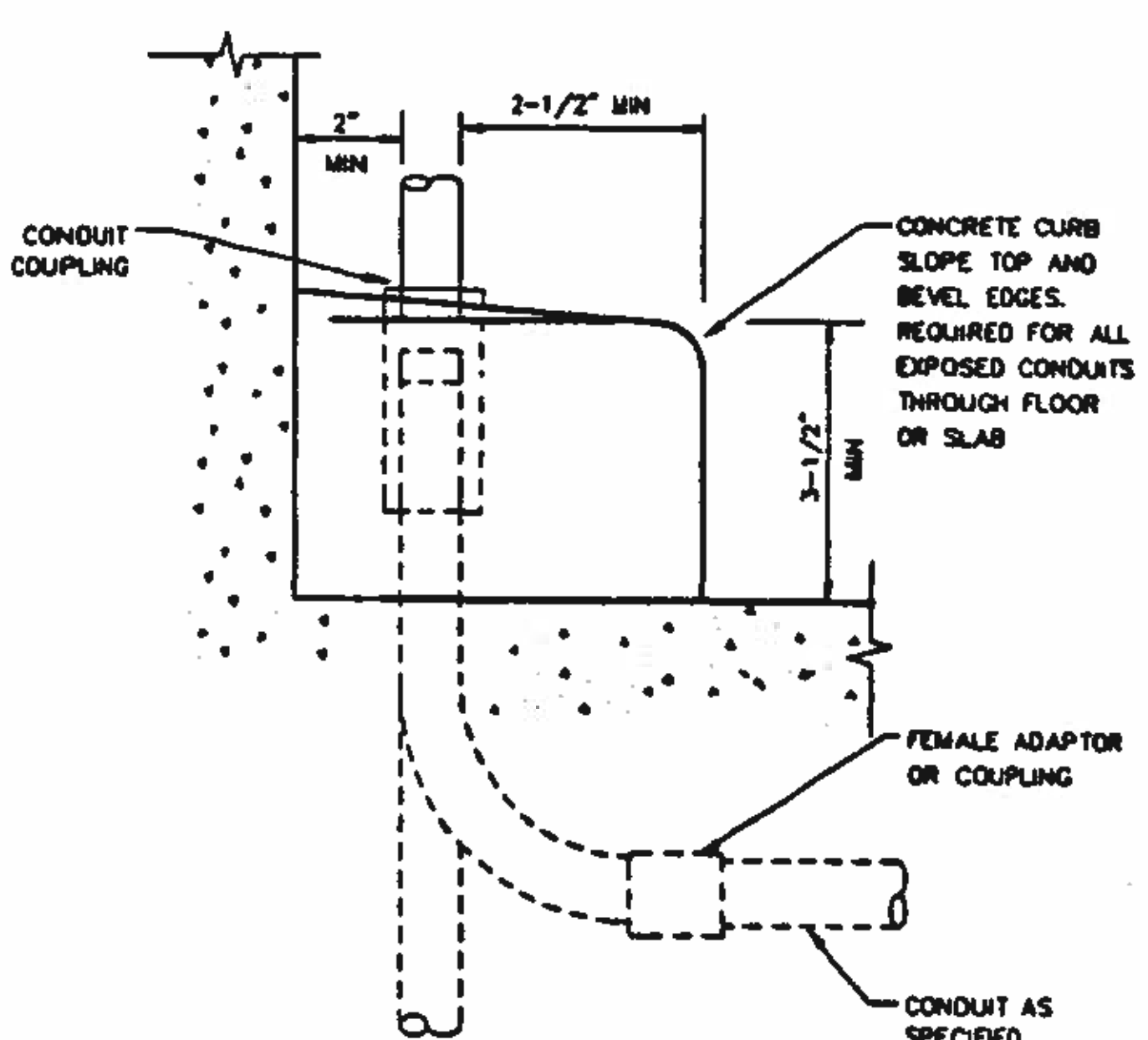


NOTES:

1. CONDUIT SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAM.
2. MOUNTING STAND REQUIREMENTS VARY WITH EQUIPMENT SIZE. REFER TO DETAILS A/E3 AND C/E3.

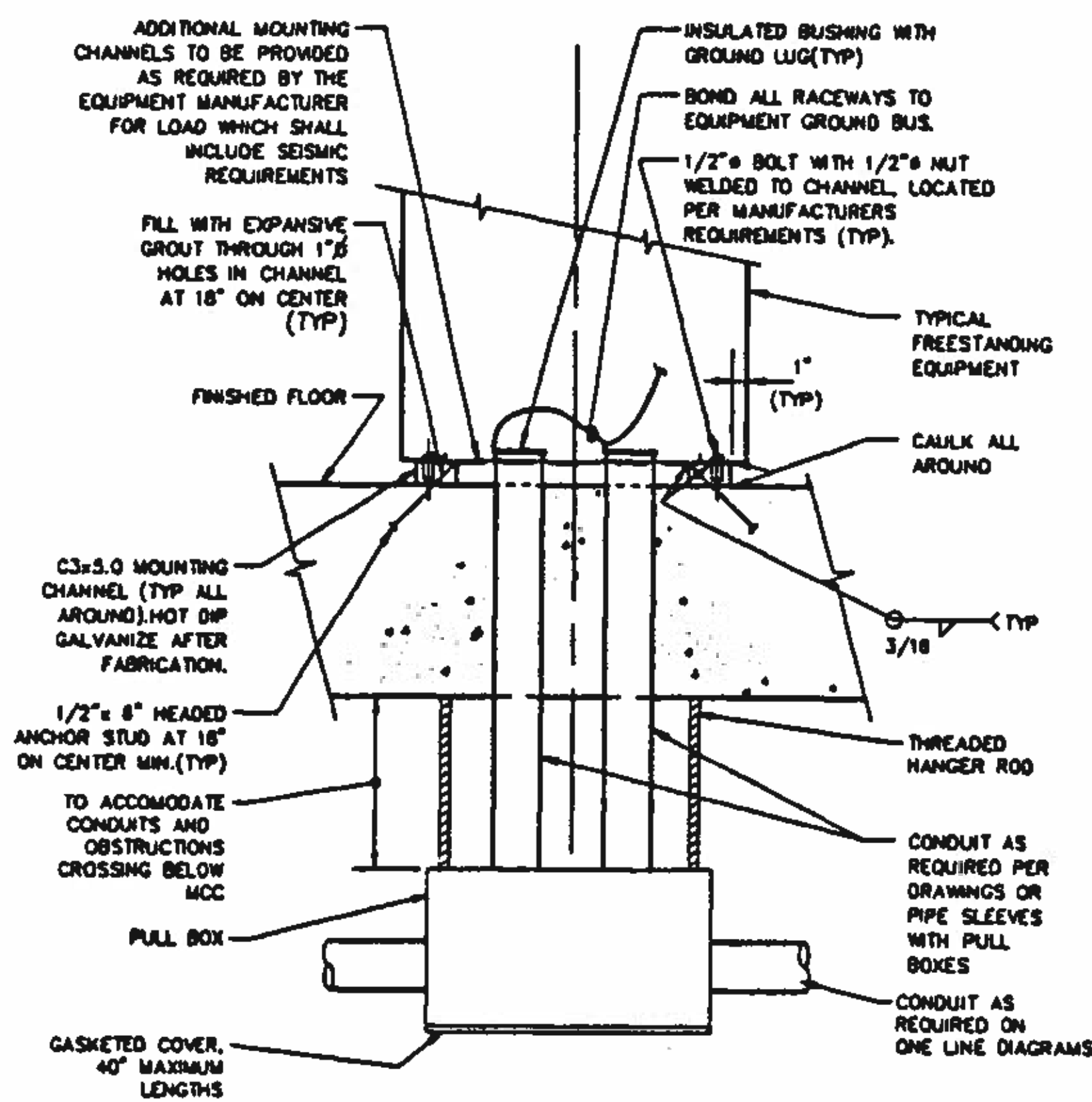
MOTOR FEED FROM BELOW

DETAIL E
NO SCALE VAR



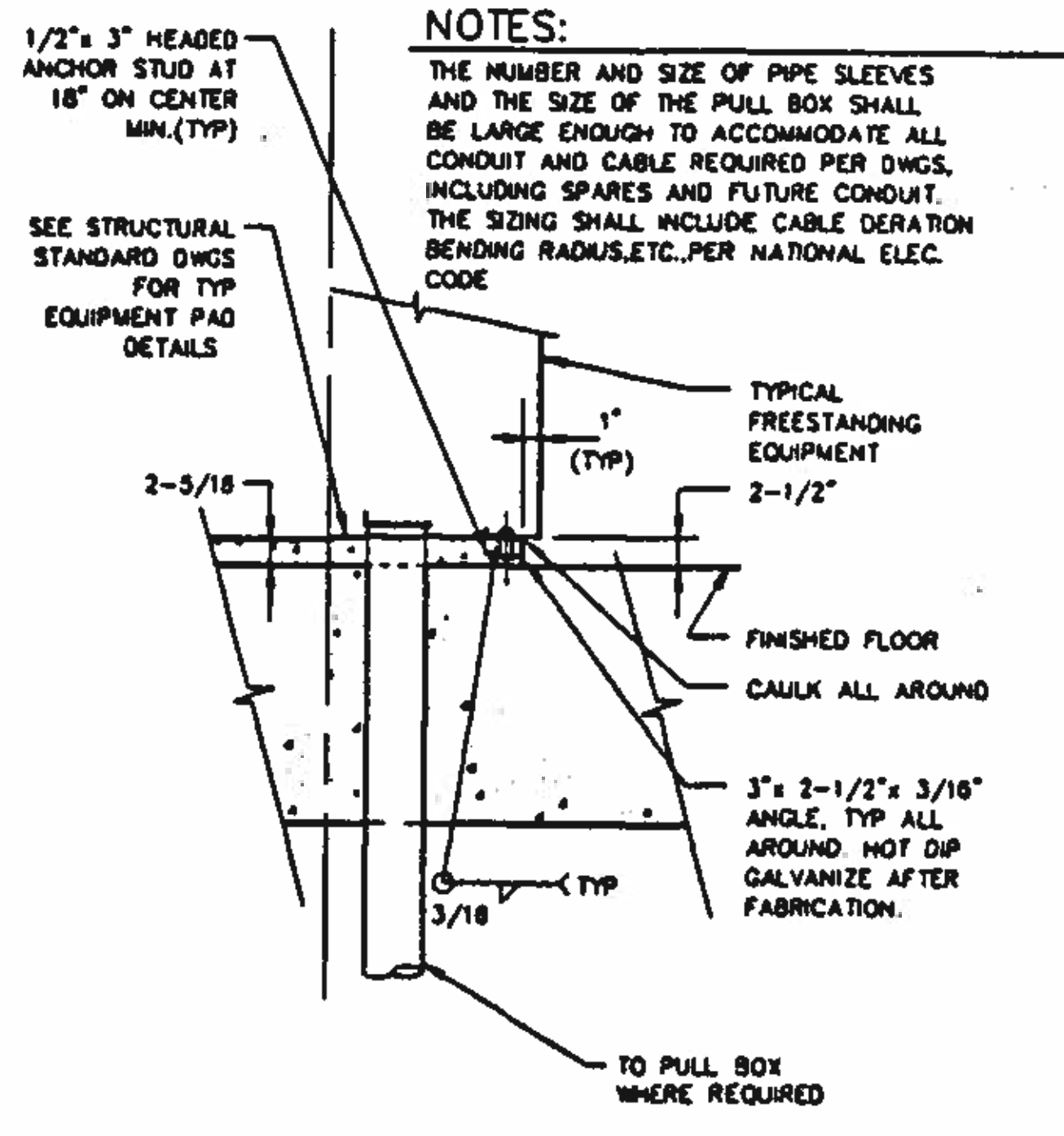
CONDUIT CURB

DETAIL F
NO SCALE VAR



FLOOR MOUNT

DETAIL G
NO SCALE VAR



CURB MOUNT

NOTES:

THE NUMBER AND SIZE OF PIPE SLEEVES AND THE SIZE OF THE PULL BOX SHALL BE LARGE ENOUGH TO ACCOMMODATE ALL CONDUIT AND CABLE REQUIRED PER DWGS, INCLUDING SPARES AND FUTURE CONDUIT. THE SIZING SHALL INCLUDE CABLE DERATION BENDING RADII, ETC., PER NATIONAL ELEC. CODE

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/17/12
APPROVED: *[Signature]* DATE: 11/20/12
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE: 5870
DRAWN: KCG
DESIGNED: RAM
CHECKED: RAM
CHECKED: RAM



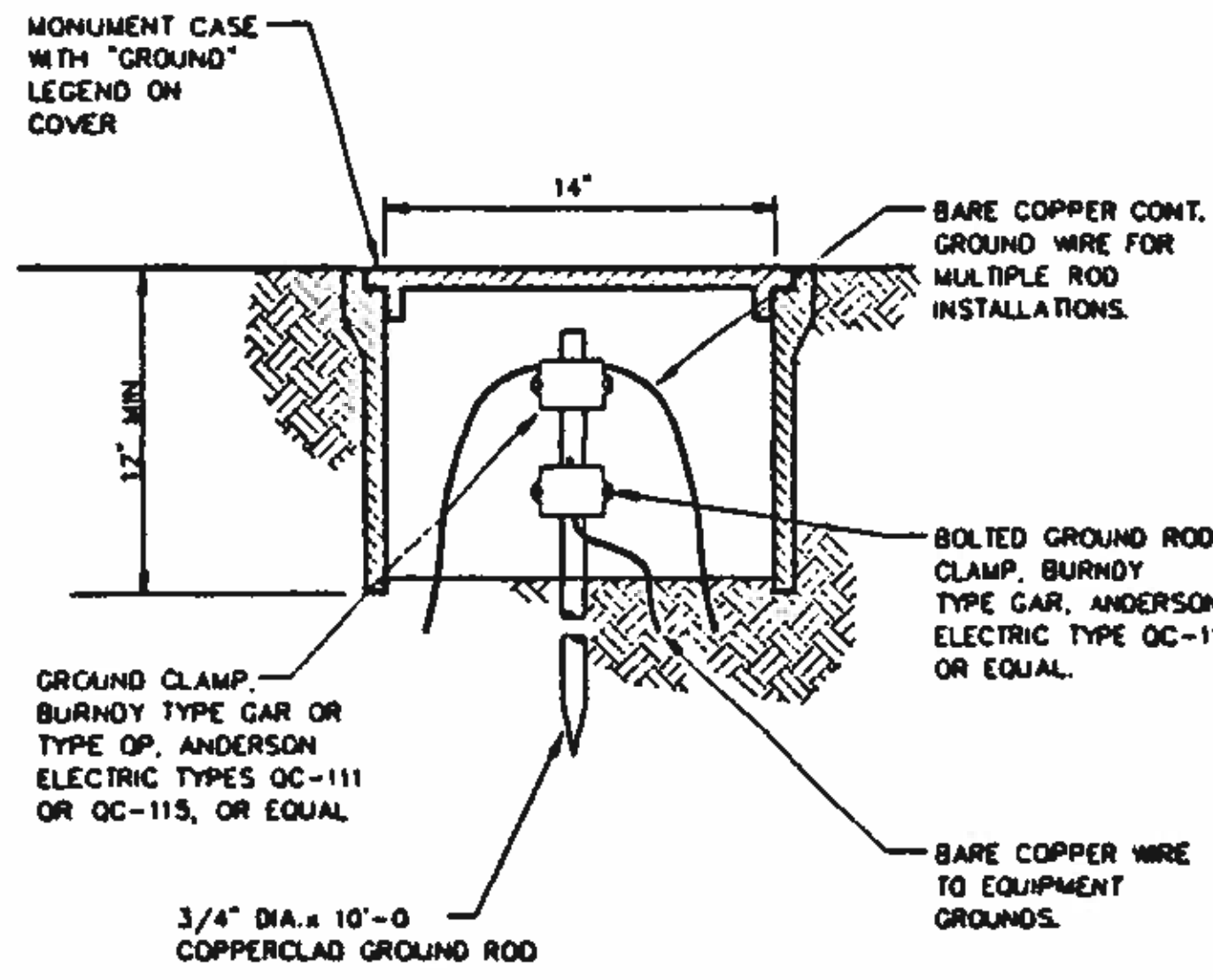
REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



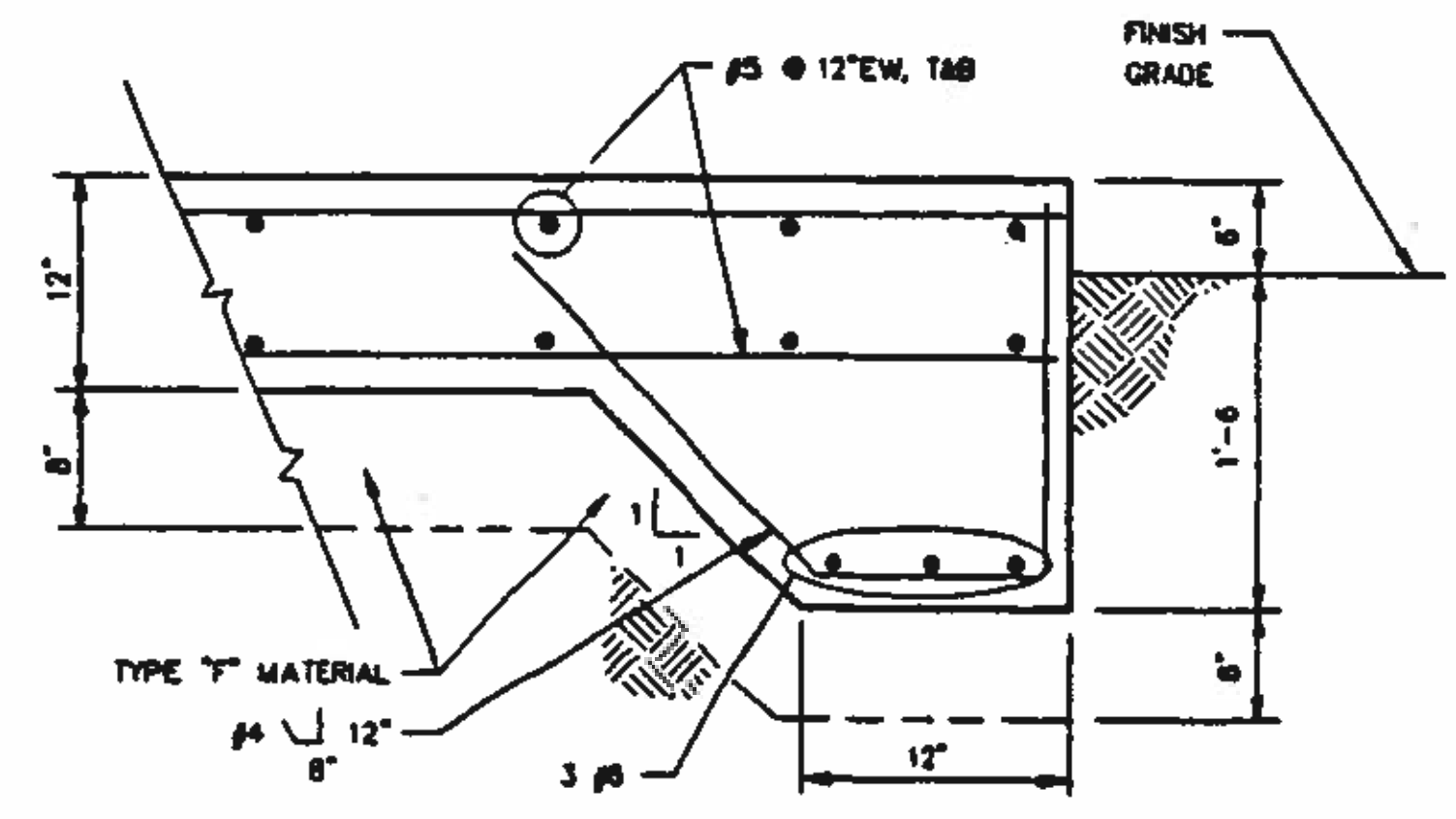
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

STANDARD DETAILS - 2

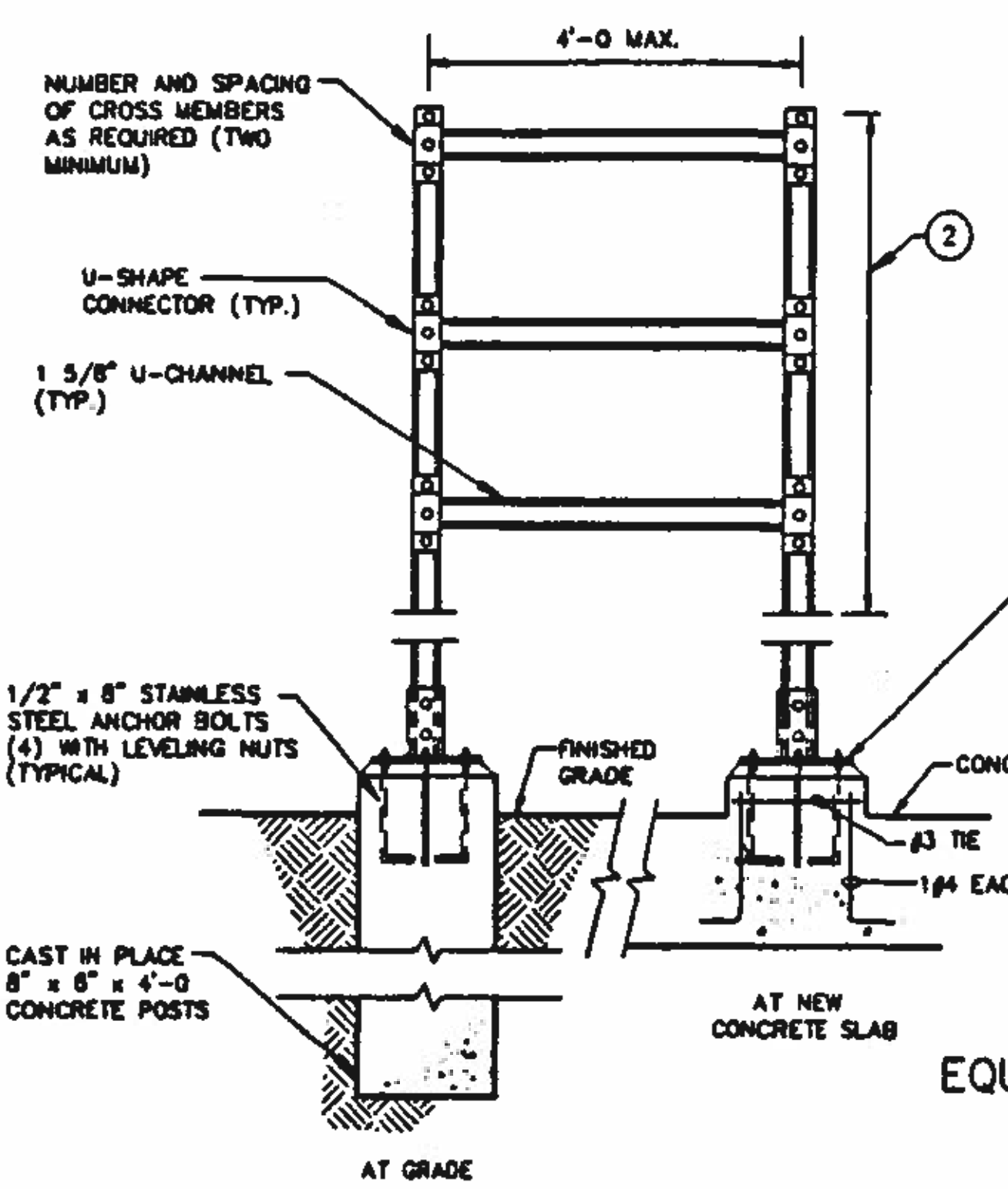
PROJECT NUMBER
DRAWING NUMBER E4
SHEET NUMBER 345



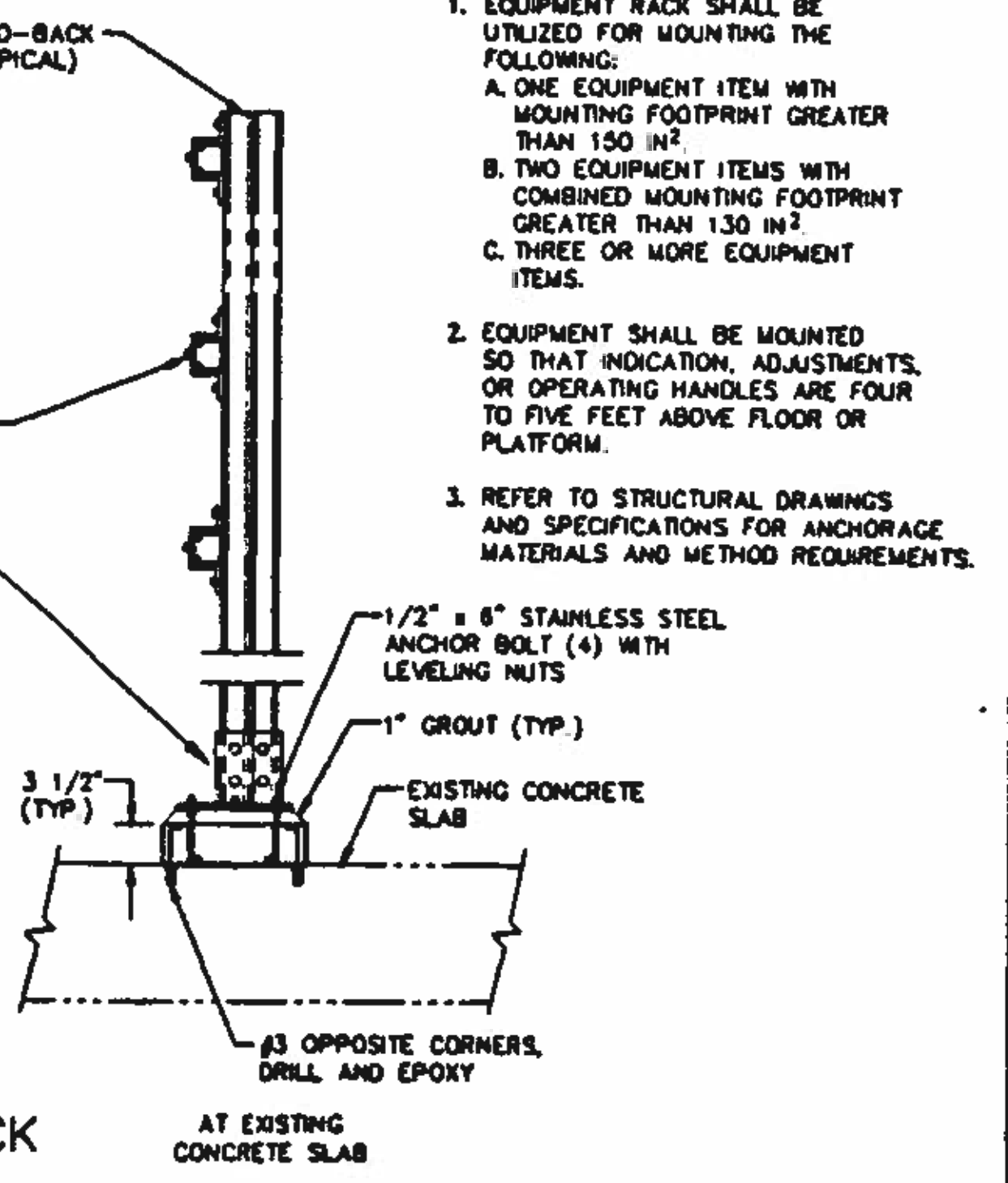
GROUND ROD WELL
 DETAIL **A**
 NO SCALE



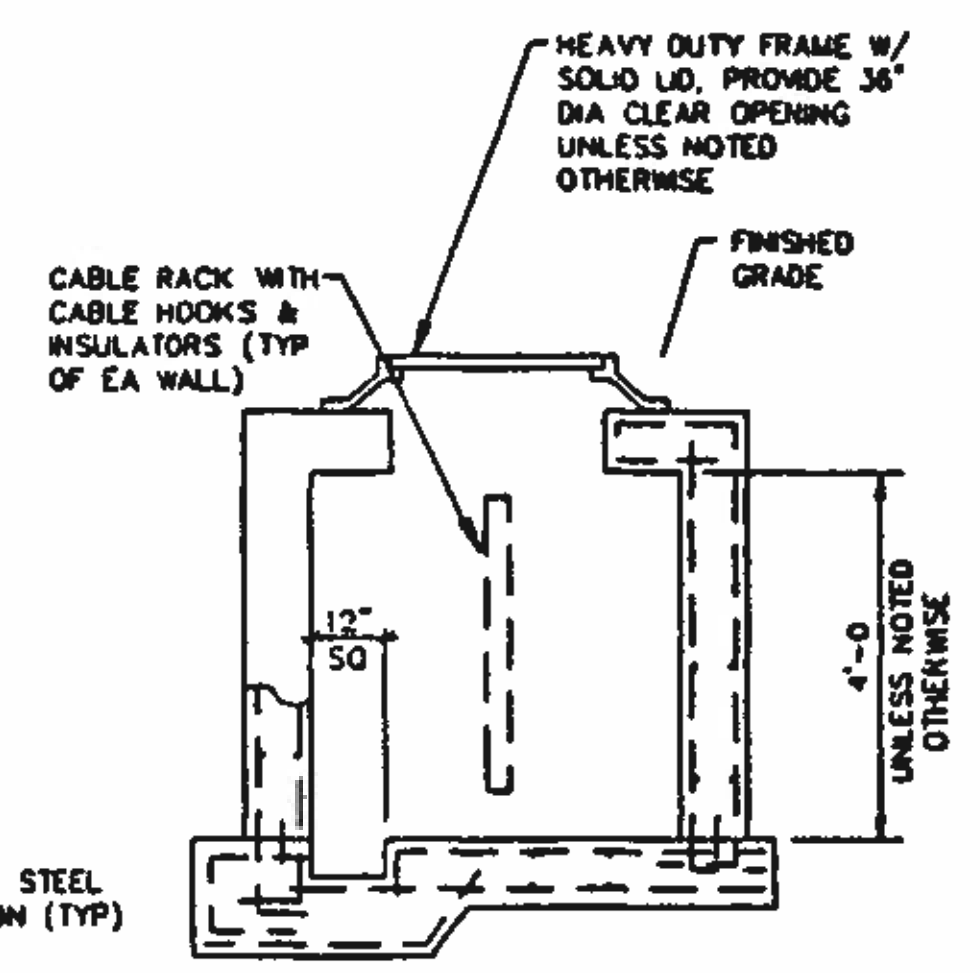
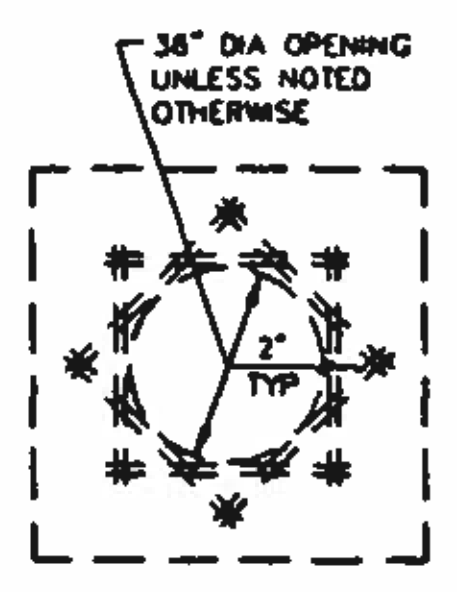
SUBSTATION PAD
 DETAIL **B**
 NO SCALE



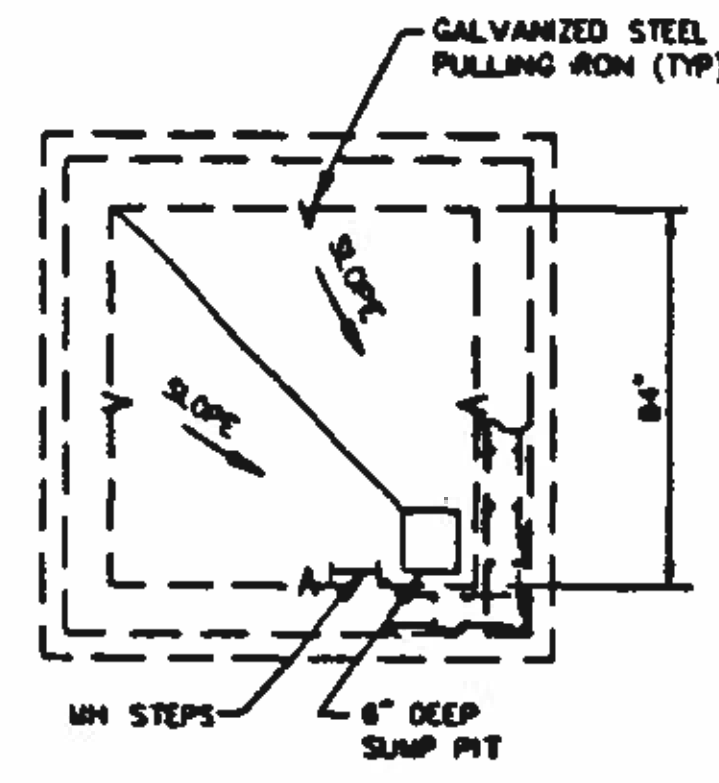
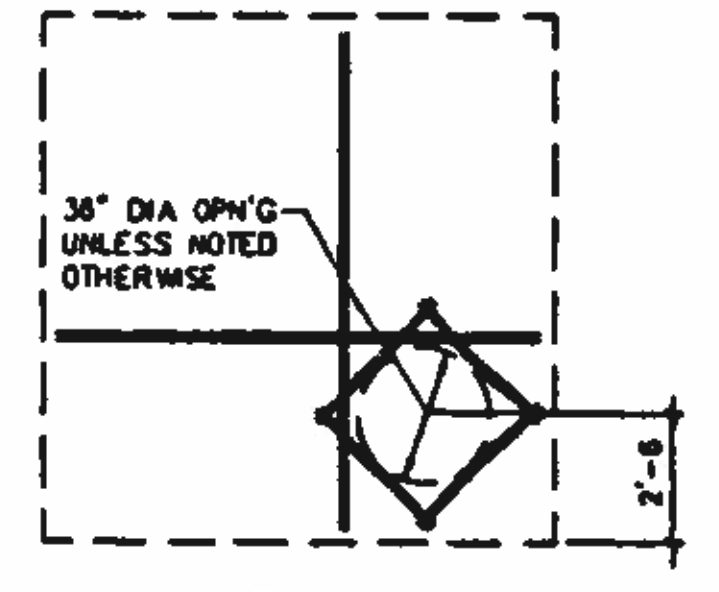
EQUIPMENT RACK
 DETAIL **C**
 NO SCALE



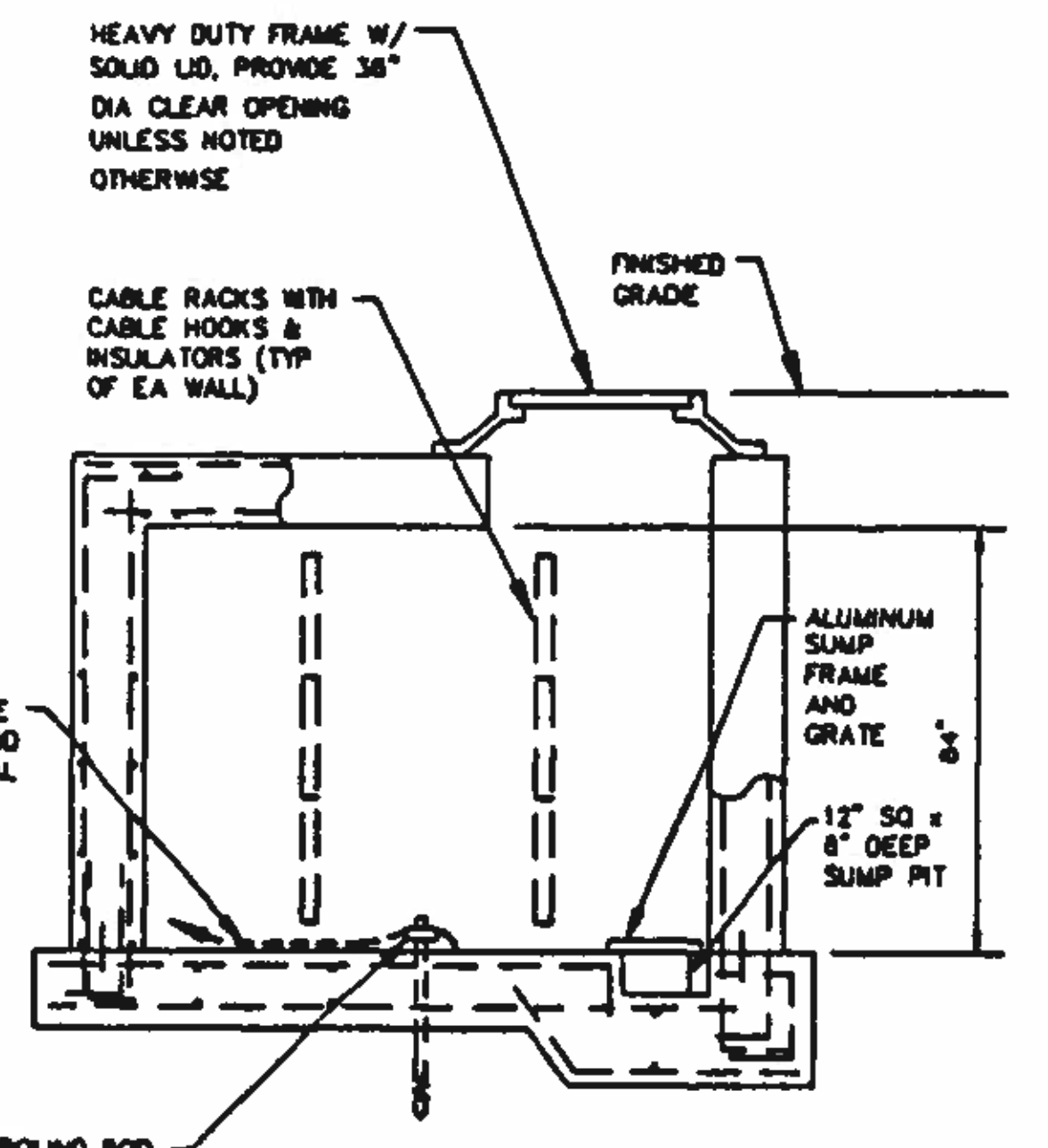
- NOTES:**
- EQUIPMENT RACK SHALL BE UTILIZED FOR MOUNTING THE FOLLOWING:
 A. ONE EQUIPMENT ITEM WITH MOUNTING FOOTPRINT GREATER THAN 150 IN²
 B. TWO EQUIPMENT ITEMS WITH COMBINED MOUNTING FOOTPRINT GREATER THAN 130 IN²
 C. THREE OR MORE EQUIPMENT ITEMS.
 - EQUIPMENT SHALL BE MOUNTED SO THAT INDICATION, ADJUSTMENTS, OR OPERATING HANDLES ARE FOUR TO FIVE FEET ABOVE FLOOR OR PLATFORM.
 - REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANCHORAGE MATERIALS AND METHOD REQUIREMENTS.



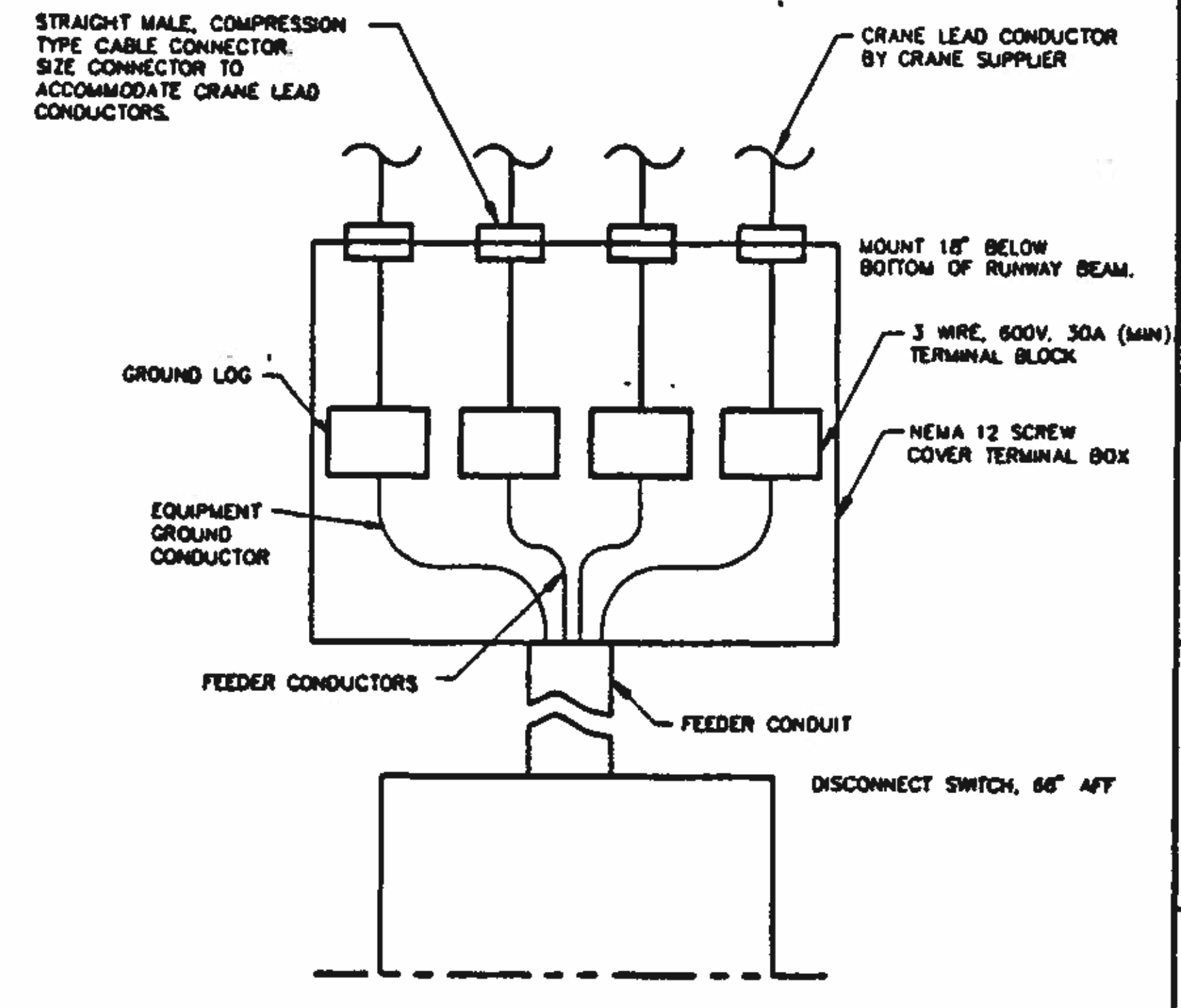
TYPICAL HANDHOLE
 DETAIL **D**
 NO SCALE



TYPICAL MANHOLE
 DETAIL **E**
 NO SCALE



TYPICAL MANHOLE
 DETAIL **E**
 NO SCALE



OVERHEAD CRANE TERMINATION BOX
 DETAIL **F**
 NOT TO SCALE

BC Brown and Caldwell Consultants
 Phoenix, Arizona

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 APPROVED: *[Signature]* DATE: 11-20-92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDING TO)

FILE: 587D
 DRAWN: KCG
 DESIGNED: RAM
 CHECKED: RAM
 CHECKED: RAM



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

STANDARD DETAILS - 3

PROJECT NUMBER
 DRAWING NUMBER
E5
 SHEET NUMBER
 348

LIGHTING FIXTURE SCHEDULE

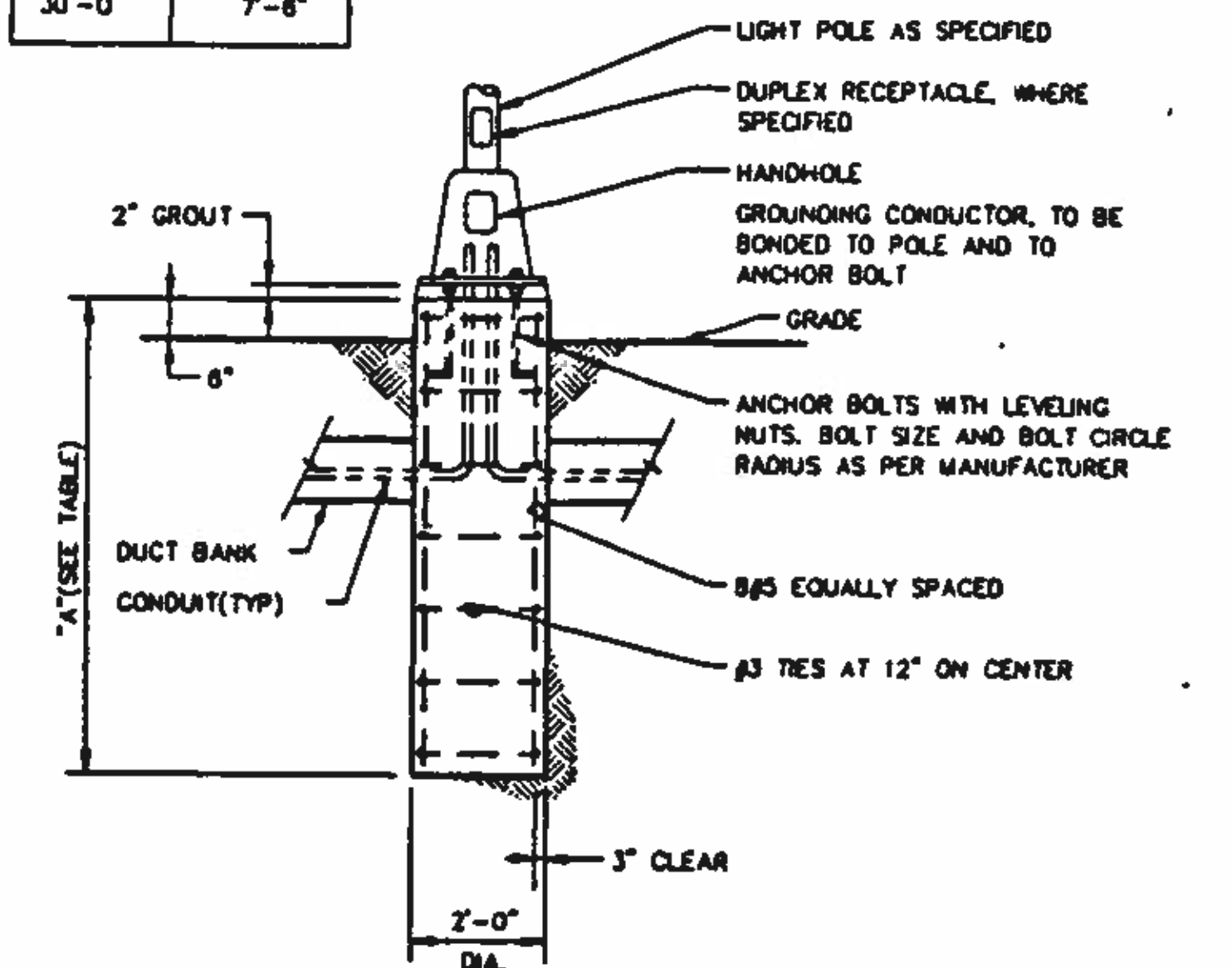
DESIG.	DESCRIPTION	LAMP			MOUNTING TYPE AND HEIGHT	ELECTRICAL REQUIREMENTS	MANUFACTURER AND CATALOG NO.	DETAIL
		NO.	WATTS	TYPE				
A	PENDANT MOUNTED METAL HALIDE FIXTURE WITH DIE-CAST ALUMINUM HOUSING, ENCLOSED AND GASKETED, ALUMINUM HINGED REFLECTOR, CORROSION RESISTANT HARDWARE, UL LISTED FOR WET LOCATIONS, WITH QUARTZ STANDBY.	1	175	METAL HALIDE WITH QUARTZ STANDBY	PENDANT 15'-0" AFF	120 VOLTS	DAY-BRITE LB17MH12BRAQ	
A1	SAME FIXTURE AS TYPE A, EXCEPT WITHOUT QUARTZ STANDBY.	1	175	METAL HALIDE	PENDANT 15'-0" AFF	120 VOLTS	DAYBRITE LB17MH12BRA	
A2	SAME FIXTURE AS TYPE A EXCEPT 400 W.	1	400	METAL HALIDE	PENDANT 22'-6" AFF	120 VOLTS	DAY-BRITE LB40MH12BRAQ	
A3	SAME FIXTURE AS TYPE A2, EXCEPT WITHOUT QUARTZ STANDBY.	1	400	METAL HALIDE	PENDANT 22'-6" AFF	120 VOLTS	DAY-BRITE LB40MH12BRA	
B	4' LENGTH, RAPID START DUST/MOISTURE RESISTANT UL LISTED FOR WET LOCATIONS, CORROSION RESISTANT FLUORESCENT FIXTURE.	2	34	FLUORESCENT F40LW/SS	PENDANT 10' AFF	120 VOLTS	LITHONIA DMW240ARI20ESWLF	
C	2' X 4' FLUORESCENT PARABOLIC TROFFER WITH 27 CELL LOUVER	3	34	FLUORESCENT F40LW/SS	CEILING RECESSED	120 VOLTS	LITHONIA 2PMO 340	
C1	SAME FIXTURE AS TYPE C, WITH DIMMING BALLAST.	3	34	FLUORESCENT F40LW/SS	CEILING RECESSED	120 VOLTS	LITHONIA 2PMO 340	
C2	SAME FIXTURE AS TYPE C, WITH EMERGENCY 90 MIN. BATTERY BACKUP.	3	34	FLUORESCENT F40LW/SS	CEILING RECESSED	120 VOLTS	LITHONIA 2PMO 340	
C3	SAME FIXTURE AS TYPE C, WITH DIMMING BALLAST AND WITH EMERGENCY 90 MIN BATTERY BACKUP	3	34	FLUORESCENT F40LW/SS	CEILING RECESSED	120 VOLTS	LITHONIA 2PMO 340	
D	PENDANT MOUNTED METAL HALIDE FIXTURE FOR CLASS I, DIVISION II, AND WET LOCATIONS WITH GLOBE, GUARD, AND DOME REFLECTOR.	1	175	METAL HALIDE	PENDANT 18'-0" AFF	120 VOLTS	CROUSE-HINDS DMW2A175GP YMV	
D1	CEILING MOUNTED METAL HALIDE FIXTURE FOR CLASS I, DIVISION II, AND WET LOCATIONS WITH GLOBE, GUARD, AND DOME REFLECTOR.	1	175	METAL HALIDE	CEILING SURFACE	120 VOLTS	CROUSE-HINDS DMW2C175GP	
E	4' LENGTH, 2 LAMP, RAPID START, GENERAL PURPOSE INDUSTRIAL FLUORESCENT FIXTURE.	2	34	FLUORESCENT F40LW/SS	PENDANT 9'-0" AFF	120 VOLTS	LITHONIA EJ240120ES	B/E3
F	OUTDOOR LARGE FLOODLIGHT, POLE-MOUNTED, MEDIUM BRONZE CORROSION RESISTANT FINISH, INTEGRAL PHOTOCCELL CONTROL	1	250	HIGH PRESSURE SODIUM	STEEL (NOTE 1) TENON BRACKET	480 VOLTS	LITHONIA TFM 250S RM2 CRT	A/E8
G	WALL MOUNTED HIGH PRESSURE SODIUM EXTERIOR LIGHT FIXTURE WITH CORROSION RESISTANT DIE-CAST ALUMINUM HOUSING, STAINLESS STEEL HARDWARE, MEDIUM BRONZE FINISH, AND INTEGRAL PHOTOCCELL CONTROL.	1	150	HIGH PRESSURE SODIUM	WALL 8'-0" AFF	120 VOLTS	LITHONIA TWM150S120PECRDM8	
G1	SAME AS TYPE G, EXCEPT WITHOUT INTEGRAL PHOTOCCELL CONTROL.	1	150	HIGH PRESSURE SODIUM	WALL 10'-6" AFF	120 VOLTS	LITHONIA TWM150S120CRDM8	
H	SELF-CONTAINED 12 VOLT, EMERGENCY LIGHTS, WITH LEAD CALCIUM MAINTENANCE-FREE BATTERIES AND SOLID STATE CHARGING, NEMA 4X ENCLOSURE	2	12	HALOGEN	WALL 8'-0" AFF	120 VOLTS	LITHONIA ELU3X	
J	EMERGENCY LIGHTING FOR CLASS I, DIVISION II LOCATIONS. 8 VOLT LIGHT WITH LEAD CALCIUM BATTERIES, SOLID-STATE CHARGING.	2	8	HALOGEN	WALL 8'-0" AFF	120 VOLTS	CROUSE-HINDS NZLPS8222	
K	4' LENGTH, FLUORESCENT FIXTURE, WITH TEMPERED GLASS LENS, AND CORROSION RESISTANT WHITE POLYESTER POWDER FINISH. SUITABLE FOR CLASS I, DIVISION II, AND WET LOCATIONS.	2	34	FLUORESCENT F40LW/SS	PENDANT 10'-0" AFF	120 VOLTS	CROUSE-HINDS FVW4240(G-T) FV899-8768	B/E3
L	2 LAMP (TWIN TUBE), FLUORESCENT FIXTURE WITH GLOBE, GUARD, STAINLESS STEEL HARDWARE, BAKED POWDER EPOXY FINISH. SUITABLE FOR CLASS I, DIVISION II LOCATIONS.	2	13	TWIN TUBE FLUORESCENT	WALL 8'-0" AFF	120 VOLTS	KILLARK MBF281-GC82	
M	WALL MOUNTED FLUORESCENT FIXTURE	2	34	FLUORESCENT F40LW/SS	WALL 7'-6"	120 VOLTS	LITHONIA WC240	
N	POST TOP FIXTURE WITH 10" HIGH ROUND TAPERED (4" x 3") ALUMINUM POLE. POLE SHALL HAVE BRUSHED ALUMINUM FINISH.	1	100	HIGH PRESSURE SODIUM	POST TOP 10' POLE	120 VOLTS	HOLOPHANE FIXTURE - CW2A POLE - ALRT	B/E8
P	2' X 4' FLUORESCENT TROFFER WITH ACRYLIC PRISMATIC DIFFUSER	2	34	FLUORESCENT F40LW/SS	CEILING RECESSED	120 VOLTS	LITHONIA 2SP 240	
P1	SAME FIXTURE AS TYPE P EXCEPT 4 LAMP.	4	34	FLUORESCENT F40LW/SS	CEILING RECESSED	120 VOLTS	LITHONIA 2SP 440	
P2	SAME FIXTURE AS TYPE P1 WITH EMERGENCY 90 MIN. BATTERY BACKUP.	4	34	FLUORESCENT F40LW/SS	CEILING RECESSED	120 VOLTS	LITHONIA 2SP 440 EL	
R	KEYLESS PORCELAIN SOCKET.	1	100	INCANDESCENT	CEILING SURFACE	120 VOLTS		
S	EXIT SIGN WITH INTEGRAL 90 MINUTE EMERGENCY BATTERY BACKUP	1	7	FLUORESCENT	WALL 7'-6" AFF	120 VOLTS	LITHONIA FESB21RELM	
T	7 1/2' x 7 1/2' x 4' CORNER FIXTURE. GASKETED AND SUITABLE FOR WET LOCATIONS.	2	34	FLUORESCENT F40LW/SS	WALL 8'-0" AFF	120 VOLTS	PARAMOUNT 76424-2	

KEY NOTES:

- FIXTURES SHALL BE MOUNTED ON A STEEL TENON TOP BRACKET AS REQUIRED FOR MOUNTING OF LUMINAIRES, SPEAKERS, ETC. POLES SHALL BE SQUARED, TAPERED STEEL, CENTER HINGED, 30 FOOT HIGH, FACTORY PRIMED, AND FIELD FINISHED. POLE WILL WITHSTAND STEADY WINDS OF 100mph AND GUSTS TO 130mph.
- LAMP CODES, WHERE INDICATED, ARE SYLVANIA LIGHTING DIVISION.

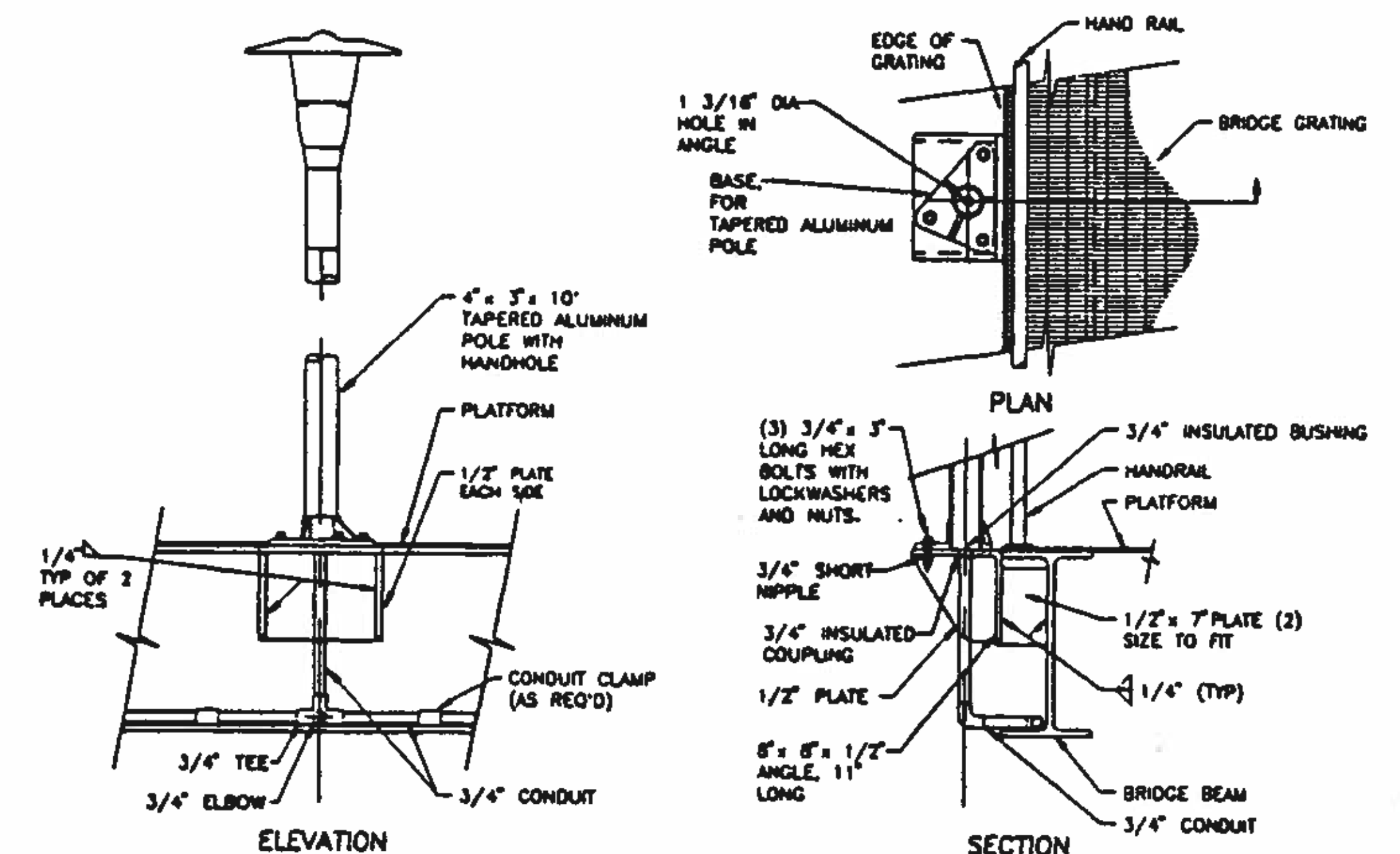
POLE HEIGHT	"A"
10'-0"	5'-6"
20'-0"	6'-6"
30'-0"	7'-6"

NOTE: FOUNDATION TO BEAR AGAINST ORIGINAL SOIL OR 90% COMPACTED BACKFILL OF APPROVED TYPE



LIGHT FIXTURE POLE PIER MOUNTING

DETAIL (A) NO SCALE (VAR)



ACCESS BRIDGE - POLE MOUNTED LIGHT FIXTURE

DETAIL (B) NO SCALE (VAR)

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Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 4/12/92
APPROVED: *[Signature]* DATE: 11-20-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)
FILE: 5870
DRAWN: DOH
DESIGNED: WRM
CHECKED: RAM
CHECKED: RAM



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	RAM



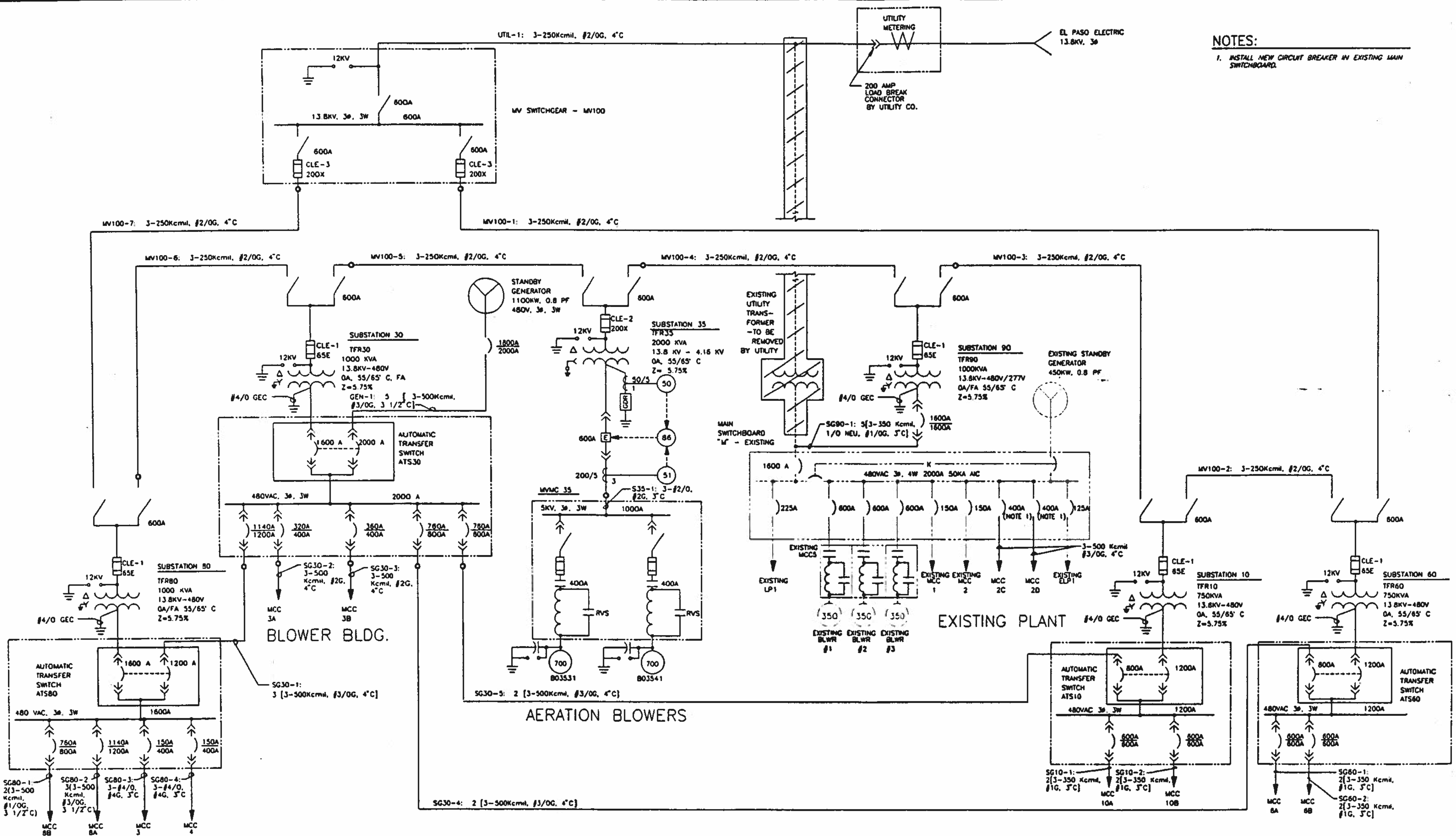
**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

LIGHTING FIXTURE SCHEDULE

PROJECT NUMBER: _____
DRAWING NUMBER: **E6**
SHEET NUMBER: 347

10
9
8
7
6
5
4
3
2

NOTES:
1. INSTALL NEW CIRCUIT BREAKER IN EXISTING MAIN SWITCHBOARD.



UV DISINFECTION, SECONDARY CLARIFIER AND ADMINISTRATION BLDG. AREA

HEADWORKS AND ODOR CONTROL AREA

DAFT AREA

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Phoenix, Arizona

SUBMITTED: _____ DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ALL DIMENSIONS)

FILE 5870
DRAWN MR
DESIGNED RPA
CHECKED RAM
CHECKED RAM



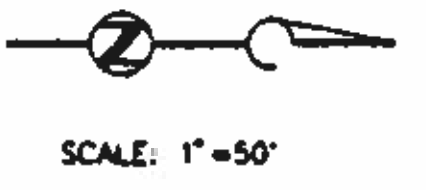
REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
N/A	1	THIS SHIT SUPERSEDES PREVIOUS DWG. #7 SKT		4/93	RAM



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

POWER DISTRIBUTION ONE-LINE DIAGRAM

PROJECT NUMBER
DRAWING NUMBER
E7
SHEET NUMBER
348

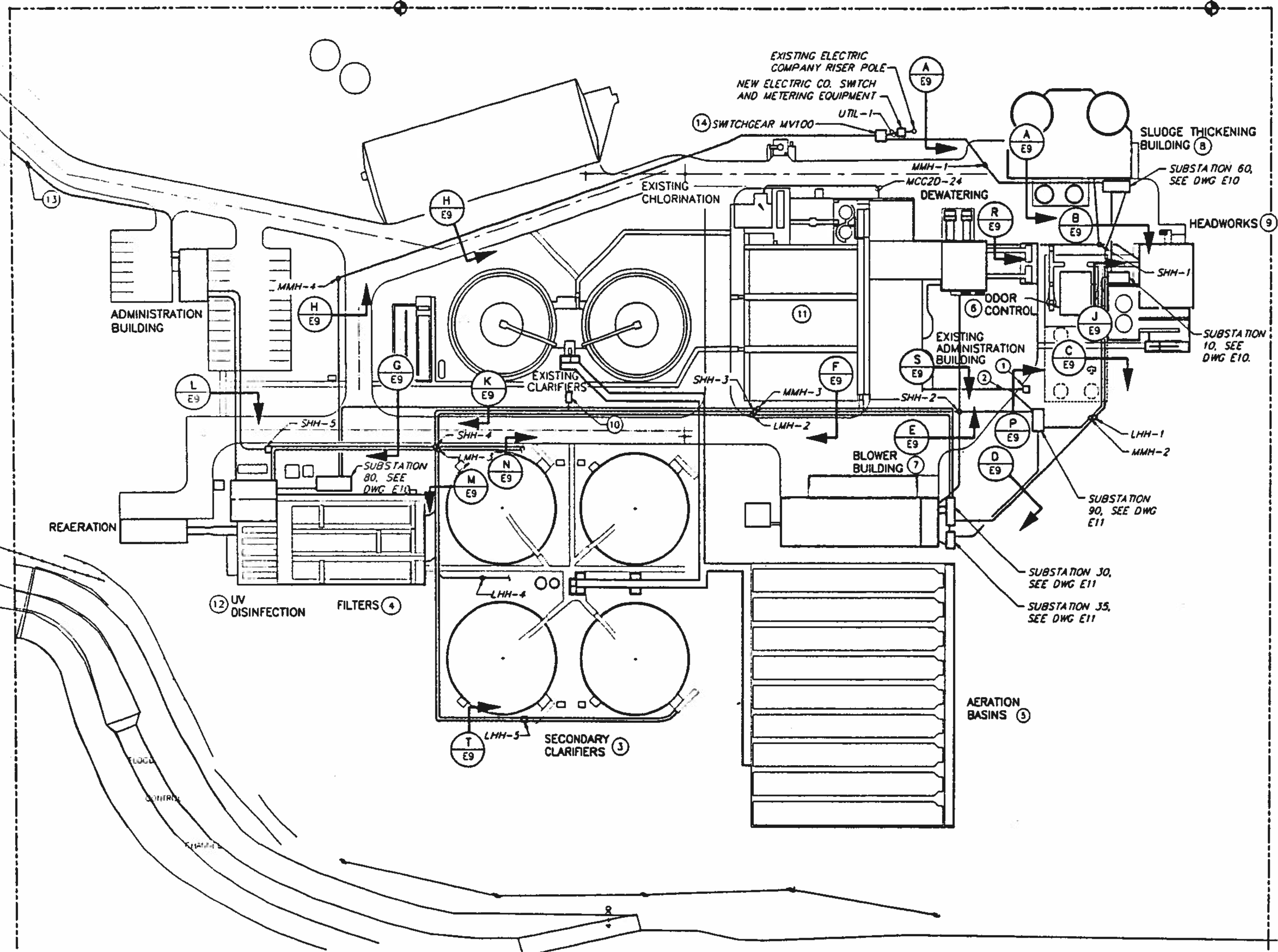


KEY NOTES:

1. EXISTING ELECTRIC COMPANY TRANSFORMER AND METERING EQUIPMENT TO BE REMOVED.
2. REMOVE EXISTING CABLES BETWEEN EXISTING MAIN SWITCHBOARD "M" AND EXISTING ELECTRIC COMPANY TRANSFORMER (3/PHASE 500KCMIL, 3/PHASE #1/0 NEUTRAL 3/PHASE #1/0 GND) INTERCEPT EXISTING CONDUITS AND PULL IN NEW CABLES FROM SUBSTATION 90 TO EXISTING SWITCHBOARD "M".
3. REFER TO DRAWINGS E-401 AND E-402 FOR ADDITIONAL DUCT BANK CONSTRUCTION AND ROUTING REQUIREMENTS.
4. REFER TO DRAWING E501 FOR ADDITIONAL DUCT BANK CONSTRUCTION AND ROUTING REQUIREMENTS.
5. REFER TO DRAWINGS E301 AND E302 FOR ADDITIONAL DUCT BANK CONSTRUCTION AND ROUTING REQUIREMENTS.
6. REFER TO DRAWING E701 FOR ADDITIONAL DUCT BANK CONSTRUCTION AND ROUTING REQUIREMENTS.
7. REFER TO DRAWING E357 FOR ADDITIONAL DUCT BANK CONSTRUCTION AND ROUTING REQUIREMENTS.
8. REFER TO DRAWING E810 FOR ADDITIONAL DUCT BANK CONSTRUCTION AND ROUTING REQUIREMENTS.
9. REFER TO DRAWING E107 AND E110 FOR ADDITIONAL DUCT BANK CONSTRUCTION AND ROUTING REQUIREMENTS.
10. EXISTING MOTOR CONTROL CENTERS MCC3 AND MCC4. INSTALL NEW FEEDER CIRCUITS SC80-3 AND SC80-4 TO MOTOR CONTROL CENTERS. REMOVE EXISTING FEEDER CIRCUITS FROM MOTOR CONTROL CENTERS TO EXISTING SWITCHBOARD "M" IN THE EXISTING ADMINISTRATION BUILDING.
11. EXISTING AERATION BASINS. REMOVE EXISTING DISSOLVED OXYGEN ANALYZERS (THREE TOTAL) AND INSTALL NEW ANALYZERS AIT30A, AIT30B, AND AIT30C.
12. REFER TO DRAWING E808 FOR ADDITIONAL DUCT BANK CONSTRUCTION AND ROUTING REQUIREMENTS.
13. INSTALL BRANCH CIRCUIT AND CONTROL CIRCUIT DUCT BANK FOR GATE OPERATOR AT MAIN ENTRANCE. REFER TO DRAWING E1000.
14. INSTALL SWITCHGEAR ON CONCRETE PAD. REFER TO DETAIL B/E3.

GENERAL NOTES:

1. ALL ELECTRICAL DUCT BANKS SHALL UTILIZE REINFORCED CONCRETE CONSTRUCTION.



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Consultants
Phoenix, Arizona

LINE IS 2 INCHES
AT FULL SIZE
OF PLOT 27" x 44" (AS SHOWN)

FILE 5870
DRAWN KCG
DESIGNED RAM
CHECKED RAM
CHECKED RAM



REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
N/A	1	THIS SHEET SUPERSEDES PREVIOUS DWG. E8	SKT	4/93	RAM



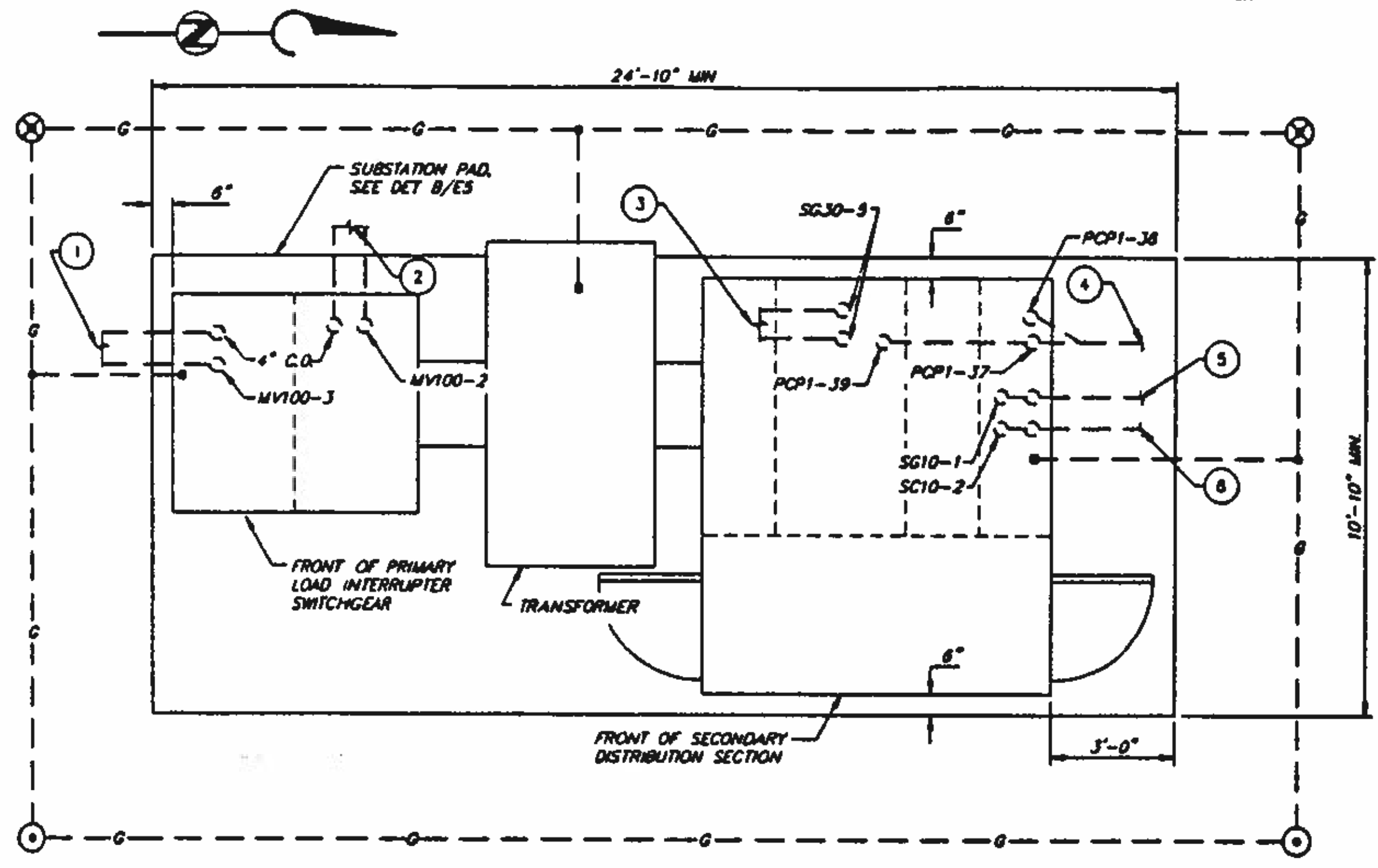
**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

**ELECTRICAL SITE UTILITIES
PLAN**

PROJECT NUMBER
DRAWING NUMBER
E8
SHEET NUMBER
340

5870-306 3-3-93 SKT

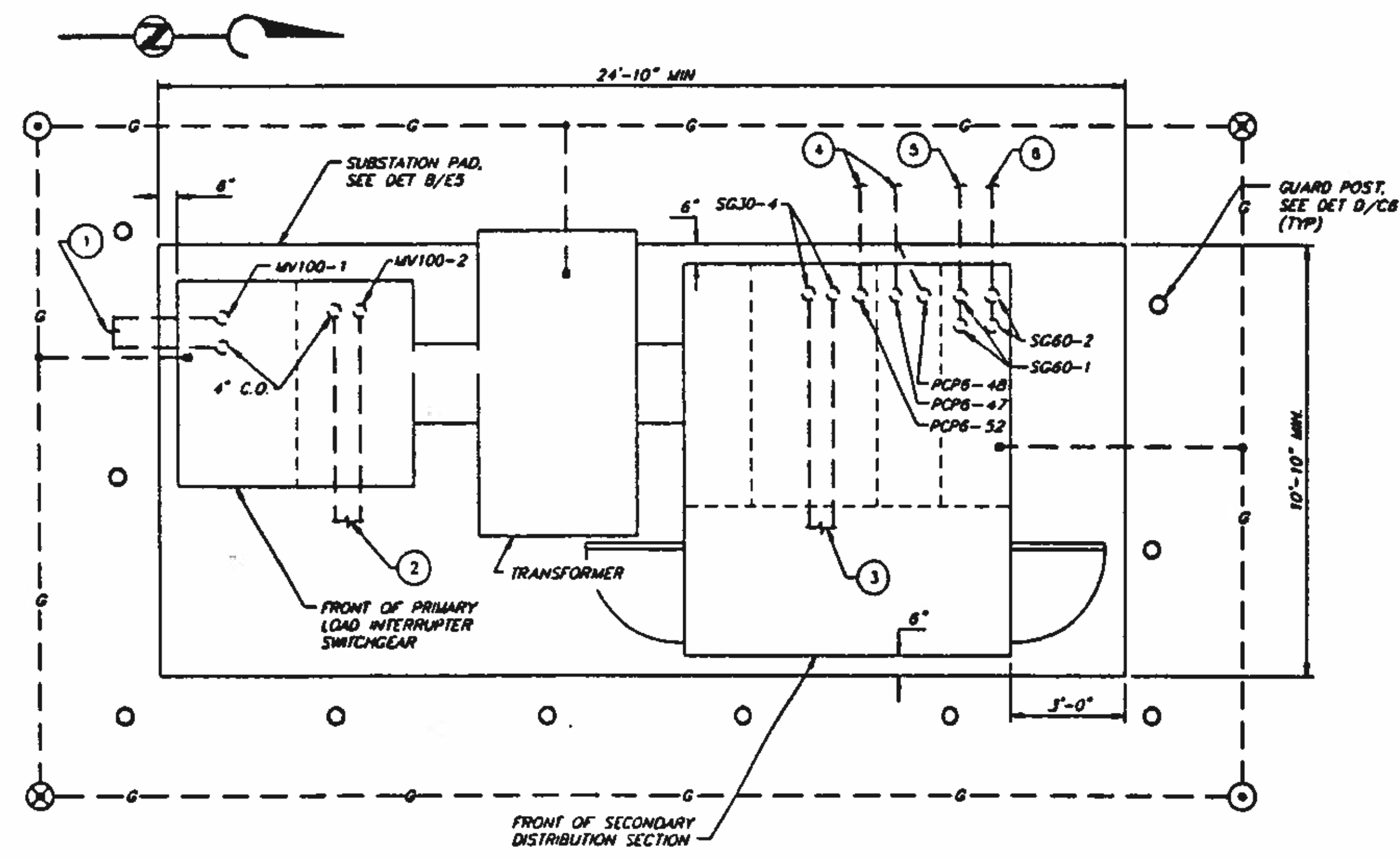
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APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____



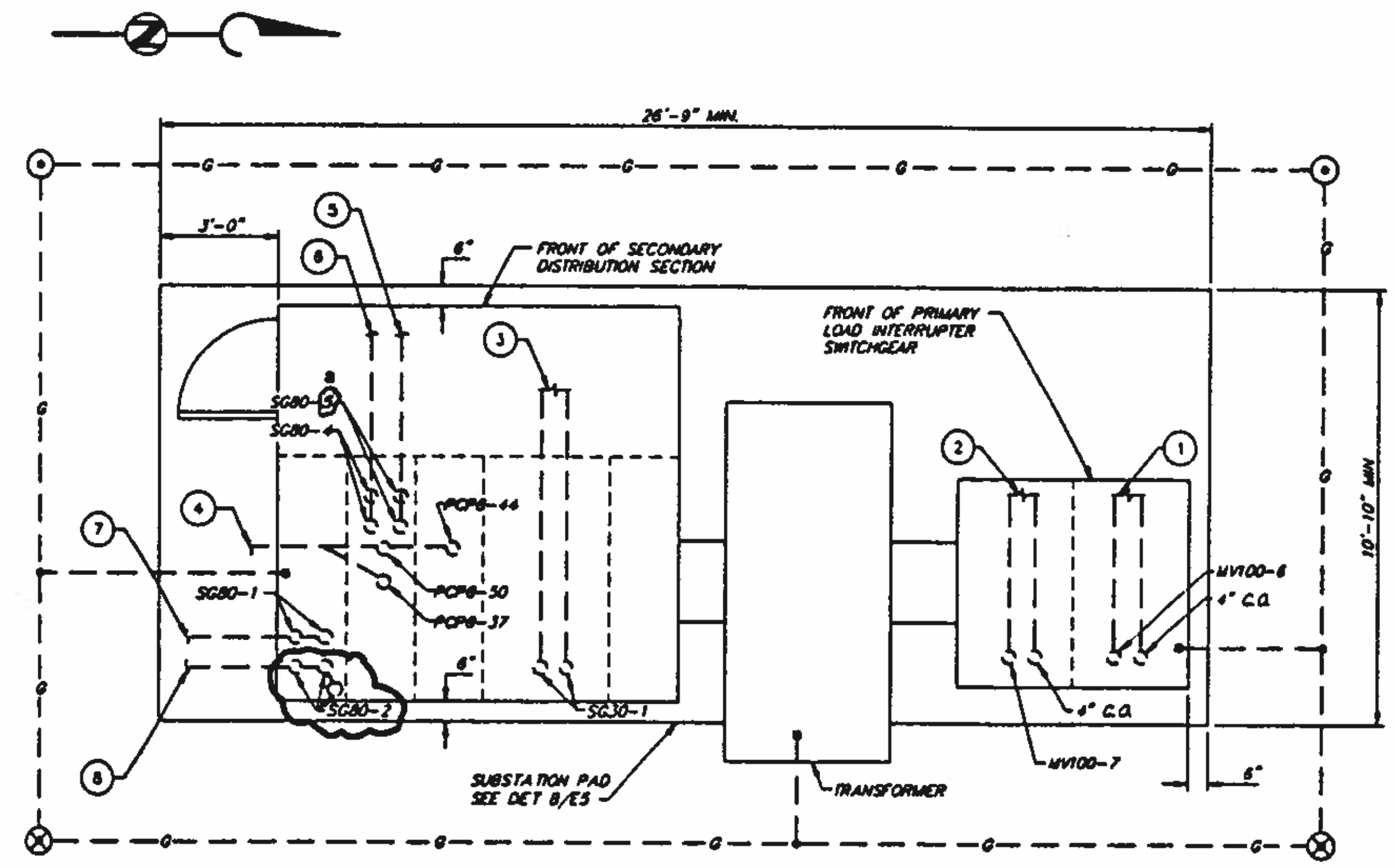
SUBSTATION 10 PLAN
SCALE: 3/8" = 1'-0"

- NOTES:**
- SUBSTATION 10**
1. REINFORCED CONCRETE DUCTBANK TO MMH-2, SEE DRAWING EB
 2. REINFORCED CONCRETE DUCTBANK TO SUBSTATION 60, SEE DRAWING EB
 3. REINFORCED CONCRETE DUCTBANK TO LMH-1, SEE DRAWING EB
 4. REINFORCED CONCRETE DUCTBANK TO PCP1, SEE DRAWING E107
 5. REINFORCED CONCRETE DUCTBANK TO MCC10A, SEE DRAWING E107
 6. REINFORCED CONCRETE DUCTBANK TO MCC10B, SEE DRAWING E107
- SUBSTATION 60**
1. REINFORCED CONCRETE DUCTBANK TO MMH-1, SEE DRAWING EB
 2. REINFORCED CONCRETE DUCTBANK TO SUBSTATION 10, SEE DRAWING EB
 3. REINFORCED CONCRETE DUCTBANK TO LMH-1, SEE DRAWING EB
 4. REINFORCED CONCRETE DUCTBANK TO PCP6, SEE DRAWING E810
 5. REINFORCED CONCRETE DUCTBANK TO MCC6A, SEE DRAWING E810
 6. REINFORCED CONCRETE DUCTBANK TO MCC6B, SEE DRAWING E810
- SUBSTATION 80**
1. REINFORCED CONCRETE DUCTBANK TO MMH-3, SEE DRAWING EB
 2. REINFORCED CONCRETE DUCTBANK TO MMH-4, SEE DRAWING EB
 3. REINFORCED CONCRETE DUCTBANK TO LMH-3, SEE DRAWING EB
 4. REINFORCED CONCRETE DUCTBANK TO PCP8, SEE DRAWING EB
 5. REINFORCED CONCRETE DUCTBANK TO MCC3, SEE DRAWING EB
 6. REINFORCED CONCRETE DUCTBANK TO MCC4, SEE DRAWING EB
 7. REINFORCED CONCRETE DUCTBANK TO MCC8B, SEE DRAWING EB
 8. REINFORCED CONCRETE DUCTBANK TO MCC8A, SEE DRAWING EB

- GENERAL NOTES:**
1. VERIFY ALL CONDUIT ROUGH-IN LOCATIONS AND EQUIPMENT DIMENSIONS PRIOR TO FABRICATION OF PAD.
 2. SUBSTATIONS SHALL BE LOCATED 5' MINIMUM FROM ADJACENT STRUCTURES.



SUBSTATION 60 PLAN
SCALE: 3/8" = 1'-0"



SUBSTATION 80 PLAN
SCALE: 3/8" = 1'-0"

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/19/92
 APPROVED: *[Signature]* DATE: 11/20/92
 APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE AS SHOWN)

FILE: 5870
 DRAWN: BC
 DESIGNED: WRM
 CHECKED: RAM
 CHECKED: RAM



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	RAM



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

ELECTRICAL SITE UTILITIES DETAILS 1

PROJECT NUMBER
DRAWING NUMBER
E10
SHEET NUMBER
351

NOTES:

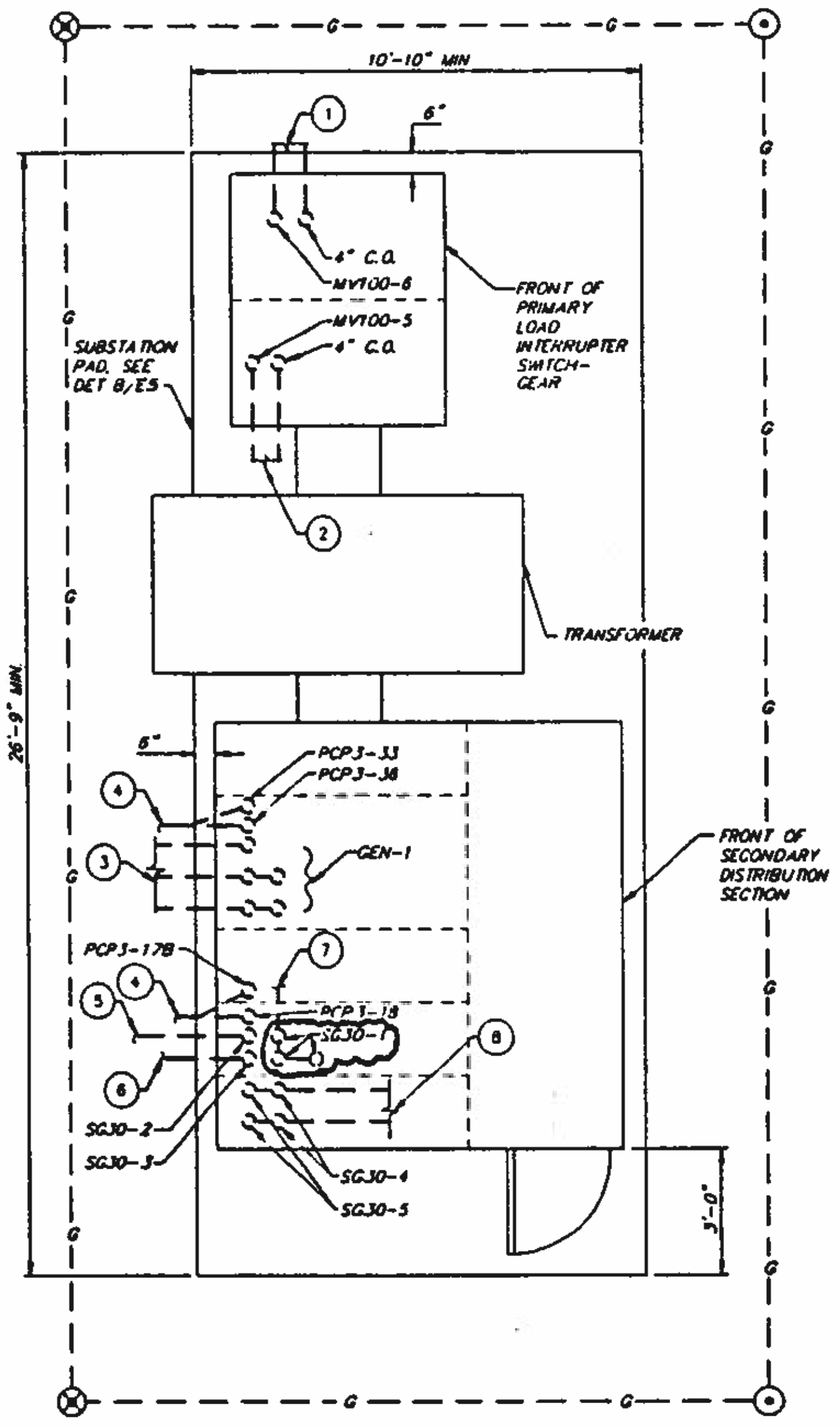
- SUBSTATION 30**
1. REINFORCED CONCRETE DUCTBANK TO MMH-3, SEE DRAWING EB
 2. REINFORCED CONCRETE DUCTBANK TO SUBSTATION 35, SEE DRAWING EB
 3. REINFORCED CONCRETE DUCTBANK TO STANDBY GENERATOR, DRAWING E357
 4. REINFORCED CONCRETE DUCTBANK TO PCP3, SEE DRAWING E380
 5. REINFORCED CONCRETE DUCTBANK TO MCC3A, SEE DRAWING E357
 6. REINFORCED CONCRETE DUCTBANK TO MCC3B, SEE DRAWING E357
 7. REINFORCED CONCRETE DUCTBANK TO LMH-2, SEE DRAWING EB
 8. REINFORCED CONCRETE DUCTBANK TO LMH-1, SEE DRAWING EB

- SUBSTATION 35**
1. REINFORCED CONCRETE DUCTBANK TO SUBSTATION 30, SEE DRAWING EB
 2. REINFORCED CONCRETE DUCTBANK TO SUBSTATION 90 SEE DRAWING EB
 3. REINFORCED CONCRETE DUCTBANK TO MVHC 35 SEE DRAWING E357

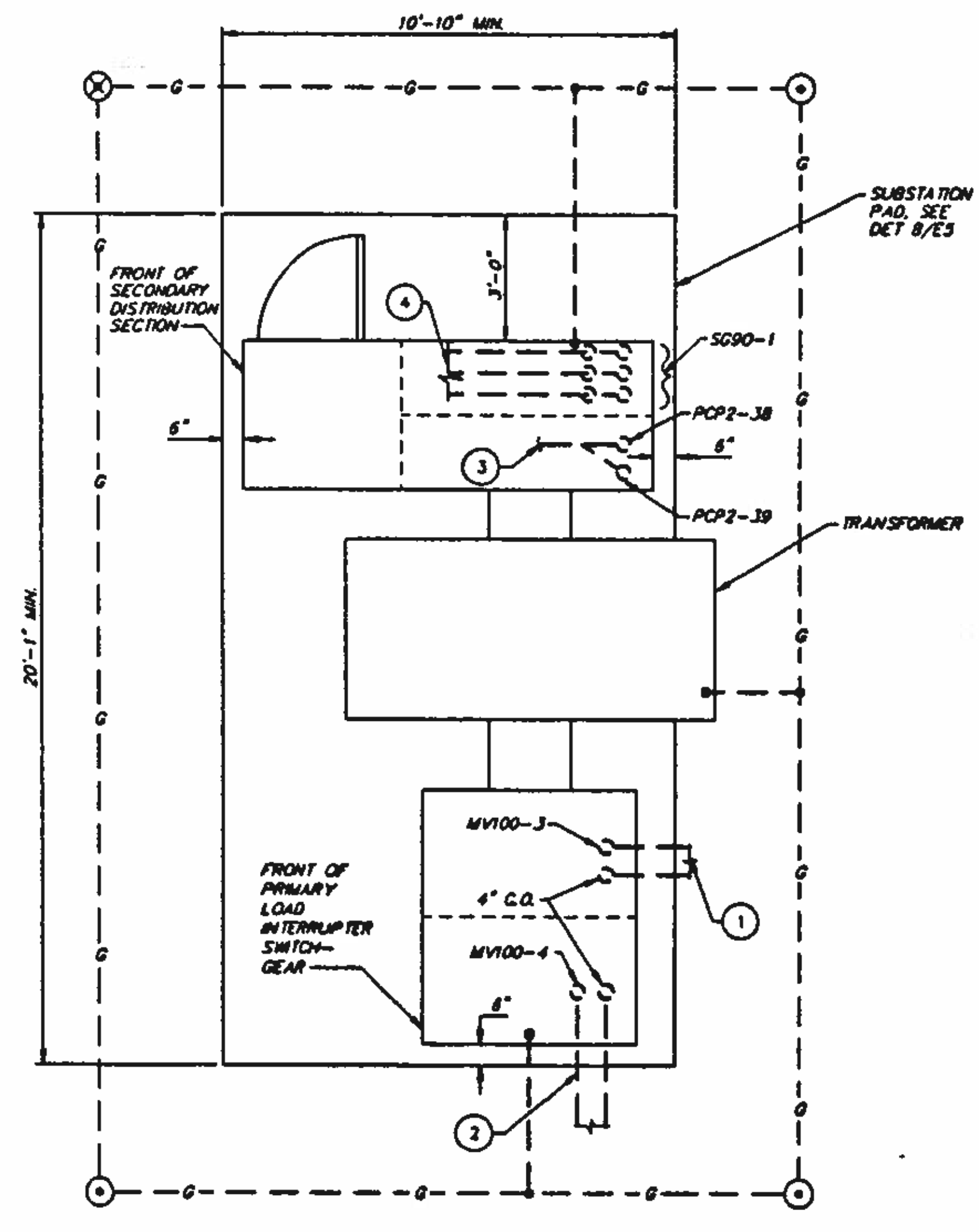
- SUBSTATION 90**
1. REINFORCED CONCRETE DUCTBANK TO MMH-2, SEE DRAWING EB
 2. REINFORCED CONCRETE DUCTBANK TO SUBSTATION 35, SEE DRAWING EB
 3. REINFORCED CONCRETE DUCTBANK TO SMH-2, SEE DRAWING EB
 4. REINFORCED CONCRETE DUCTBANK TO EXISTING MAIN SWITCHBOARD "M", SEE DRAWING EB

GENERAL NOTES:

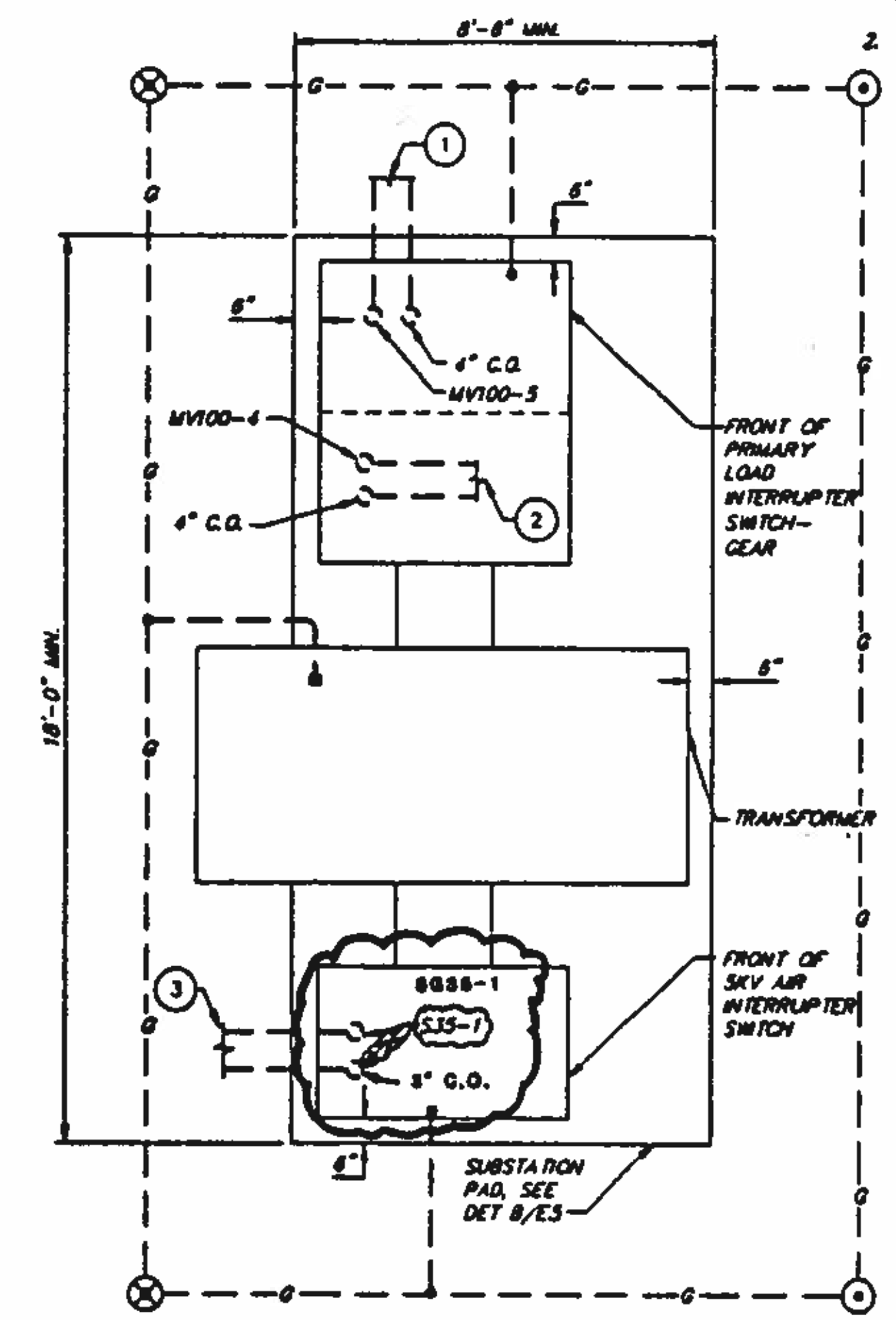
1. VERIFY ALL CONDUIT ROUGH-IN LOCATIONS AND EQUIPMENT DIMENSIONS PRIOR TO FABRICATION OF PAD.
2. SUBSTATIONS SHALL BE LOCATED 5' MINIMUM FROM ADJACENT STRUCTURES.



**SUBSTATION 30
PLAN**
SCALE: 3/8" = 1'-0"



**SUBSTATION 90
PLAN**
SCALE: 3/8" = 1'-0"



**SUBSTATION 35
PLAN**
SCALE: 3/8" = 1'-0"

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/19/92
 APPROVED: *[Signature]* DATE: 11/20/92
 APPROVED: *[Signature]* DATE: 11/20/92

LINE IS 1/2 INCHES AT FULL SIZE (IF NOT SPECIFIED, ACCORDING TO STANDARD)
FILE: 5870
DRAWN: BC
DESIGNED: WRM
CHECKED: RAM
CHECKED: RAM



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
M/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	RAM

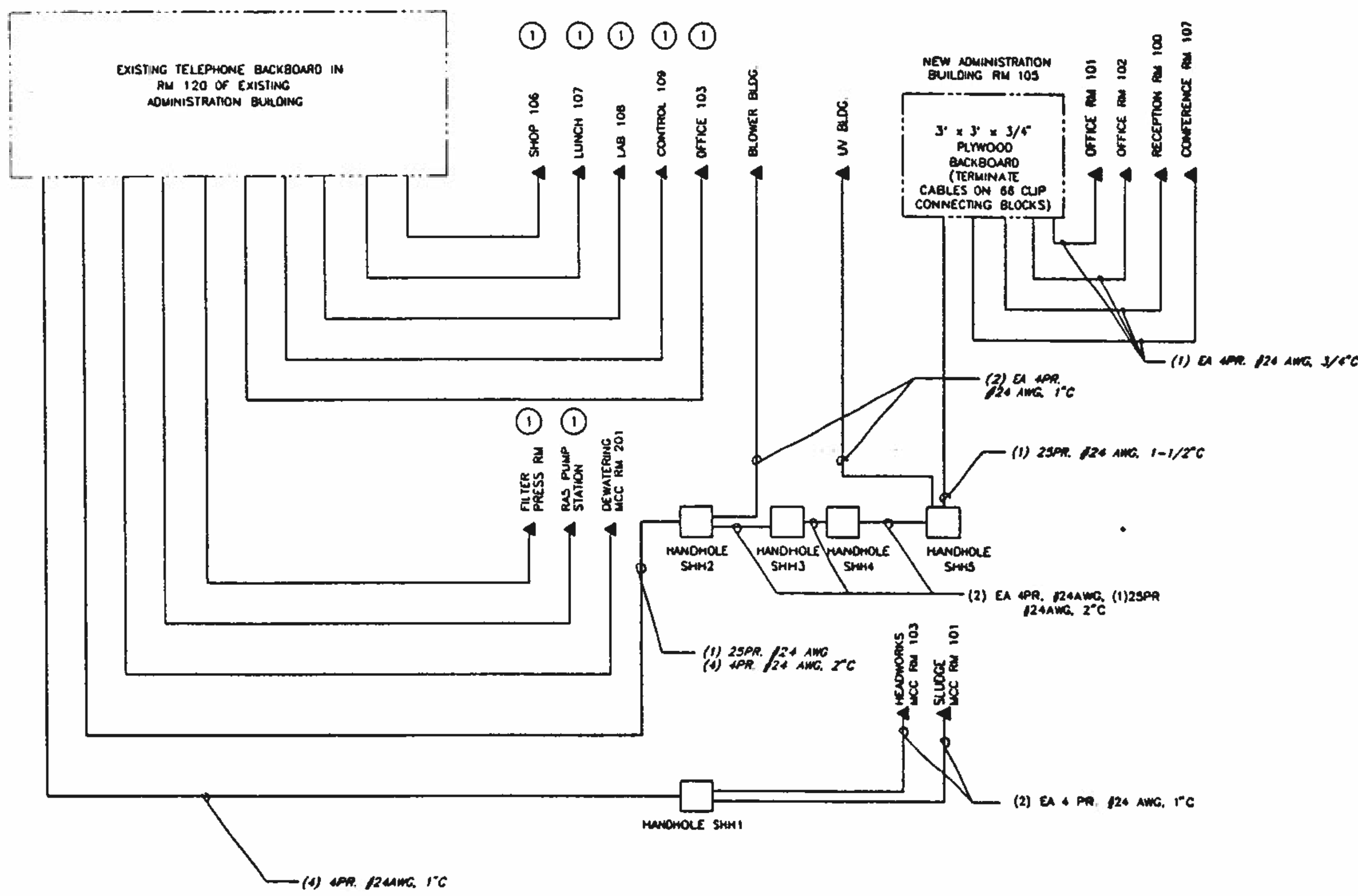


NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

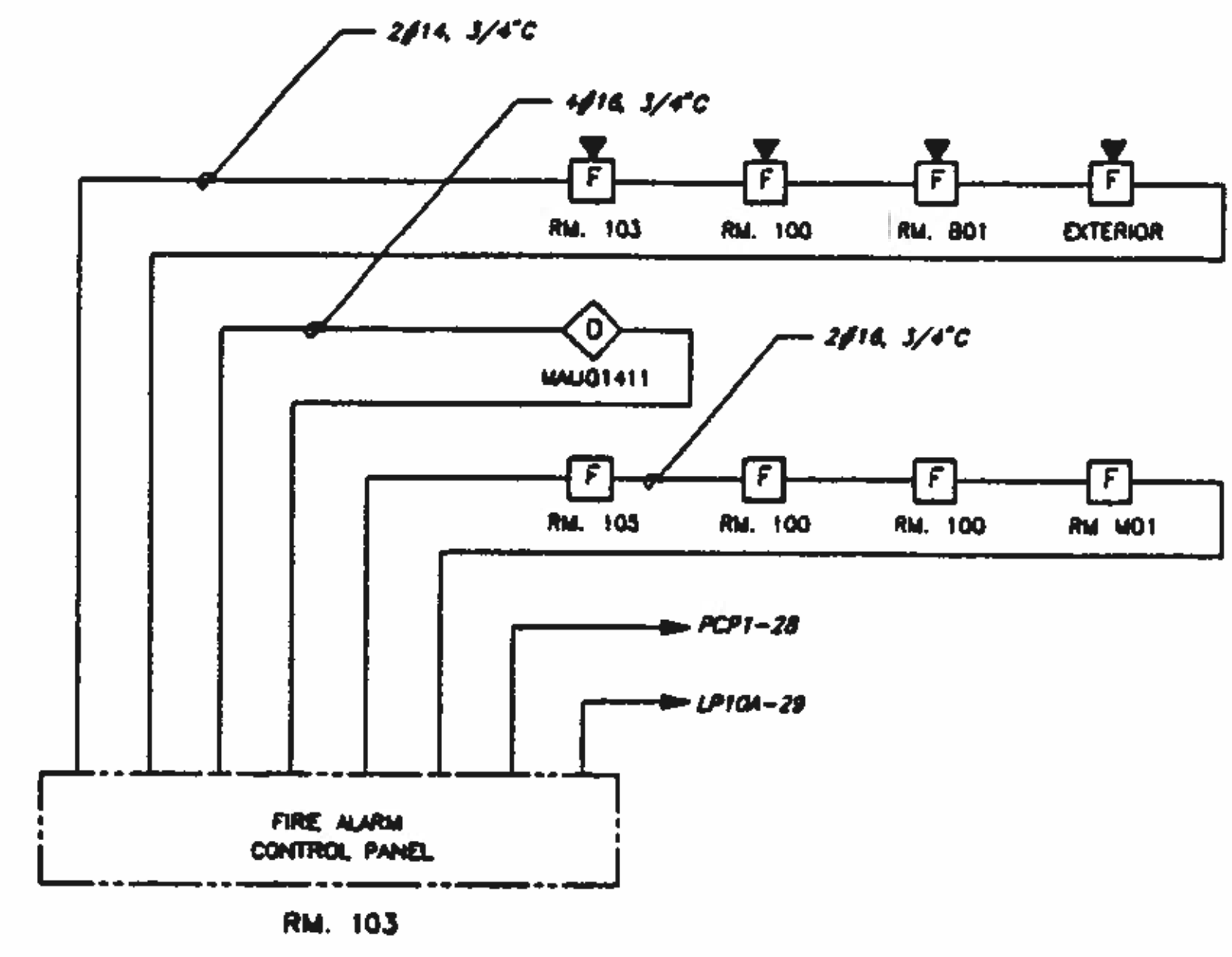
PROJECT NUMBER	
DRAWING NUMBER	E11
SHEET NUMBER	352

ELECTRICAL SITE UTILITIES DETAILS 2

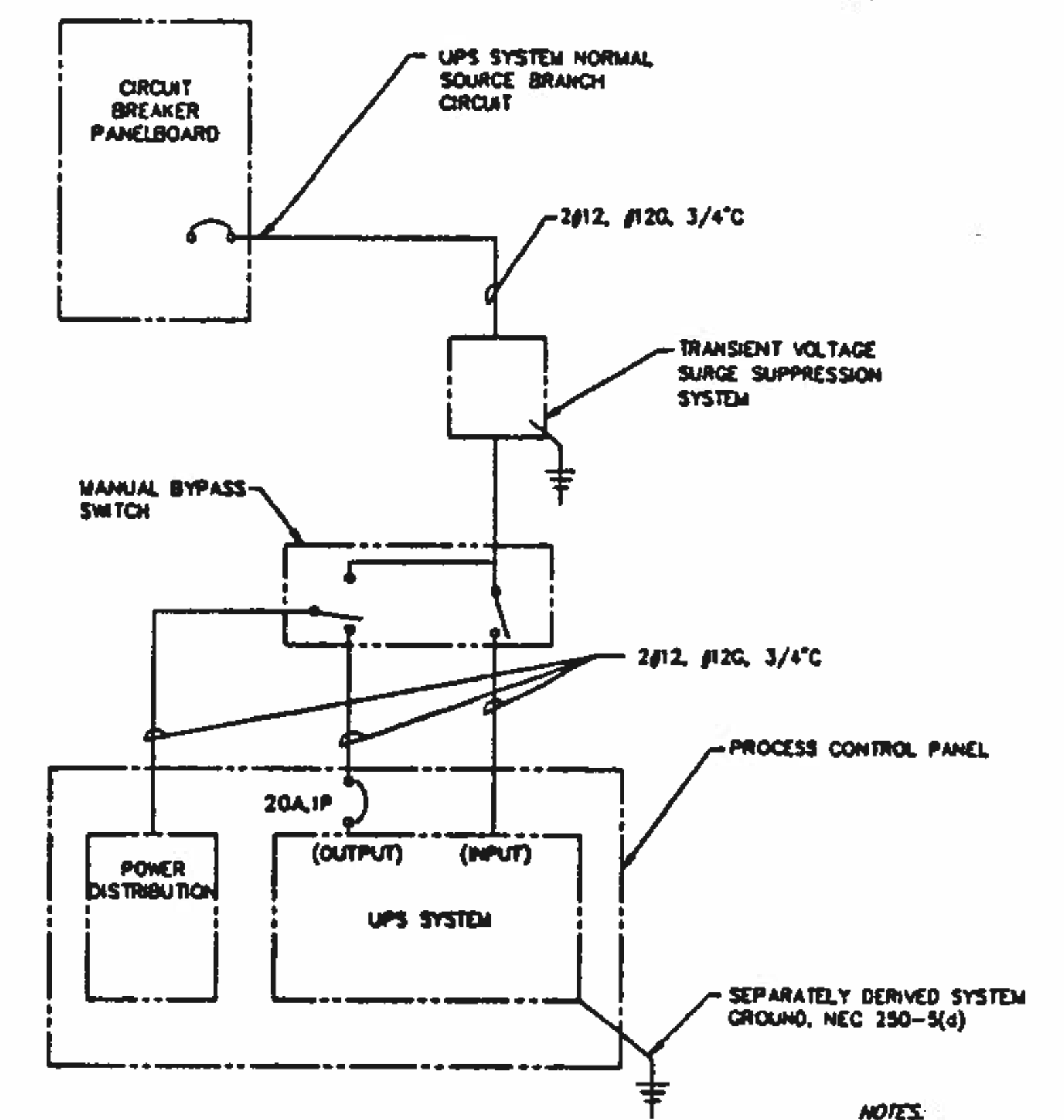
KEY NOTES:
 1. REPLACE EXISTING 1PR. #24 AWG WITH NEW 4PR #24 AWG IN EXISTING CONDUITS.



TELEPHONE SYSTEM RISER DIAGRAM
 NOT TO SCALE



HEADWORKS FIRE ALARM SYSTEM RISER DIAGRAM
 NOT TO SCALE



TYPICAL UPS SYSTEM ONE-LINE DIAGRAM
 NOT TO SCALE

NOTES:
 1. REFER TO CIRCUIT BREAKER PANELBOARD SCHEDULES FOR BRANCH CIRCUIT BREAKER RATINGS

BC Brown and Caldwell Consultants
 Phoenix, Arizona
 SUBMITTED: [Signature] DATE: 11/12/92
 APPROVED: [Signature] DATE: 11/20/92
 APPROVED: [Signature] DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2\"/>

FILE	5870
DRAWN	OOH
DESIGNED	RAM
CHECKED	RAM
CHECKED	RAM



REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP

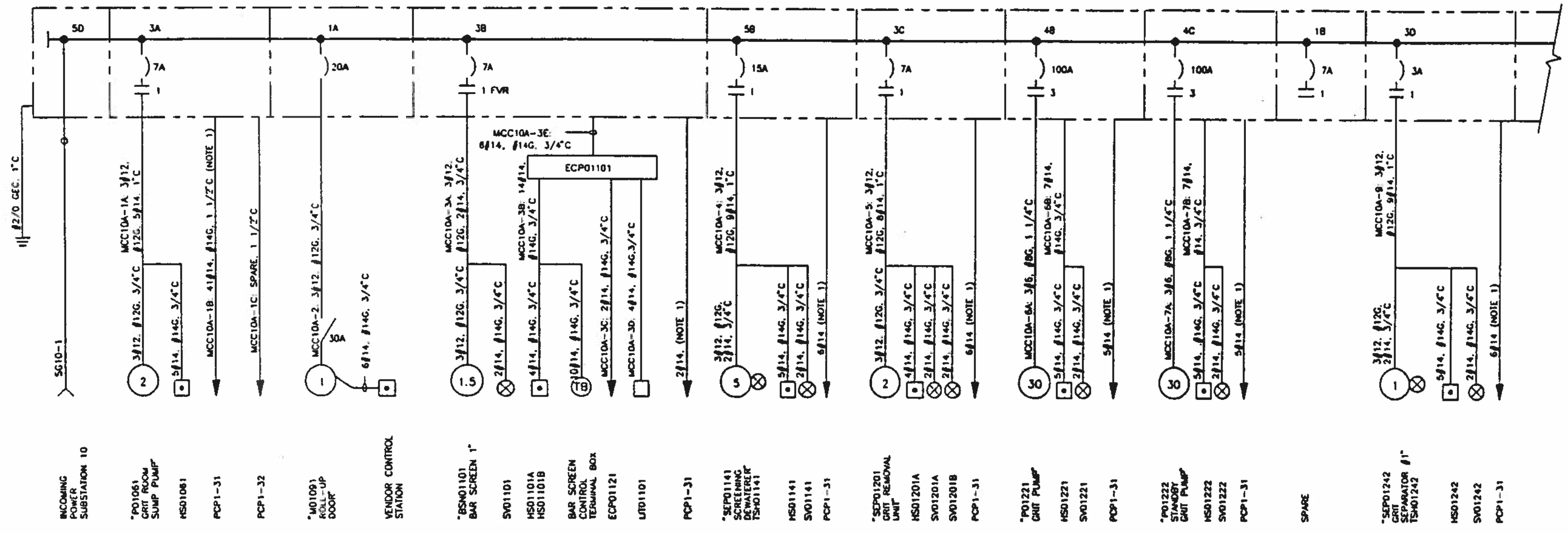


NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

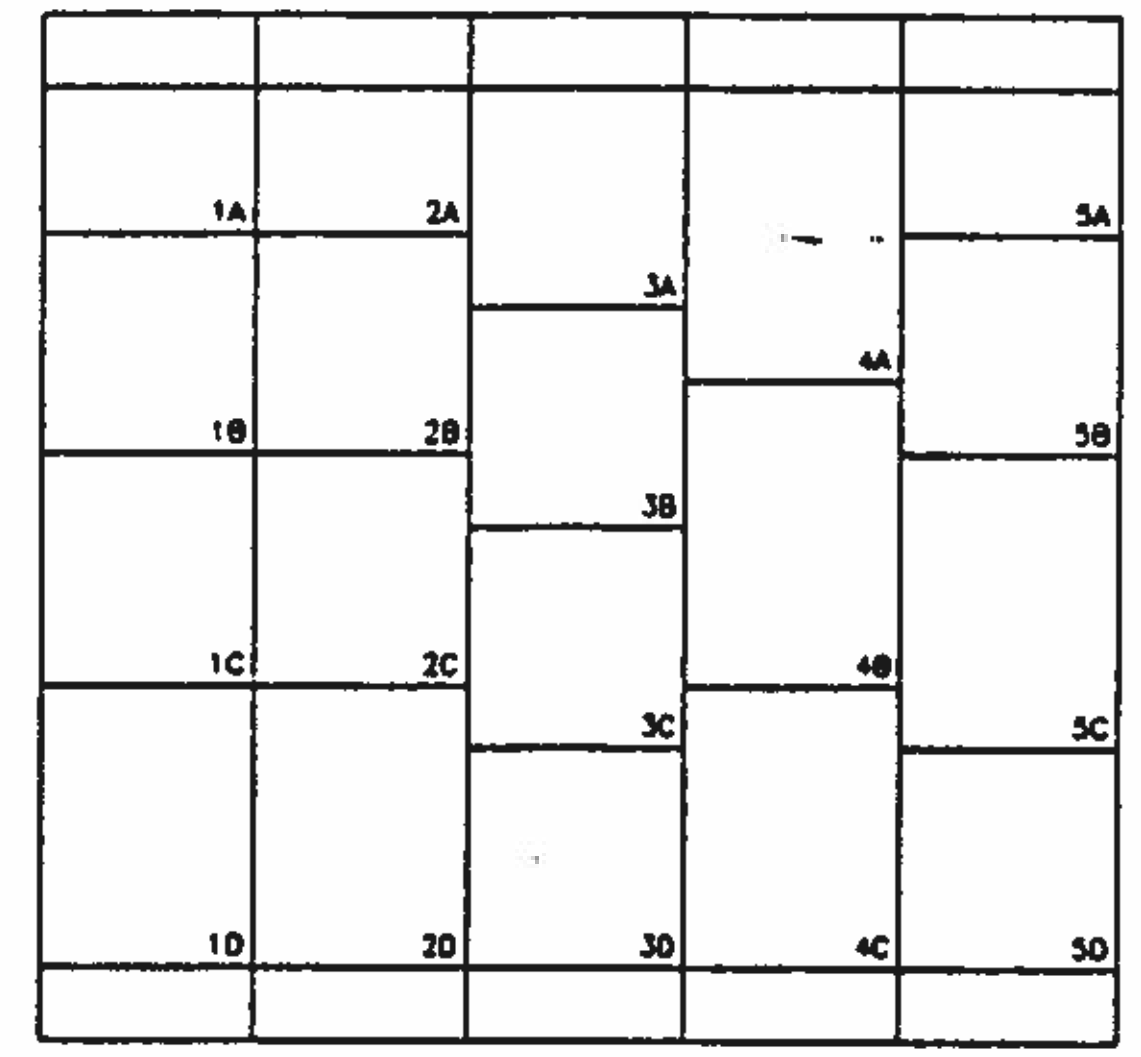
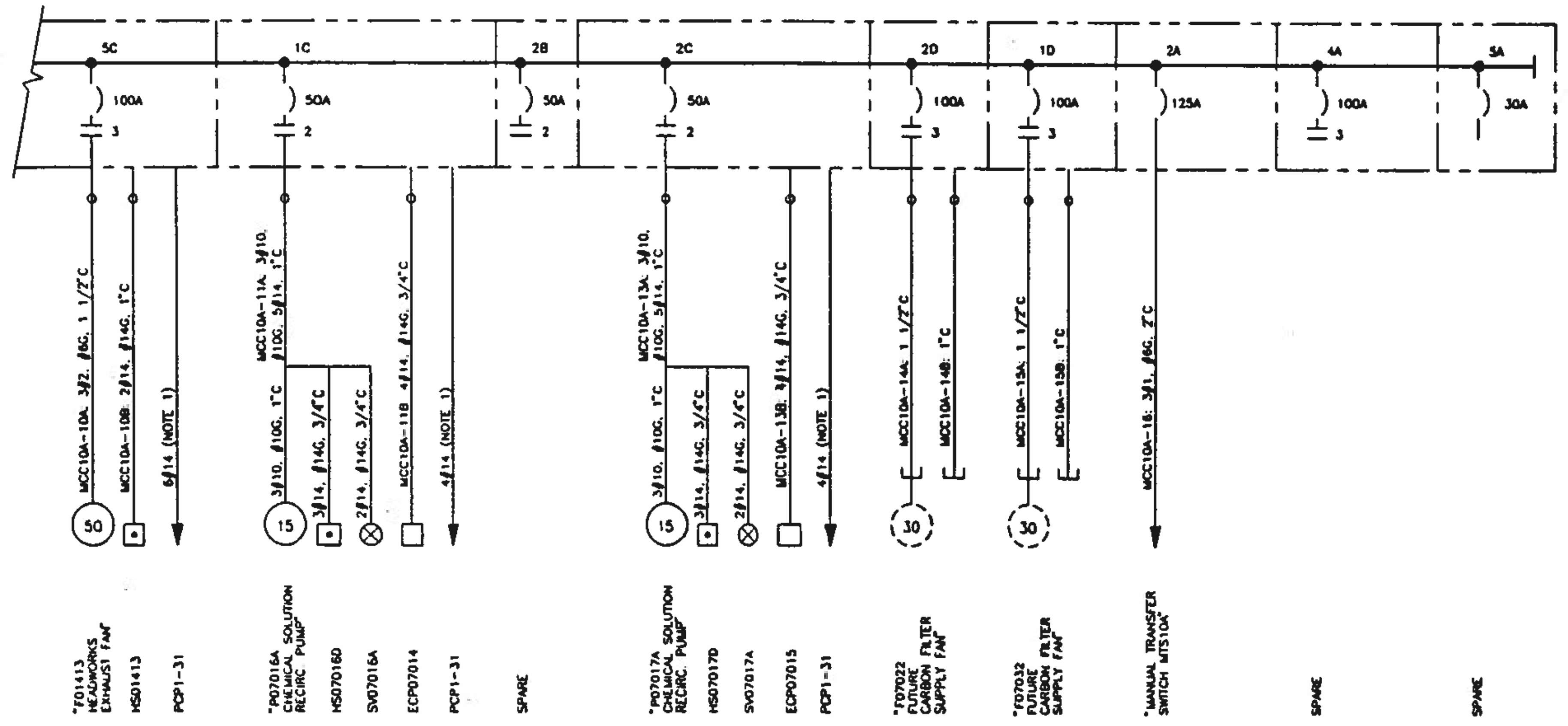
SPECIAL SYSTEM RISER DIAGRAMS

PROJECT NUMBER
 DRAWING NUMBER
E12
 SHEET NUMBER
 353

10
9
8
7
6
5
4
3
2



NOTES:
1. COMBINE ALL CIRCUITS IN COMMON CONDUIT, MCC10A-1B.



MCC10A FRONT ELEVATION
NOT TO SCALE

ELECTRICAL CHARACTERISTICS
VOLTS: 480
PHASE: 3
WIRE: 3
MAIN BUS RATING: 600A
AC RATING: 65,000 AMPERE SYMMETRICAL

Brown and Caldwell
Consultants
Phoenix, Arizona

FILE: 5870
DRAWN: MR
DESIGNED: JO
CHECKED: RAM
DATE: 11/20/92

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE, DIMENSIONS)



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

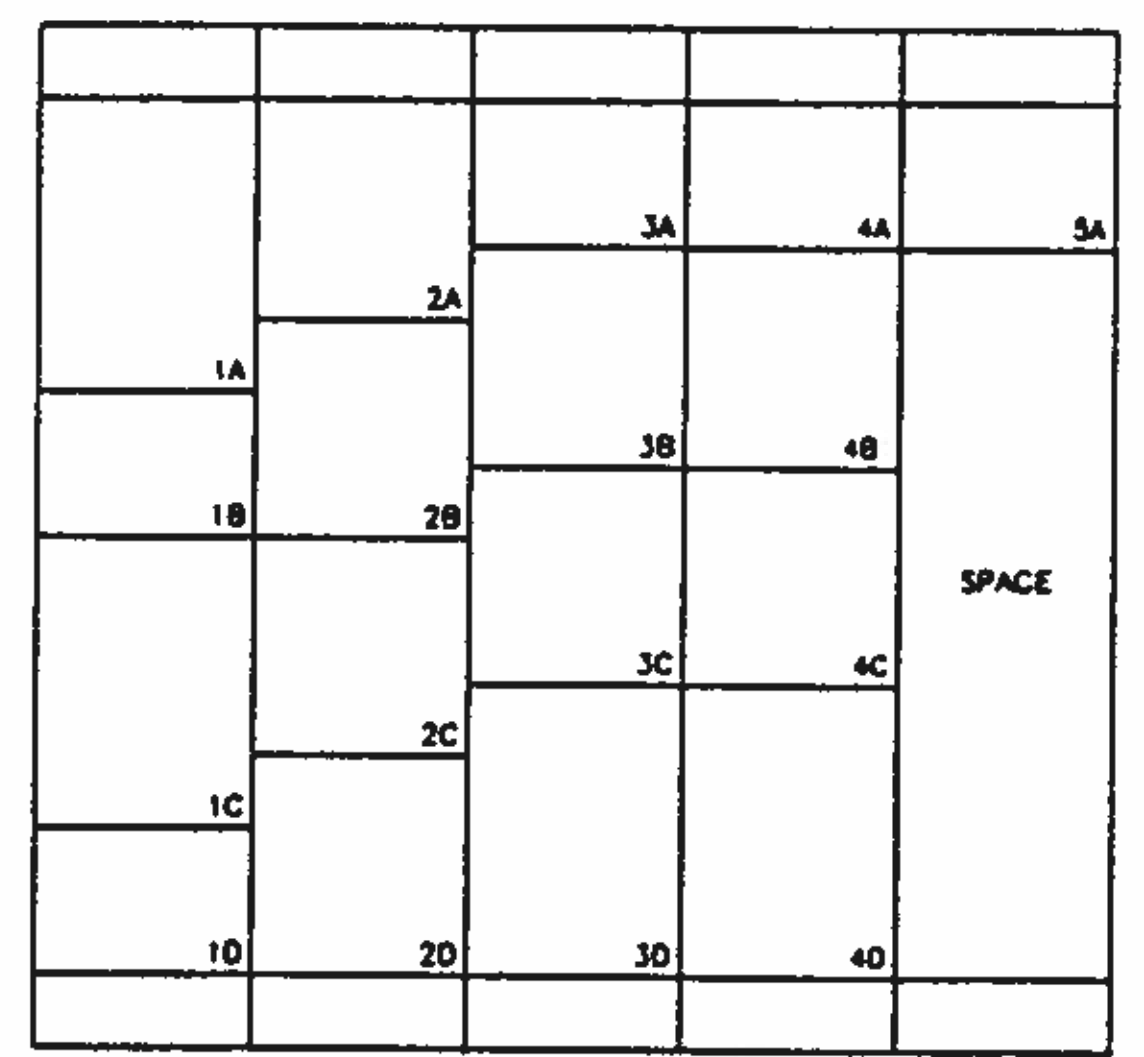
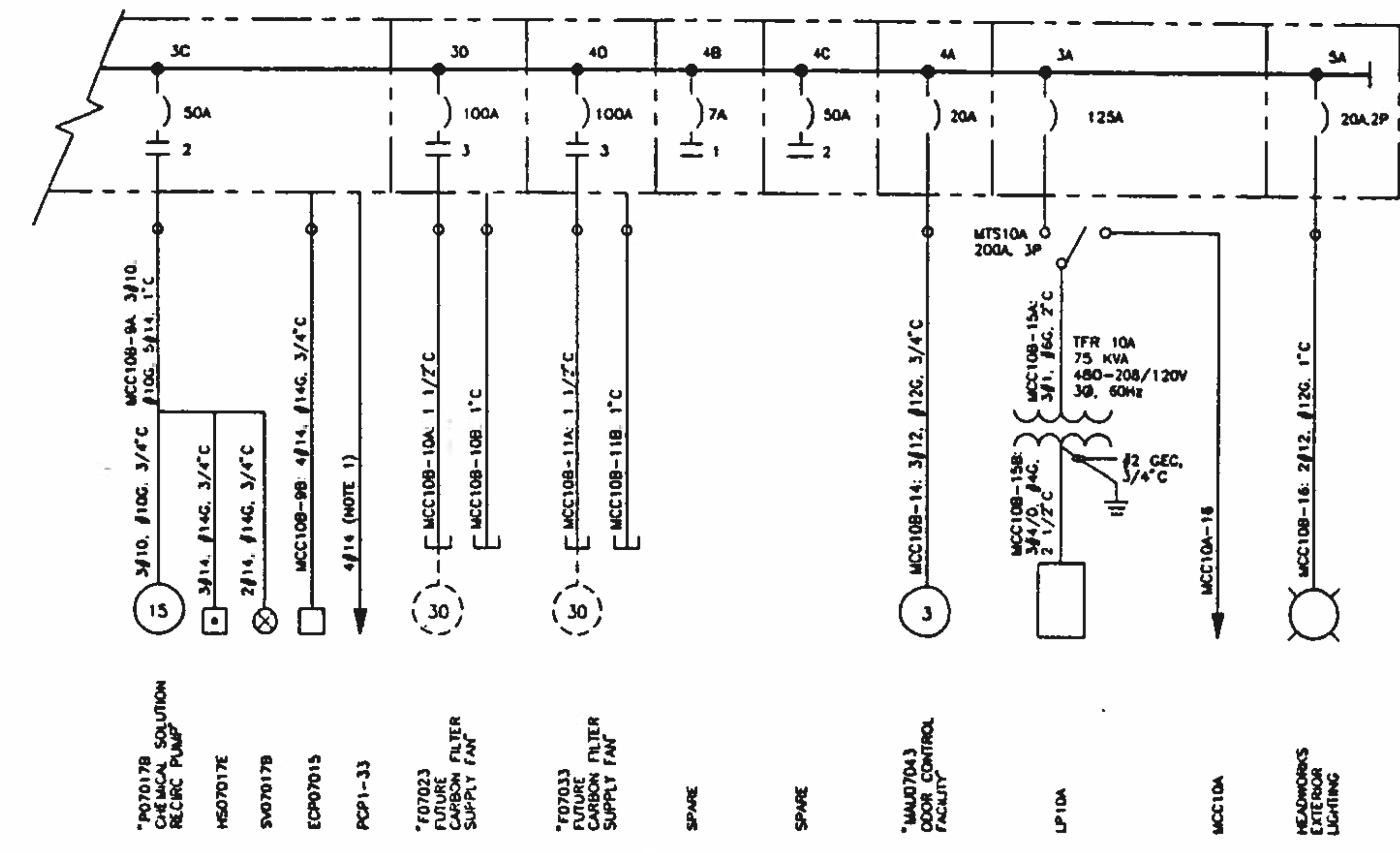
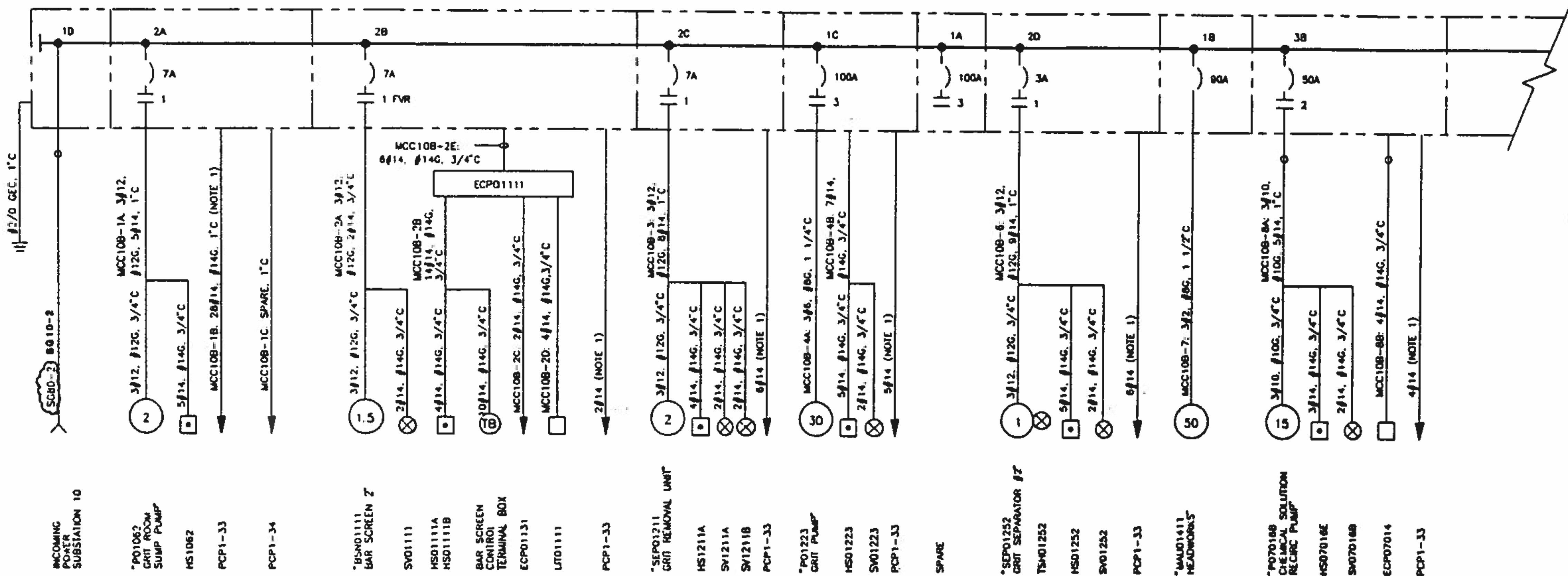
**HEADWORKS
MCC10A
ONE-LINE DIAGRAM**

PROJECT NUMBER	1
DRAWING NUMBER	E101
SHEET NUMBER	364

NOTES:

1. COMBINE ALL CIRCUITS IN COMMON CONDUIT, MCC10B-1B.

10
9
8
7
6
5
4
3
2



MCC 10B FRONT ELEVATION
NOT TO SCALE

ELECTRICAL CHARACTERISTICS
VOLTS: 480
PHASE: 3
WIRE: 3
MAIN BUS RATING: 800A
AC RATING: 65,000 AMPERE SYMMETRICAL

BC Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/11/92
APPROVED: *[Signature]* DATE: 11/20/92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT OTHERWISE SPECIFIED)

FILE: 5870
DRAWN: MR
DESIGNED: JD
CHECKED: RAM
CHECKED: RAM



REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE
B/7	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

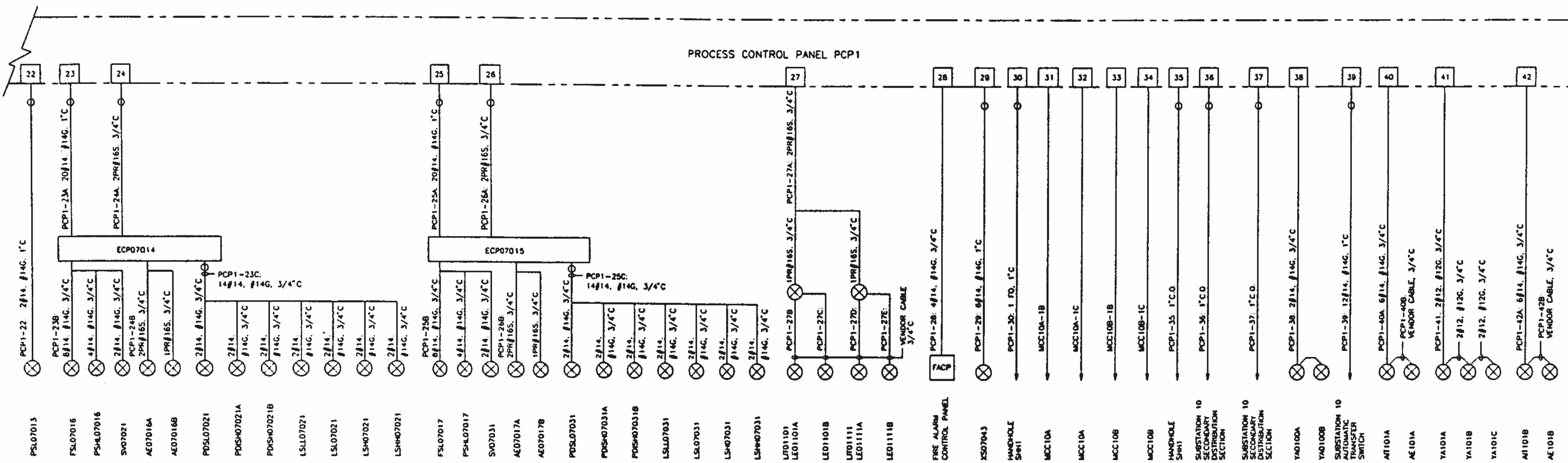
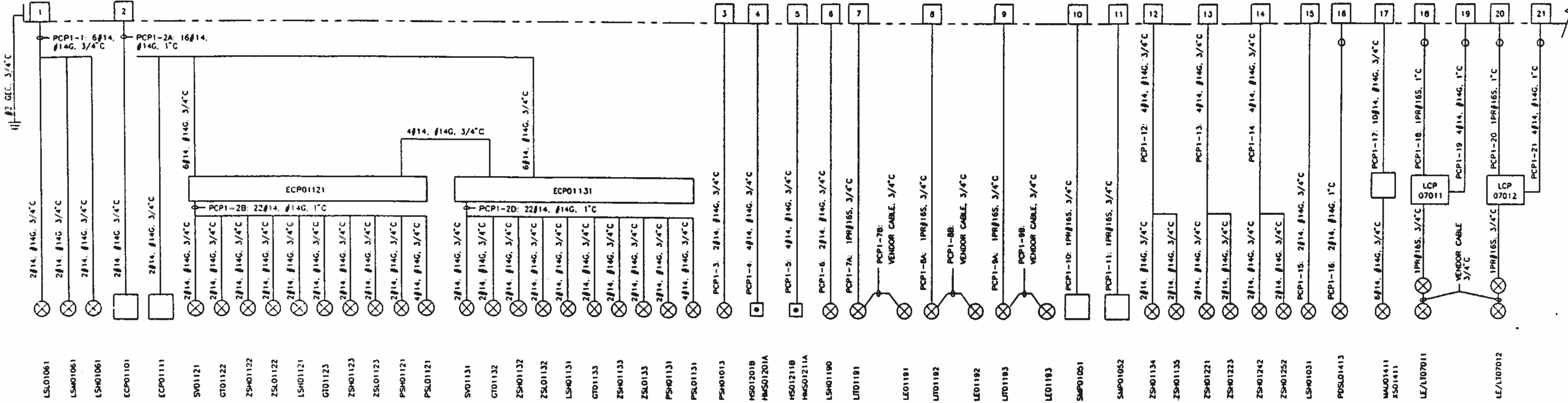
HEADWORKS MCC10B ONE-LINE DIAGRAM

PROJECT NUMBER
DRAWING NUMBER **E102**
SHEET NUMBER 366

10
9
8
7
6
5
4
3
2
1

PROCESS CONTROL PANEL PCP1

PROCESS CONTROL PANEL PCP1

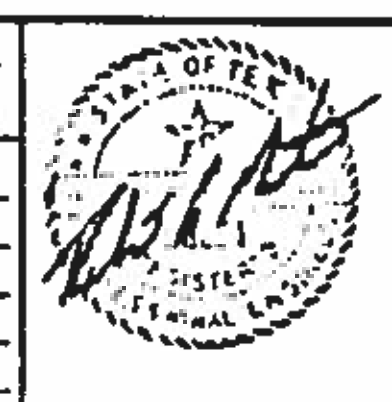


Brown and Caldwell
Consultants
Phoenix, Arizona

PROJECT NUMBER: _____
SUBMITTED: _____ DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT OTHERWISE SPECIFIED)

FILE	DOH
DRAWN	RAM
DESIGNED	RAM
CHECKED	RAM
CHECKED	RAM



REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
N/A	1	THIS SHEET SUPERSEDES PREVIOUS DWG. E103	SKT	4/93	RAM



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORK 8
PCP1
ONE-LINE DIAGRAM

PROJECT NUMBER	
DRAWING NUMBER	E103
SHEET NUMBER	368

NOTES:

1. CONTROL DIAGRAMS REPRESENTING MORE THAN ONE EQUIPMENT ITEM INDICATE THE AUXILIARY DEVICE TAG NUMBERS FOR THE FIRST LISTED EQUIPMENT ITEM IN THE ASSOCIATED ADAPTER TABLE. REFER TO THE REFERENCED PROCESS AND INSTRUMENTATION DIAGRAM FOR THE CORRESPONDING TAG NUMBERS OF THE OTHER EQUIPMENT.

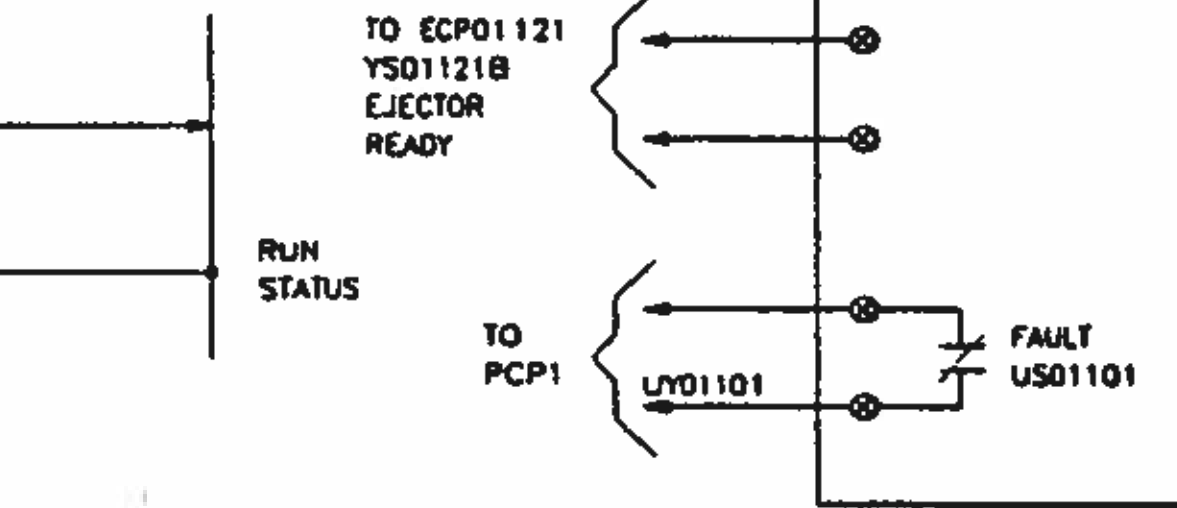
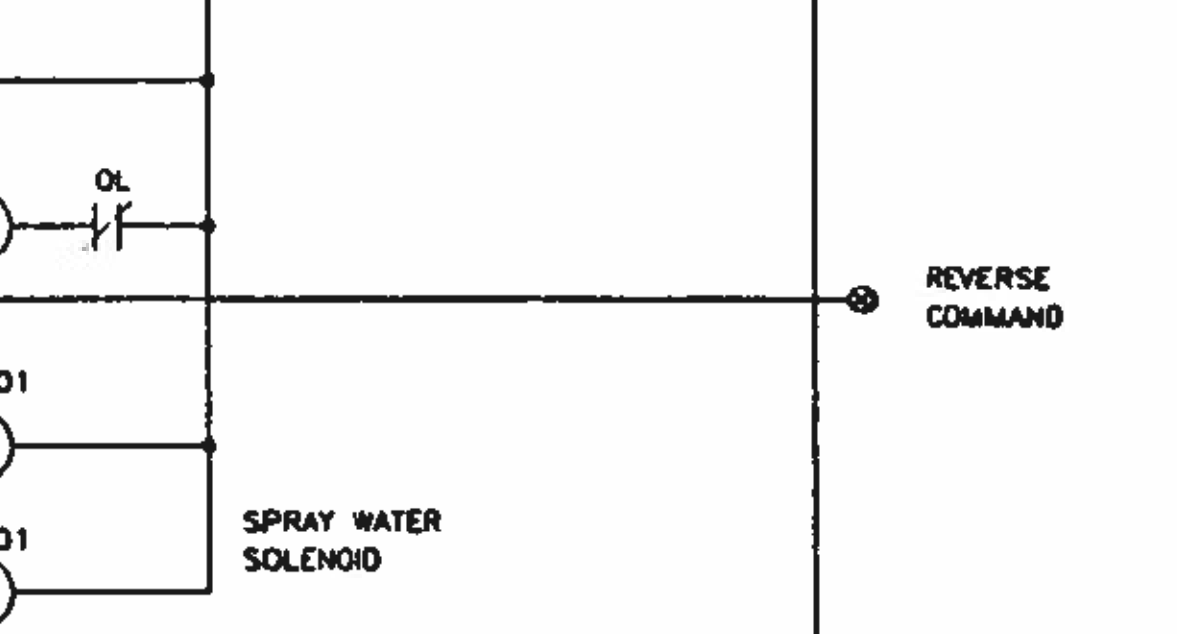
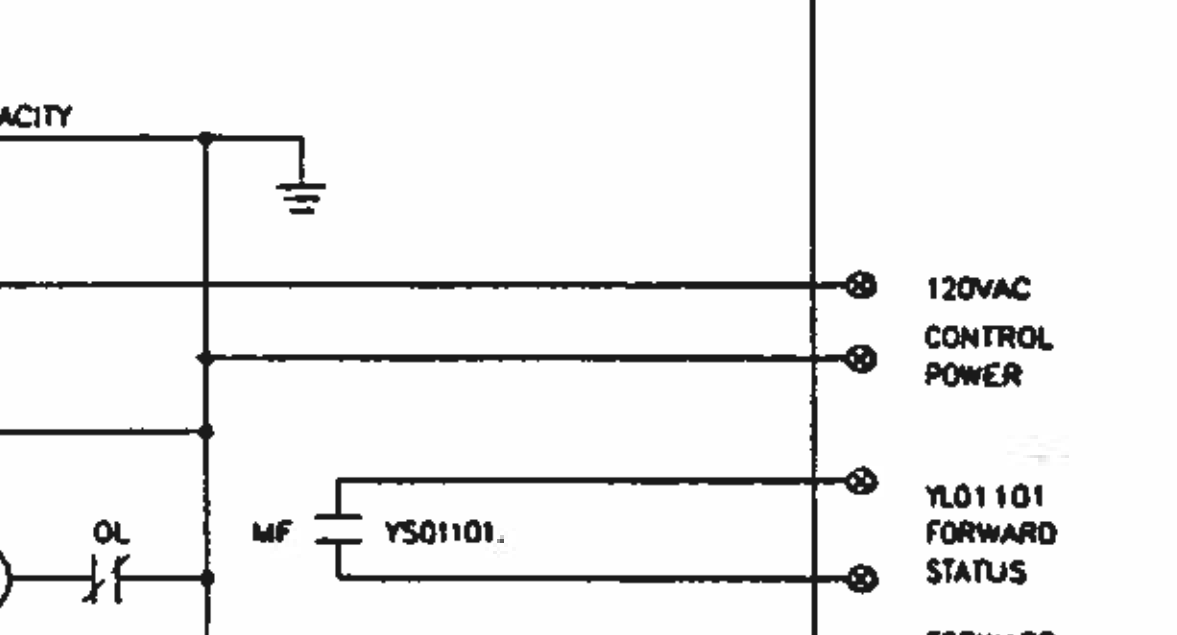
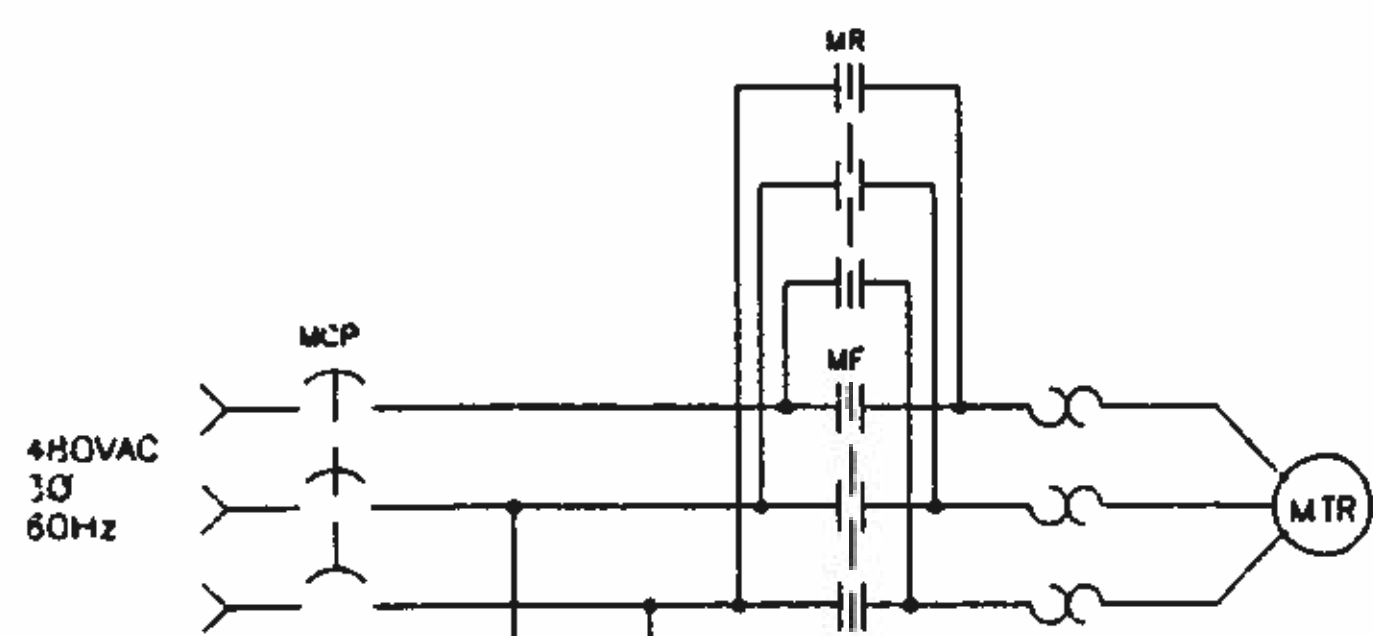
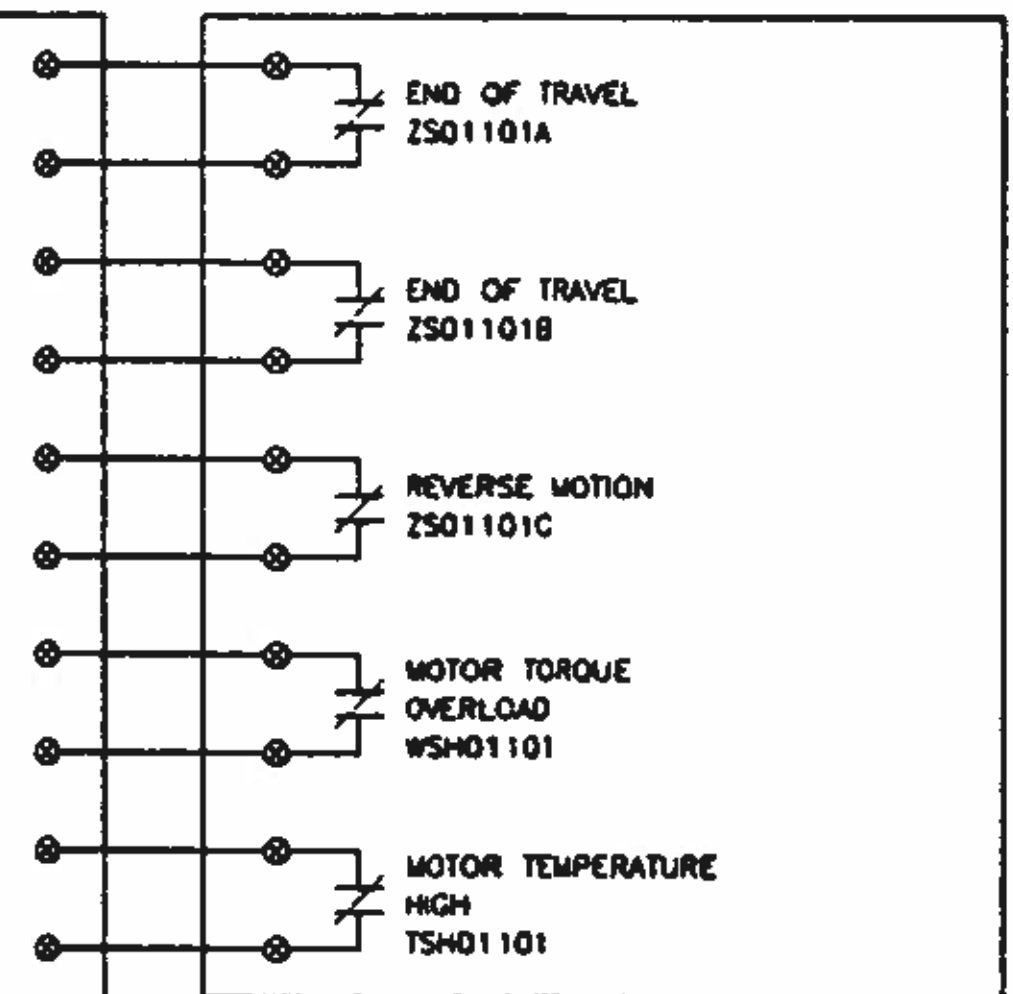


DIAGRAM E104A

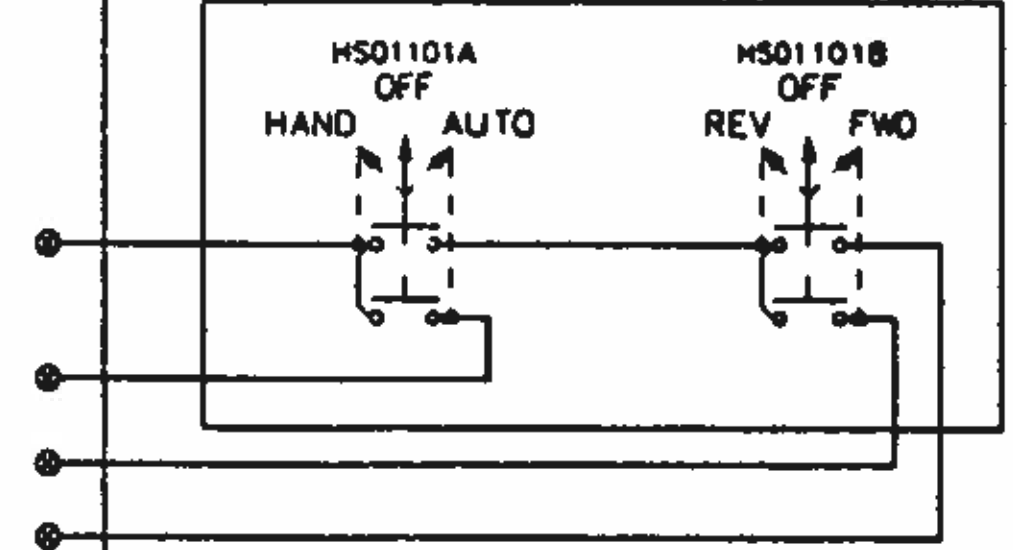
EQUIP. No.	DESCRIPTION	P&ID REF.	CONTROL STRATEGY
BSN01101	BAR SCREEN No. 1	P101	1101
BSN01111	BAR SCREEN No. 2	P102	1111

ECP01101 CONTROL PANEL

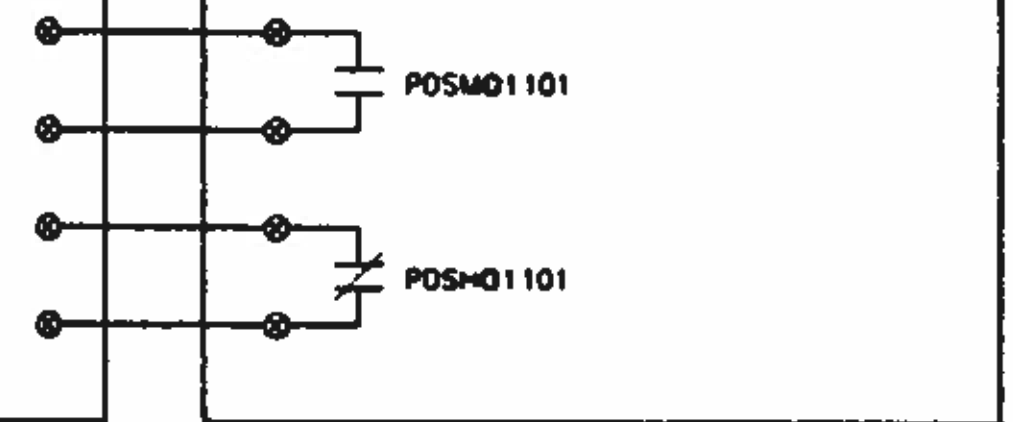
BARSCREEN CONTROL DEVICES



LOCAL CONTROL STATION



UT01101



SS-2 FUNCTION TABLE

CONTACT	HAND	OFF	REMOTE
1-2	X	0	0
3-4	0	0	X
5-6	0	0	X

ALL CONTACTS ARE MAINTAINED U.O.N.
X - CONTACT CLOSED
0 - CONTACT OPEN

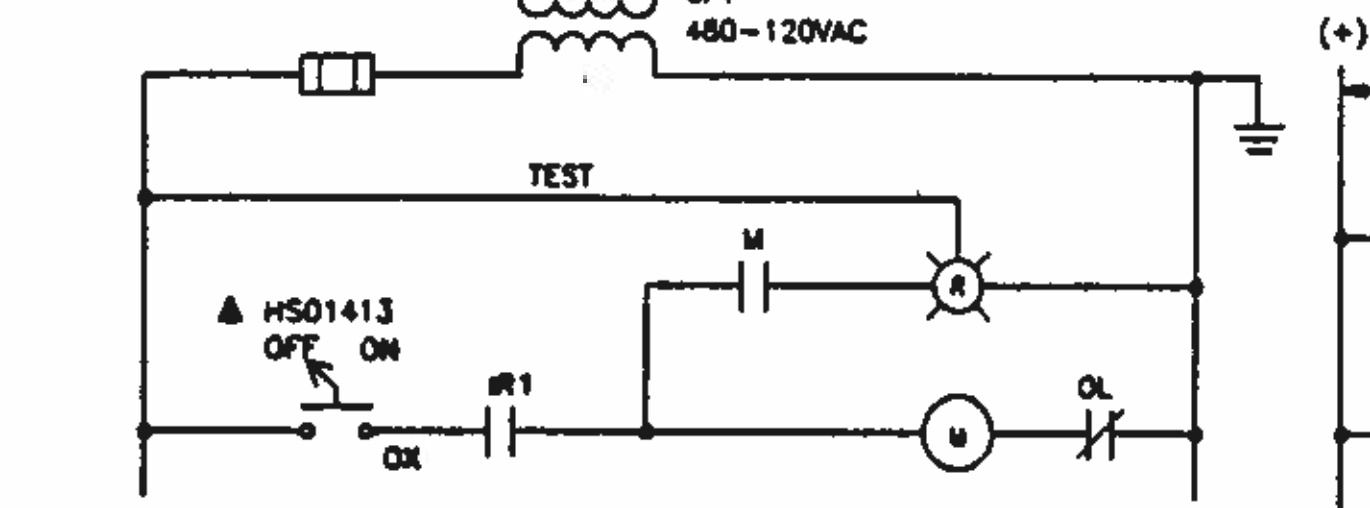


DIAGRAM E104B

EQUIP. No.	DESCRIPTION
F01413	HEADWORKS EXHAUST FAN

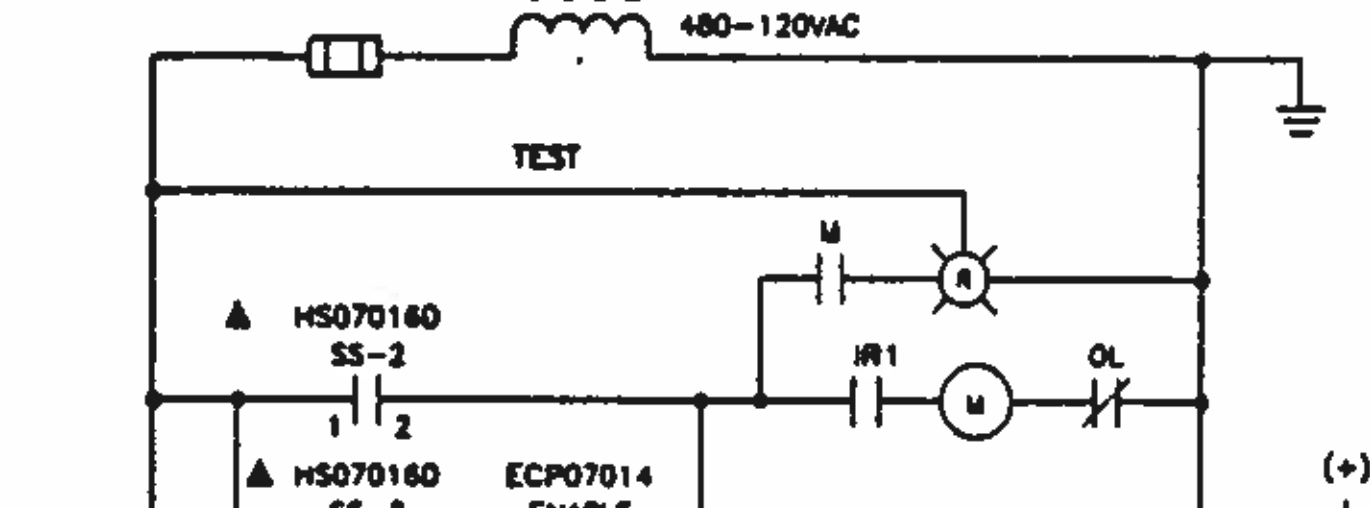
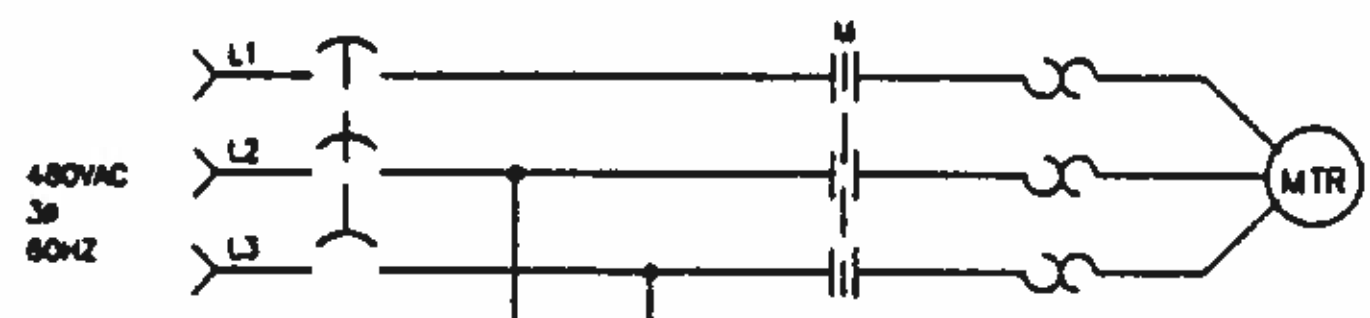
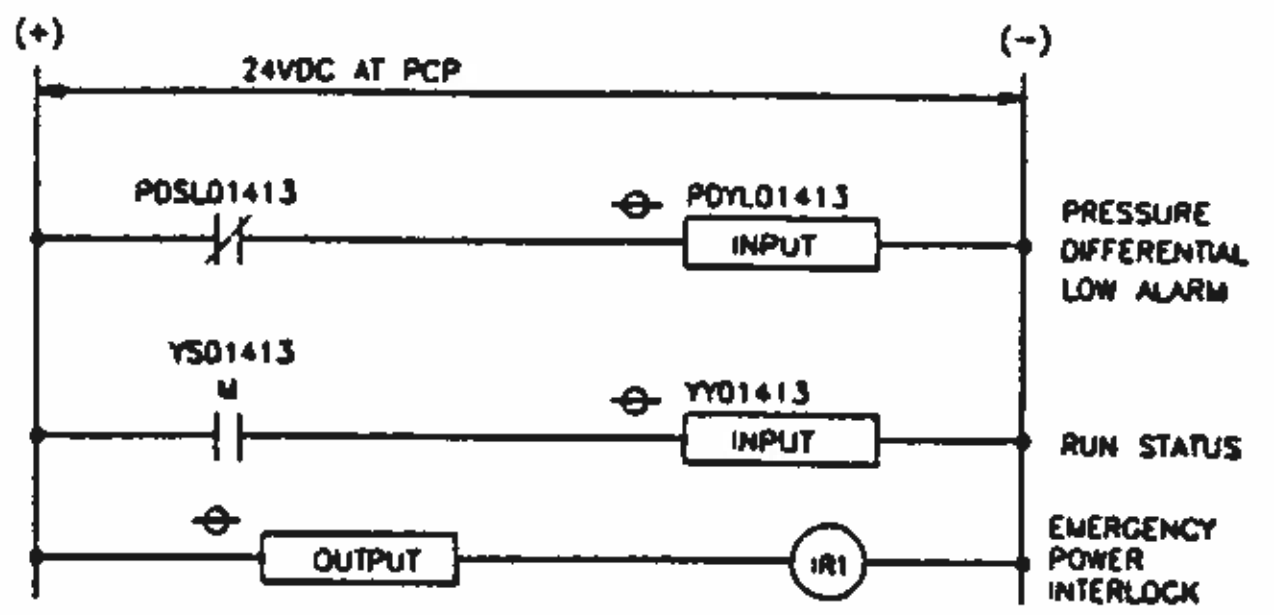
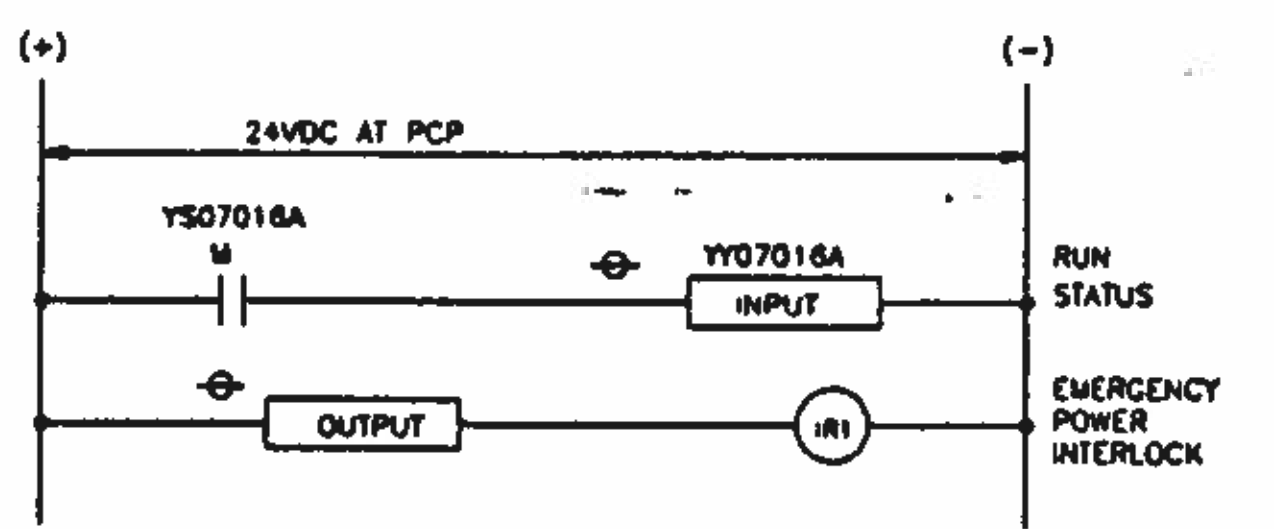


DIAGRAM E104C

EQUIP. No.	DESCRIPTION	P&ID REF.	CONTROL STRATEGY
P07018A	CHEMICAL SOLUTION RECIRC. PUMP No. 1	P701	7018A
P07018B	CHEMICAL SOLUTION RECIRC. PUMP No. 2	P701	7018B
P07017A	CHEMICAL SOLUTION RECIRC. PUMP No. 3	P701	7017A
P07017B	CHEMICAL SOLUTION RECIRC. PUMP No. 4	P701	7017B



BC Brown and Caldwell Consultants
Phoenix, Arizona

11-16-87

SUBMITTED: *[Signature]* DATE: 11/10/87
APPROVED: *[Signature]* DATE: 11-20-87
APPROVED: *[Signature]* DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

FILE 5870
DRAWN MR
DESIGNED JD
CHECKED RAM
CHECKED RAM



REVISIONS

ZONE	REV	DESCRIPTION	BY	DATE	APP



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS CONTROL SCHEMATIC DIAGRAMS-1.

PROJECT NUMBER
DRAWING NUMBER **E104**
SHEET NUMBER 357

NOTES:

1. CONTROL DIAGRAMS REPRESENTING MORE THAN ONE EQUIPMENT ITEM INDICATE THE AUXILIARY DEVICE TAG NUMBERS FOR THE FIRST LISTED EQUIPMENT ITEM IN THE ASSOCIATED ADAPTER TABLE. REFER TO THE REFERENCED PROCESS AND INSTRUMENTATION DIAGRAM FOR THE CORRESPONDING TAG NUMBERS OF THE OTHER EQUIPMENT.

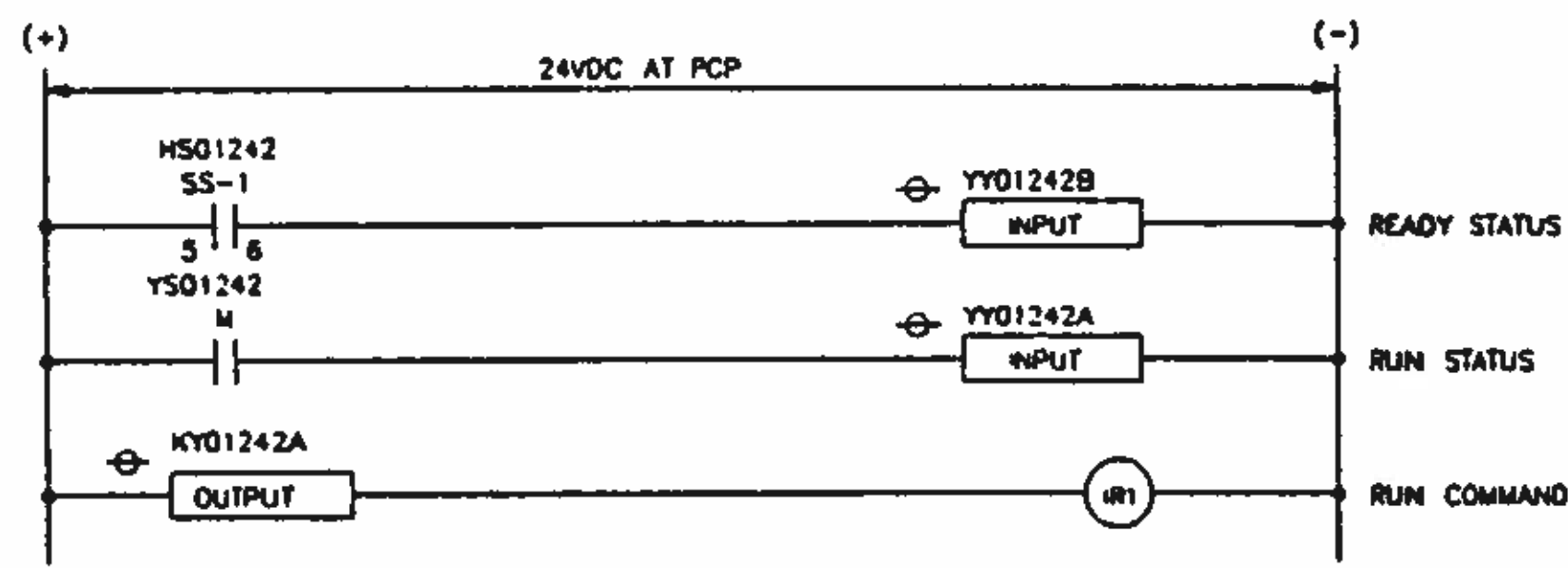
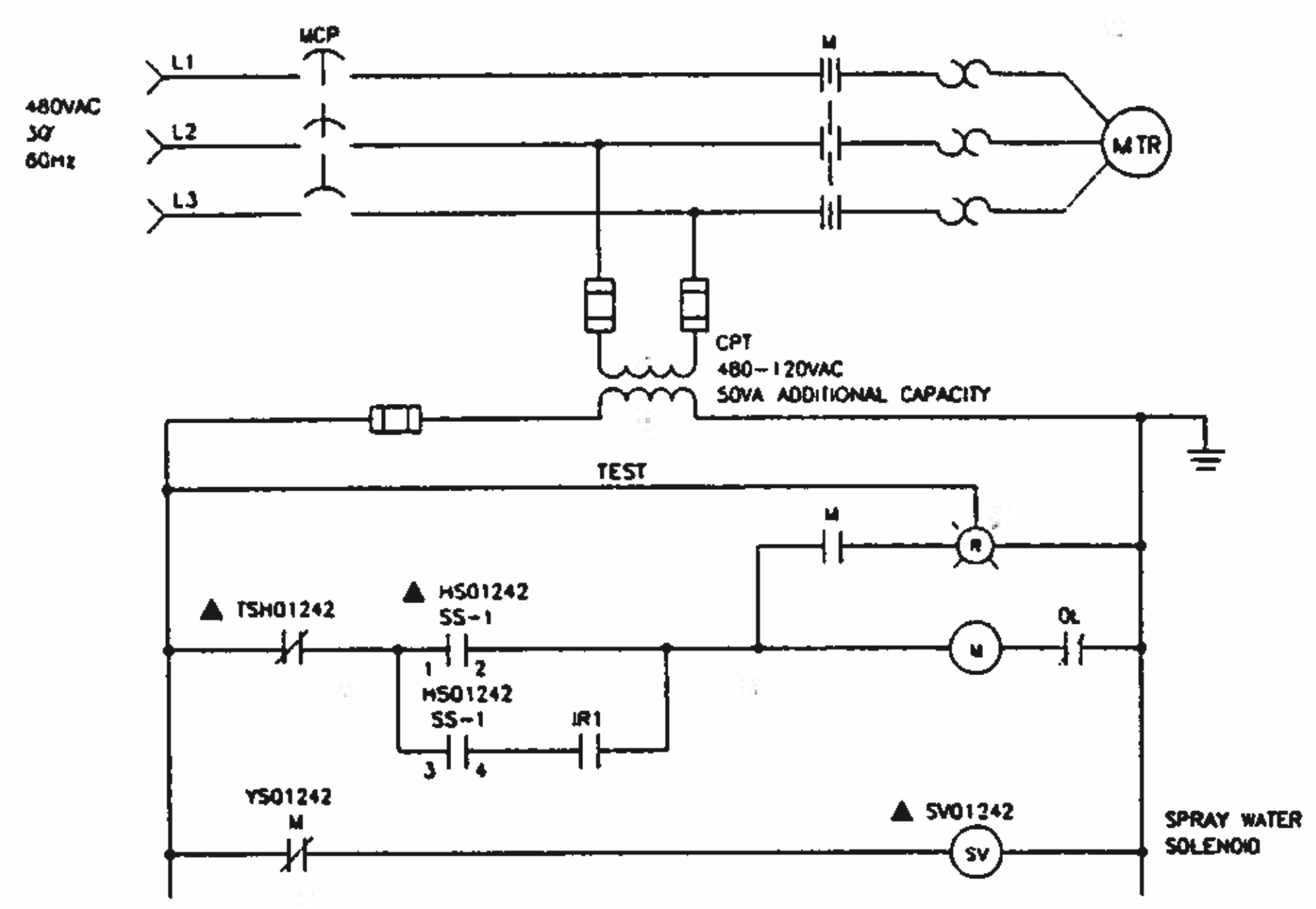


DIAGRAM E105A

EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
SEPO1242	GRIT SEPARATOR No. 1	P105	1242
SEPO1252	GRIT SEPARATOR No. 2	P105	1252

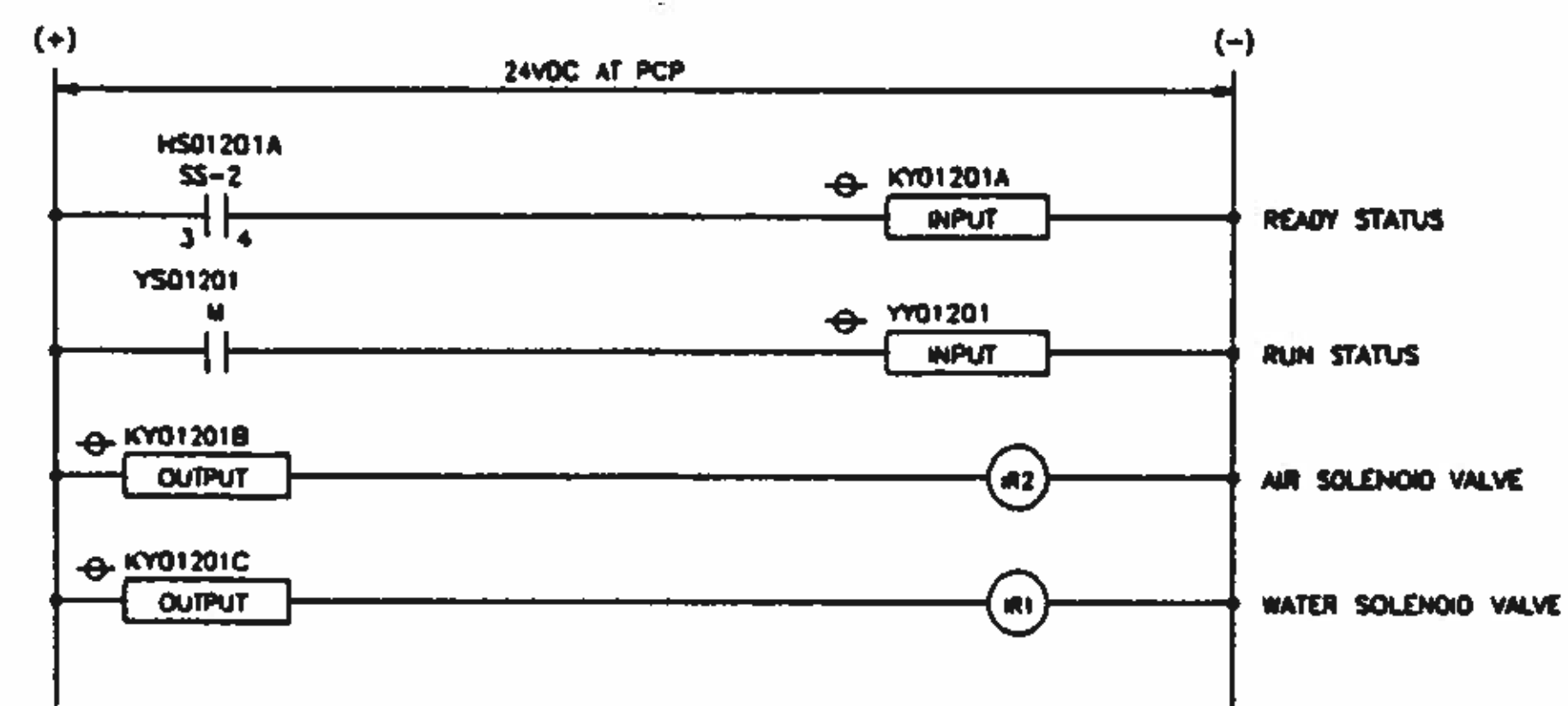
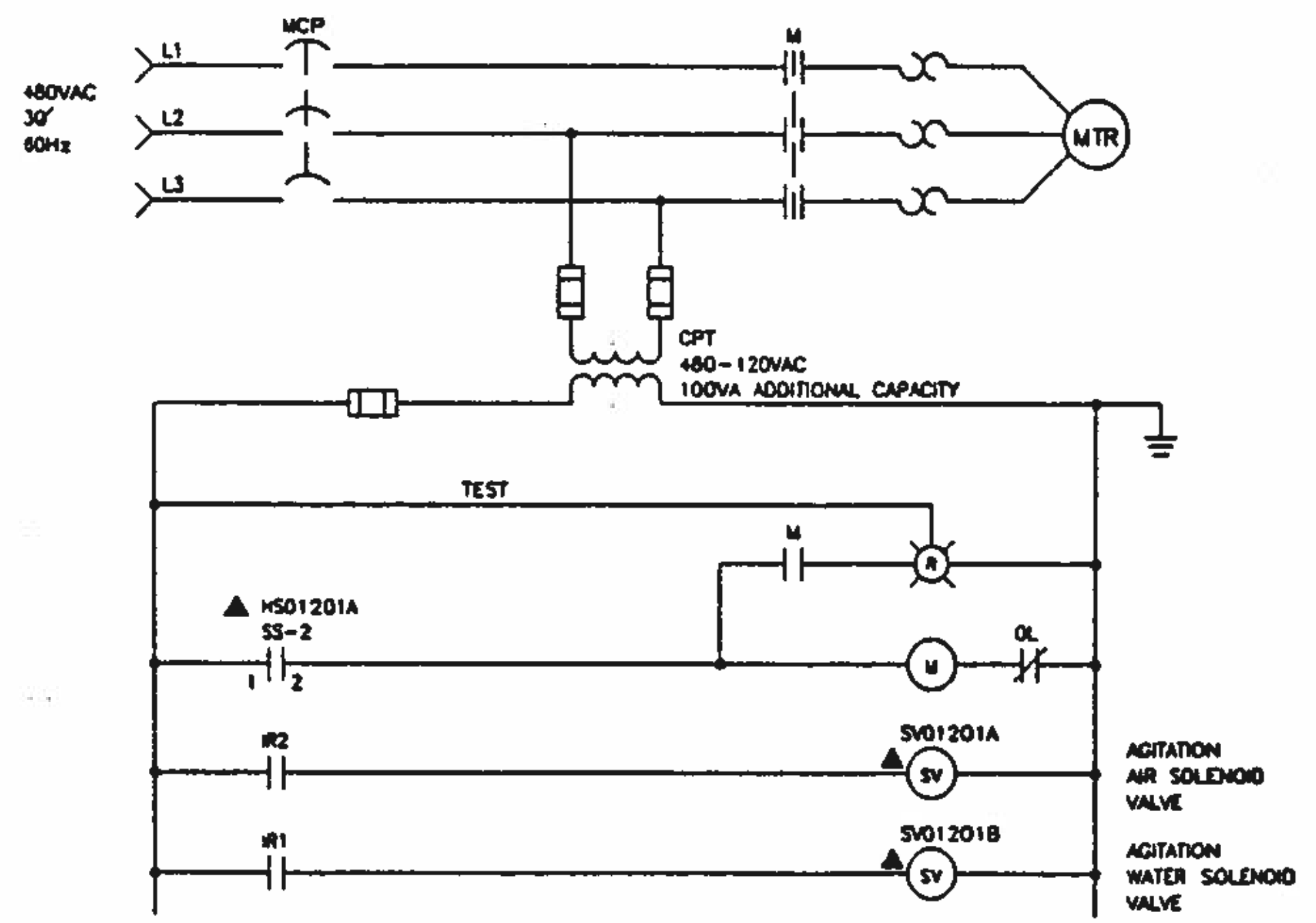


DIAGRAM E105B

EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
SEPO1201	GRIT REMOVAL UNIT No. 1	P103	1201
SEPO1211	GRIT REMOVAL UNIT No. 2	P104	1211

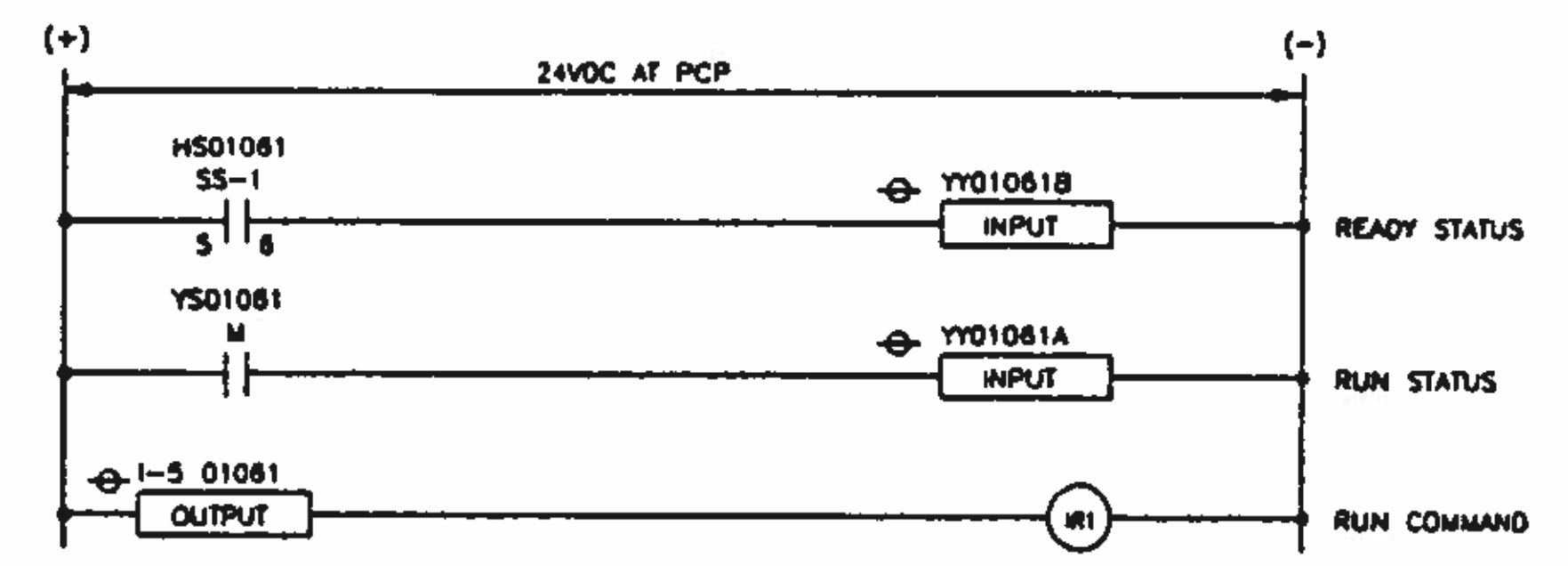
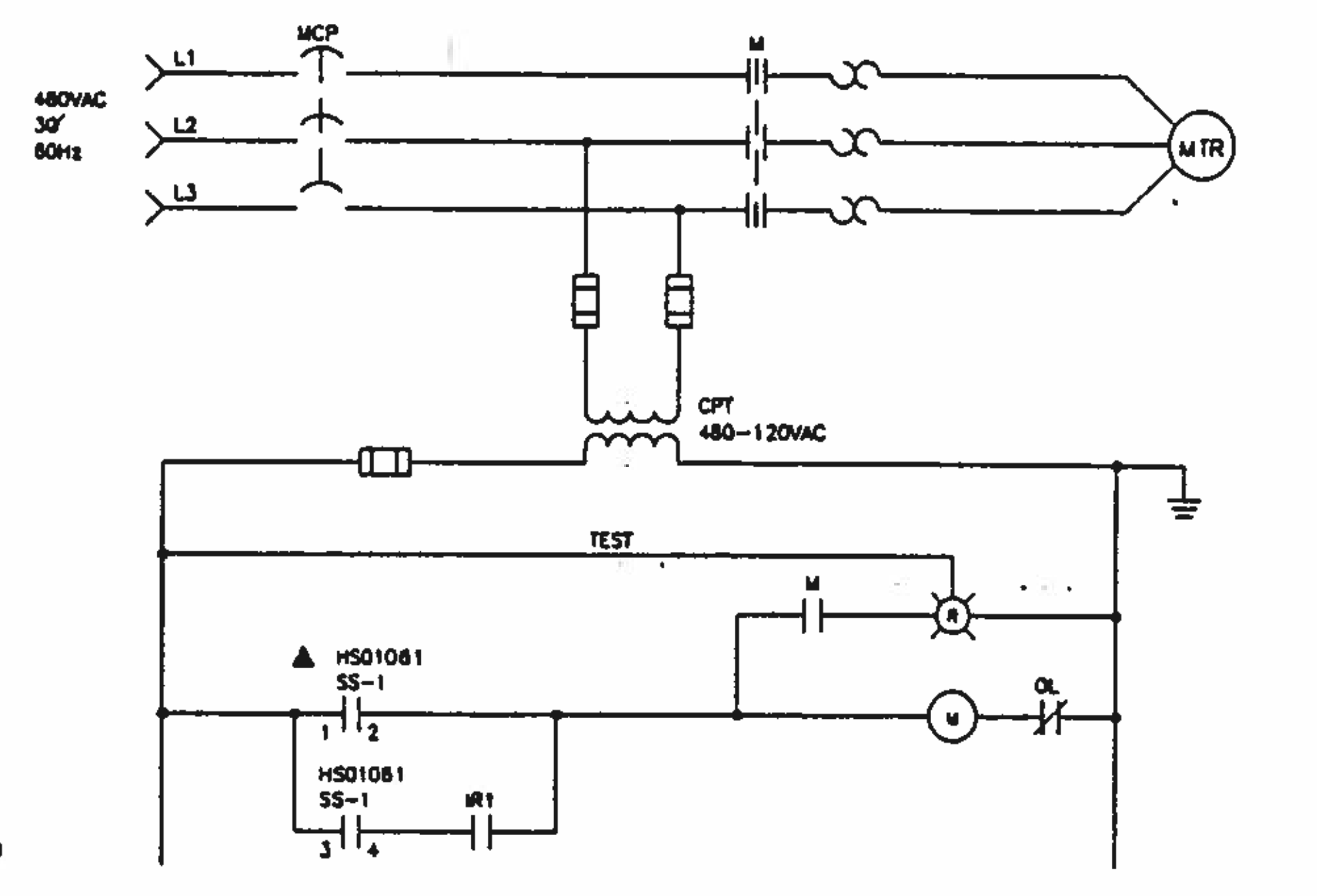


DIAGRAM E105C

EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
P01081	GRIT ROOM SUMP PUMP No. 1	P103	1081
P01082	GRIT ROOM SUMP PUMP No. 2	P103	1082

SS-1 FUNCTION TABLE

CONTACT	HAND	OFF	AUTO
	X	0	0
	0	0	X
	0	0	X

ALL CONTACTS ARE MAINTAINED U.O.M.
X - CONTACT CLOSED
0 - CONTACT OPEN

SS-2 FUNCTION TABLE

CONTACT	ON	OFF
	X	0
	X	0

ALL CONTACTS ARE MAINTAINED U.O.M.
X - CONTACT CLOSED
0 - CONTACT OPEN

BC Brown and Caldwell Consultants
Phoenix, Arizona

FILE: 5870
DRAWN: MR
DESIGNED: JD
CHECKED: RAM
CHECKED: RAM

SUBMITTED: *[Signature]* DATE: 11/10/92
APPROVED: *[Signature]* DATE: 11-20-92
APPROVED: *[Signature]* DATE:

LINE IS 3 INCHES AT FULL SIZE (IF NOT 2"-SCALE ALL OTHERS)



REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS CONTROL SCHEMATIC DIAGRAMS-2

PROJECT NUMBER
DRAWING NUMBER
E105
SHEET NUMBER
368

NOTES:

1. CONTROL DIAGRAMS REPRESENTING MORE THAN ONE EQUIPMENT ITEM INDICATE THE AUXILIARY DEVICE TAG NUMBERS FOR THE FIRST LISTED EQUIPMENT ITEM IN THE ASSOCIATED ADAPTER TABLE. REFER TO THE REFERENCED PROCESS AND INSTRUMENTATION DIAGRAM FOR THE CORRESPONDING TAG NUMBERS OF THE OTHER EQUIPMENT.

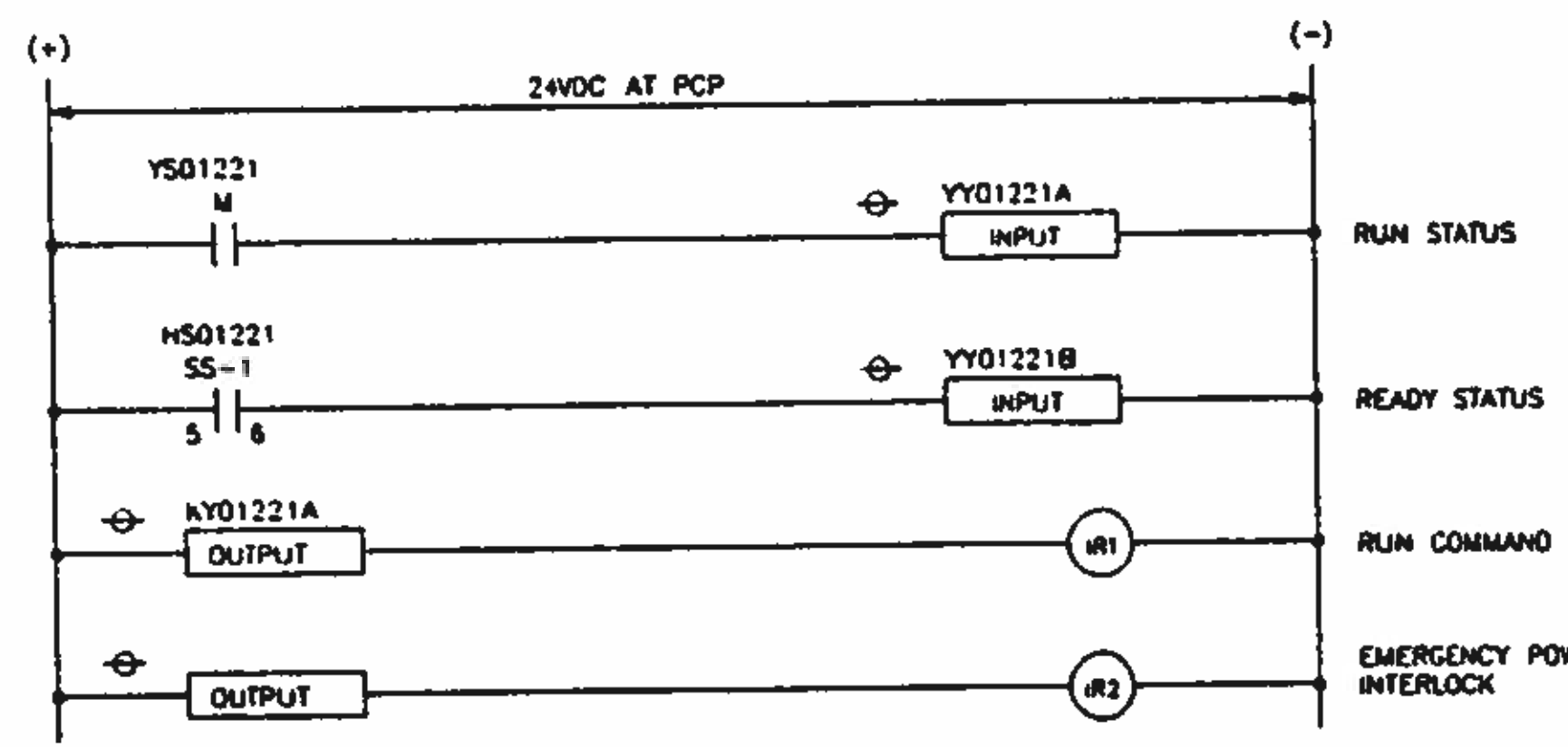
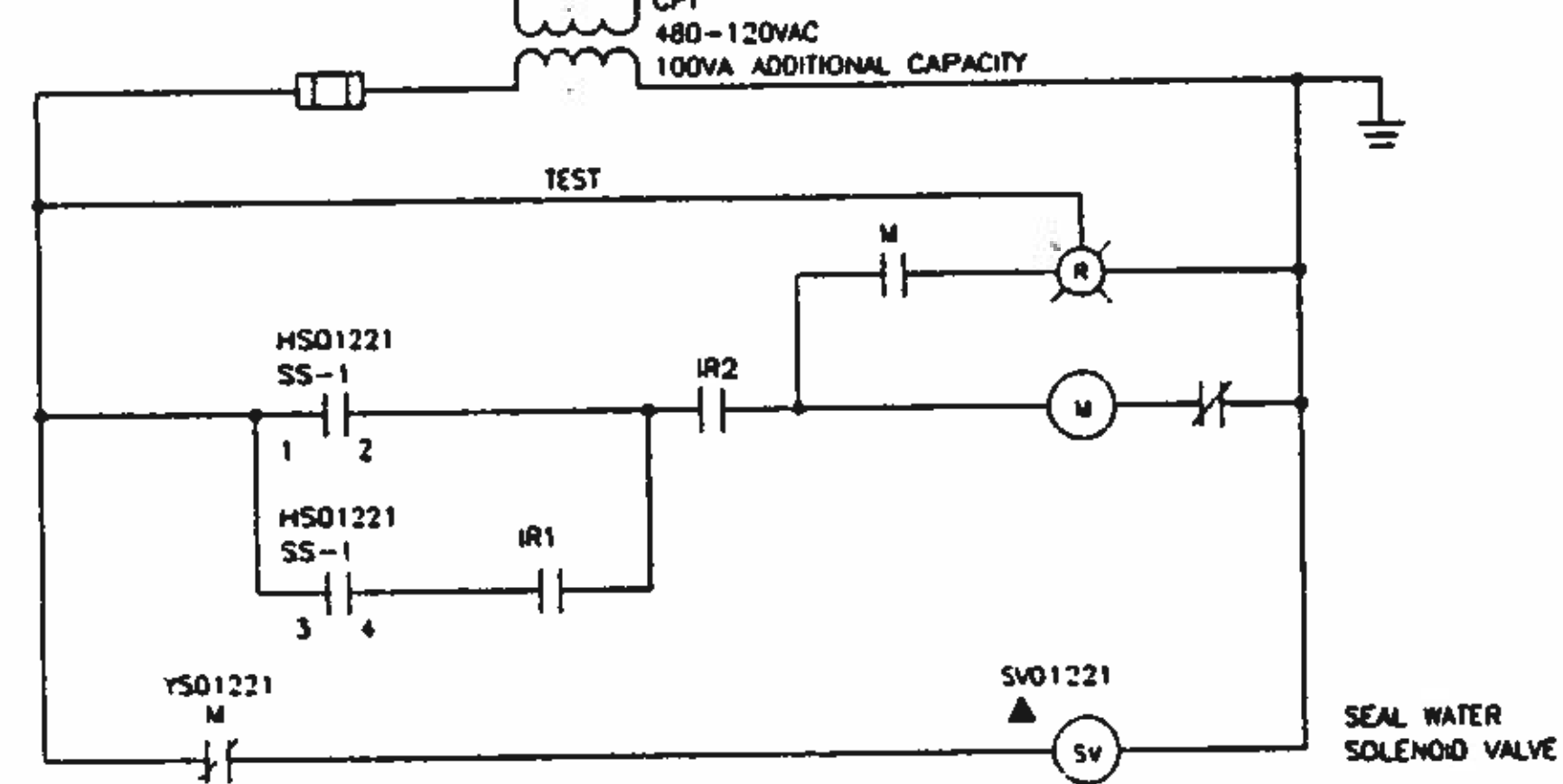


DIAGRAM E108A

EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
PO1221	GRIT PUMP No. 1	P103	1221
PO1223	GRIT PUMP No. 2	P104	1223
PO1222	GRIT PUMP No. 2	P104	1222

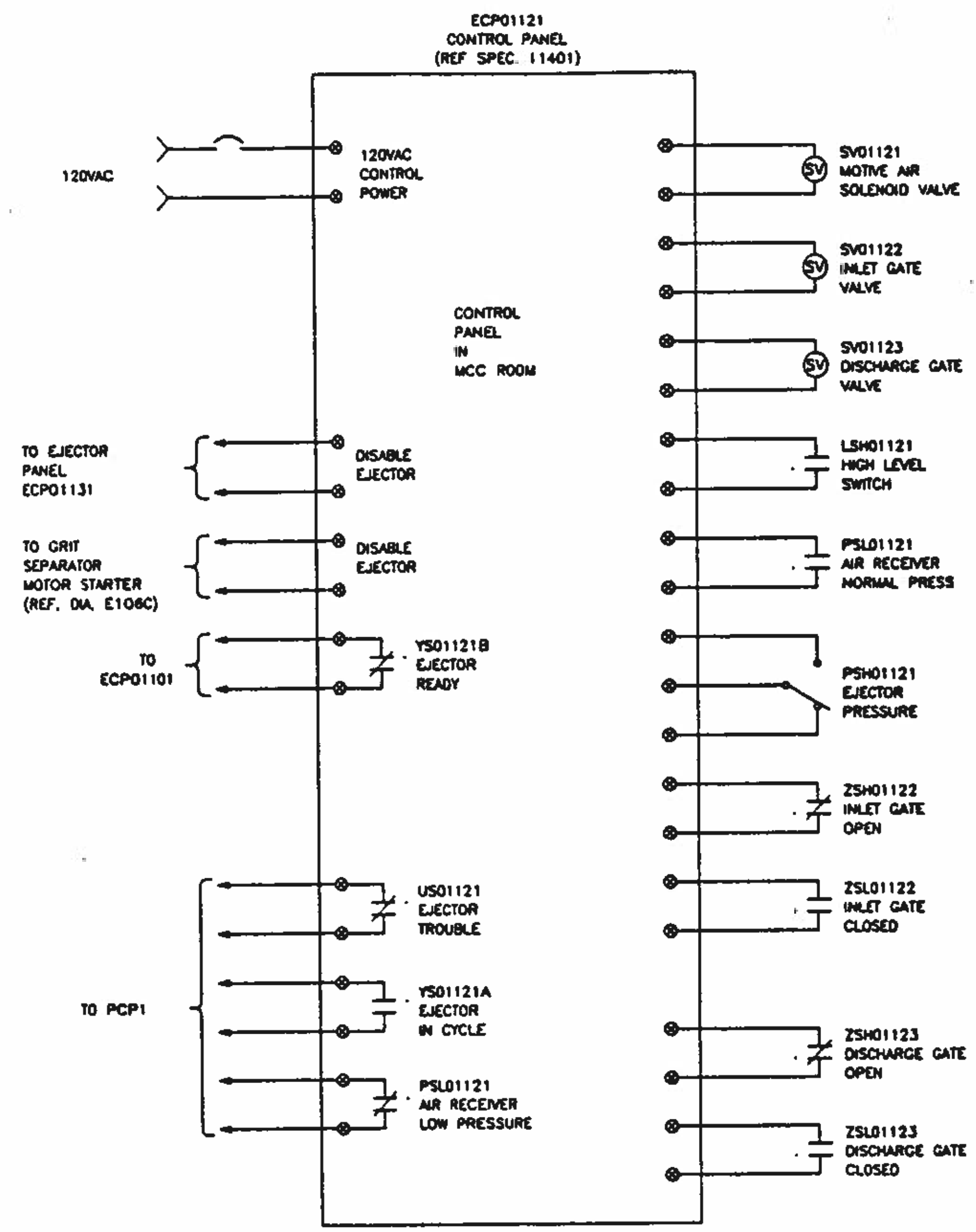


DIAGRAM E108B

EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
PEJ01121	PNEUMATIC EJECTOR No. 1	P101	1121
PEJ01131	PNEUMATIC EJECTOR No. 2	P102	1131

SS-1 FUNCTION TABLE

CONTACT	HAND	OFF	AUTO
1 2	X	0	0
3 4	0	0	X
5 6	0	0	X

ALL CONTACTS ARE MAINTAINED U.O.N.
X - CONTACT CLOSED
0 - CONTACT OPEN

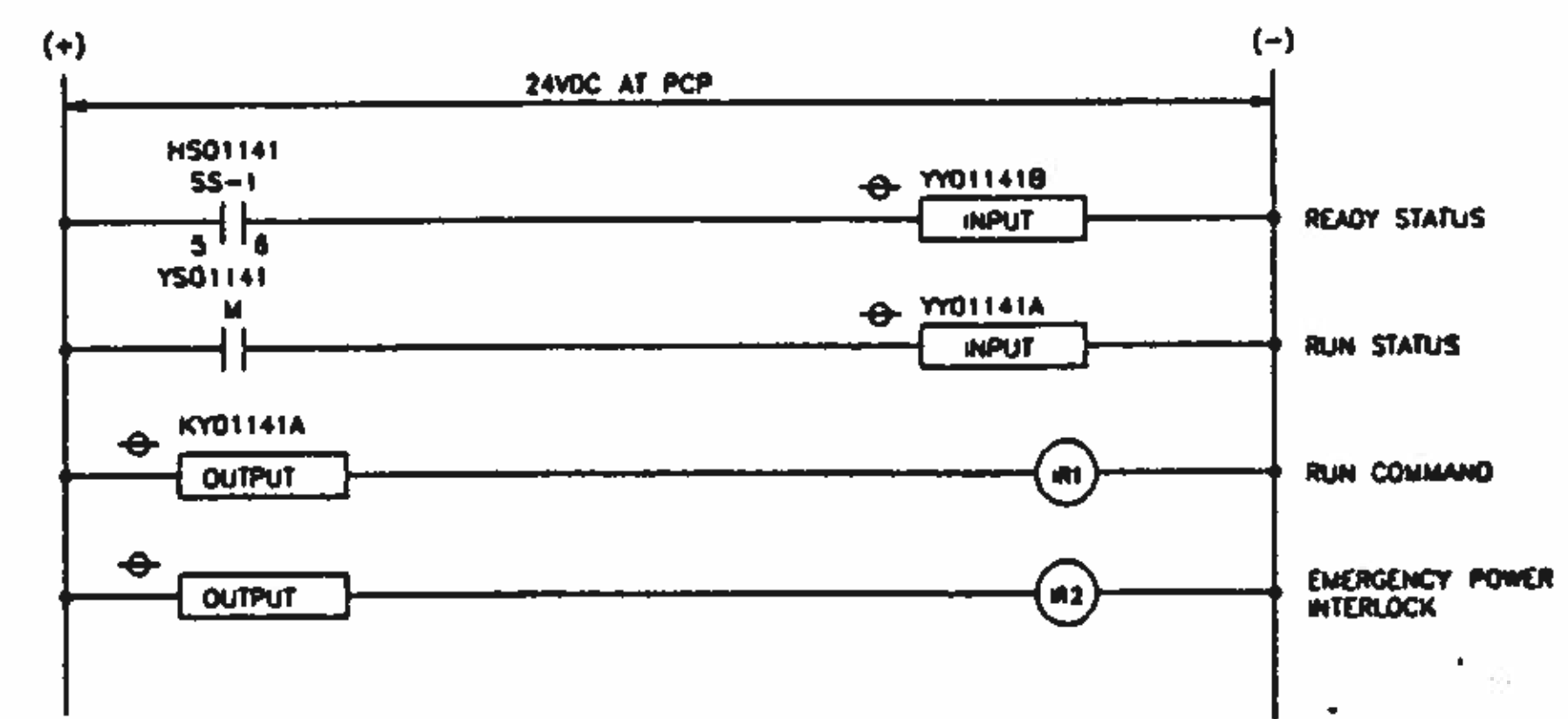
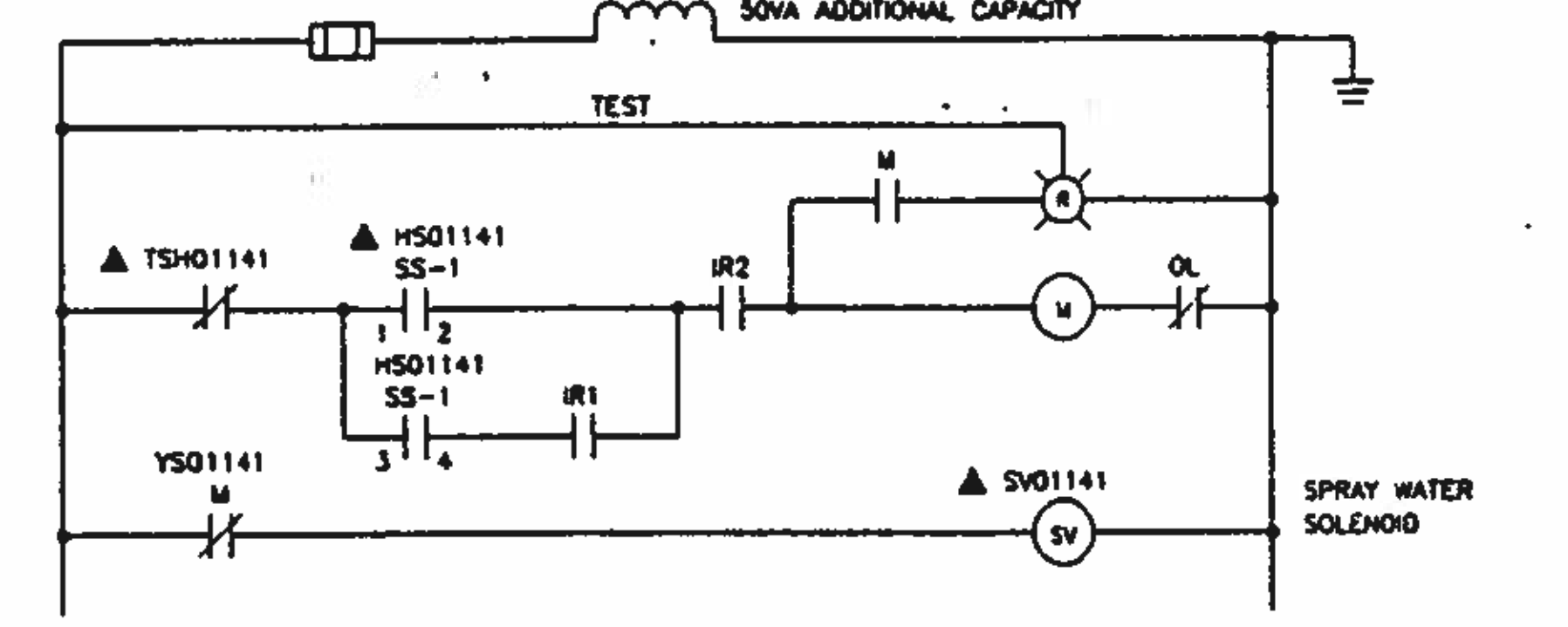
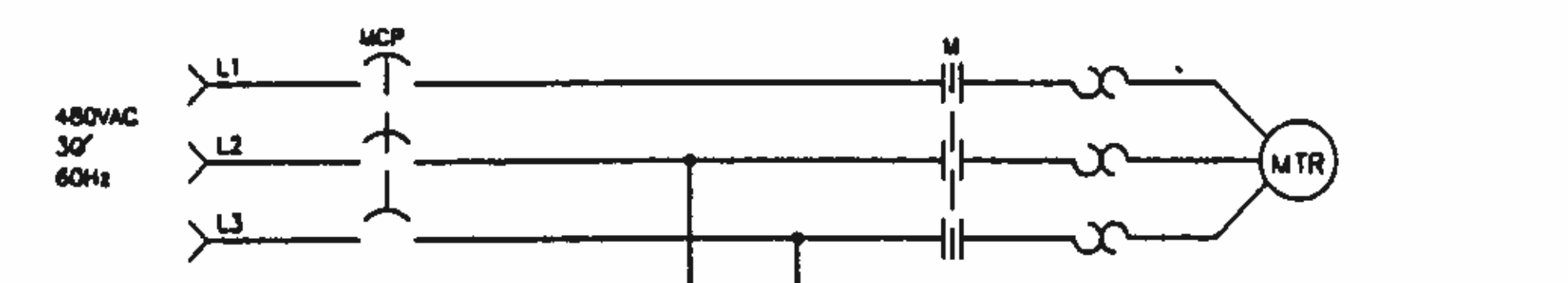


DIAGRAM E108C

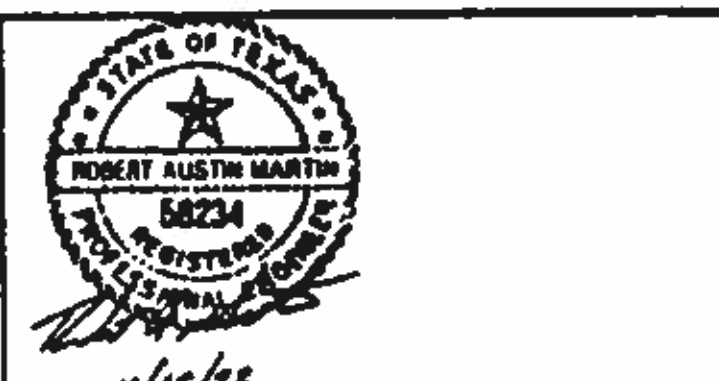
EQUIP. No.	DESCRIPTION	P&ID REF	CONTROL STRATEGY
SEPO1141	SCREENING DEWATERER	P102	1141

BC Brown and Caldwell Consultants
Phoenix, Arizona

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDING TO)

FILE 5870
DRAWN MR
DESIGNED JD
CHECKED RAM
APPROVED [Signature]

DATE: 11/12/12
DATE: 11/22/12



REVISIONS

ZONE	REV	DESCRIPTION	BY	DATE	APP.



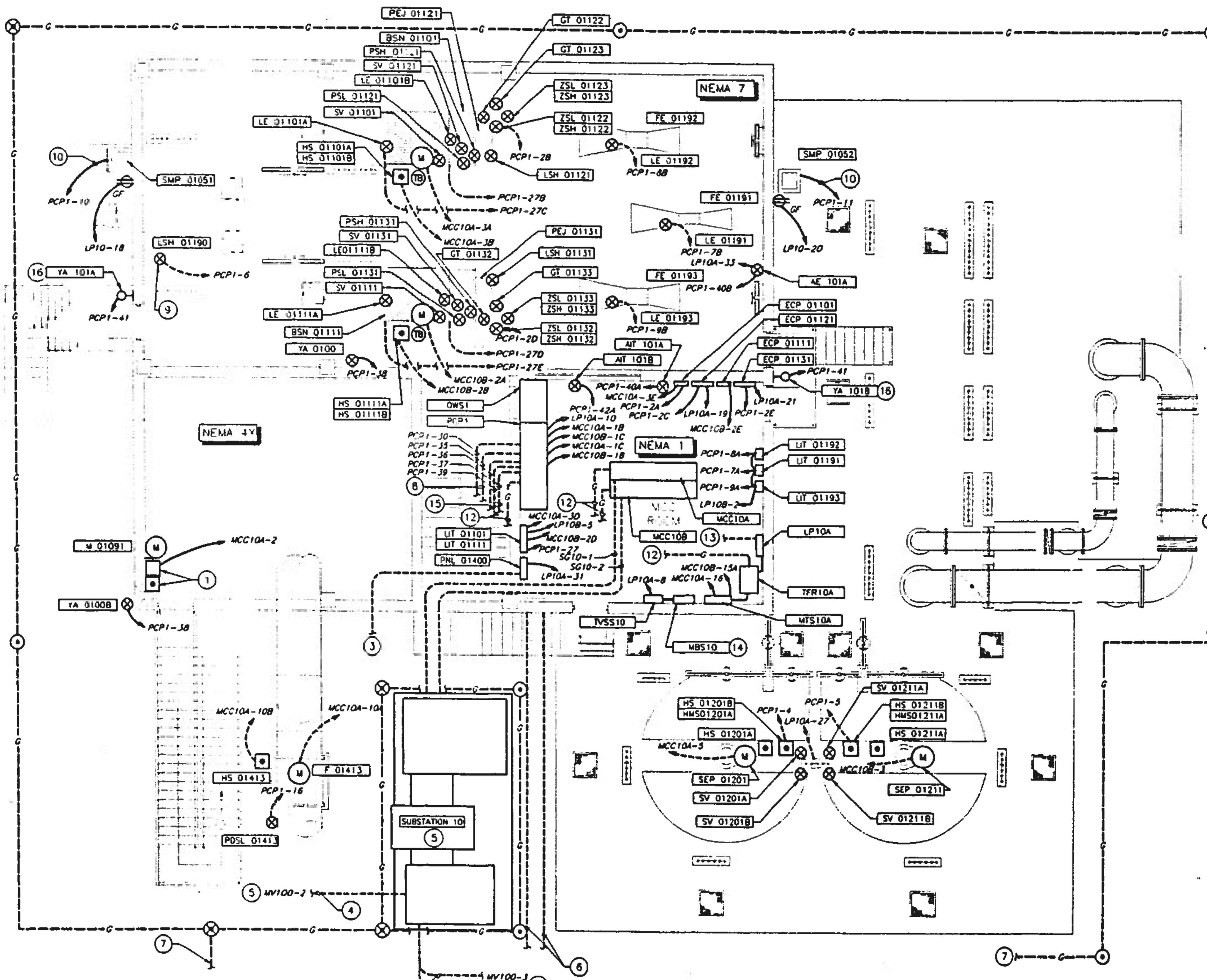
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS CONTROL SCHEMATIC DIAGRAMS-3

PROJECT NUMBER
DRAWING NUMBER
E106
SHEET NUMBER
368

KEY NOTES:

1. DISCONNECT SWITCH AND VENDOR CONTROL STATION MOUNTED ON WALL AT 48" AFF.
2. EXTEND CONDUITS TO LHM-2. SEE DRAWING EB FOR CONTINUATION.
3. ROUTE 1" CONDUIT (TCP10) FROM HVAC CONTROL PANEL PNL01400 TO HAND HOLE SHM1 FOR HVAC NETWORK CABLE. SEE DWG. EB FOR CONTINUATION.
4. EXTEND FEEDER TO SUBSTATION 80. SEE DWG EB FOR CONTINUATION.
5. SEE SUBSTATION DETAIL DWG E10
6. ELECTRICAL DUCT BANK TO ODOR CONTROL FACILITY. SEE DWG. E702 FOR CONTINUATION.
7. EXTEND GROUND GRID AROUND ODOR CONTROL FACILITY. SEE DRAWING E702 FOR CONTINUATION.
8. EXTEND CONDUITS TO HANDHOLE SHM-1. SEE DRAWING EB FOR CONTINUATION.
9. LEVEL SWITCH MOUNTED IN INFLUENT CHANNEL BELOW SLAB. REF. DETAIL C/12 FOR SWITCH MOUNTING.
10. INSTALL LIQUIDTIGHT FLEXIBLE CONDUIT FROM SAMPLER TO FLUSH-MOUNTED BOX IN EXTERIOR WALL. EXTEND CONDUIT CONCEALED IN WALL TO MCC ROOM.
11. EXTEND FEEDER TO MMH-2. SEE DRAWING EB FOR CONTINUATION.
12. EXTEND GROUND ELECTRODE CONDUCTOR TO GROUND ELECTRODE SYSTEM.
13. INSTALL 1" CONDUIT FROM LP10 TO ODOR CONTROL FACILITY. SEE DRAWING E701 FOR CONTINUATION.
14. PCPI UPS SYSTEM BYPASS SWITCH. SEE UPS SYSTEM ONE-LINE DIAGRAM, DRAWING E12.
15. EXTEND CONDUITS TO SUBSTATION 10. SEE SUBSTATION DETAIL, DRAWING E10.
16. PROVIDE COMBUSTIBLE GAS DETECTION LIGHT ABOVE DOOR. LIGHT SHALL BE WALL MOUNTED, 120V, 200W, AS MANUFACTURED BY FEDERAL SIGNAL MODEL 371L, WITH RED DOME, AND MOUNTING BRACKET LHM81.



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

BC Brown and Caldwell
Consultants
Phoenix, Arizona

LINE IS 2 INCHES
AT FULL SIZE
IF NOT 2" SCALE ALL OTHERS 1/8"

FILE: 5870
DRAWN: MR/SKT
DESIGNED: MR
CHECKED: RAM
CHECKED: RAM



SUBMITTED: _____ DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE
N/A	1	THIS SHIT SUPERSEDES PREVIOUS DWG. E107	SKT	4/93

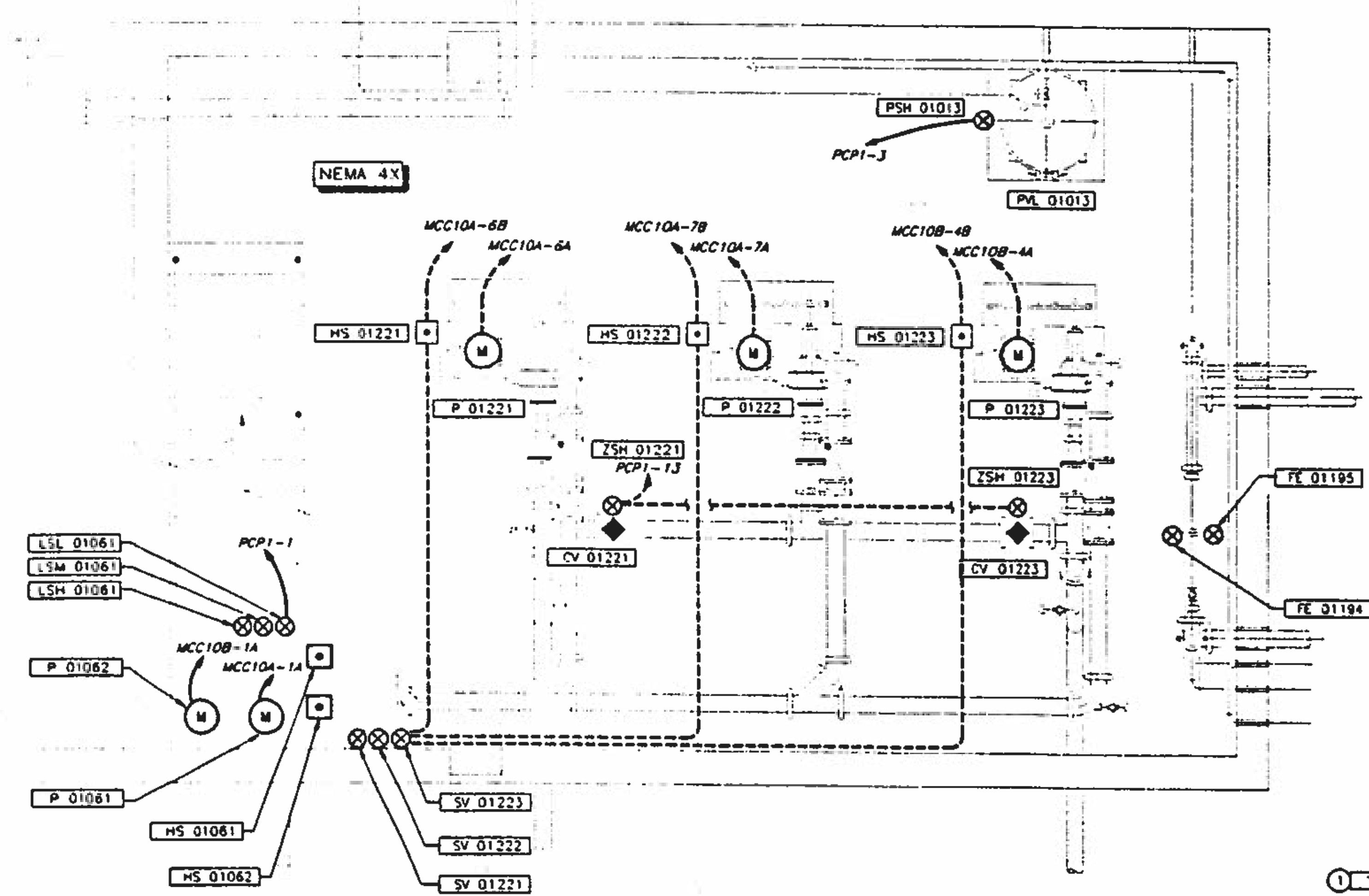


**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

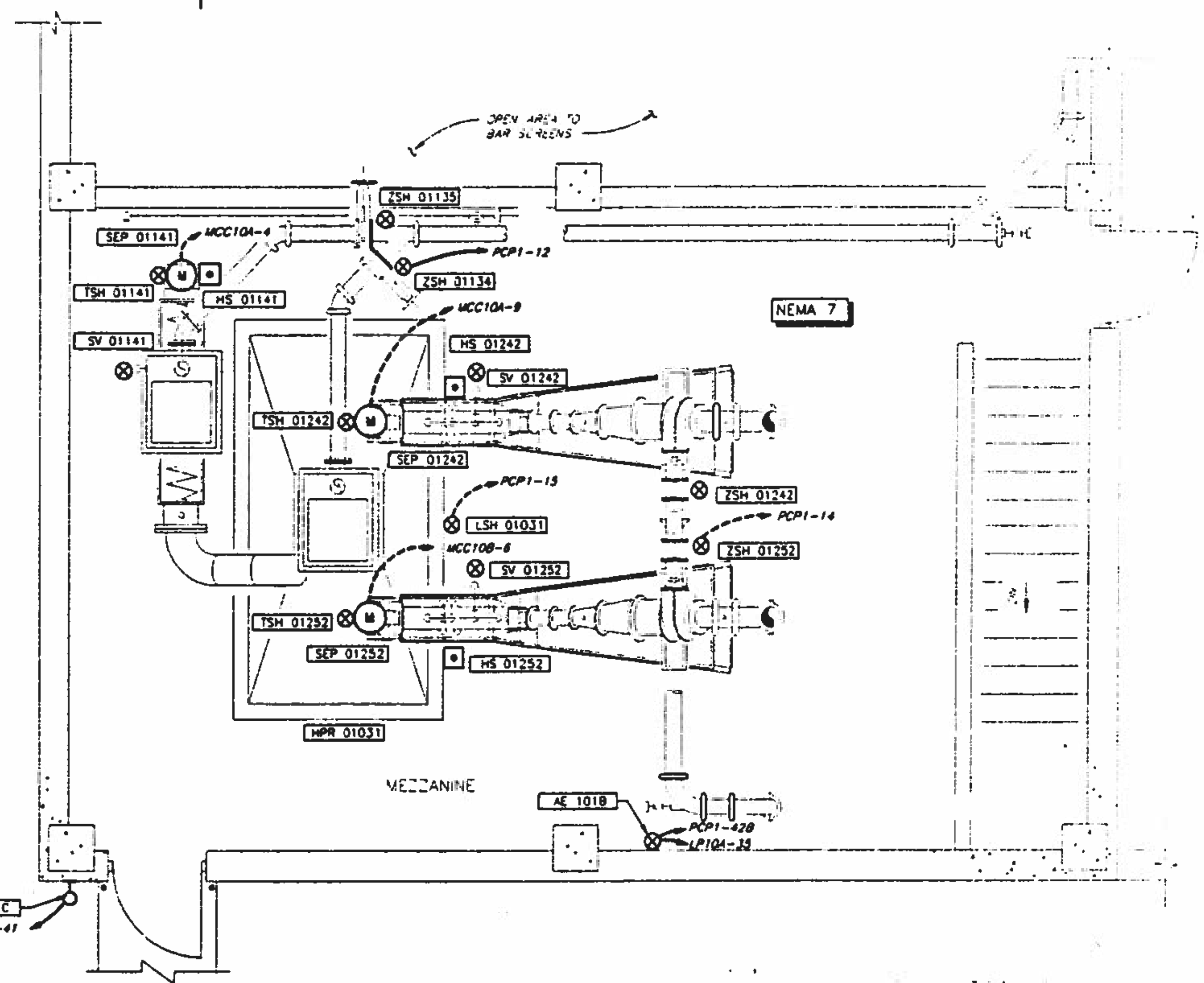
**HEADWORKS
FIRST FLOOR
POWER PLAN**

PROJECT NUMBER
DRAWING NUMBER
E107
SHEET NUMBER
360

KEY NOTES
 1. PROVIDE COMBUSTIBLE GAS DETECTION LIGHT ABOVE DOOR. LIGHT SHALL BE WALL MOUNTED, 120V, 200W, AS MANUFACTURED BY FEDERAL SIGNAL MODEL 371L WITH RED DOME, AND MOUNTING BRACKET LW481.



**GRIT PUMPING ROOM
 POWER PLAN**
 SCALE: 3/8" = 1'-0"



**MEZZANINE
 POWER PLAN**
 SCALE: 3/8" = 1'-0"

BC Brown and Caldwell Consultants
 Phoenix, Arizona

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE AND OTHERWISE)
 FILE 5870
 DRAWN MR
 DESIGNED MR
 CHECKED RAM
 CHECKED RAM



REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
N/A	1	THIS SHIT. SUPERSEDES PREVIOUS DWG. E108	SKT	4/93	RAM



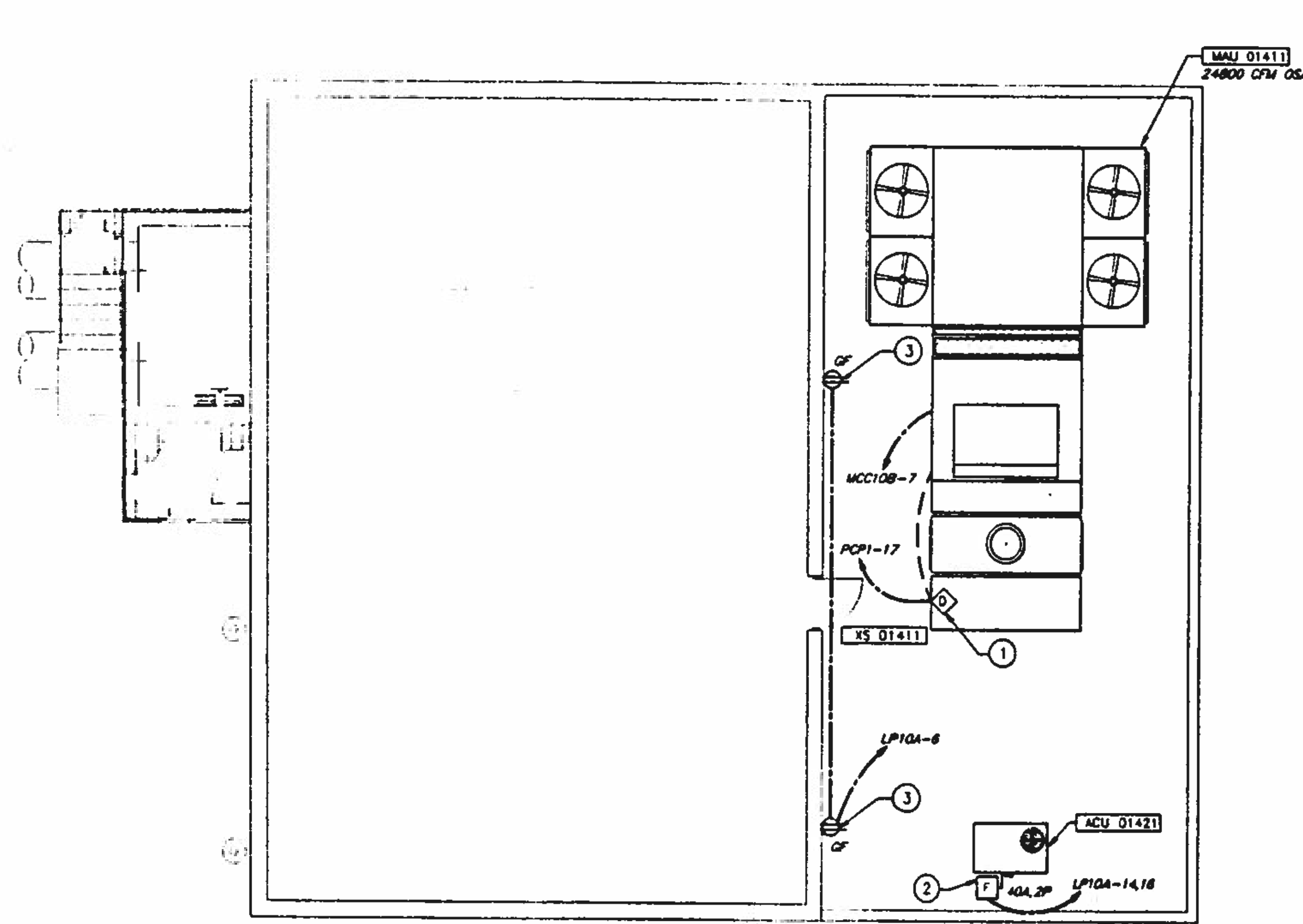
**NORTHWEST WASTEWATER
 TREATMENT PLANT
 EXPANSION**

**HEADWORKS
 GRIT PUMPING ROOM AND
 MEZZANINE POWER PLANS**

PROJECT NUMBER
 DRAWING NUMBER
E108
 SHEET NUMBER
 381

KEY NOTES:

1. INSTALL SMOKE DETECTOR IN AIR DUCT IN ACCORDANCE WITH HVAC EQUIPMENT MANUFACTURER'S INSTRUCTION.
2. INSTALL DISCONNECT ON UNIT IN ACCORDANCE WITH HVAC EQUIPMENT MANUFACTURER'S INSTRUCTION.
3. INSTALL RECEPTACLE 18" ABOVE ROOF DECK ON PARAPET WALL.



UPPER LEVEL PLAN
SCALE: 3/16" = 1'-0"

BC Brown and Caldwell
Consultants
Phoenix, Arizona

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" SCALE ACCORDANT)

FILE 5870
DRAWN SKT
DESIGNED SAM
CHECKED RAM
CHECKED RAM



REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



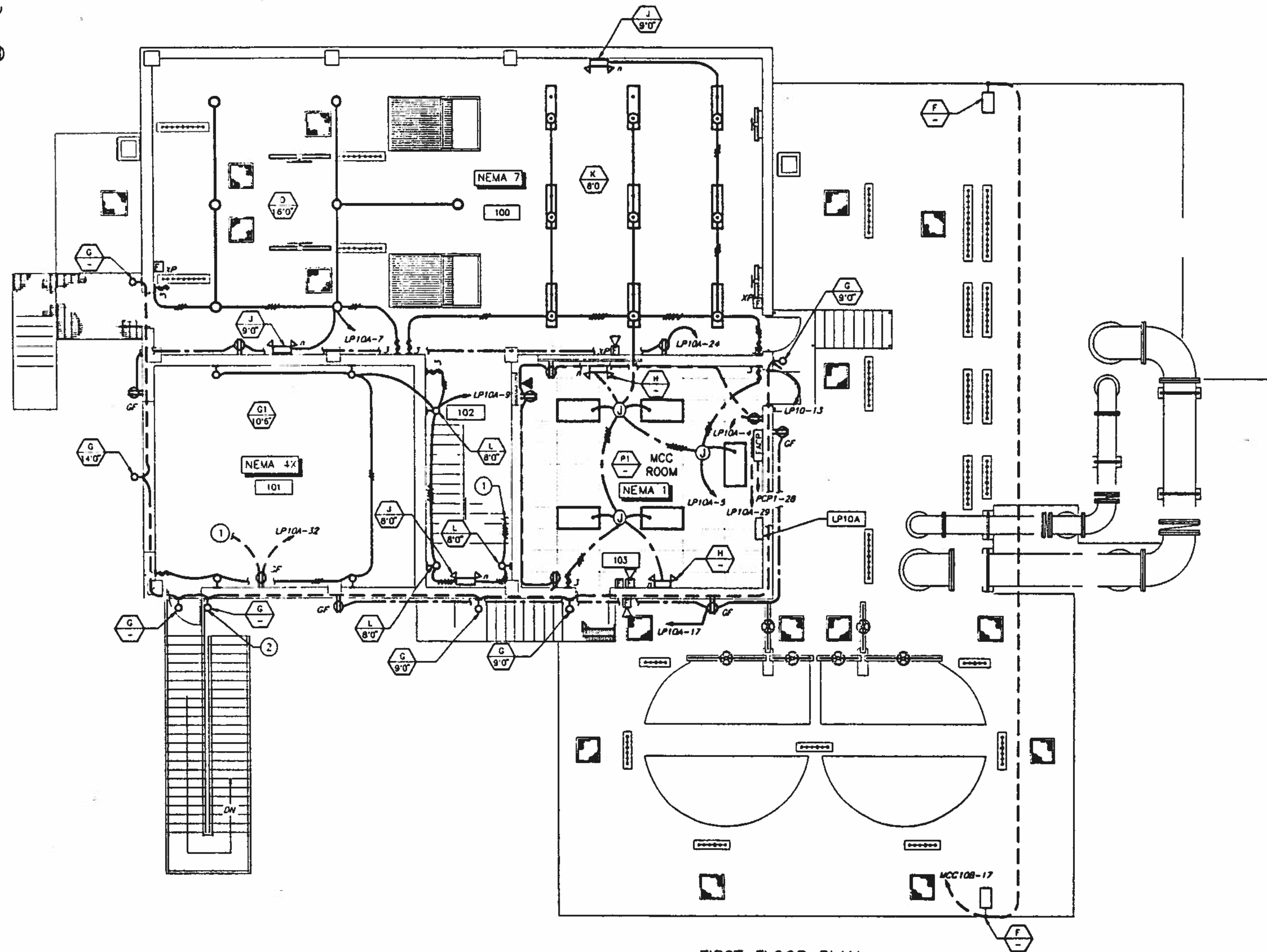
**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

**HEADWORKS
ROOF POWER PLAN**

PROJECT NUMBER
DRAWING NUMBER
E109
SHEET NUMBER
382

KEY NOTES:

1. FOR CONTINUATION, SEE MEZZANINE LIGHTING PLAN, DRAWING E111.
2. INSTALL FIXTURE 9'0" ABOVE LANDING AT DOOR TO MEZZANINE LEVEL.



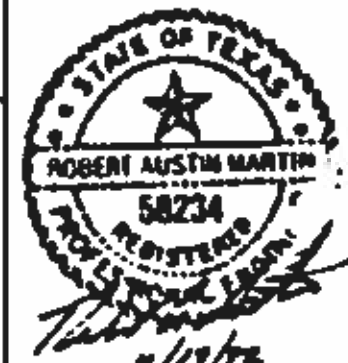
FIRST FLOOR PLAN
SCALE: 3/16"=1'-0"

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/12/02
APPROVED: *[Signature]* DATE: 11/20/02
APPROVED: _____ DATE: _____

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" SCALE ALREADY NOTED)

FILE: 5870
DRAWN: DOH
DESIGNED: WRM
CHECKED: RAM
CHECKED: RAM



REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE



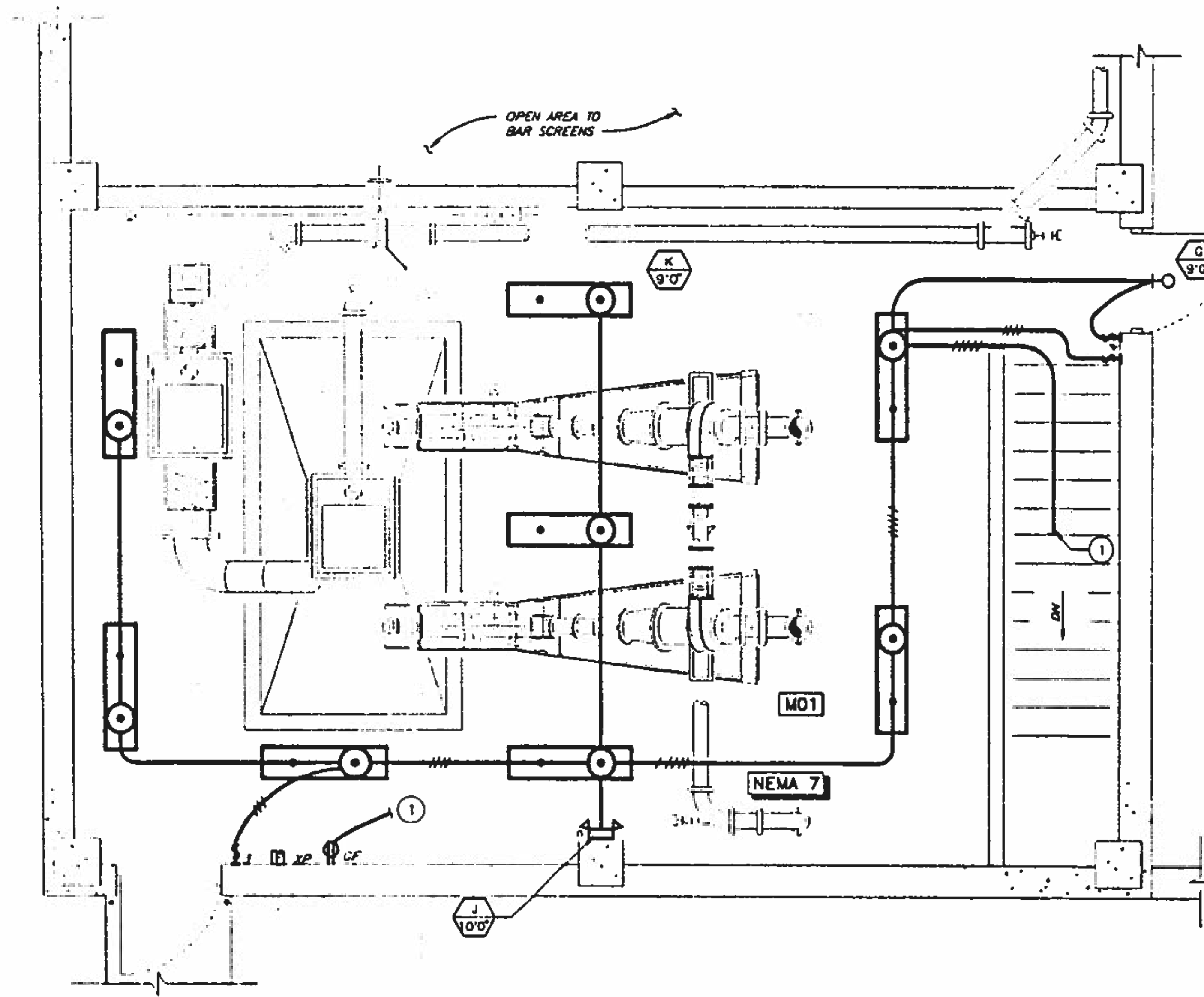
**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

**HEADWORKS
FIRST FLOOR
LIGHTING PLAN**

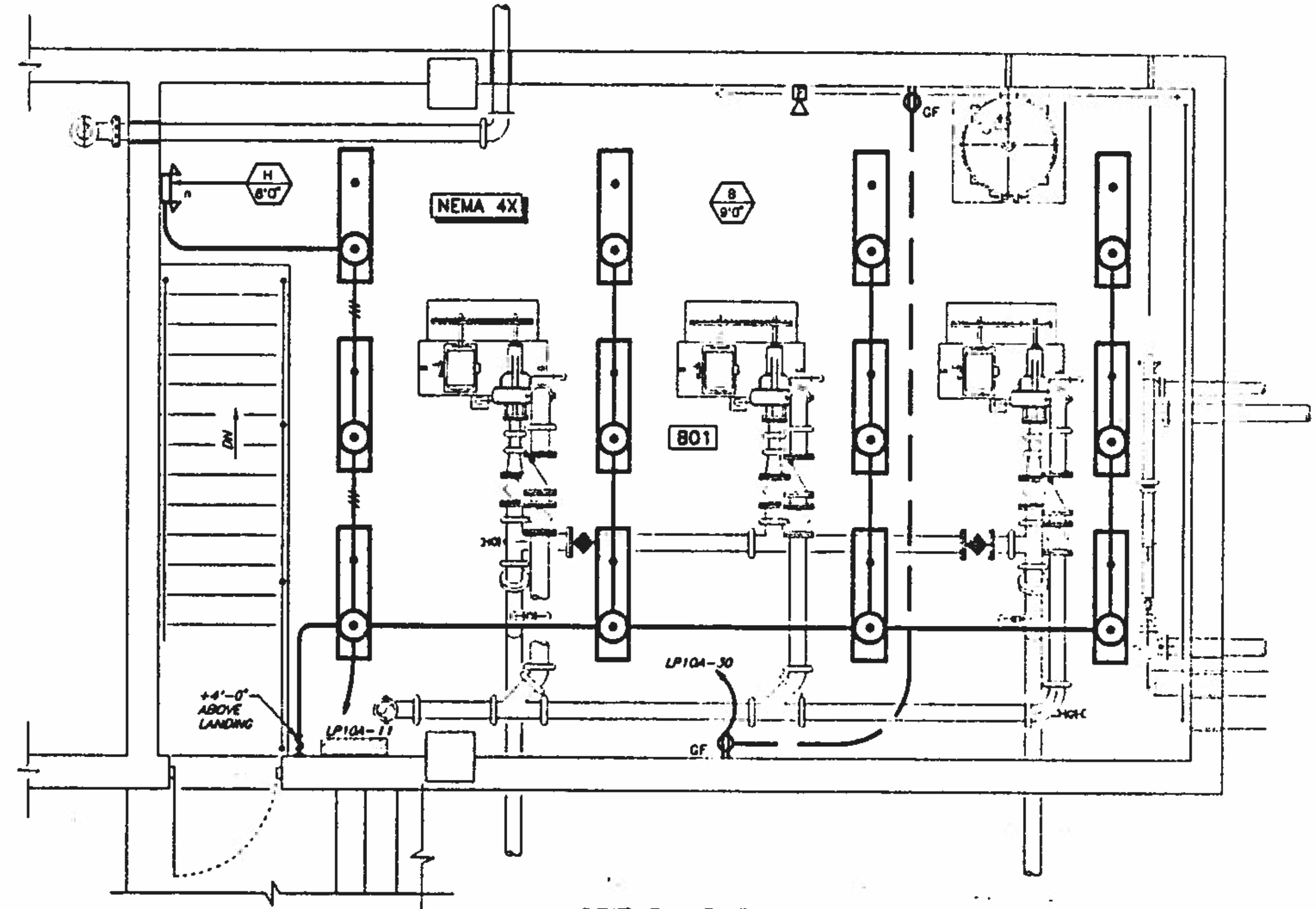
PROJECT NUMBER
DRAWING NUMBER
E110
SHEET NUMBER
383

KEY NOTES:

1. FOR CONTINUATION SEE DRAWING E110.



MEZZANINE LIGHTING PLAN
SCALE: 3/8"=1'-0"



GRIT PUMP ROOM LIGHTING PLAN
SCALE: 3/8"=1'-0"

BC Brown and Caldwell
Consultants
Phoenix, Arizona

SUBMITTED: *[Signature]* DATE: 11/10/92
APPROVED: *[Signature]* DATE: 11-7-92
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ALL DIMENSIONS)

FILE	5870
DRAWN	SKT
DESIGNED	SAM
CHECKED	RAM
CHECKED	RAM



REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS GRIT PUMPING ROOM AND MEZZANINE LIGHTING PLANS

PROJECT NUMBER	
DRAWING NUMBER	E111
SHEET NUMBER	364

PANEL SCHEDULE												
LIGHTING PANEL LP10A												
LOCATION: HEADWORKS MCC ROOM			MOUNTING: SURFACE			FED FROM: TRANSFORMER TFR 10A			INTERRUPT RATING: 10,000 A			
VOLT: 208/120 PHASE: 3 WIRE: 4			BUS AMP: 400A			MAIN OCP: 250A						
LOAD DESCRIPTION	P	CKT. BRKR.	WIRE SIZE	COND. SIZE	CKT. NO. PHASE	COND. SIZE	WIRE SIZE	CKT. BRKR.	P	LOAD DESCRIPTION		
CHEMICAL BLDG LIGHTING	1	20	12	3/4	1 A 2	3/4	12	20	1	CHEMICAL BUILDING REC.		
CHEMICAL BLDG LIGHTING	1	20	12	3/4	3 B 4	3/4	12	20	1	HEADWORKS RM 103, 101, REC.		
HEADWORKS ROOMS 100 & 103 LIGHTING	1	20	10	3/4	5 C 6	3/4	12	20	1	HEADWORKS ROOF REC.		
HEADWORKS ROOM 100 LIGHTING	1	20	12	3/4	7 A 8	3/4	12	20	1	PCP1, TVSS10		
HEADWORKS ROOMS 101, 102 & 101 LIT.	1	20	10	3/4	9 B 10	3/4	12	20	1	PCP1		
HEADWORKS ROOM 801 LIGHTING	1	20	12	3/4	11 C 12	3/4	12	20	1	CHEMICAL BLDG. F07041 & F07042		
HEADWORKS EXTERIOR LIGHTING	1	20	10	3/4	13 A 14					HEADWORKS		
CHEMICAL BLDG. EXTERIOR LIGHTING	1	20	12	3/4	15 B 16		8	40	2	ACU01421		
HEADWORKS EXT. REC.	1	20	12	3/4	17 C 18	3/4	12	20	1	SAMPLER SMP01051		
CONTROL PANEL ECP01121	1	20	12	3/4	19 A 20	3/4	12	20	1	SAMPLER SMP01052		
CONTROL PANEL ECP01131	1	20	12	3/4	21 B 22			20	1	SPARE		
CONTROL PANEL ECP07014	1	20	12	3/4	23 C 24	3/4	12	20	1	HEADWORKS RM 100 & EXT. REC.		
CONTROL PANEL ECP07015	1	20	12	3/4	25 A 26	3/4	12	20	1	CHEM. BLDG. - WATER SOFT REC.		
GRIT REMOVAL UNIT HEAT TAPE	1	20	12	3/4	27 B 28	3/4	12	20	1	CHEM. BLDG. - EXT. REC.		
FIRE ALARM CONTROL PANEL FACP	1	20	12	3/4	29 C 30	3/4	12	20	1	HEADWORKS RM 801 REC.		
HVAC CONTROL PANEL PNL01400	1	20	12	3/4	31 A 32	3/4	12	20	1	HEADWORKS RM 101 & 101 REC.		
SPARE COMBUSTIBLE GAS DETECTOR	1	20			33 B 34			20	1	SPARE		
SPARE COMBUSTIBLE GAS DETECTOR	1	20			35 C 36			20	1	SPARE		
SPACE					37 A 38					SPACE		
SPACE					39 B 40					SPACE		
SPACE					41 C 42					SPACE		

PANEL SCHEDULE												
LIGHTING PANEL LP10B												
LOCATION: PROCESS CONTROL PANEL PCP1			MOUNTING: DIN RAIL			FED FROM: UPS10			INTERRUPT RATING: 10,000 A			
VOLT: 120 PHASE: 1 WIRE: 2			BUS AMP: N/A			MAIN OCP: 20A						
LOAD DESCRIPTION	P	CKT. BRKR.	WIRE SIZE	COND. SIZE	CKT. NO. PHASE	COND. SIZE	WIRE SIZE	CKT. BRKR.	P	LOAD DESCRIPTION		
LIT07011, LIT07012	1	1	12	1	1 A 2	3/4	12	1	1	LIT01101, LIT01192, LIT01193		
OPERATOR WORKSTATION OWS1	1	5	12		3 A 4		12	3	1	PROGRAMMABLE LOGIC CONTROLLER PLC1		
LIT01101, LIT01111	1	1	12	3/4	5 A 6		12	3	1	PCP1 INSTRUMENT POWER SUPPLIES		
SPARE	1	3	12		7 A 8			5		SPARE		

BC Brown and Caldwell Consultants
Phoenix, Arizona

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ALL DIMENSIONS)

FILE _____

DRAWN SKT
DESIGNED SAM
CHECKED RAM
CHECKED RAM

SUBMITTED *Robert Austin* DATE: 11/19/92
APPROVED *Robert Austin* DATE: 11/20/92
APPROVED _____ DATE: _____



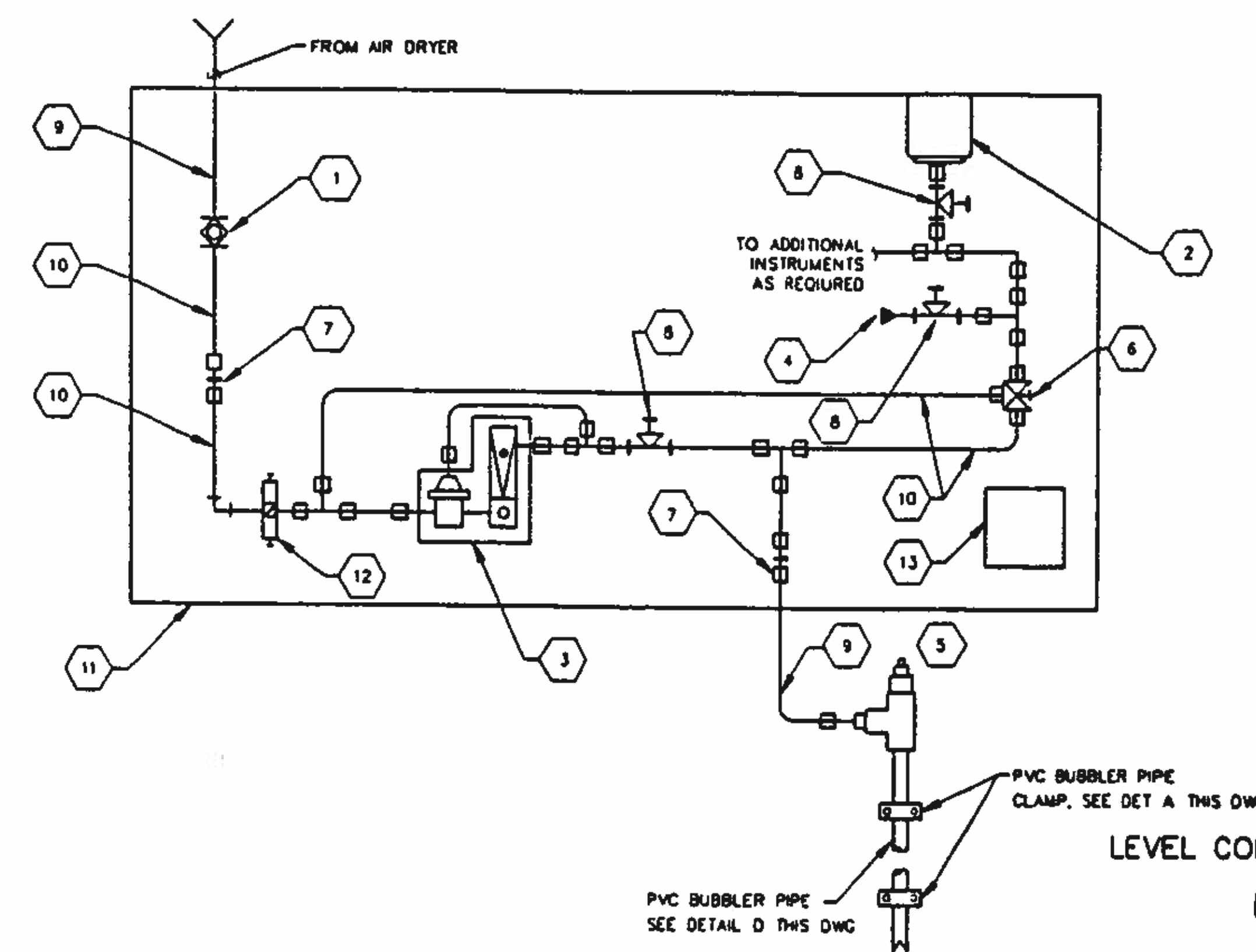
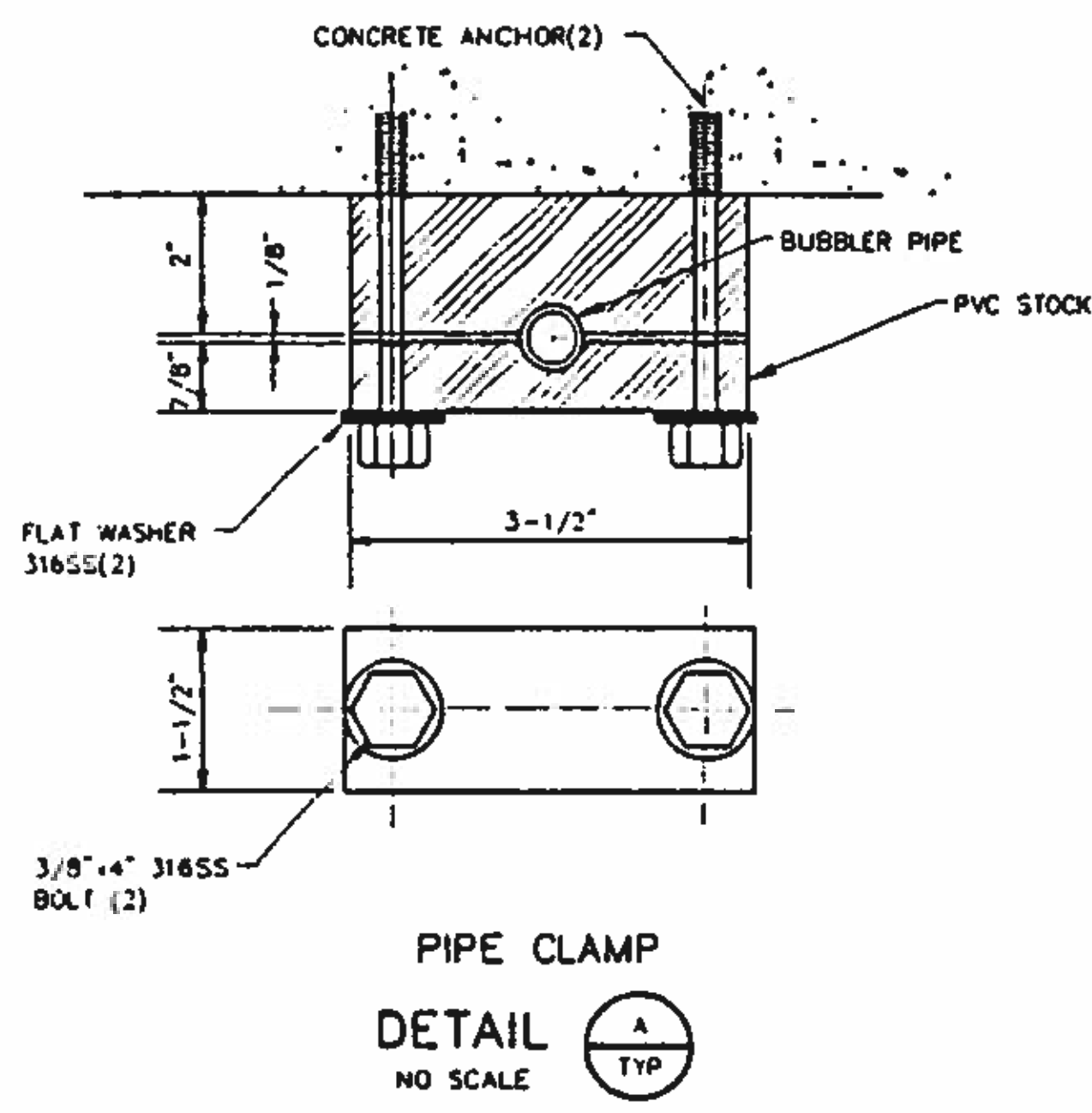
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
N/A	1	MADE REVISIONS AS PER ADDENDUMS	JA	4/93	RAM



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

HEADWORKS PANEL SCHEDULES

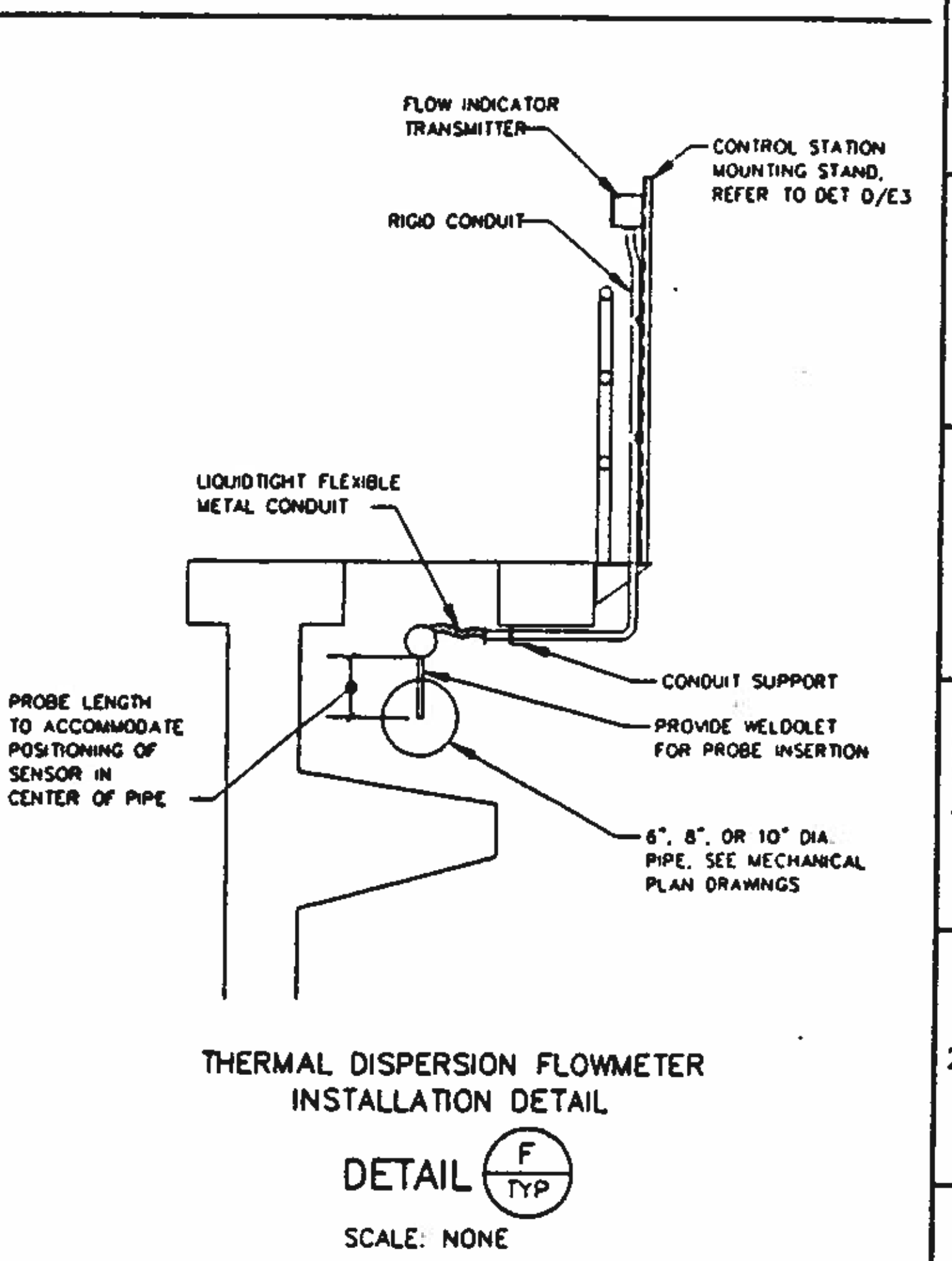
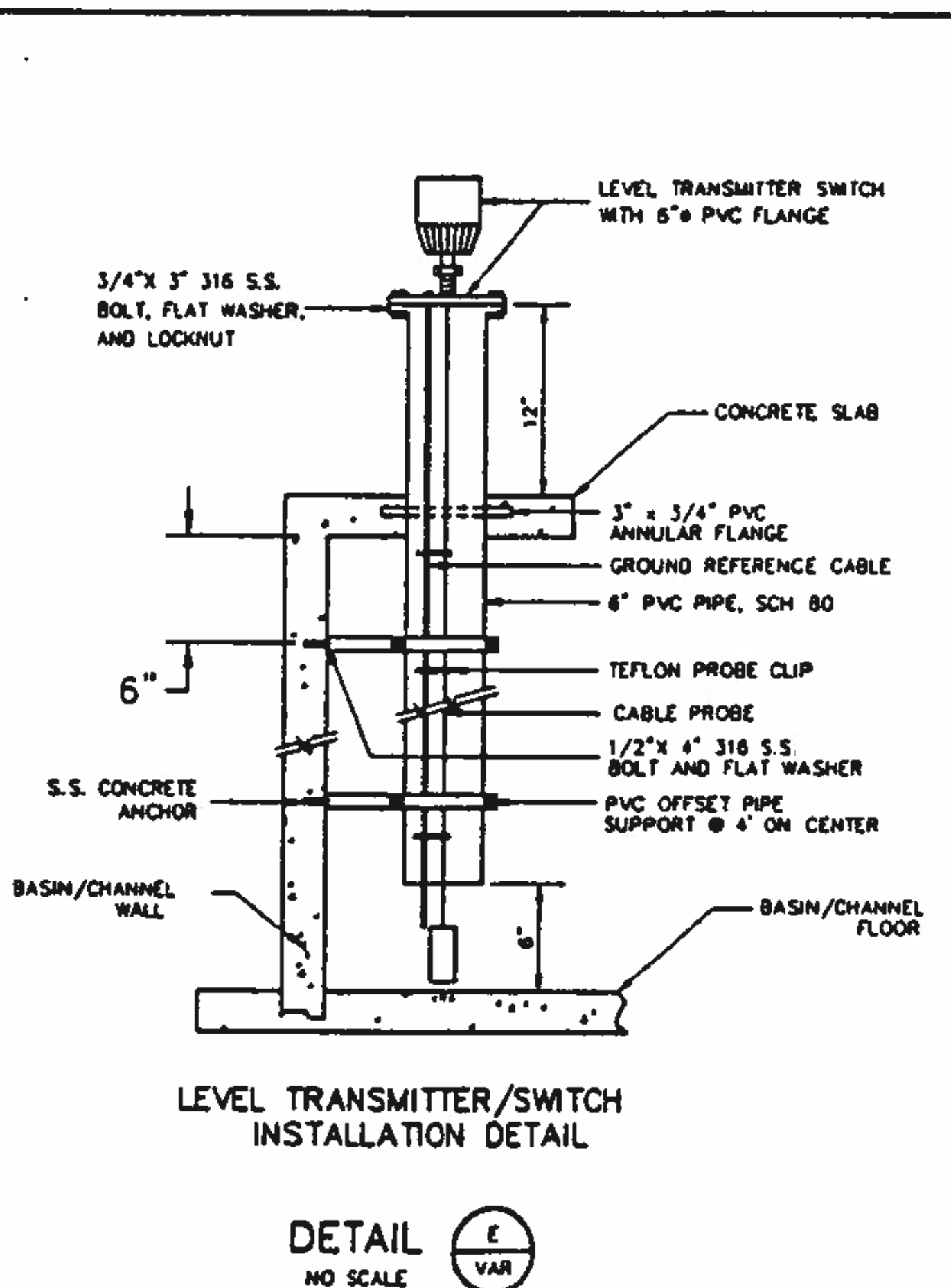
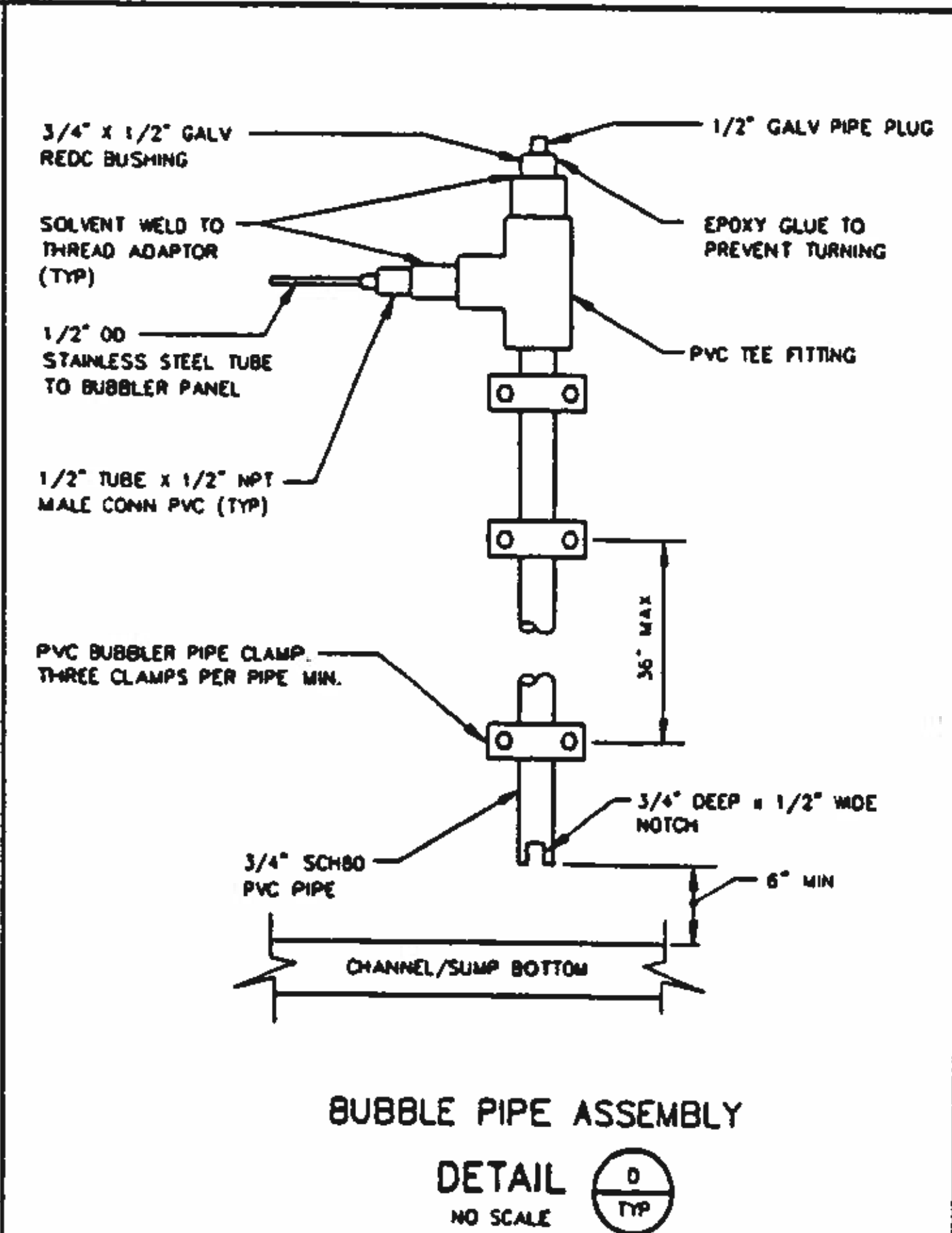
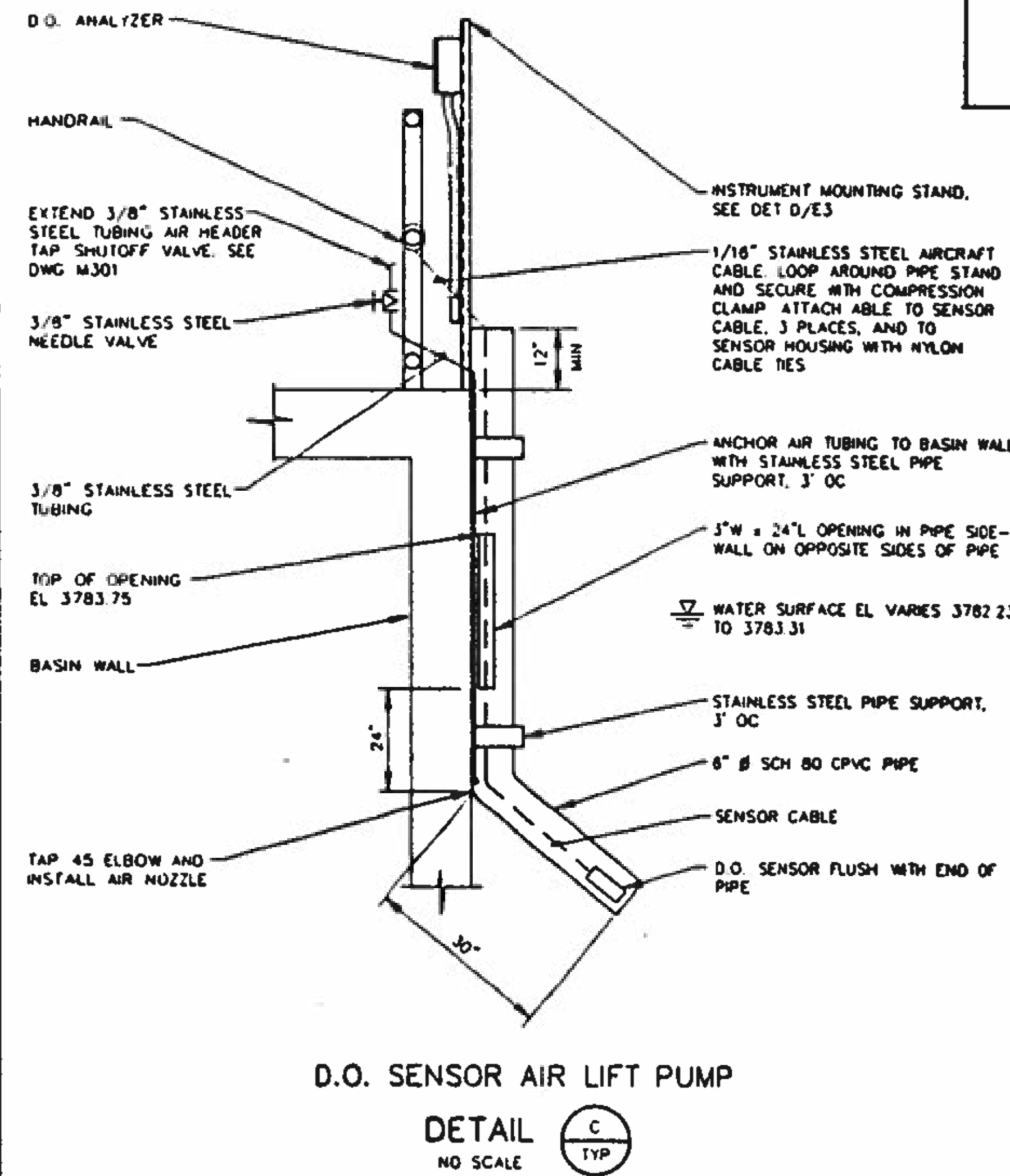
PROJECT NUMBER	
DRAWING NUMBER	E112
SHEET NUMBER	385



NOTES:

1. INDICATES EQUIPMENT LIST
2. THE EQUIPMENT LIST CONTAINS MAJOR ITEMS NEEDED FOR INSTALLATION OF THE DEVICES PROVIDED, BUT DOES NOT NECESSARILY INCLUDE ALL ITEMS NEEDED FOR A COMPLETE INSTALLATION
3. BUBBLER SYSTEMS MAY BE COMBINED ON A COMMON BACKBOARD AND MANIFOLDED TOGETHER UPSTREAM OF THE AIR SET FOR EACH BUBBLER SYSTEM

- EQUIPMENT LIST**
- | | |
|--|--|
| 1 BALL VALVE | 9 1/2" 316 STAINLESS STEEL TUBING AND FITTINGS. |
| 2 PRESSURE TRANSMITTER/SWITCH | 10 1/4" 316 STAINLESS STEEL TUBING AND FITTINGS |
| 3 AIR PURGE ROTAMETER ASSEMBLY | 11 OPEN PANEL BACKBOARD IN ACCORDANCE WITH SPECIFICATION 17110. PROVIDE NAMEPLATES MECHANICALLY ATTACHED TO BACKBOARD FOR THE FOLLOWING. |
| 4 CALIBRATION/TEST PORT | A. SERVICE AIR PORT |
| 5 BUBBLE PIPE. REFER TO BUBBLE PIPE ASSEMBLY DETAIL D THIS DRAWING | E. PRESSURE SWITCHES |
| 6 PURGE VALVE | B. PURGE LINE PORT |
| 7 BULKHEAD UNION | C. STATIC PRESSURE PORT |
| 8 NEEDLE VALVE | D. PURGE METER |
| | F. PURGE VALVE INDICATING EA POSITION |
| | G. CALIBRATION/TEST PORT |
| | H. BUBBLER PANEL IDENTIFICATION |
| | 12 ADJUSTABLE AIR SET. |
| | 13 BUBBLER SYSTEM MANUAL PURGE INSTRUCTIONS |



BG Brown and Caldwell Consultants
Phoenix, Arizona

SUBMITTED: _____ DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ALL DIMENSIONS)

FILE 5870
DRAWN DOH
DESIGNED RAM
CHECKED RAM
CHECKED RAM



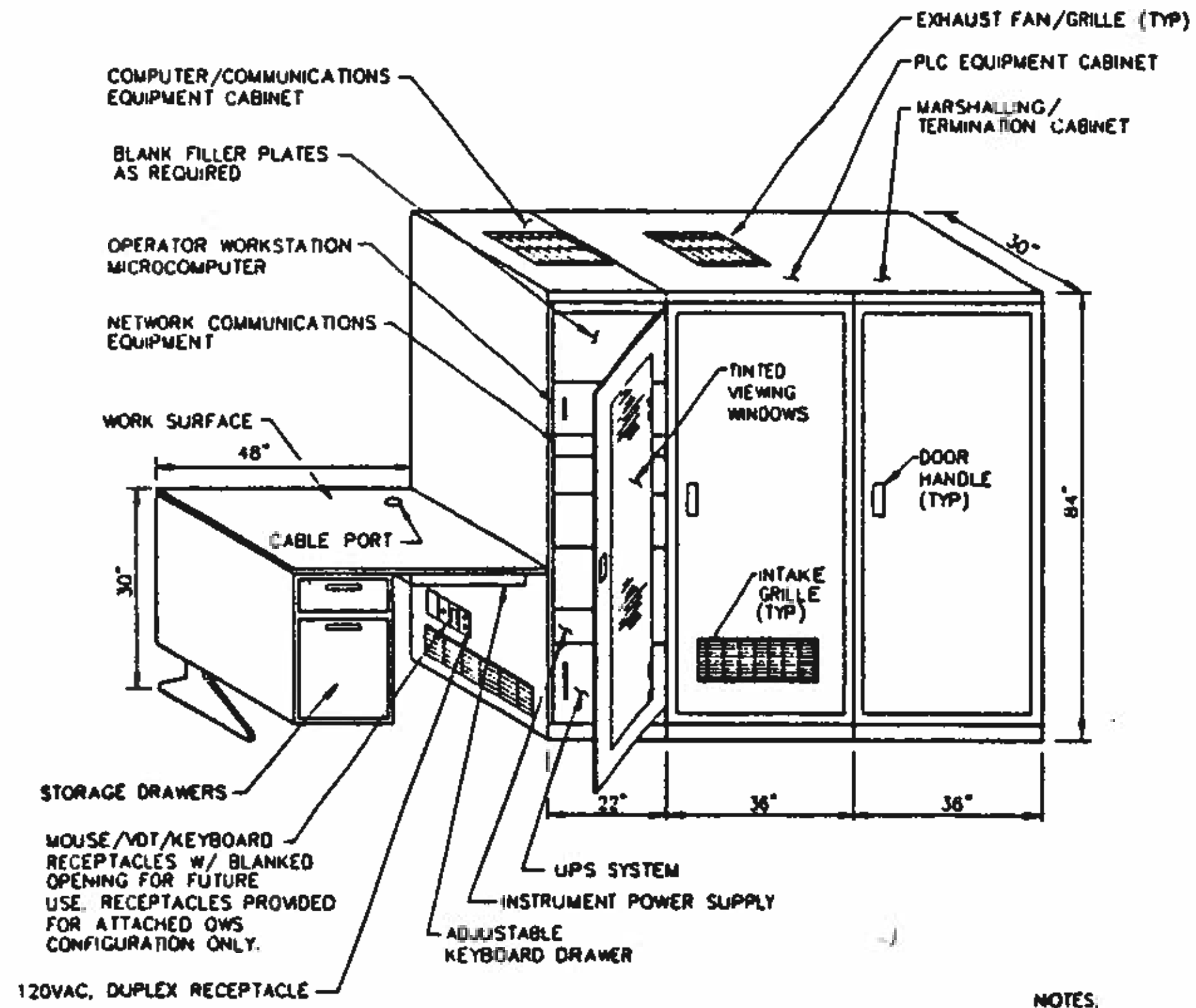
REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
N/A	1	THIS SHEET SUPERSEDES PREVIOUS DWG. 11	SKT	4/93	RAM



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

STANDARD DETAILS 1

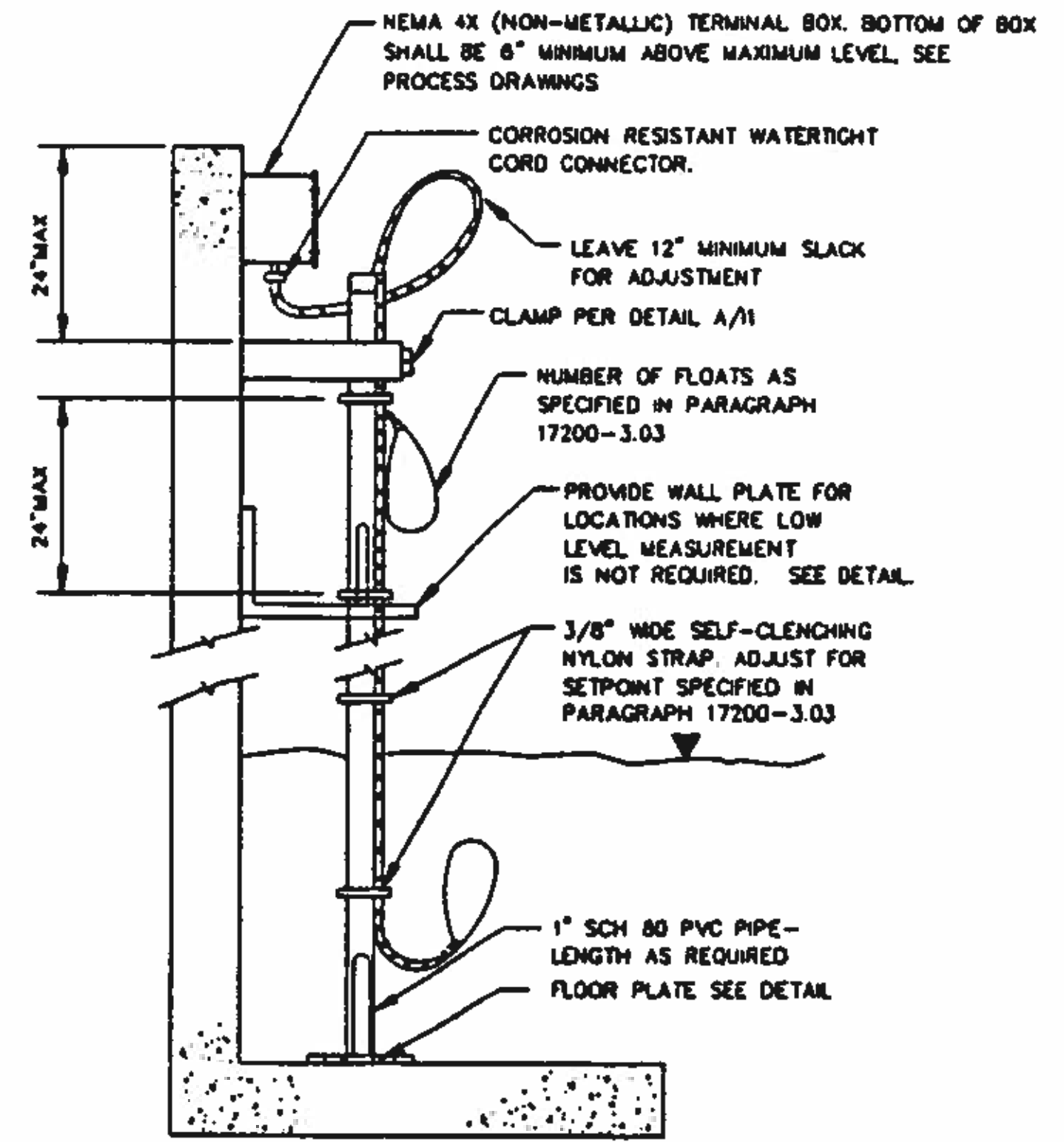
PROJECT NUMBER
DRAWING NUMBER **11**
SHEET NUMBER
428



OPERATOR WORKSTATION/
PROCESS CONTROL PANEL

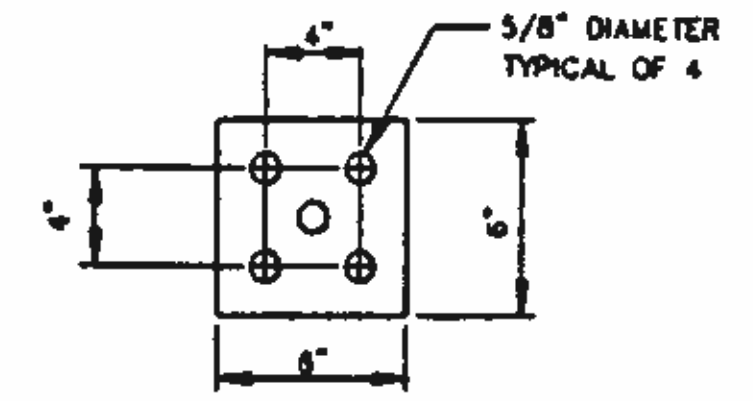
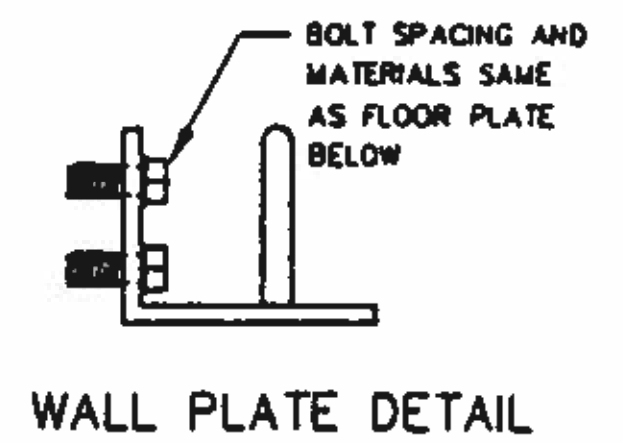
DETAIL **A**
NO SCALE **VAR**

- NOTES:
1. THE RELATIVE ARRANGEMENT OF THE OPERATOR WORKSTATION DESK AND THE PROCESS CONTROL PANEL SHALL REFLECT THE ORIENTATION INDICATED ON THE FLOOR PLANS.
 2. PCP3 SHALL BE CONFIGURED WITH A DETACHED OPERATOR WORKSTATION. REFER TO DETAIL D/12.
 3. OPERATIONS CONTROL CENTER SHALL BE CONFIGURED WITH A DETACHED OPERATOR WORKSTATION. REFER TO DETAIL D/12.



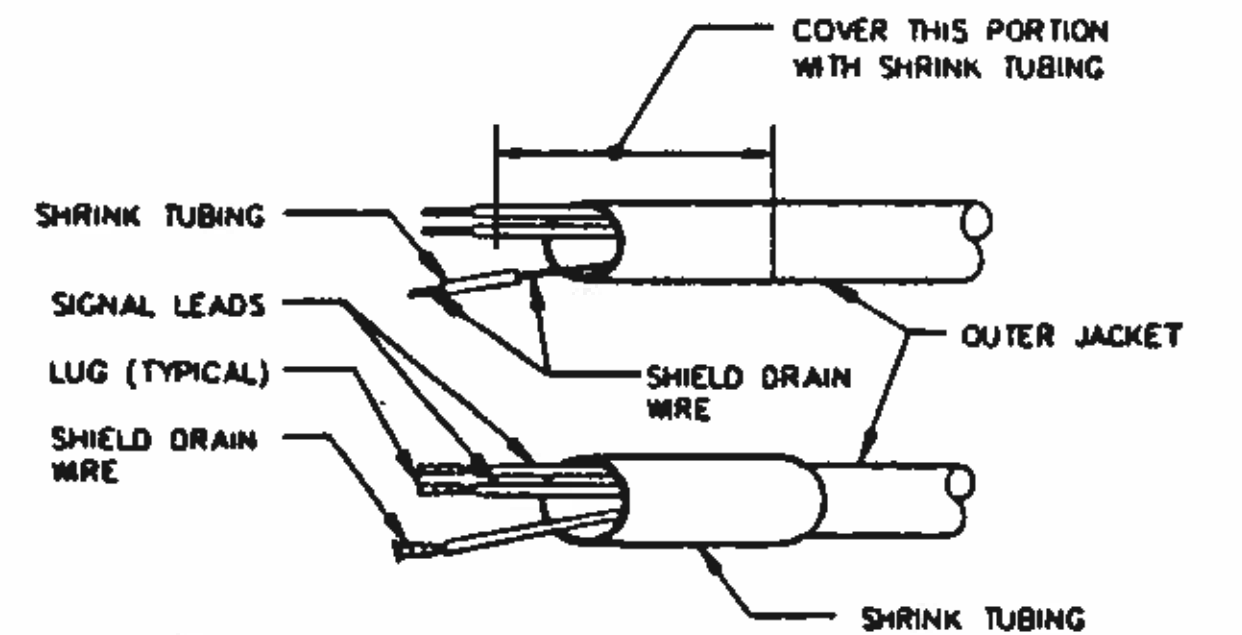
DIRECT ACTING FLOAT SWITCH

DETAIL **C**
NO SCALE **VAR**

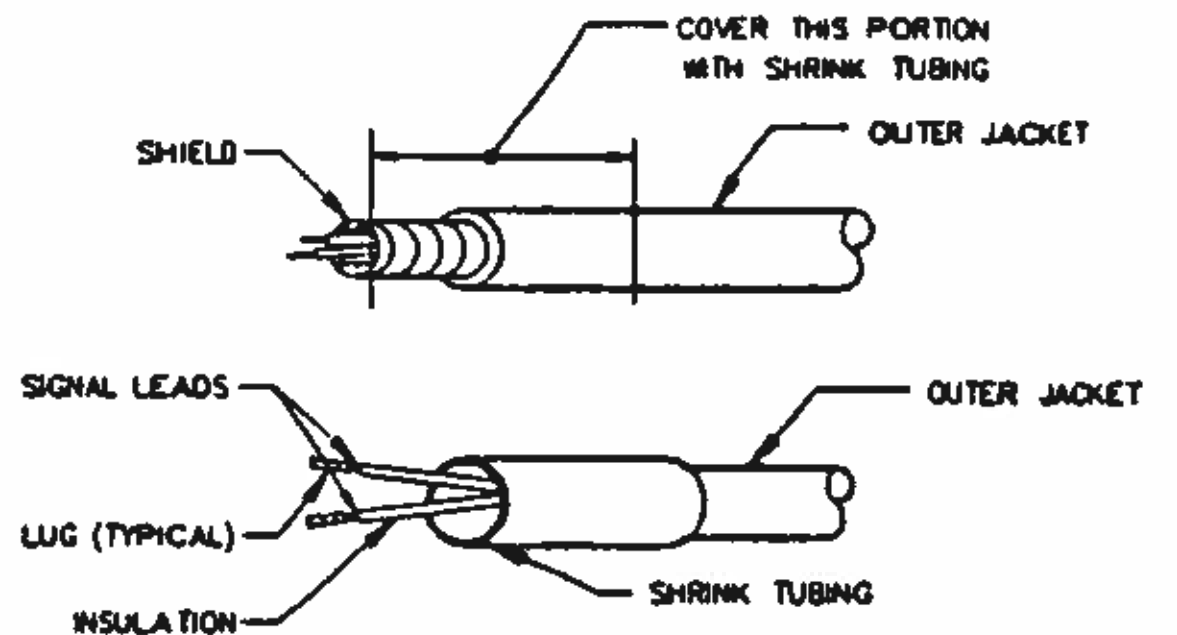


FLOOR PLATE DETAIL

ATTACH TO FLOOR WITH S.S. CONCRETE ANCHORS (4) AND 1/2\"/>

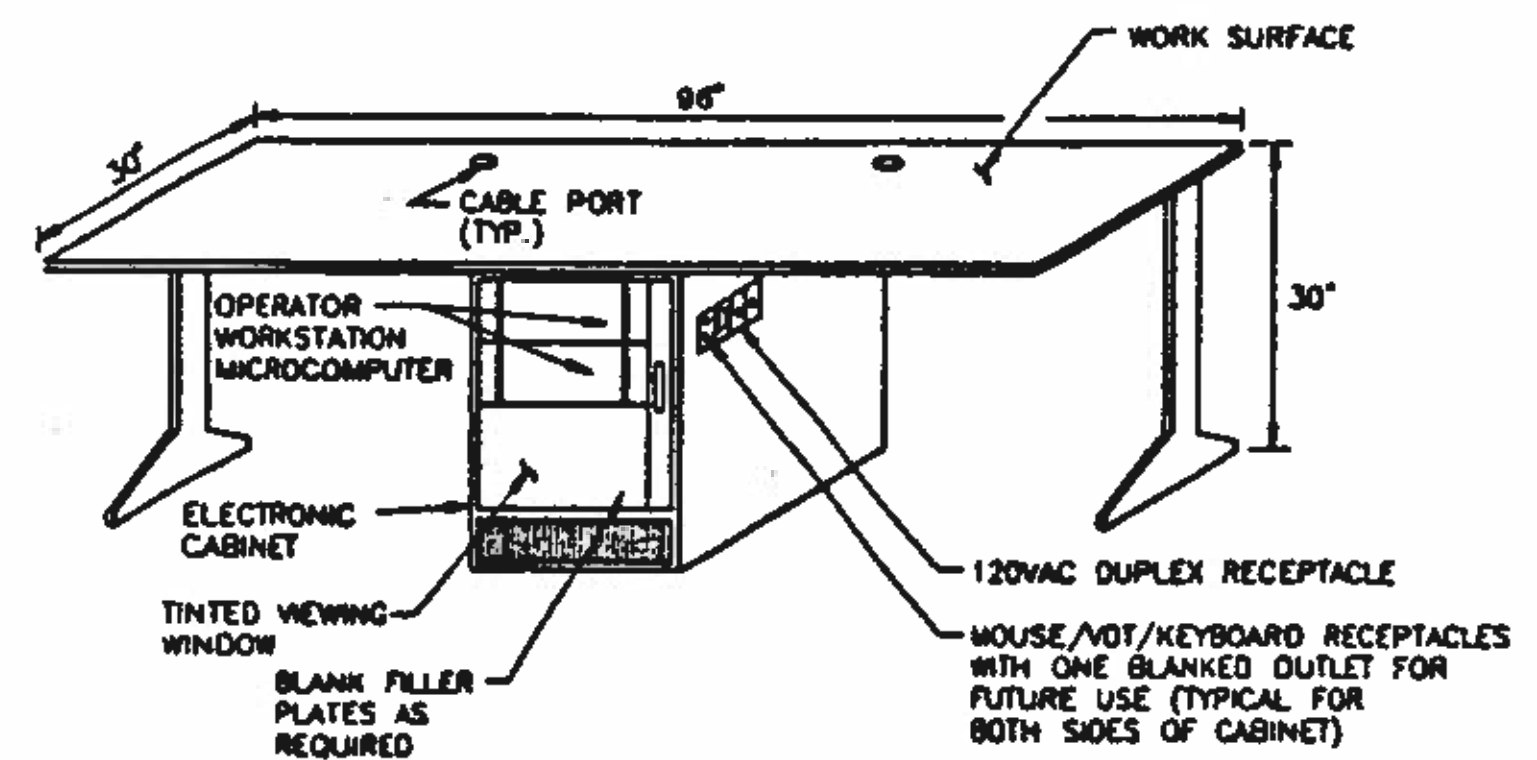


TERMINATION OF SHIELDED CONTROL CABLE
SHIELD GROUNDED AT TERMINATION



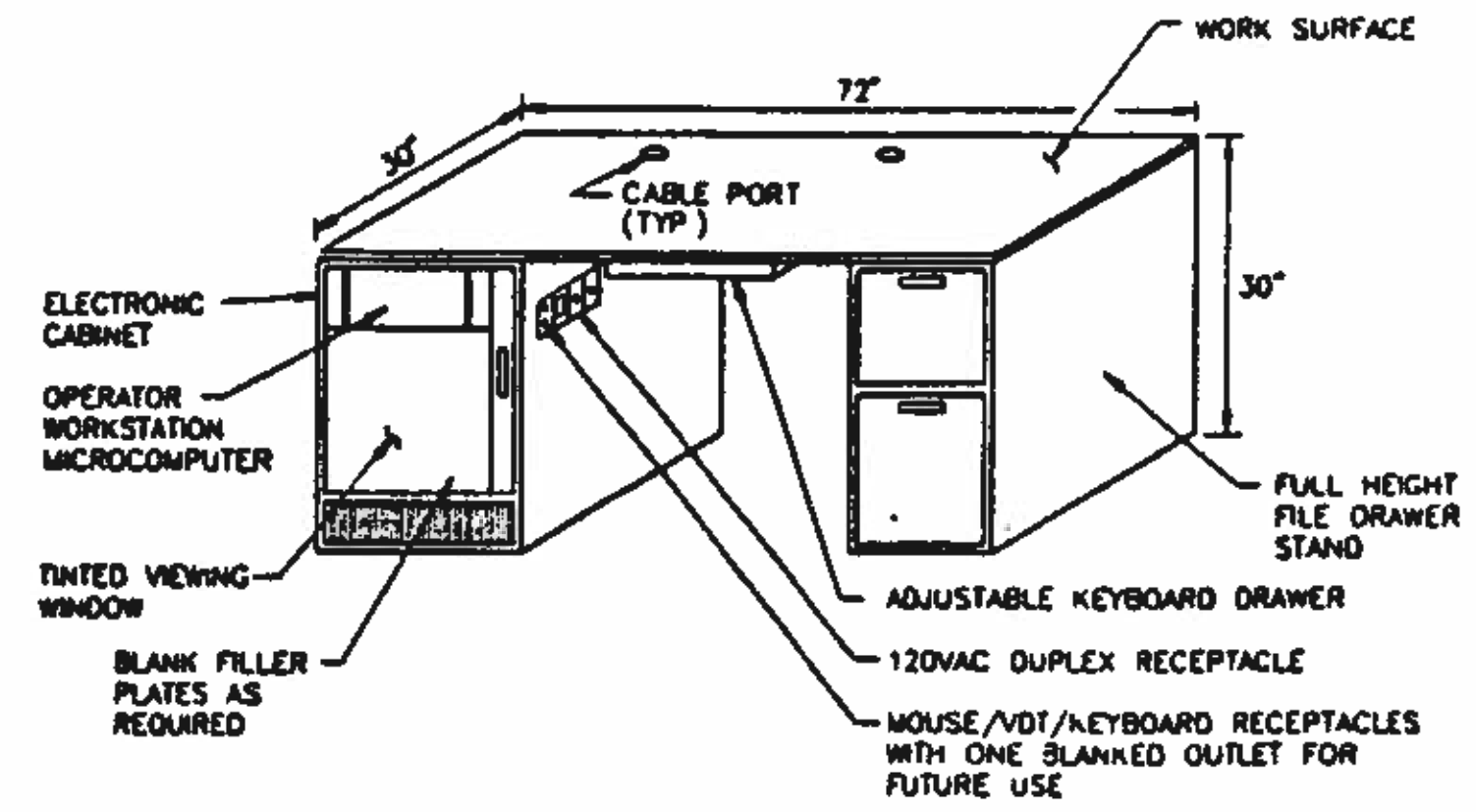
TERMINATION OF SHIELDED CONTROL CABLE
SHIELD NOT GROUNDED AT TERMINATION

DETAIL **B**
NO SCALE **VAR**



OPERATOR WORKSTATION OCC

DETAIL **D**
NO SCALE **VAR**



OPERATOR WORKSTATION 3

BC Brown and Caldwell Consultants
Phoenix, Arizona

FILE 5870
DRAWN BC
DESIGNED RAM
CHECKED RAM

DATE: 11/10/92
DATE: 11/20/92

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2\"/>



REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

STANDARD DETAILS 2

PROJECT NUMBER
DRAWING NUMBER **12**
SHEET NUMBER
428

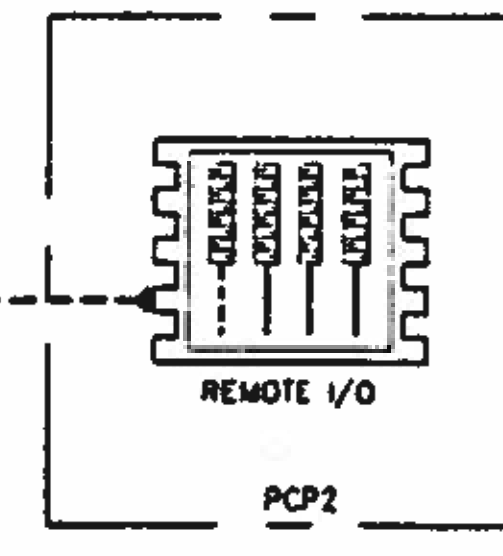
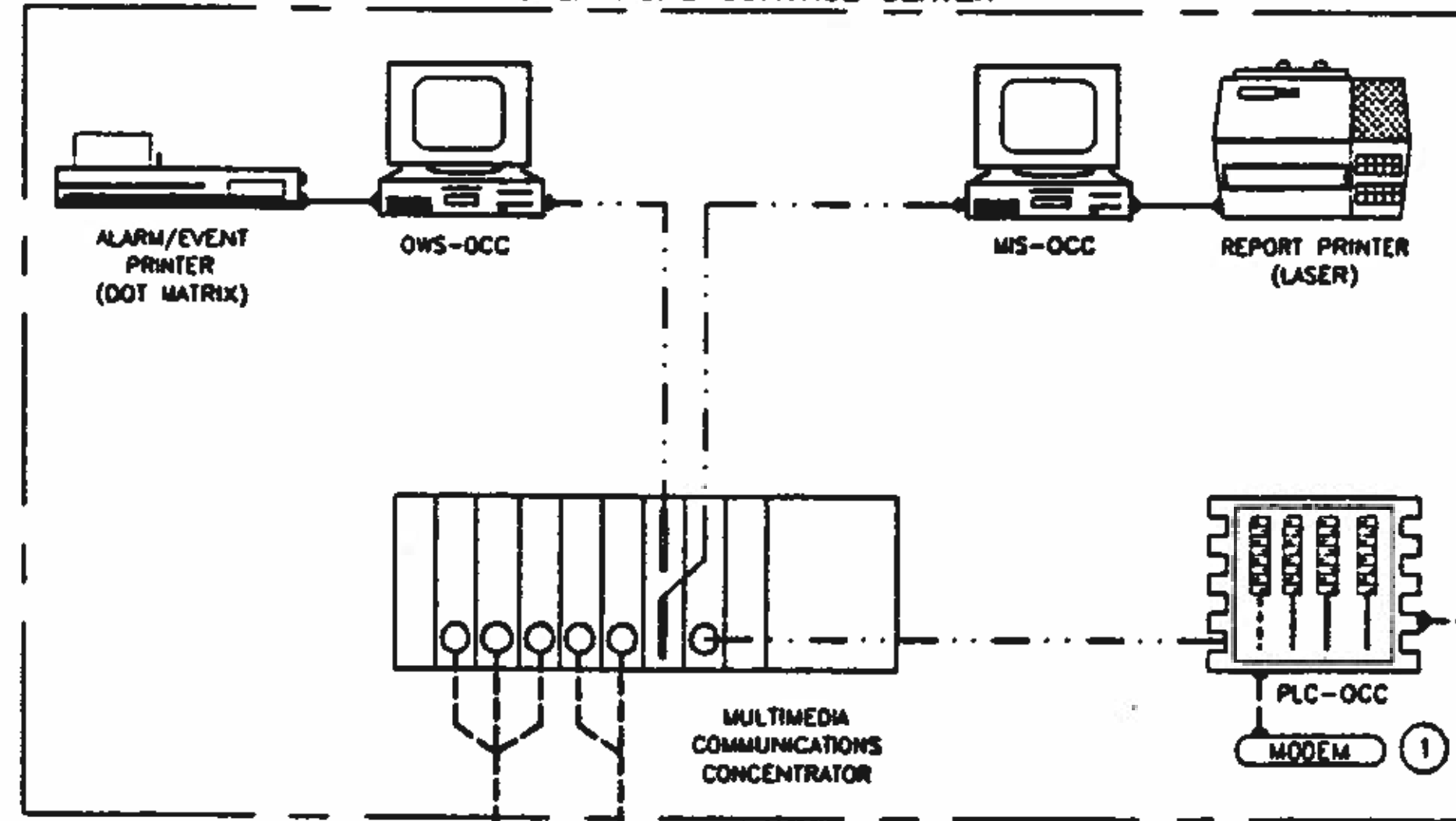
KEY NOTES:

1. MODEM SHALL BE PROVIDED FOR FUTURE PLC NETWORK COMMUNICATIONS WITH REMOTE PLC PROCESSORS VIA LEASED TELEPHONE COMMUNICATION MEDIA.

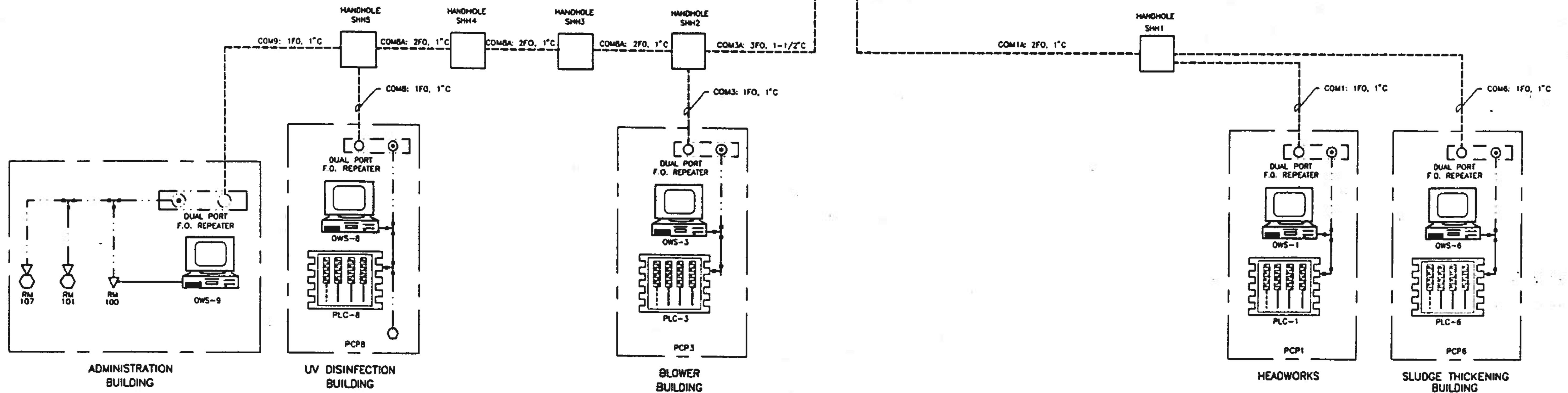
LEGEND

- Ethernet Network—Thinwire
- - - - - Ethernet Network—Fiber Optic
- RS-232 Interface
- PLC Local Area Network/Remote I/O Drop

**EXISTING ADMINISTRATION BUILDING
OPERATIONS CONTROL CENTER**



SLUDGE DEWATERING BUILDING



BC Brown and Caldwell Consultants
Phoenix, Arizona

LINE IS 2 INCHES AT FULL SIZE
FILE 5870
DRAWN DOH
DESIGNED RAM
CHECKED RAM
CHECKED RAM



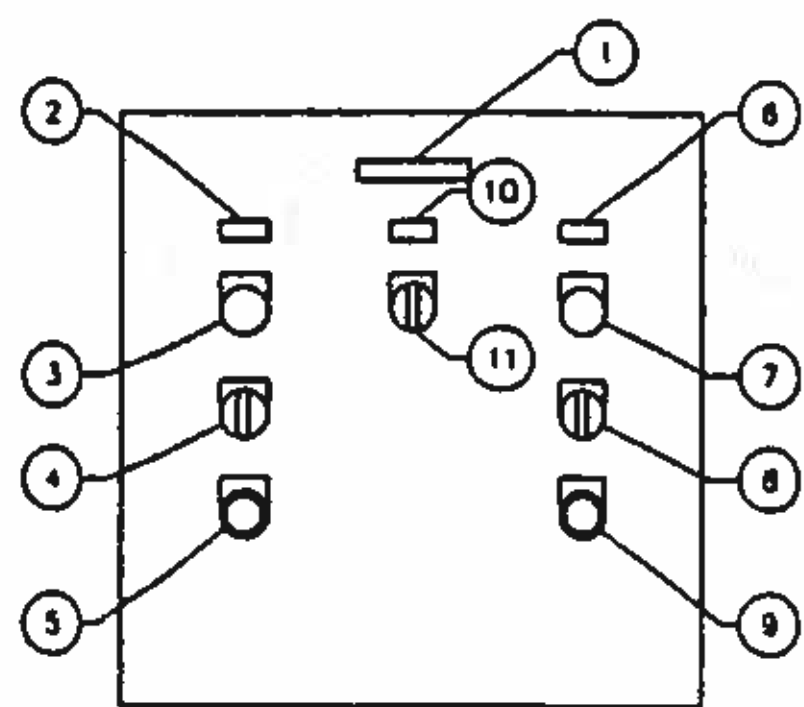
REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE
N/A	1	THIS SHIT. SUPERSEDES PREVIOUS DWG. 13	SKT	4/93



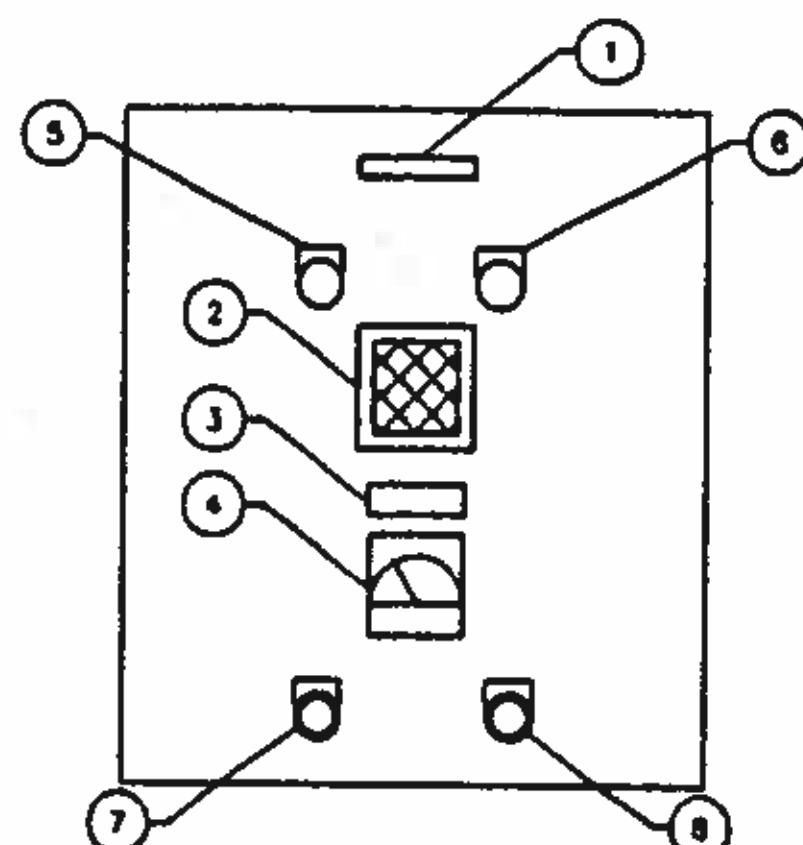
NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION

PROCESS CONTROL SYSTEM ONE-LINE DIAGRAM

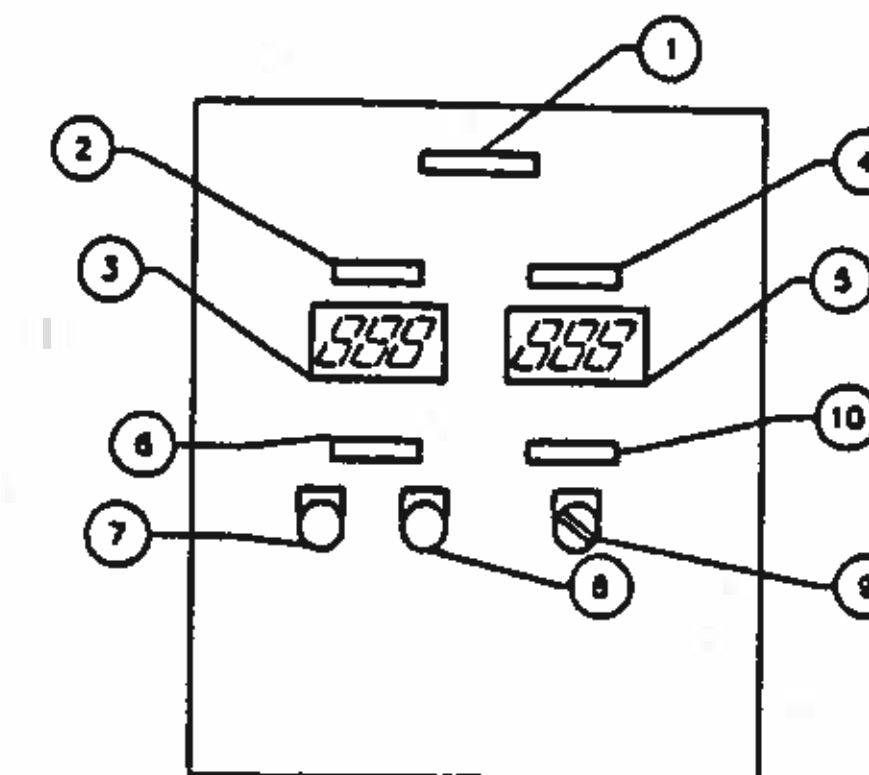
PROJECT NUMBER
DRAWING NUMBER **13**
SHEET NUMBER



STARTING AIR SYSTEM
LOCAL CONTROL PANEL
LCP03571
NO SCALE



CHEMICAL FILL STATION
LOCAL CONTROL PANEL
LCP07011, LCP07012
NO SCALE



LIME - SLUDGE MIXER
LOCAL CONTROL PANEL
LCP06703, LCP06706
NO SCALE

EQUIPMENT SCHEDULE - LCP03571					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	STARTING AIR SYSTEM LCP03571	WHITE		
2	NAMEPLATE	STARTING AIR COMPRESSOR No.1	WHITE		
3	INDICATING LIGHT	OIL LEVEL LOW	RED	LL03571	
4	SELECTOR SWITCH	HAND-OFF-AUTO	BLACK	MS03571A	
5	PUSHBUTTON	RESET	BLACK	HMS03571	
6	NAMEPLATE	STARTING AIR COMPRESSOR No.2	WHITE		
7	INDICATING LIGHT	OIL LEVEL LOW	RED	LL03572	
8	SELECTOR SWITCH	HAND-OFF-AUTO	BLACK	MS03572	
9	PUSHBUTTON	RESET	BLACK	HMS03572	
10	NAMEPLATE	COMPRESSOR LEAD-SELECT	WHITE		
11	SELECTOR SWITCH	No. 1 - No. 2	BLACK	MS03571B	

EQUIPMENT SCHEDULE - LCP07011					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	SODIUM HYPOCHLORITE CHEMICAL FILL STATION LCP07011	WHITE		
2	HORN			LHM07011	
3	NAMEPLATE	SODIUM HYPOCHLORITE STORAGE TANK LEVEL	WHITE		
4	CONCENTRIC SCALE INDICATOR	0-100%		LJ07011	
5	INDICATING LIGHT	TANK LEVEL HIGH WARNING	AMBER	LLH07011	
6	INDICATING LIGHT	TANK LEVEL HIGH ALARM	AMBER	LLHM07011	
7	PUSHBUTTON	ACKNOWLEDGE	BLACK	HMS07011	
8	PUSHBUTTON	TEST	BLACK		

EQUIPMENT SCHEDULE - LCP6703					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	LIME - SLUDGE MIXER 1 LCP06703	WHITE		
2	NAMEPLATE	MIXER SPEED (0-100%)	WHITE		
3	DIGITAL PANEL METER			SO6703	
4	NAMEPLATE	MIXER SPEED CONTROL			
5	MANUAL LOADING STATION		WHITE	SC06703	
6	NAMEPLATE	ALARM STATUS	WHITE		
7	INDICATING LIGHT	DRIVE FAULT	AMBER	UL06703	
8	INDICATING LIGHT	ZERO SPEED	AMBER	SL06703B	
9	SELECTOR SWITCH	HAND OFF AUTO	BLACK	HS06703	
10	NAMEPLATE	MIXER CONTROL	WHITE		

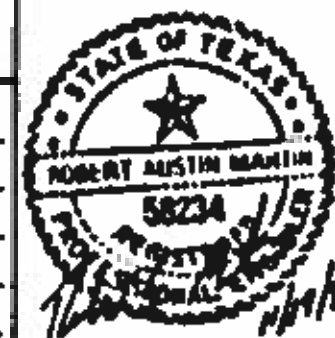
EQUIPMENT SCHEDULE - LCP07012					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	CAUSTIC SODA CHEMICAL FILL STATION LCP07012	WHITE		
2	HORN			LHM07012	
3	NAMEPLATE	CAUSTIC SODA STORAGE TANK LEVEL	WHITE		
4	CONCENTRIC SCALE INDICATOR	0-100%		LJ07012	
5	INDICATING LIGHT	TANK LEVEL HIGH WARNING	AMBER	LLH07012	
6	INDICATING LIGHT	TANK LEVEL HIGH ALARM	AMBER	LLHM07012	
7	PUSHBUTTON	ACKNOWLEDGE	BLACK	HMS07012	
8	PUSHBUTTON	TEST	BLACK		

EQUIPMENT SCHEDULE - LCP6706					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	LIME - SLUDGE MIXER 2 LCP06706	WHITE		
2	NAMEPLATE	MIXER SPEED (0-100%)	WHITE		
3	DIGITAL PANEL METER			SO6706	
4	NAMEPLATE	MIXER SPEED CONTROL			
5	MANUAL LOADING STATION		WHITE	SC06706	
6	NAMEPLATE	ALARM STATUS	WHITE		
7	INDICATING LIGHT	DRIVE FAULT	AMBER	UL06706	
8	INDICATING LIGHT	ZERO SPEED	AMBER	SL06706B	
9	SELECTOR SWITCH	HAND OFF AUTO	BLACK	HS06706	
10	NAMEPLATE	MIXER CONTROL	WHITE		

BC Brown and Caldwell
Consultants
Phoenix, Arizona

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" SCALE A.CCORDINGLY)

FILE 5870
DRAWN DOH
DESIGNED SAM
CHECKED RAM
CHECKED RAM



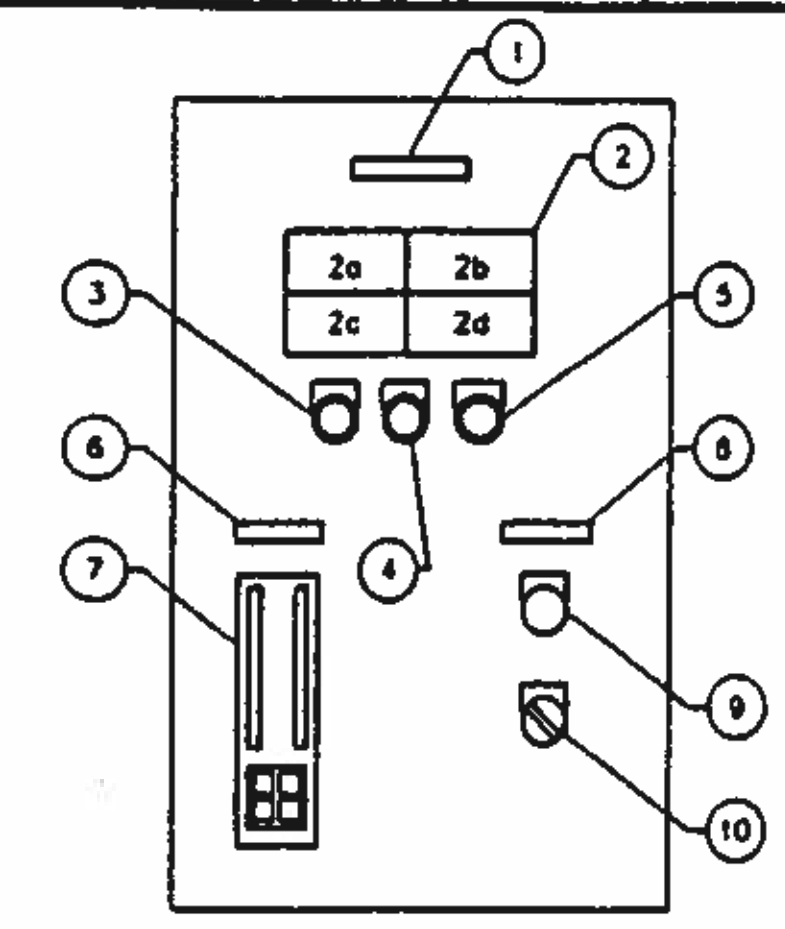
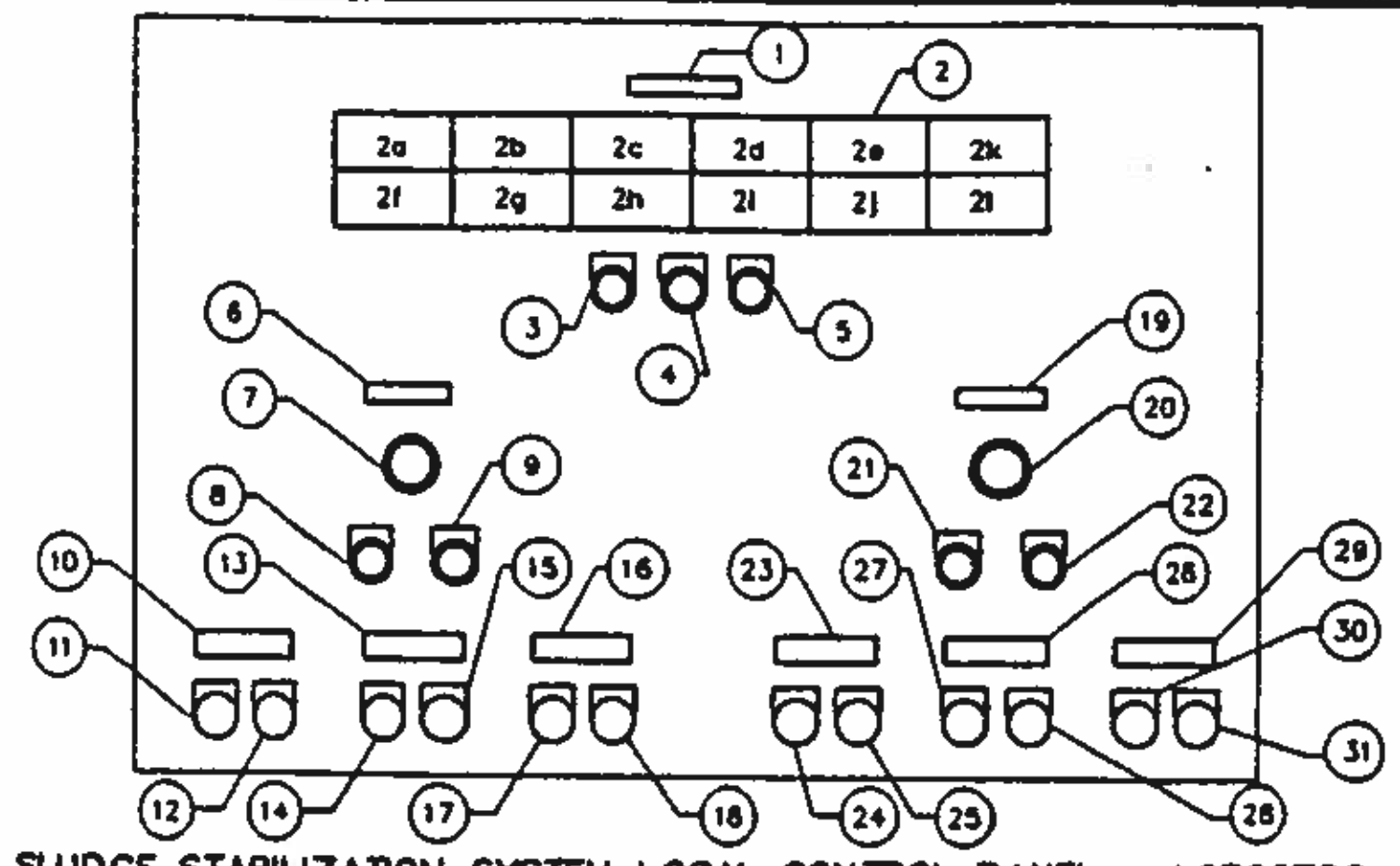
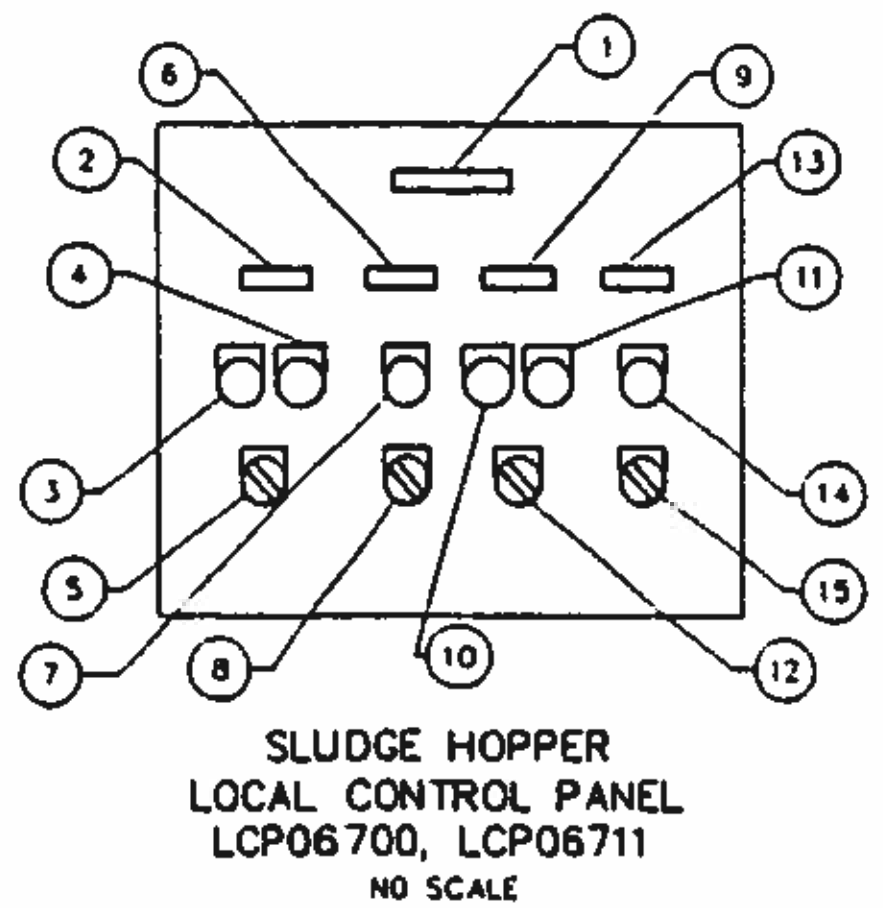
REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

LOCAL CONTROL PANELS - 1

PROJECT NUMBER
DRAWING NUMBER
14
SHEET NUMBER



EQUIPMENT SCHEDULE - LCP06700					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	SLUDGE HOPPER 1 LCP06700	WHITE		
2	NAMEPLATE	SLIDE GATE 1	WHITE		
3	INDICATING LIGHT	FULL OPEN	RED	ZLH06702	
4	INDICATING LIGHT	FULL CLOSE	GREEN	ZLH06702	
5	SELECTOR SWITCH	OPEN STOP CLOSE	BLACK	HS06702	
6	NAMEPLATE	BOTTOM SCREWS 1	WHITE		
7	INDICATING LIGHT	RUN	RED	YL06708	
8	SELECTOR SWITCH	HAND-OFF-AUTO	BLACK	HS06708	
9	NAMEPLATE	SLIDE GATE 2	WHITE		
10	INDICATING LIGHT	FULL OPEN	RED	ZLH06705	
11	INDICATING LIGHT	FULL CLOSE	GREEN	ZLH06705	
12	SELECTOR SWITCH	OPEN STOP CLOSE	BLACK	HS06705	
13	NAMEPLATE	BOTTOM SCREWS 2	WHITE		
14	INDICATING LIGHT	RUN	RED	YL06709	
15	SELECTOR SWITCH	HAND-OFF-AUTO	BLACK	HS06709	

EQUIPMENT SCHEDULE - LCP06790					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	SLUDGE STABILIZATION SYSTEM LCP06790	WHITE		
2	ANNUNCIATOR SUB-PANEL				
2a	ANNUNCIATOR POINT	SLUDGE SCREW CONVEYOR 1 FAIL	AMBER	YA06703A	
2b	ANNUNCIATOR POINT	LIME-SLUDGE MIXER 1 FAIL	AMBER	YA06703A	
2c	ANNUNCIATOR POINT	STABILIZED SLUDGE CONVEYOR 1 FAIL	AMBER	YA06707A	
2d	ANNUNCIATOR POINT	SLUDGE HOPPER 1 LEVEL HIGH	AMBER	LAH06700	
2e	ANNUNCIATOR POINT	LIME SLUDGE MIXER 1 SPEED ZERO	AMBER	SAL06703A	
2f	ANNUNCIATOR POINT	SLUDGE SCREW CONVEYOR 2 FAIL	AMBER	YA06704A	
2g	ANNUNCIATOR POINT	LIME SLUDGE MIXER 2 FAIL	AMBER	YA06706A	
2h	ANNUNCIATOR POINT	STABILIZED SLUDGE CONVEYOR 2 FAIL	AMBER	YA06710A	
2i	ANNUNCIATOR POINT	SLUDGE HOPPER 2 LEVEL HIGH	AMBER	LAH06711	
2j	ANNUNCIATOR POINT	LIME SLUDGE MIXER 2 SPEED ZERO	AMBER	SAL06706A	
2k	ANNUNCIATOR POINT	LIME FEEDER 1 FAIL	AMBER	YA6602A	
2l	ANNUNCIATOR POINT	LIME FEEDER 2 FAIL	AMBER	YA6606A	
3	PUSHBUTTON	ACKNOWLEDGE	BLACK		
4	PUSHBUTTON	RESET	BLACK		
5	PUSHBUTTON	TEST	BLACK		
6	NAMEPLATE	SLUDGE STABILIZATION SYSTEM 1	WHITE		
7	MUSHROOM HEAD BUTTON	EMERGENCY STOP	RED	HMS06791C	PROVIDE W/ MUSHROOM GUARD
8	PUSHBUTTON	PUSH-TO-STOP	BLACK	HMS06791A	
9	PUSHBUTTON	START	RED	HMS06791B	
10	NAMEPLATE	SLUDGE SCREW CONVEYOR 1 READY	WHITE		
11	INDICATING LIGHT	RUN	GREEN	YL06701B	
12	INDICATING LIGHT	RUN	RED	YL06701A	
13	NAMEPLATE	LIME-SLUDGE MIXER 1 READY	WHITE		
14	INDICATING LIGHT	RUN	GREEN	YL06703B	
15	INDICATING LIGHT	RUN	RED	YL06703A	
16	NAMEPLATE	STABILIZED SLUDGE CONVEYOR 1 READY	WHITE		
17	INDICATING LIGHT	RUN	GREEN	YL06707B	
18	INDICATING LIGHT	RUN	RED	YL06707A	
19	NAMEPLATE	SLUDGE STABILIZATION SYSTEM 2	WHITE		
20	MUSHROOM HEAD BUTTON	EMERGENCY STOP	RED	HMS06792C	PROVIDE W/ MUSHROOM GUARD
21	PUSHBUTTON	PUSH-TO-STOP	BLACK	HMS06792A	
22	PUSHBUTTON	START	RED	HMS06792B	
23	NAMEPLATE	SLUDGE SCREW CONVEYOR 2 READY	WHITE		
24	INDICATING LIGHT	RUN	GREEN	YL06704B	
25	INDICATING LIGHT	RUN	RED	YL06704A	
26	NAMEPLATE	LIME-SLUDGE MIXER 2 READY	WHITE		
27	INDICATING LIGHT	RUN	GREEN	YL06706B	
28	INDICATING LIGHT	RUN	RED	YL06706A	
29	NAMEPLATE	STABILIZED SLUDGE CONVEYOR 2 READY	WHITE		
30	INDICATING LIGHT	RUN	GREEN	YL06710B	
31	INDICATING LIGHT	RUN	RED	YL06710A	
32	BEACON		AMBER	YL06791	
33	BEACON		AMBER	YL06792	MOUNT ON TOP OF ENCLOSURE (TYP.)

EQUIPMENT SCHEDULE - LCP06161					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	DAFT POLYMER FEED PUMP 1 LCP06161	WHITE		
2	ANNUNCIATOR SUB-PANEL				
2a	ANNUNCIATOR POINT	PUMP DISCHARGE PRESSURE HIGH	AMBER	PAH06161A	
2b	ANNUNCIATOR POINT	PUMP DISCHARGE PRESSURE LOW	AMBER	PAL06161A	
2c	ANNUNCIATOR POINT	PUMP DRIVE FAULT	AMBER	UAD06161A	
2d	ANNUNCIATOR POINT	PREP SYSTEM HOLDING TANK LEVEL LOW	AMBER	LAL06161	
3	PUSHBUTTON	ACKNOWLEDGE	BLACK		
4	PUSHBUTTON	RESET	BLACK		
5	PUSHBUTTON	TEST	BLACK		
6	NAMEPLATE	PUMP SPEED CONTROL	WHITE		
7	AUTO/MANUAL LOADING STATION			SC06161A	BARGRAPH SCALE: 0-100%
8	NAMEPLATE	PUMP CONTROL	WHITE		
9	INDICATING LIGHT	RUN	RED	YL06161	
10	SELECTOR SWITCH	HAND OFF REMOTE	BLACK	HS06161A	

EQUIPMENT SCHEDULE - LCP06711					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	SLUDGE HOPPER 2 LCP06711	WHITE		
2	NAMEPLATE	SLIDE GATE 3	WHITE		
3	INDICATING LIGHT	FULL OPEN	RED	ZLH06714	
4	INDICATING LIGHT	FULL CLOSE	GREEN	ZLH06714	
5	SELECTOR SWITCH	OPEN STOP CLOSE	BLACK	HS06714	
6	NAMEPLATE	BOTTOM SCREWS 3	WHITE		
7	INDICATING LIGHT	RUN	RED	YL06712	
8	SELECTOR SWITCH	HAND-OFF-AUTO	BLACK	HS06712	
9	NAMEPLATE	SLIDE GATE 4	WHITE		
10	INDICATING LIGHT	FULL OPEN	RED	ZLH06715	
11	INDICATING LIGHT	FULL CLOSE	GREEN	ZLH06715	
12	SELECTOR SWITCH	OPEN STOP CLOSE	BLACK	HS06715	
13	NAMEPLATE	BOTTOM SCREWS 4	WHITE		
14	INDICATING LIGHT	RUN	RED	YL06713	
15	SELECTOR SWITCH	HAND-OFF-AUTO	BLACK	HS06713	

EQUIPMENT SCHEDULE - LCP06162					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	DAFT POLYMER FEED PUMP 2 LCP06162	WHITE		
2	ANNUNCIATOR SUB-PANEL				
2a	ANNUNCIATOR POINT	PUMP DISCHARGE PRESSURE HIGH	AMBER	PAH06162A	
2b	ANNUNCIATOR POINT	PUMP DISCHARGE PRESSURE LOW	AMBER	PAL06162A	
2c	ANNUNCIATOR POINT	PUMP DRIVE FAULT	AMBER	UAD06162A	
2d	ANNUNCIATOR POINT	PREP SYSTEM HOLDING TANK LEVEL LOW	AMBER	LAL06162	
3	PUSHBUTTON	ACKNOWLEDGE	BLACK		
4	PUSHBUTTON	RESET	BLACK		
5	PUSHBUTTON	TEST	BLACK		
6	NAMEPLATE	PUMP SPEED CONTROL	WHITE		
7	AUTO/MANUAL LOADING STATION			SC06162A	BARGRAPH SCALE: 0-100%
8	NAMEPLATE	PUMP CONTROL	WHITE		
9	INDICATING LIGHT	RUN	RED	YL06162	
10	SELECTOR SWITCH	HAND OFF REMOTE	BLACK	HS06162A	

BC Brown and Caldwell Consultants Phoenix, Arizona

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCURACY)

FILE: 5870

DRAWN: BC
DESIGNED: SAM
CHECKED: RAM

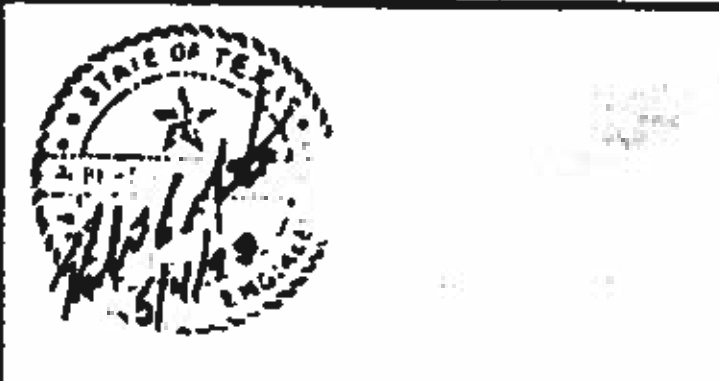
DATE: _____

PROJECT NUMBER: _____

DATE: _____

DATE: _____

DATE: _____



REVISIONS					
ZONE	REV	DESCRIPTION	BY	DATE	APP
N/A	1	THIS SHIT. SUPERSEDES PREVIOUS DWG. IS	SKT	6/93	RAM

NORTHWEST WASTEWATER TREATMENT PLANT EXPANSION
 EL PASO WATER UTILITIES

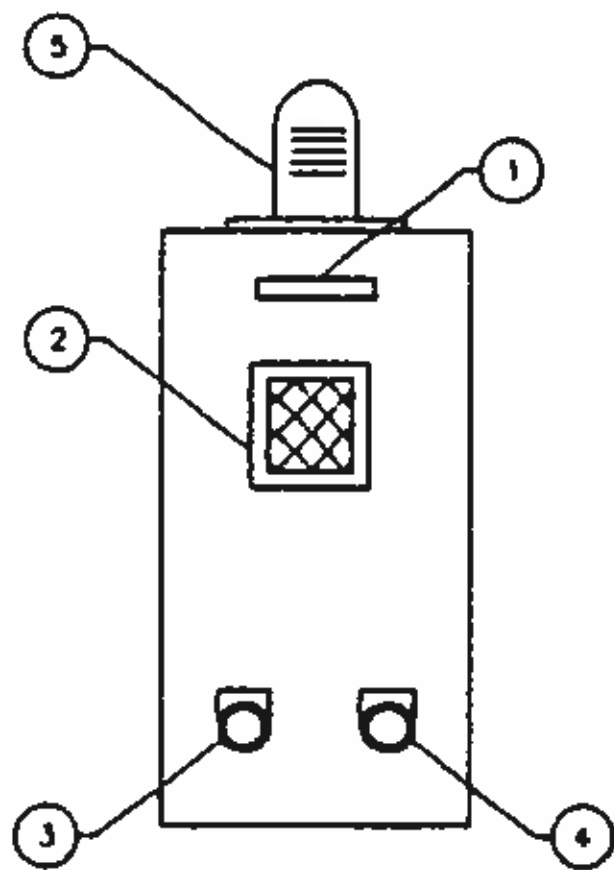
PROJECT NUMBER _____

DRAWING NUMBER **15**

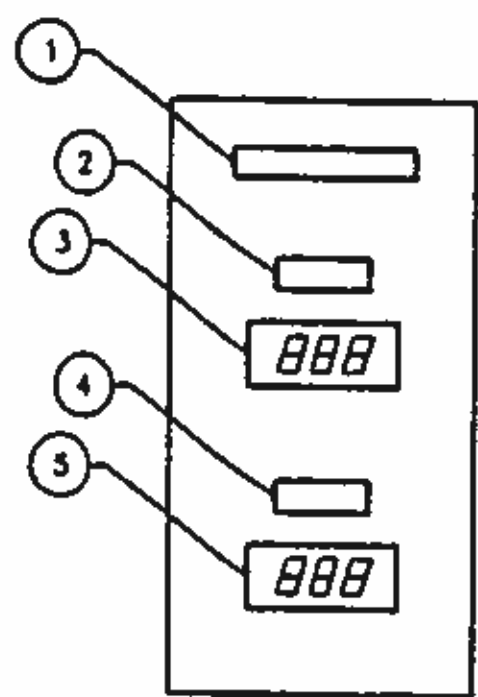
LOCAL CONTROL PANELS - 2

SHEET NUMBER _____

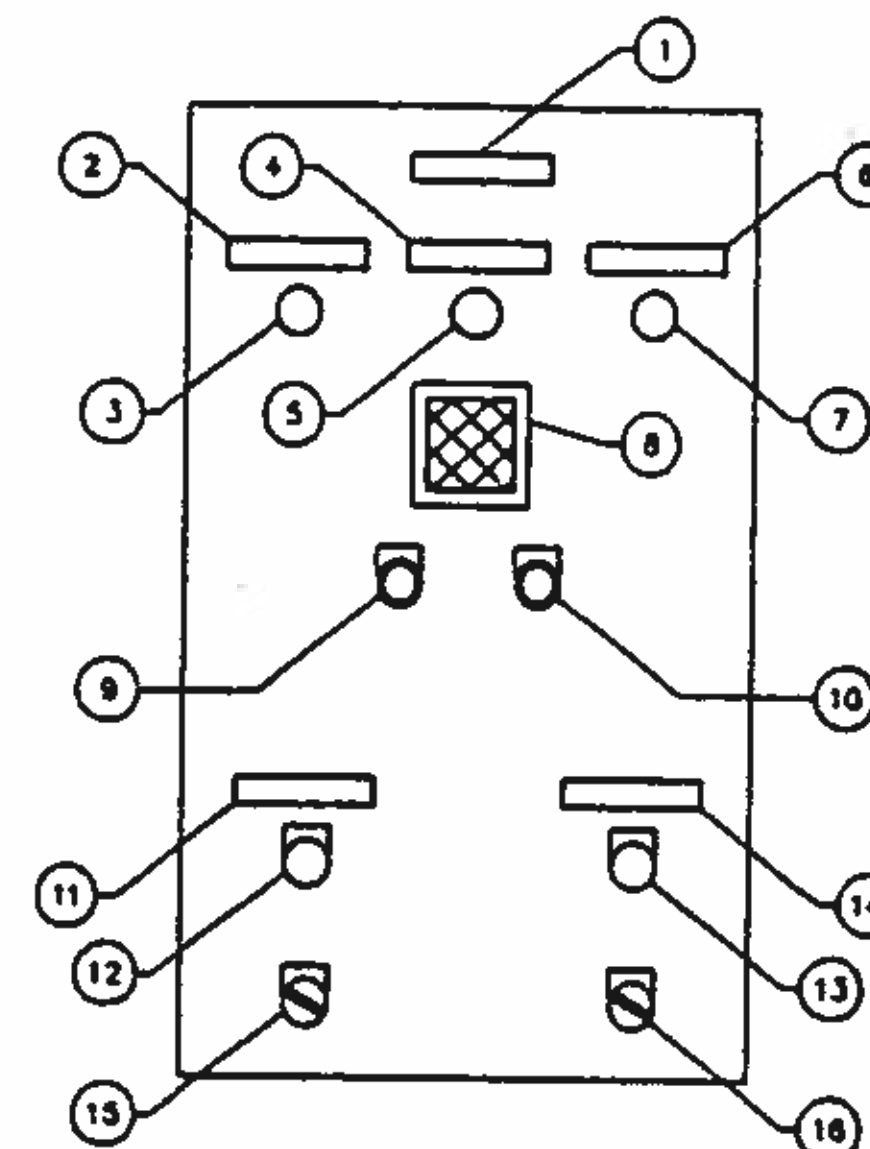
426



CHLORINE LEAK DETECTION
LOCAL CONTROL PANEL
LCP09040A, LCP09040B
NO SCALE



WASTE ACTIVATED SLUDGE FLOW
LOCAL CONTROL PANEL
LCP04090
NO SCALE



LIME STORAGE FILL STATION 1/2
LOCAL CONTROL PANEL
LCP06604, LCP06608
NO SCALE

EQUIPMENT SCHEDULE-LCP09040A					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	CHLORINE LEAK DETECTION LCP09040A	WHITE		
2	HORN			AAH09040A	
3	PUSHBUTTON	SILENCE	BLACK	HMS09040A	
4	PUSHBUTTON	TEST	BLACK	-	
5	ALARM BEACON		AMBER	ALH09040A	

EQUIPMENT SCHEDULE-LCP09040B					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	CHLORINE LEAK DETECTION LCP09040B	WHITE		
2	HORN			AAH09040B	
3	PUSHBUTTON	SILENCE	BLACK	HMS09040B	
4	PUSHBUTTON	TEST	BLACK	-	
5	ALARM BEACON		AMBER	ALH09040B	

EQUIPMENT SCHEDULE-LCP04090					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	WASTE ACTIVATED SLUDGE FLOW LCP04090	WHITE		
2	NAMEPLATE	CLARIFIER 3, 4, 5, AND 6 WASTE ACTIVATED SLUDGE FLOW	WHITE		
3	DIGITAL PANEL METER			F104090	
4	NAMEPLATE	CLARIFIER 1 AND 2 WASTE ACTIVATED SLUDGE FLOW	WHITE		
5	DIGITAL PANEL METER			F104091	

EQUIPMENT SCHEDULE-LCP06604					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	LIME STORAGE FILL STATION 1, LCP06604	WHITE		
2	NAMEPLATE	LIME STORAGE LEVEL HIGH	WHITE		
3	INDICATING LIGHT		AMBER	LLH06604	
4	NAMEPLATE	LIME STORAGE LEVEL HIGH HIGH	WHITE		
5	INDICATING LIGHT		AMBER	LLH06604	
6	NAMEPLATE	DUST COLLECTOR FAIL	WHITE		
7	INDICATING LIGHT		AMBER	YLO6603C	
8	HORN			LAH06604B	
9	PUSHBUTTON	SILENCE	BLACK	HMS06604	
10	PUSHBUTTON	TEST	BLACK	-	
11	NAMEPLATE	DUST COLLECTOR STATUS	WHITE		
12	INDICATING LIGHT	RUN	RED	YLO6603A	
13	SELECTOR SWITCH	HAND-OFF AUTO	BLACK	HS06603B	
14	NAMEPLATE	DUST COLLECTOR FAIL	WHITE		
15	INDICATING LIGHT	RUN	RED	YLO6603B	
16	SELECTOR SWITCH	HAND-OFF AUTO	BLACK	HS06603D	

EQUIPMENT SCHEDULE-LCP06608					
IDENT No.	DEVICE TYPE	ENGRAVING	COLOR	INSTRUMENT TAG No.	REMARKS
1	NAMEPLATE	LIME STORAGE FILL STATION 2, LCP06608	WHITE		
2	NAMEPLATE	LIME STORAGE LEVEL HIGH	WHITE		
3	INDICATING LIGHT		AMBER	LLH06608	
4	NAMEPLATE	LIME STORAGE LEVEL HIGH HIGH	WHITE		
5	INDICATING LIGHT		AMBER	LLH06608	
6	NAMEPLATE	DUST COLLECTOR FAIL	WHITE		
7	INDICATING LIGHT		AMBER	YLO6607C	
8	HORN			LAH06608B	
9	PUSHBUTTON	SILENCE	BLACK	HMS06608	
10	PUSHBUTTON	TEST	BLACK	-	
11	NAMEPLATE	DUST COLLECTOR STATUS	WHITE		
12	INDICATING LIGHT	RUN	RED	YLO6607A	
13	SELECTOR SWITCH	HAND-OFF AUTO	BLACK	HS06607B	
14	NAMEPLATE	DUST COLLECTOR FAIL	WHITE		
15	INDICATING LIGHT	RUN	RED	YLO6607B	
16	SELECTOR SWITCH	HAND-OFF AUTO	BLACK	HS06607D	

BC Brown and Caldwell
Consultants
Phoenix, Arizona

LIME IS 2 INCHES
AT FULL SIZE
(IF NOT 2" SCALE ALL DIMENSIONS)

FILE 5870
DRAWN DOH
DESIGNED RAM
CHECKED RAM
CHECKED RAM



REVISIONS				
ZONE	REV	DESCRIPTION	BY	DATE



**NORTHWEST WASTEWATER
TREATMENT PLANT
EXPANSION**

LOCAL CONTROL PANELS - 3

PROJECT NUMBER
DRAWING NUMBER
16
SHEET NUMBER