

FLUID ABBR.	FUNCTION	PIPING MATERIALS (SEE NOTE 1)				FIELD TEST REQUIREMENTS (SEE NOTES 2, 3, 4)		
		EXPOSED PIPING (SEE NOTES 10 AND 11)		BURIED PIPING (SEE NOTES 10 AND 13)		MINIMUM TEST PRESSURE PSI	TEST MEDIUM	LEAKAGE ALLOWANCE (SEE NOTE 2)
		2 IN. DIA. AND SMALLER	2-1/2 IN. DIA. AND LARGER	2 IN. DIA. AND SMALLER	2-1/2 IN. DIA. AND LARGER			
CA	COMPRESSED AIR	22	7	21	2,7	200	AIR	NOTE 8
CD	CONDENSATE DRAIN	22	-	21	-	100	AIR	NOTE 8
GW	GROUND WATER	1	1	9	9	150	WATER	(A)
IA	INSTRUMENT AIR	22	-	21	-	100	AIR	NOTE 8
LPA	LOW PRESSURE AIR	22	-	7,21	-	20	AIR	NOTE 8
OF	OVERFLOW	8	8	10, 13, 14	10, 12, 13, 14	NOTE 6	WATER	4, 5, 8, 14 (A); 10, 12 (B); 13 (C)
PCW	POTABLE COLD WATER	22	-	21	-	100 (NOTE 7)	WATER	(A)
PHW	POTABLE HOT WATER	22	-	21	-	100 (NOTE 7)	WATER	(A)
PW	POTABLE WATER	2	-	9	-	100	WATER	(A)
SP	SPRAY	2	2	2	-	100	WATER	(A)
SS	SANITARY SEWER	-	-	6, 13 (NOTE 16)	6, 13 (NOTE 16)	NOTE 6	WATER	(C)
SW	SURFACE WATER	8	4, 8	8, 10	8, 10, 12	20	WATER	4, 8 (A); 10, 12 (B)
V	VENT	6	6	6	6	NOTE 5	WATER	(A)
D	DRAIN	8	8	10, 13, 14	10, 12, 13, 14	NOTE 6	WATER	8, 14 (A); 10, 12 (B); 13 (C)

PIPING MATERIAL SCHEDULE		
GROUP NO.	PIPE (SEE NOTE 10)	FITTINGS
1	STEEL: BLACK, SCHEDULE 40, ASTM A53, (THREADED)/(WELDED FITTINGS).	2-1/2 INCH AND SMALLER: MALLEABLE IRON, ANSI B16.3, THREADED, BANDED, BLACK, 150 PSI 3 INCH AND LARGER: STEEL ANSI B16.9, 125 PSI BUTT WELDED, FLANGED OR MECHANICAL JOINTS.
2	STEEL: GALVANIZED, SCHEDULE 40, WELDED, ASTM A53.	2-1/2 INCH AND SMALLER: MALLEABLE IRON, ANSI B16.3, THREADED, BANDED, GALVANIZED, 150 PSI OR STEEL ANSI B16.9, BUTT-WELDED. 3 INCH AND LARGER: CAST IRON ANSI B16.1 125 PSI FLANGED OR MECHANICAL COUPLING.
3	STEEL: BLACK, SCHEDULE 80, WELDED, ASTM A53.	FORGED STEEL, ANSI B16.11. SOCKET WELDED OR THREADED BLACK. 2000 PSI OR STEEL ANSI B16.9 BUTT-WELDED. SCHEDULE 80.
4	WELDED STEEL: AWWA C200, 1/4" WALL, LINED	WELDED STEEL. AWWA C200 FABRICATED
5	DUCTILE IRON: ANSI A21.51, AWWA C151, BELL AND SPIGOT, MECHANICAL JOINT, MECHANICAL COUPLINGS, OR 125 PSI FLANGED, CEMENT MORTAR LINED.	DUCTILE IRON OR CAST IRON. ANSI A21.10 OR AWWA C110. BELL AND SPIGOT, MECHANICAL COUPLING, FLANGED OR MECHANICAL JOINT. 250 PSI (PRESSURE RATING) 12 INCH OR SMALLER, 150 PSI (PRESSURE RATING) 14 INCH OR LARGER. WITH 125 PSI ANSI B16.1 FLANGES.
6	CAST IRON SOIL: ANSI/ASTM A-74. SERVICE WEIGHT, BELL AND SPIGOT OR HUB-LESS.	CAST IRON SOIL. ANSI/ASTM A-74. SERVICE WEIGHT, BELL AND SPIGOT OR HUB-LESS.
7	STAINLESS STEEL, ASTM A778, SCHEDULE 40.	STAINLESS STEEL TYPE 304L OR 316L ANSI B16.9 BUTT-WELDED SCHEDULE 40S FLANGED.
8	POLYVINYL CHLORIDE: SCHEDULE 40, ASTM D1785 AND ASTM D2665.	POLYVINYL CHLORIDE SCHEDULE 40. NORMAL IMPACT, SOCKET SOLVENT WELDED JOINTS ASTM D2467. TRUE UNIONS.
9	POLYVINYL CHLORIDE: SCHEDULE 80, ASTM D1785.	POLYVINYL CHLORIDE SCHEDULE 80. NORMAL IMPACT, SOCKET SOLVENT WELDED JOINTS ASTM D2467. TRUE UNIONS.
10	POLYVINYL CHLORIDE PRESSURE PIPE: AWWA C900, CLASS 100 BELL AND SPIGOT JOINTS, DIP FITTINGS.	DUCTILE IRON OR CAST IRON 150 PSI FOR POLYVINYL CHLORIDE PIPE. AWWA C110 CEMENT MORTAR LINED C104 AWWA C900.
11	POLYVINYL CHLORIDE PRESSURE PIPE: AWWA C900, CLASS 150 BELL AND SPIGOT JOINTS, DIP FITTINGS.	DUCTILE IRON OR CAST IRON 150 PSI FOR POLYVINYL CHLORIDE PIPE. AWWA C110 CEMENT MORTAR LINED C104 AWWA C900.
12	POLYVINYL CHLORIDE PRESSURE PIPE: AWWA C905, DR 51, 80 PSI, BELL AND SPIGOT JOINTS, DIP FITTINGS.	DUCTILE IRON OR CAST IRON 150 PSI FOR POLYVINYL CHLORIDE PIPE. AWWA C110 CEMENT MORTAR LINED C104 AWWA C905.
13	POLYVINYL CHLORIDE GRAVITY SEWER PIPE: ASTM F679 OR ASTM D3034, SDR 35, BELL AND SPIGOT JOINTS.	POLYVINYL CHLORIDE ANSI/ASTM D3034, BELL AND SPIGOT.
14	HIGH-DENSITY POLYETHYLENE: ASTM D3035, SDR 32.5 F714, HEAT FUSED JOINTS. (SEE NOTE 9)	HIGH-DENSITY POLYETHYLENE ASTM D3035, F714, HEAT FUSED ASTM D3261.
15	HIGH-DENSITY POLYETHYLENE: ASTM D3035, SDR 26 F714, HEAT FUSED JOINTS. (SEE NOTE 9)	HIGH-DENSITY POLYETHYLENE ASTM D3035, F714, HEAT FUSED ASTM D3261.
16	POLYETHYLENE: CORRUGATED, SLOTTED, ASTM F405, F667, FILTER WRAPPED.	SPLIT OR INTERNAL COUPLER, ASTM F667.
17	POLYETHYLENE: CORRUGATED, NON-SLOTTED, ASTM F405, F667, FILTER WRAPPED.	SPLIT OR INTERNAL COUPLER, ASTM F667.
18	CORRUGATED METAL PIPE: AASHTO M36.	COUPLING BANDS AND FITTINGS. AASHTO M36.
19	PERFORATED PVC PIPE, ASTM D2729	POLYVINYL CHLORIDE. NORMAL IMPACT, SOCKET SOLVENT WELDED JOINTS
20	REINFORCED CONCRETE PIPE, ASTM C76, CLASS B	BELL AND SPIGOT JOINTS CONFORMING TO ASTM C443
21	COPPER: ASTM B88, TYPE K, HARD TEMPERED WHERE EXPOSED.	WROUGHT COPPER OR CAST BRONZE, SEE SPECIFICATIONS. (FOR OXYGEN PIPING USE SILVER SOLDER; FOR AIR PIPING USE 95-5 TIN-ANTIMONY SOLDER)
22	COPPER: ASTM B88, TYPE L, HARD TEMPERED WHERE EXPOSED.	WROUGHT COPPER OR CAST BRONZE, SEE SPECIFICATIONS. (FOR OXYGEN PIPING USE SILVER SOLDER; FOR AIR PIPING USE 95-5 TIN-ANTIMONY SOLDER)

NOTES

NOTE 1
PIPING SHALL BE AS INDICATED IN SCHEDULE UNLESS OTHERWISE NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS

NOTE 2
LEAKAGE ALLOWANCE IS AS FOLLOWS:
(A) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.
(B) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR UNBURIED PIPE AND NOT MORE THAN 0.02 GALLON PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.
(C) PIPES SO DESIGNATED SHALL NOT SHOW A LEAKAGE OF MORE THAN 0.15 GALLON PER HOUR PER INCH OF DIAMETER PER 100 FEET OF PIPE.

NOTE 3
TEST PRESSURE MEASURED AT LOW POINT IN PIPE. FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS, SEE PIPING SECTION OF SPECIFICATIONS.

NOTE 4
ANY DEVIATION FROM THE PIPING MATERIALS OR FIELD TEST REQUIREMENTS SHOWN WILL BE NOTED IN THE SPECIFICATIONS OR ON THE DRAWINGS.

NOTE 5
STATIC WATER TEST WITH WATER SURFACE 10 FEET ABOVE FLOOR.

NOTE 6
STATIC WATER TEST WITH WATER SURFACE 10 FEET ABOVE HIGH POINT OF PIPE.

NOTE 7
INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.

NOTE 8
TEST PIPING WITH A SOAPY WATER SOLUTION APPLIED TO JOINTS AND FITTINGS. PRESSURE SHALL BE HELD FOR 2 HOURS. NO EVIDENCE OF LEAKAGE AS NOTED BY PRESSURE DROP OR BUBBLES IN THE SOAPY SOLUTION IS PERMITTED.

NOTE 9
FOR HDPE PIPING THE SIZES OF PIPING SHOWN ON THE DRAWINGS INDICATE THE MINIMUM INSIDE DIMENSION

NOTE 10
FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.

NOTE 11
EXPOSED PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS. COLORS TO BE SELECTED BY OWNER.

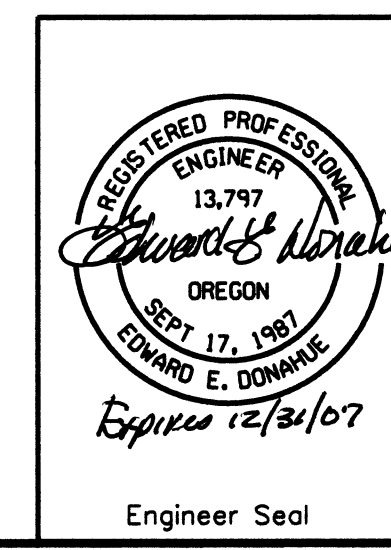
NOTE 12
VALVES 2-1/2 INCH AND SMALLER MAY HAVE SCREWED ENDS. VALVES 3 INCH AND LARGER SHALL HAVE SPECIFIED FLANGED ENDS, UNLESS OTHERWISE SHOWN OR SPECIFIED.

NOTE 13
CA, CD, IA, O, PW, PCW, PHW PIPING UNDER CONCRETE FLOORS AND FOOTING SHALL CONFORM TO PIPE SYSTEM 21 ALL OTHER PIPING UNDER CONCRETE FLOORS AND FOOTING SHALL BE FERROUS METAL CONFORMING TO PIPE SYSTEM 4 OR 5 UNLESS OTHERWISE NOTED.

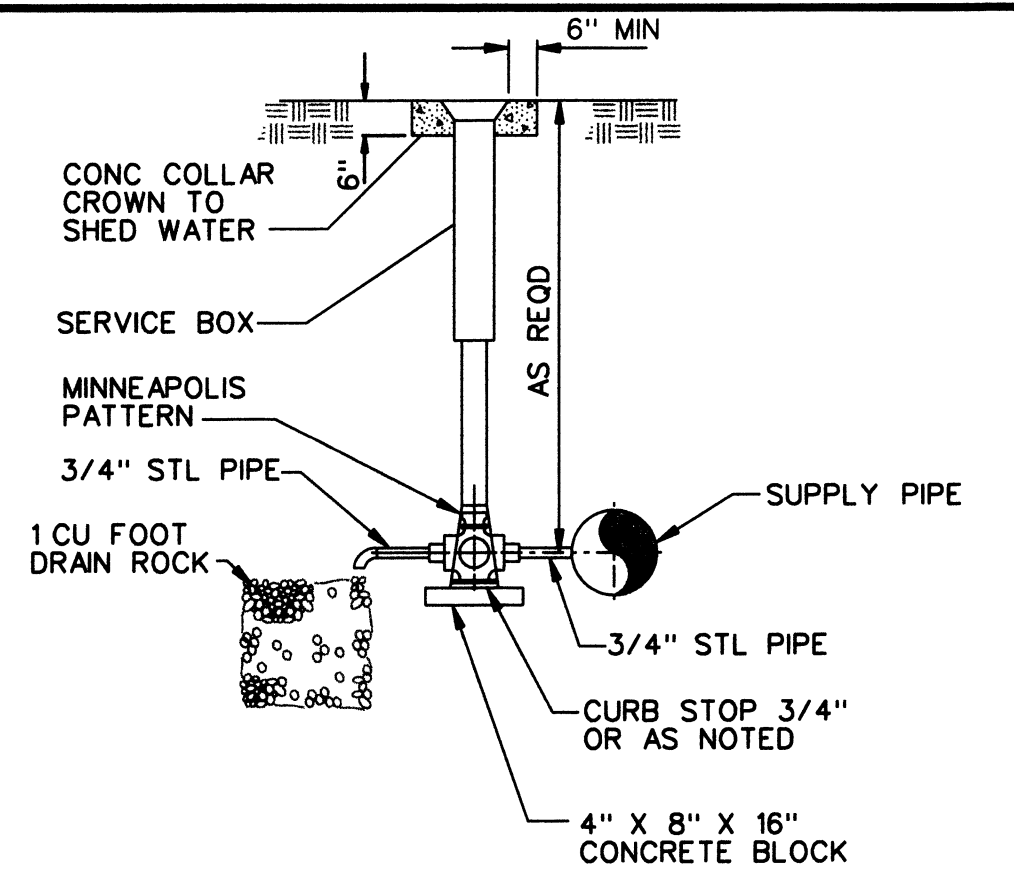
NOTE 14
ALL FISH RELEASE PIPE BENDS SHALL HAVE A MINIMUM RADIUS OF 3 TIMES THE PIPE DIAMETER. FITTINGS FOR FISH RELEASE PIPE SHALL BE OF THE SAME MATERIAL AS THE PIPING.

NOTE 15
NO APPARENT LEAKS AT JOINTS UNDER NORMAL OPERATING CONDITIONS.

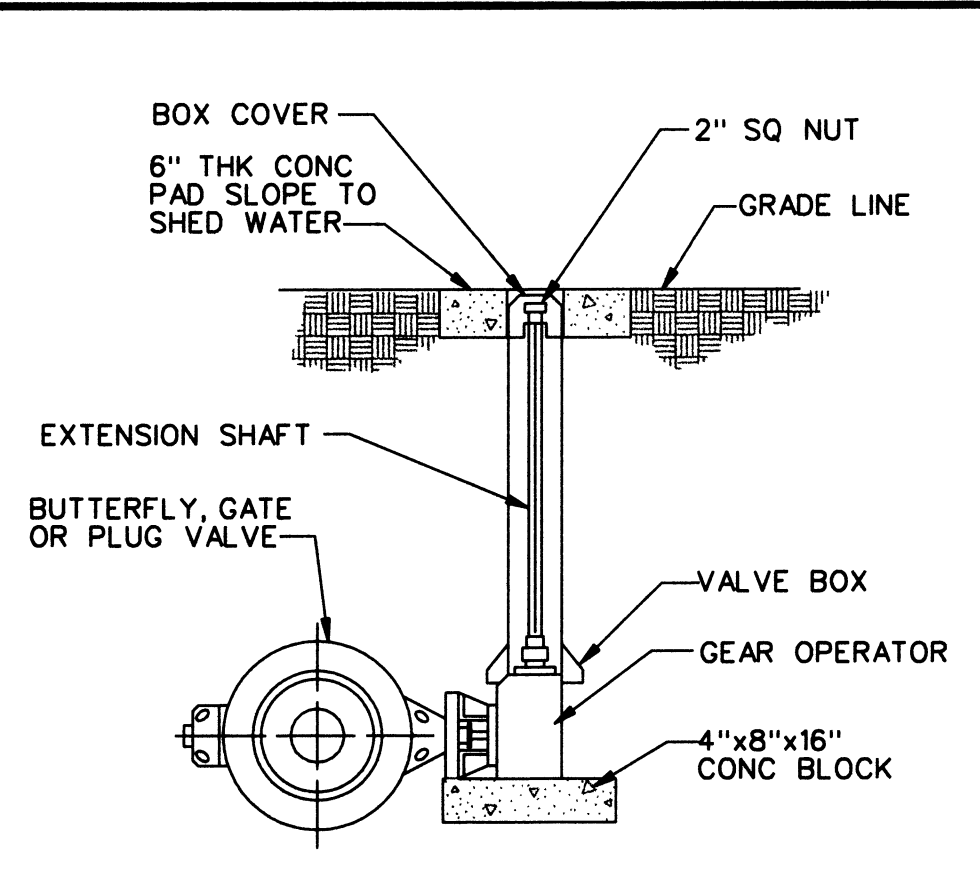
NOTE 16
SANITARY SEWER PIPING UNDER BUILDING SLABS AND FOOTINGS SHALL CONFORM TO PIPE SYSTEM 6.



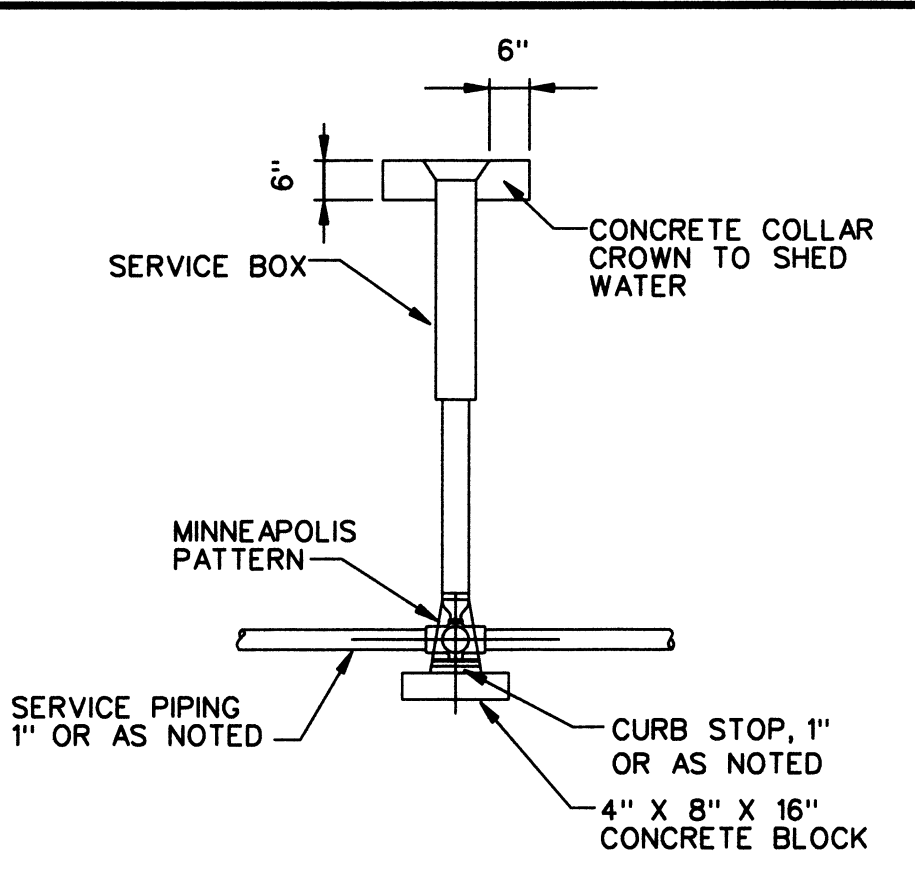
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Drawn	ACB	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY					
Chkd	EED	STANDARD MECHANICAL PIPE SCHEDULES					
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Date	04/10/06						



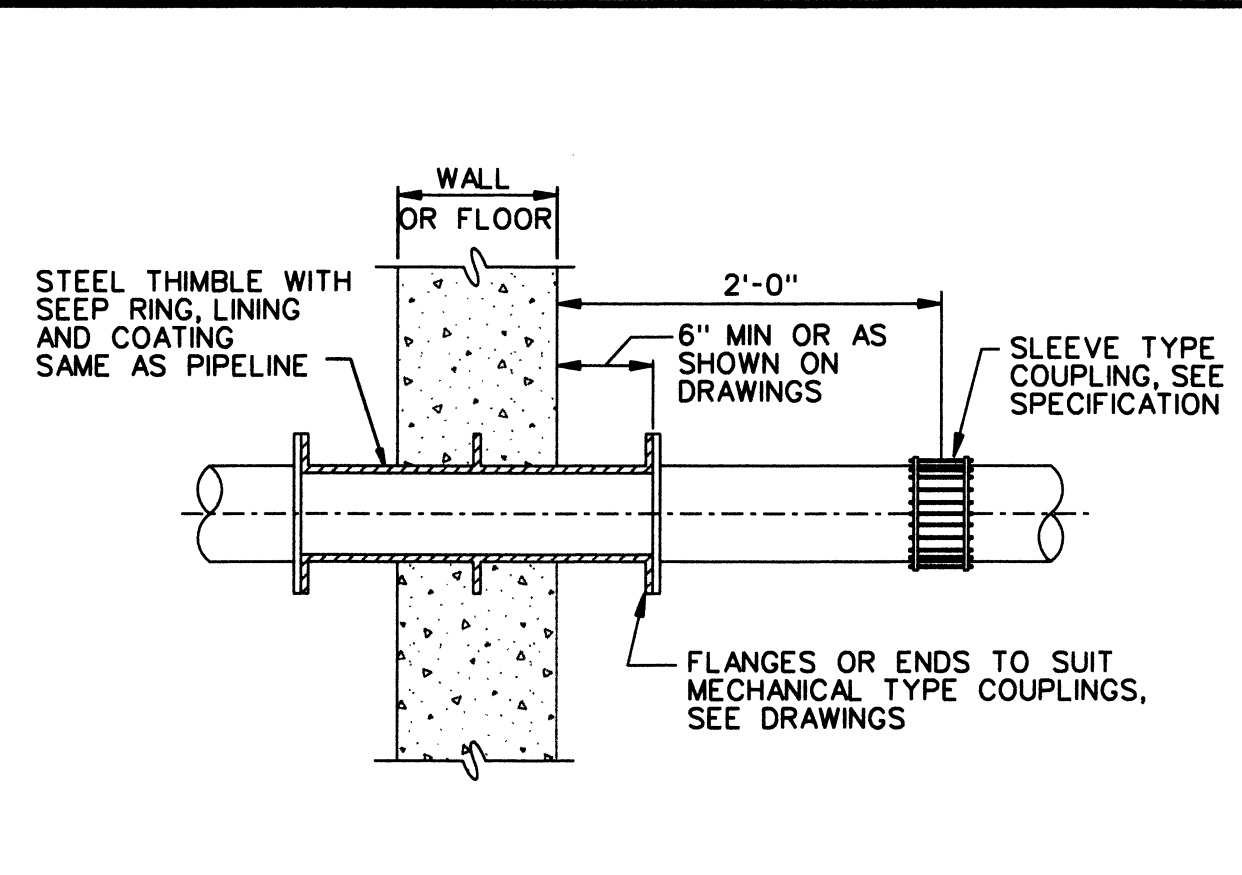
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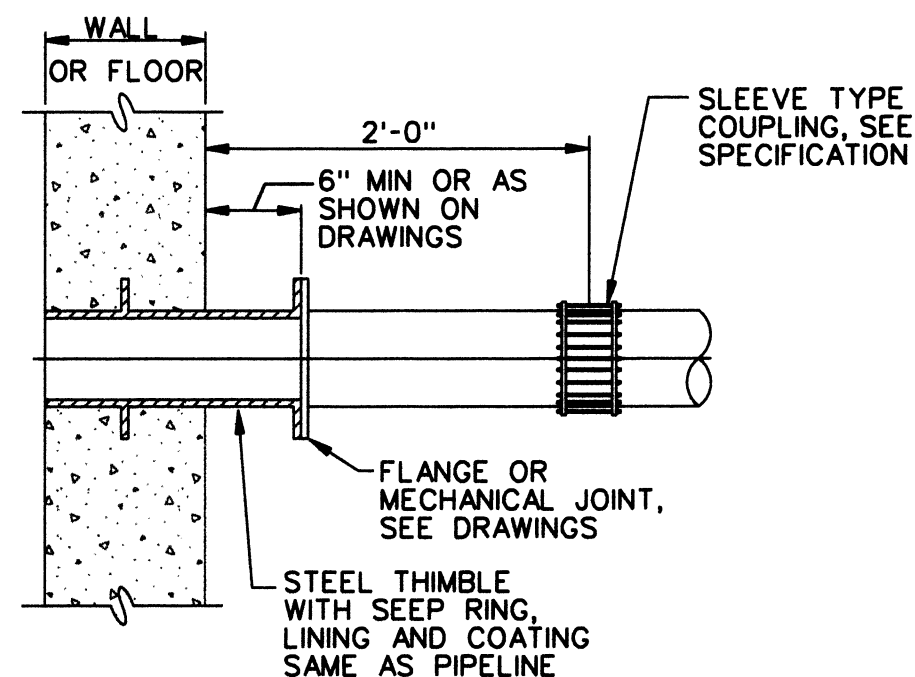
BURIED VALVE & BOX 2
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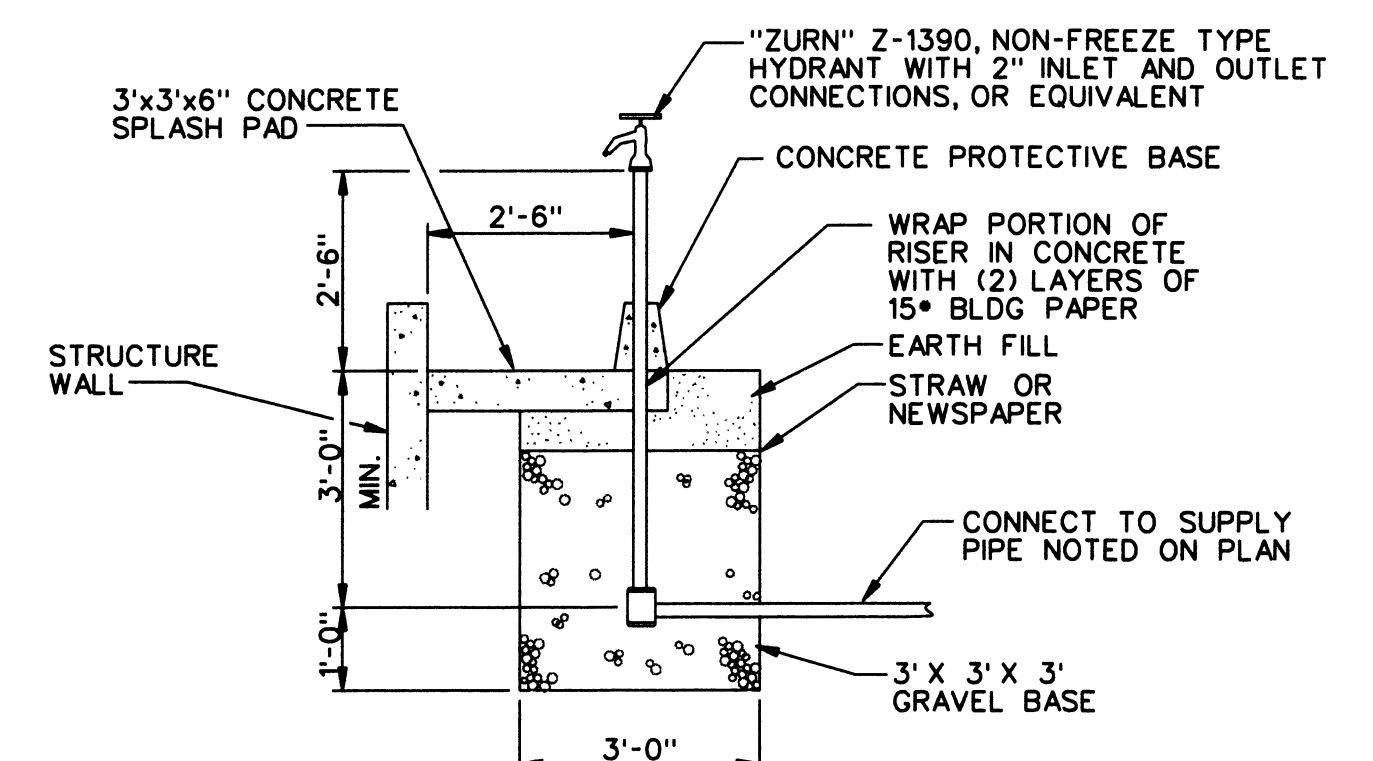
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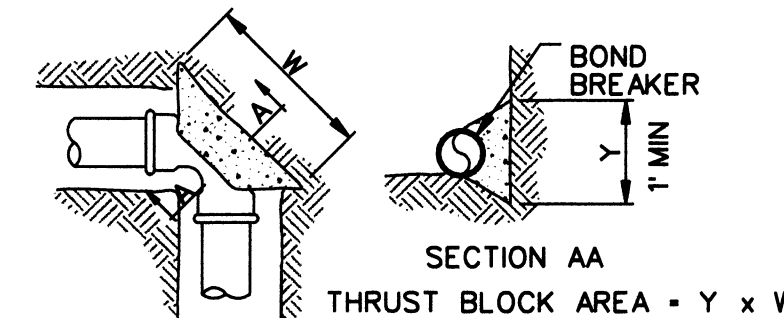
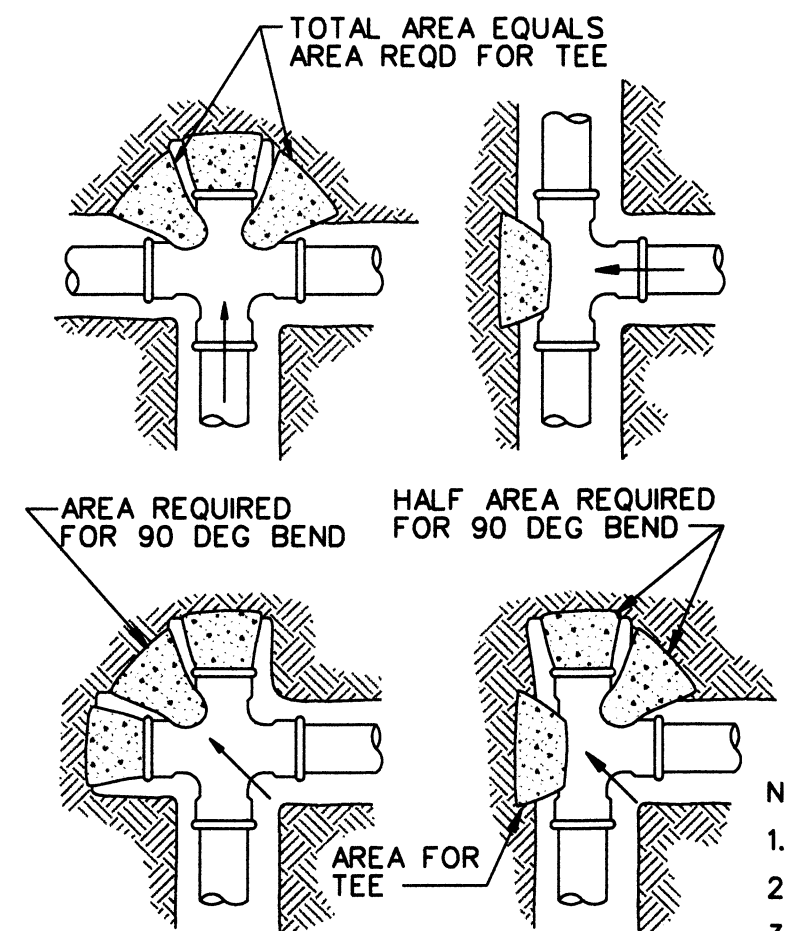
FLANGED THIMBLE 4
NO SCALE TYP GM3



THIMBLE 5
NO SCALE TYP GM3

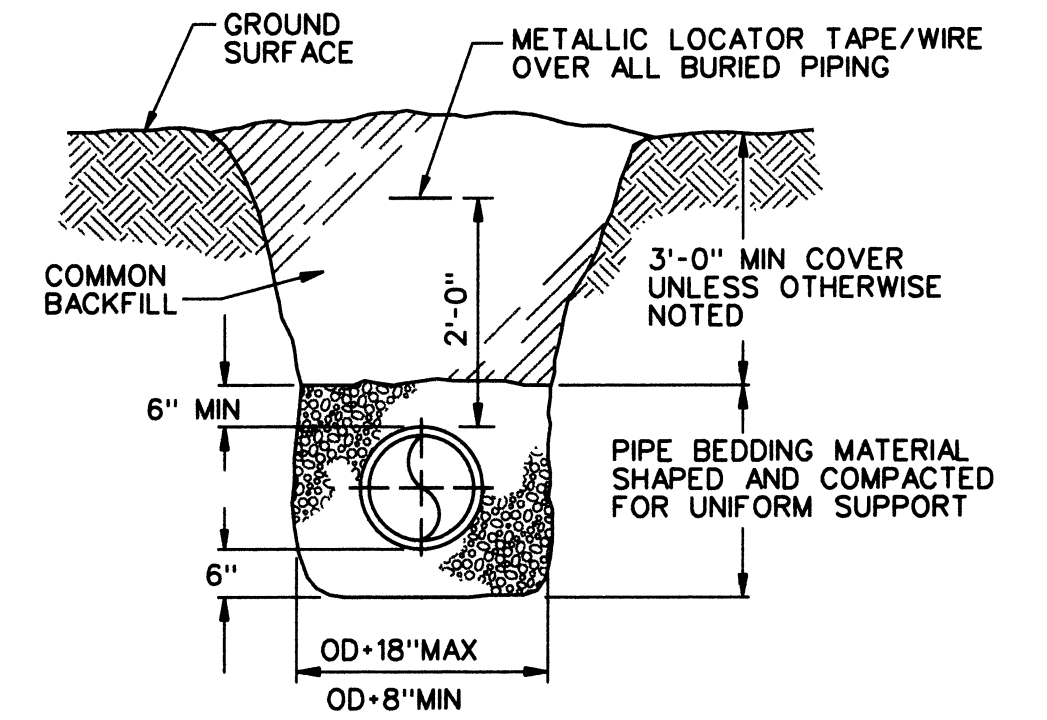


YARD HYDRANT DETAIL 6
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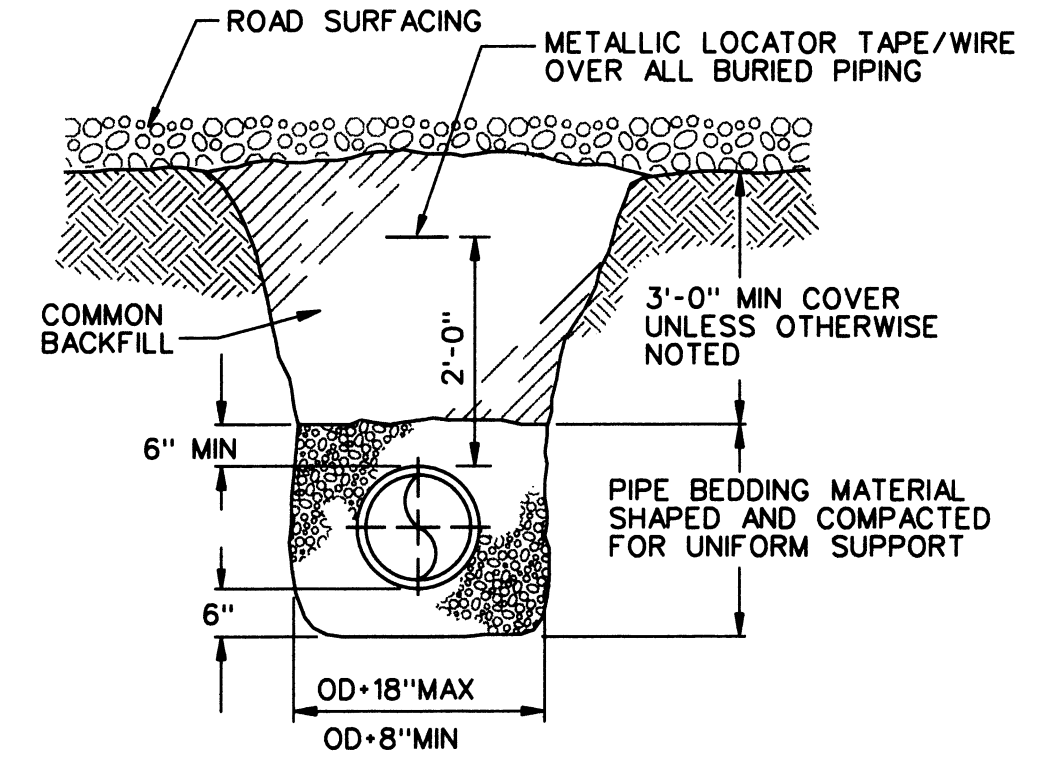


- NOTES:
- THRUST BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND.
 - FORM ALL NON-BEARING VERTICAL SURFACES.
 - PLACE BOND BREAKER ANY PLACE PIPE CONTACTS CONCRETE.
 - ARROW INDICATES DIRECTION OF FORCE, REGARDLESS OF FLOW DIRECTION.

MINIMUM THRUST BLOCK AREA (SQ. FT.) Y x W		
PIPE SIZE	TEE, DEAD END, 90° BEND	45° & 22 1/2° BENDS
4" & LESS	1.0	1.0
6"	1.0	1.0
8"	1.0	1.0
10"	1.5	1.0
12"	2.0	1.0
16"	3.0	1.5
18"	4.0	2.0
20"	5.0	2.5
24"	6.0	3.0
30"	7.5	4.0
36"	9.0	4.5
48"	12.0	6.0



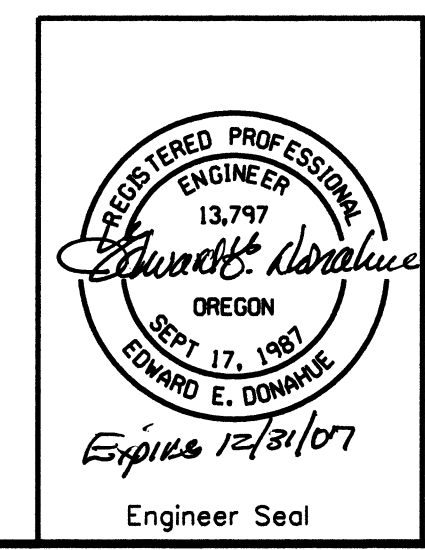
TYPICAL PIPE TRENCH 8
NO SCALE TYP GM3



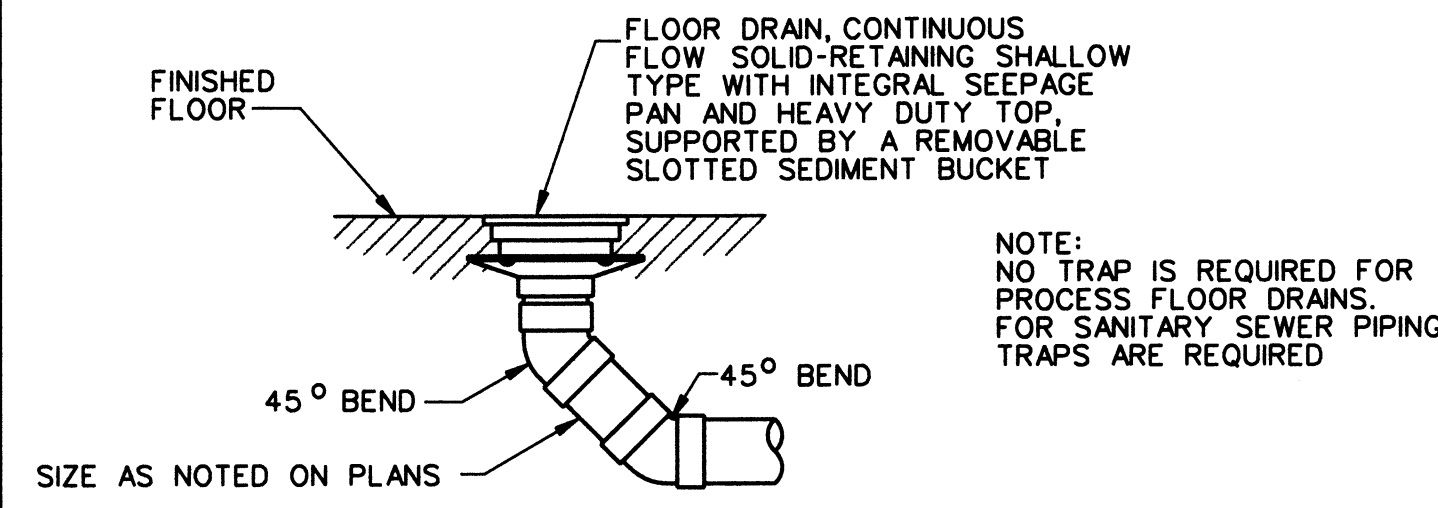
PIPE TRENCH BENEATH ROADWAYS 8
NO SCALE TYP GM3

- NOTES:
- TRENCHING DETAIL IS SCHEMATIC ONLY. SLOPE TRENCH SIDES AS REQUIRED TO MAINTAIN STABILITY.
 - IF MORE THAN ONE PIPE IS LOCATED IN TRENCH, PROVIDE 6" (MIN) CLEAR SPACING BETWEEN PIPES. SHAPE AND COMPACT BEDDING MATERIAL BETWEEN PIPING.

- NOTES:
- TRENCHING DETAIL IS SCHEMATIC ONLY. SLOPE TRENCH SIDES AS REQUIRED TO MAINTAIN STABILITY.
 - IF MORE THAN ONE PIPE IS LOCATED IN TRENCH, PROVIDE 6" (MIN) CLEAR SPACING BETWEEN PIPES. SHAPE AND COMPACT BEDDING MATERIAL BETWEEN PIPING.

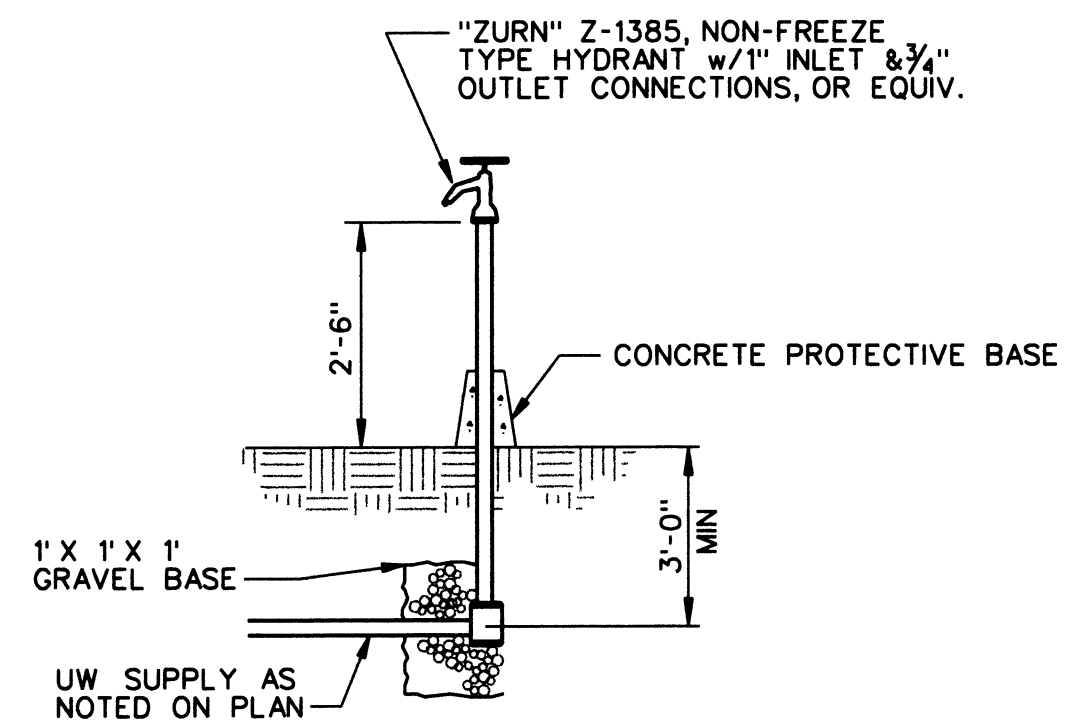


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Drawn	SLS	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY					
Chkd	EED	STANDARD MECHANICAL DETAILS 1					
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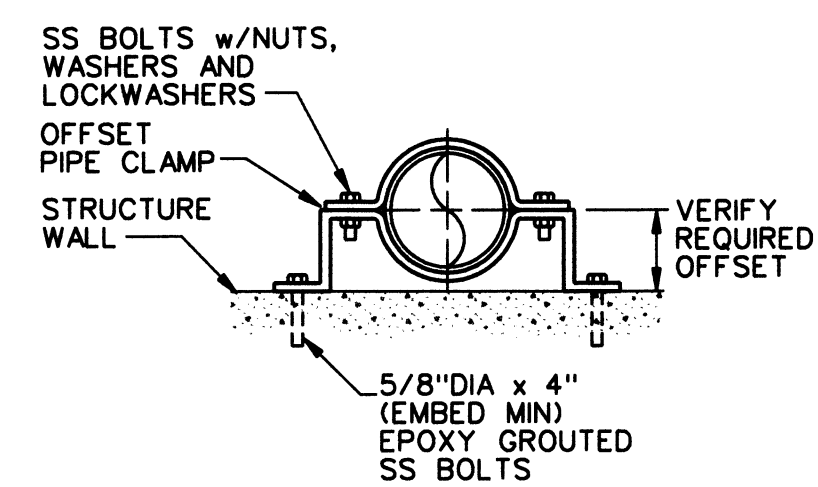


PROCESS PIPING FLOOR DRAIN DETAIL
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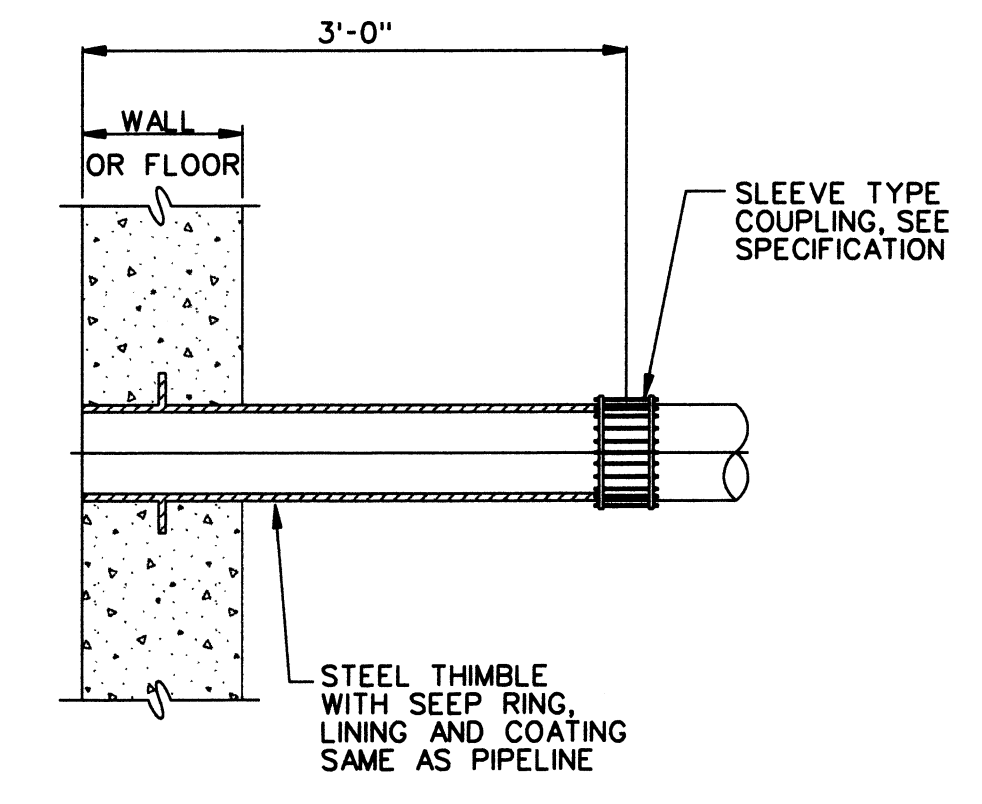
NOTE:
NO TRAP IS REQUIRED FOR
PROCESS FLOOR DRAINS.
FOR SANITARY SEWER PIPING
TRAPS ARE REQUIRED



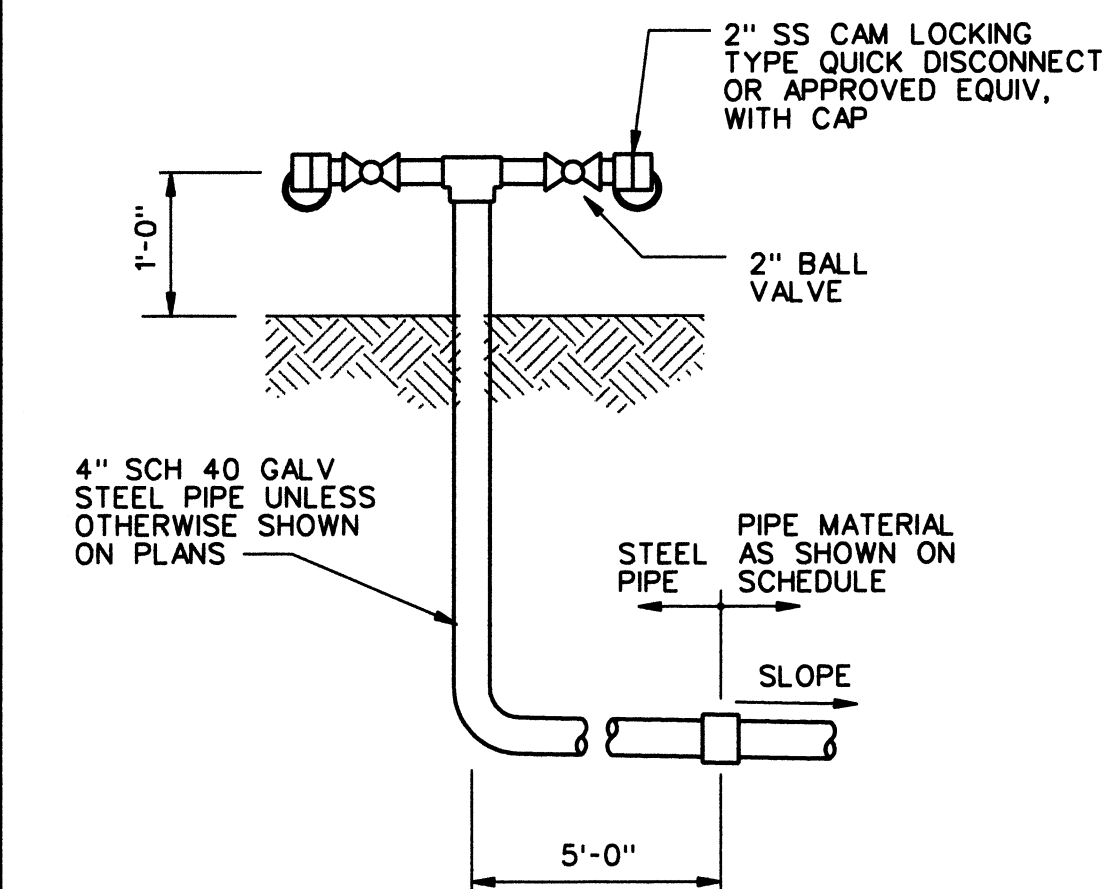
HOSE CONNECTION
NO SCALE



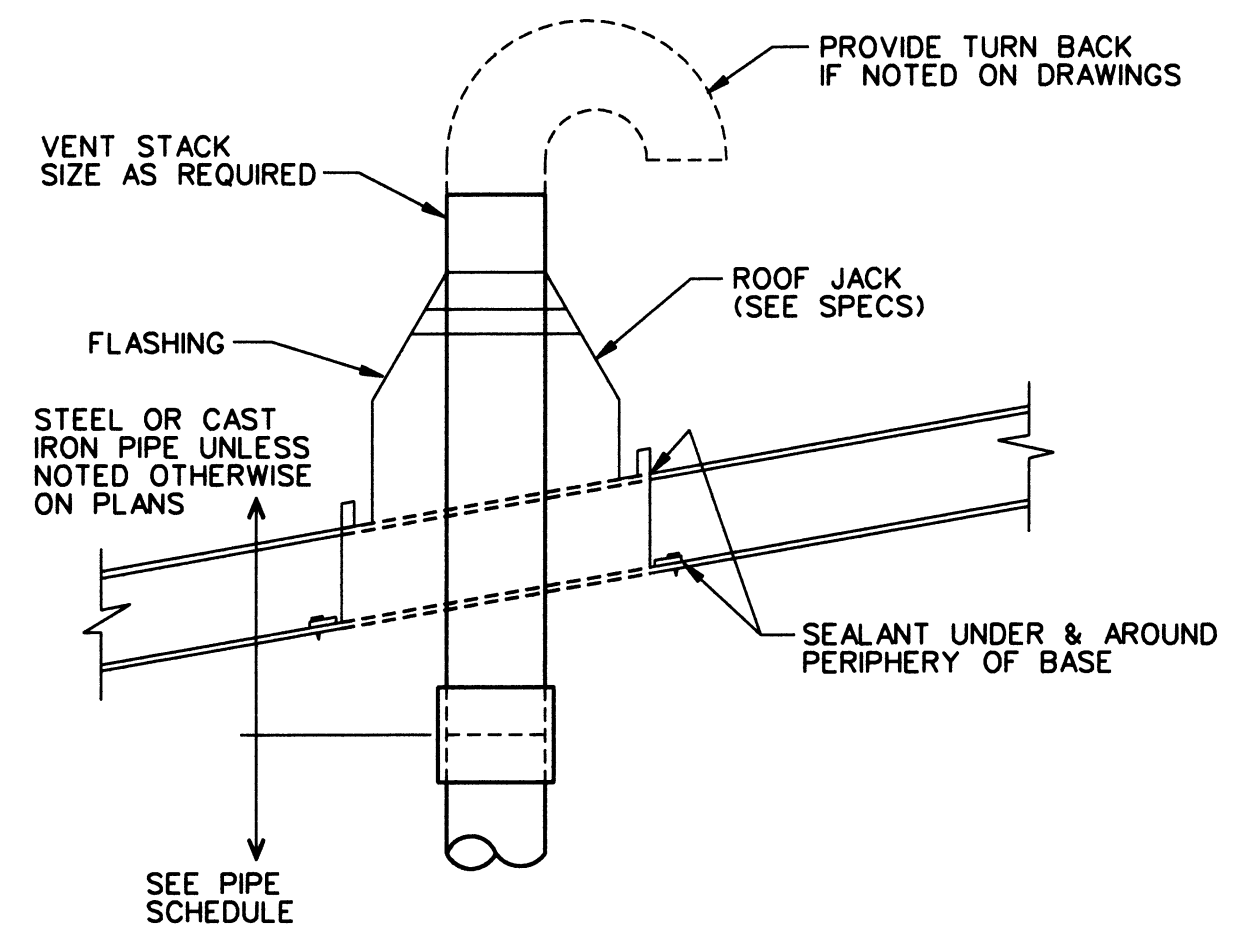
OFFSET PIPE CLAP
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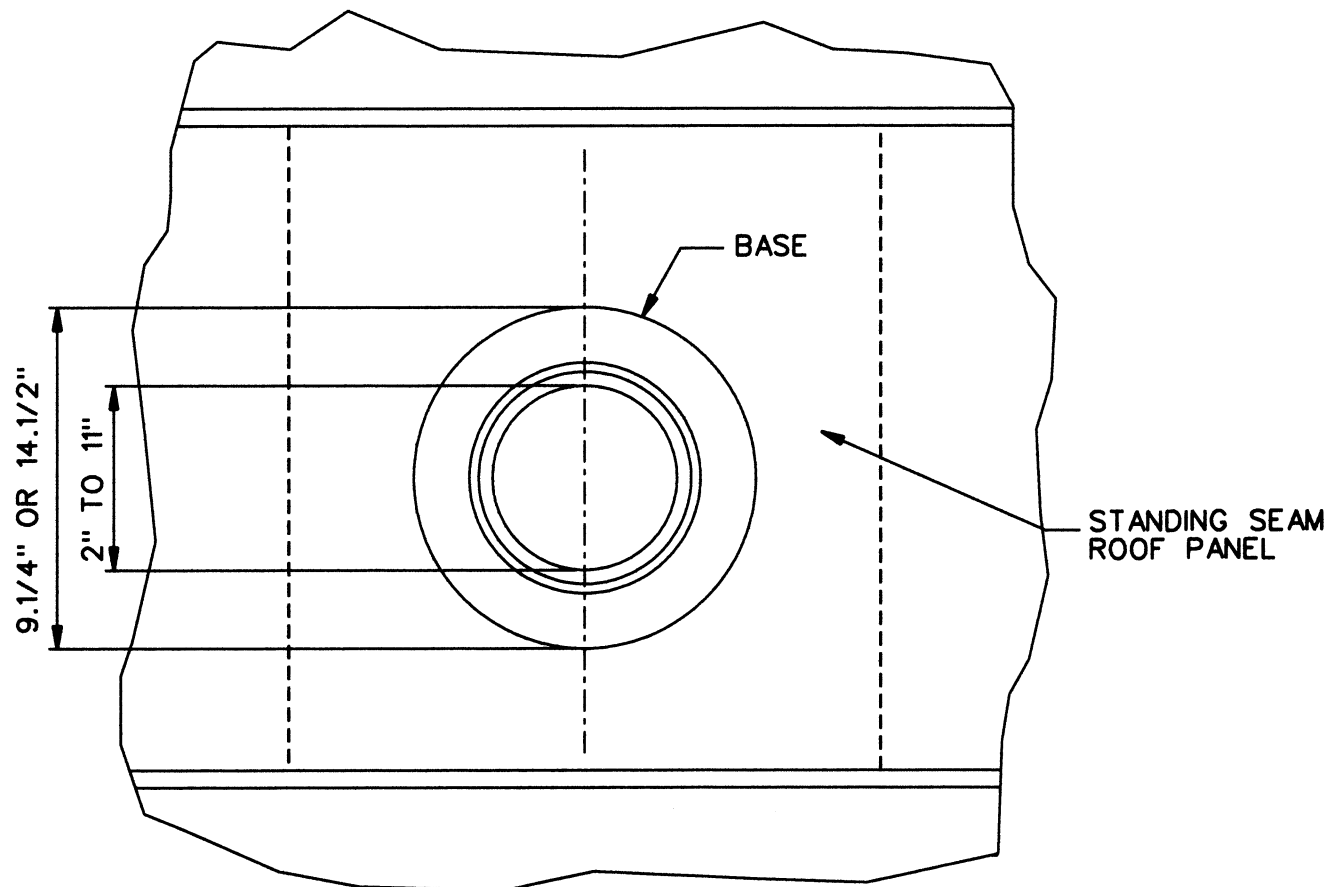
THIMBLE
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CLEANING WASTE STATION
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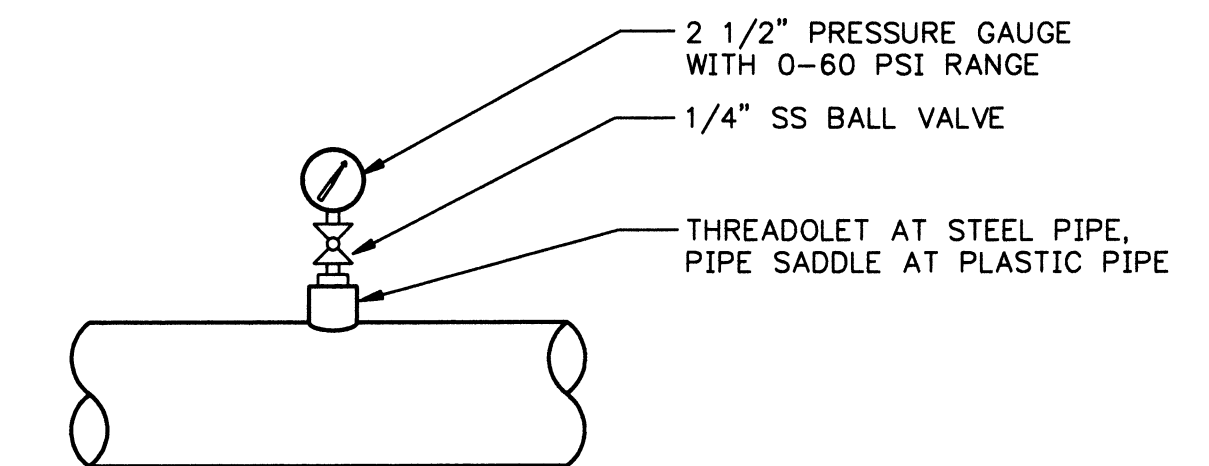


SECTION

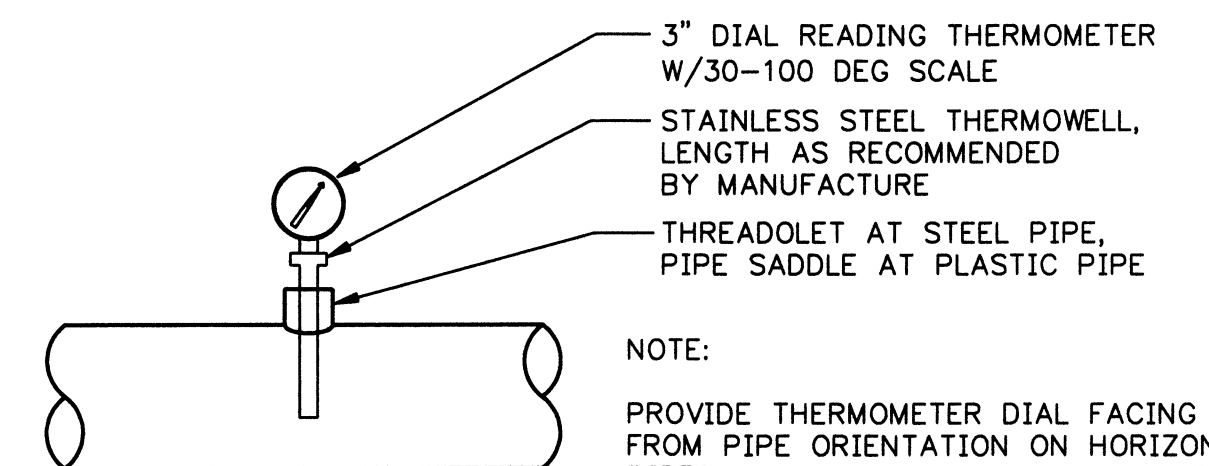


PLAN

VENT THRU ROOF DETAIL
NO SCALE

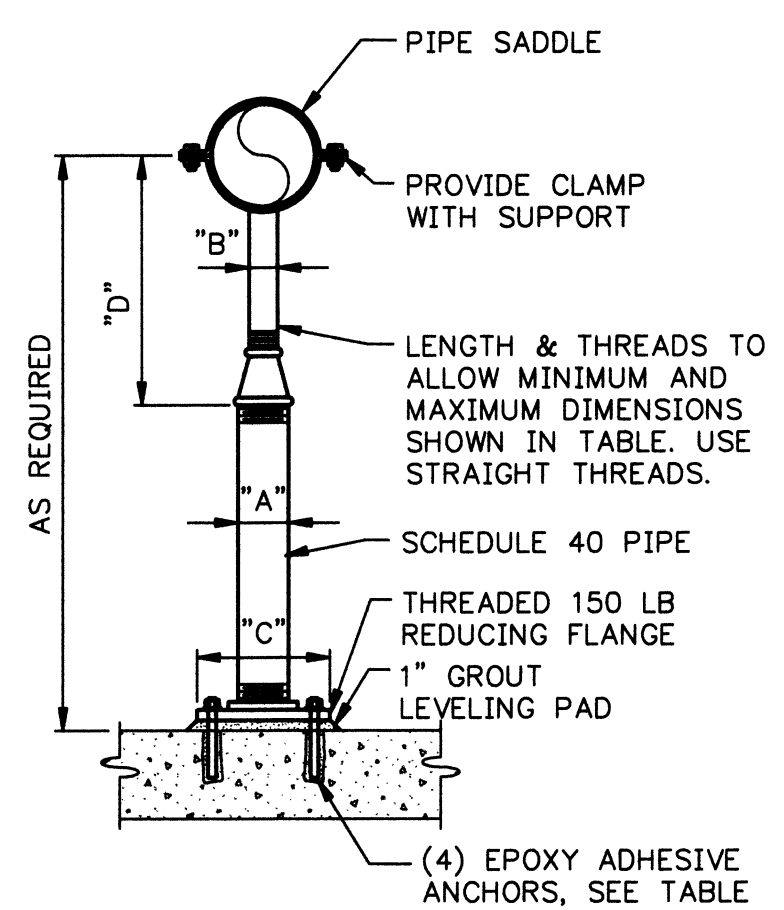


PRESSURE GAUGE
NO SCALE



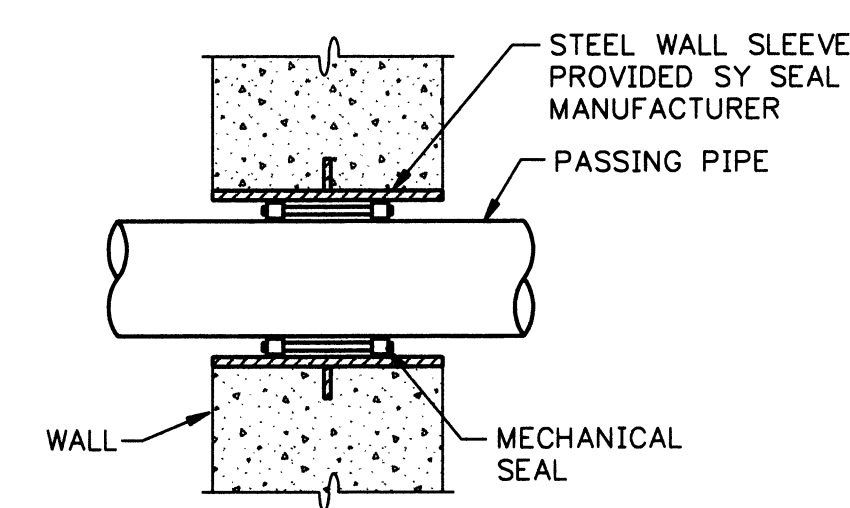
PRESSURE GAUGE
NO SCALE

NOTE:
PROVIDE THERMOMETER DIAL FACING 90 DEG
FROM PIPE ORIENTATION ON HORIZONTAL
PIPES AND DIAL FACING PARALLEL TO
PIPE ORIENTATION FOR VERTICAL PIPES.

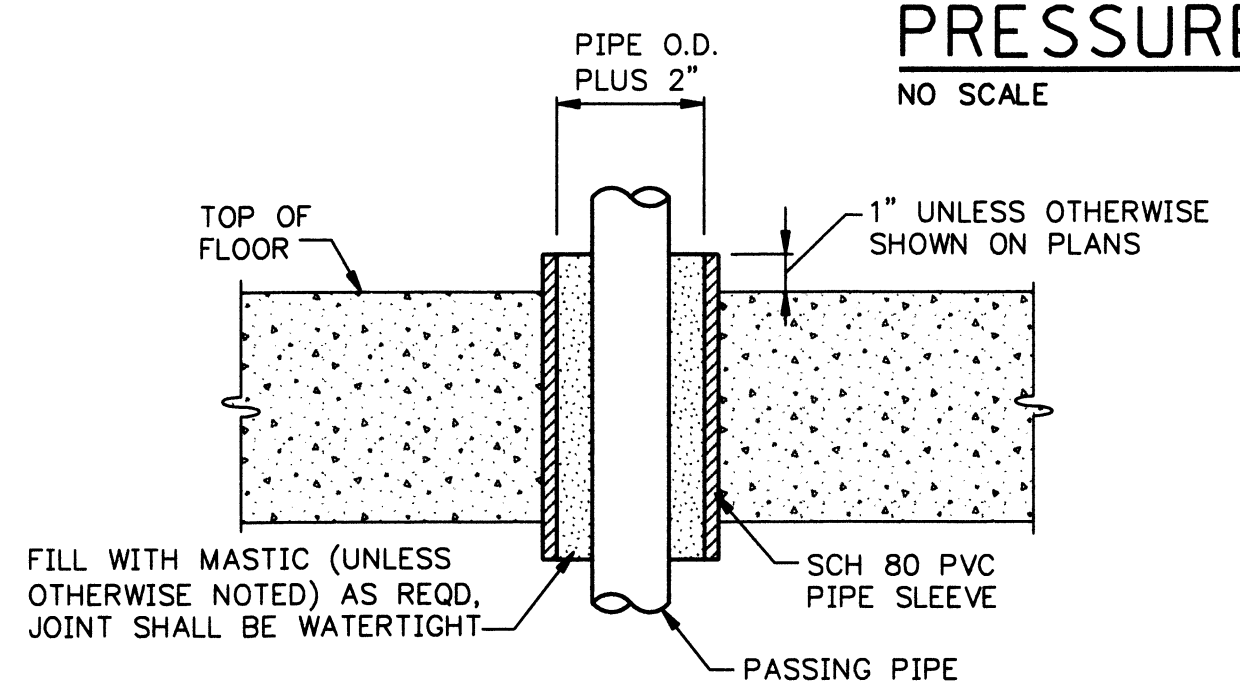


PIPE SIZE	"A"	"B"	"C"	"D"		ANCHORS	
				MINIMUM	MAXIMUM	DIA	EMBED
2 1/2	2 1/2	1 1/2	9	8	13	5/8	5
3	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
3 1/2	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
4	3	2 1/2	9	9 1/2	14	5/8	5
6	3	2 1/2	9	10 1/2	15 1/2	5/8	5
8	3	2 1/2	9	11 1/2	16 1/2	5/8	5
10	3	2 1/2	9	13 1/2	18 1/2	5/8	5
12	3	2 1/2	9	15	19 1/2	5/8	5
14	4	3	11	16 1/2	20 1/2	3/4	6 5/8
16	4	3	11	17 1/2	22 1/2	3/4	6 5/8
18	6	3 1/2	13 1/2	19 1/2	24	3/4	6 5/8
20	6	3 1/2	13 1/2	21	25 1/2	3/4	6 5/8
24	6	4	13 1/2	23 1/2	28 1/2	3/4	6 5/8
30	6	4	13 1/2	27	31 1/2	3/4	6 5/8
32	6	4	13 1/2	28 1/2	32 1/2	3/4	6 5/8
36	6	4	13 1/2	30 1/2	34 1/2	3/4	6 5/8

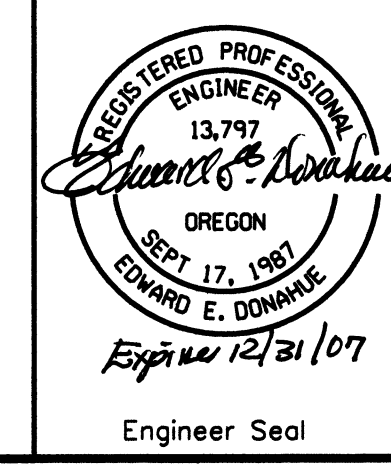
FLOOR PIPE SUPPORT
NO SCALE



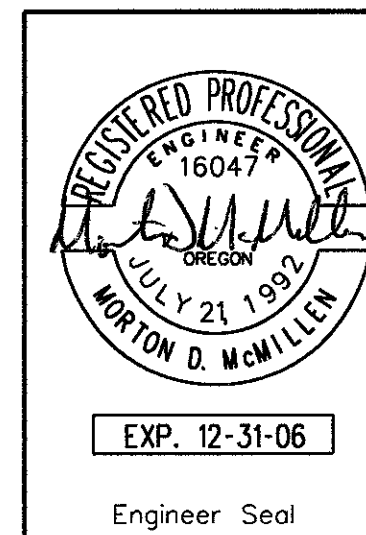
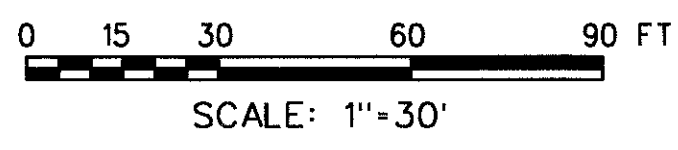
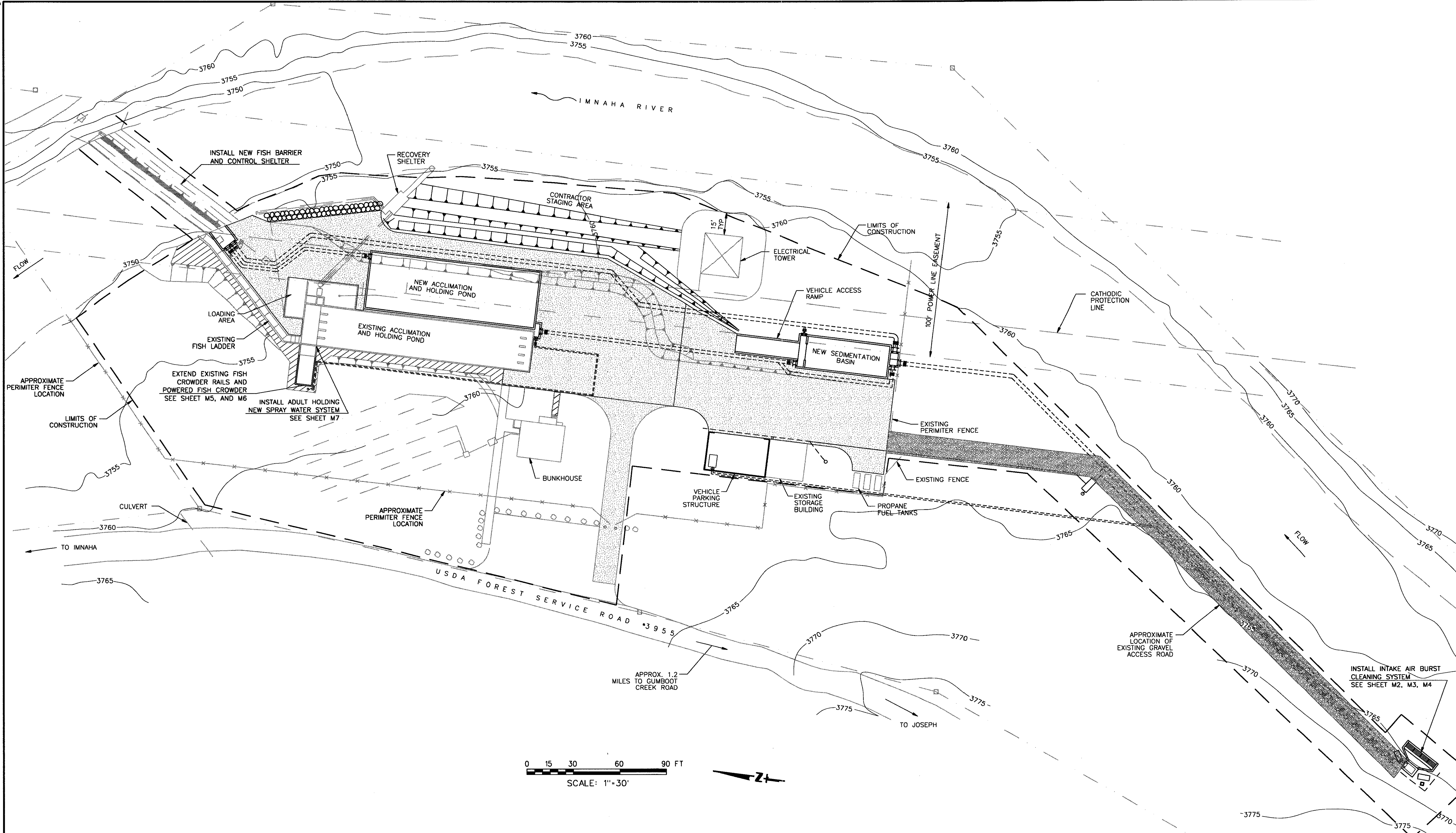
WALL SLEEVE
NO SCALE



FLOOR SLEEVE
NO SCALE



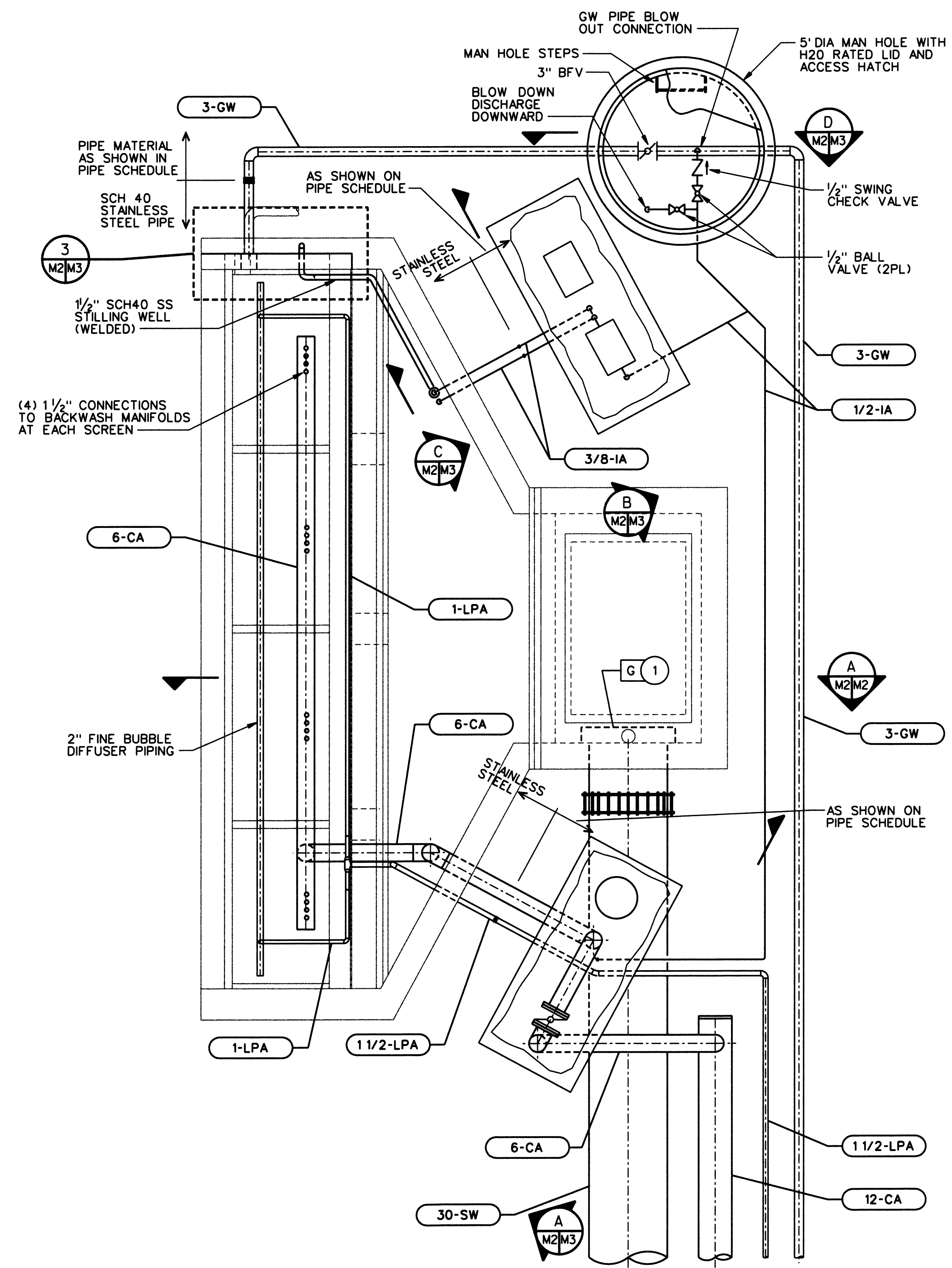
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Drawn	SLS	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY					
Chkd	EED	STANDARD MECHANICAL DETAILS 2					
Sub							
Rec							
Rec							
Appr		SERIAL	SOURCE	SHEET NO.	SHEET	REVISION	
Date	04/10/06			GM4	OF		



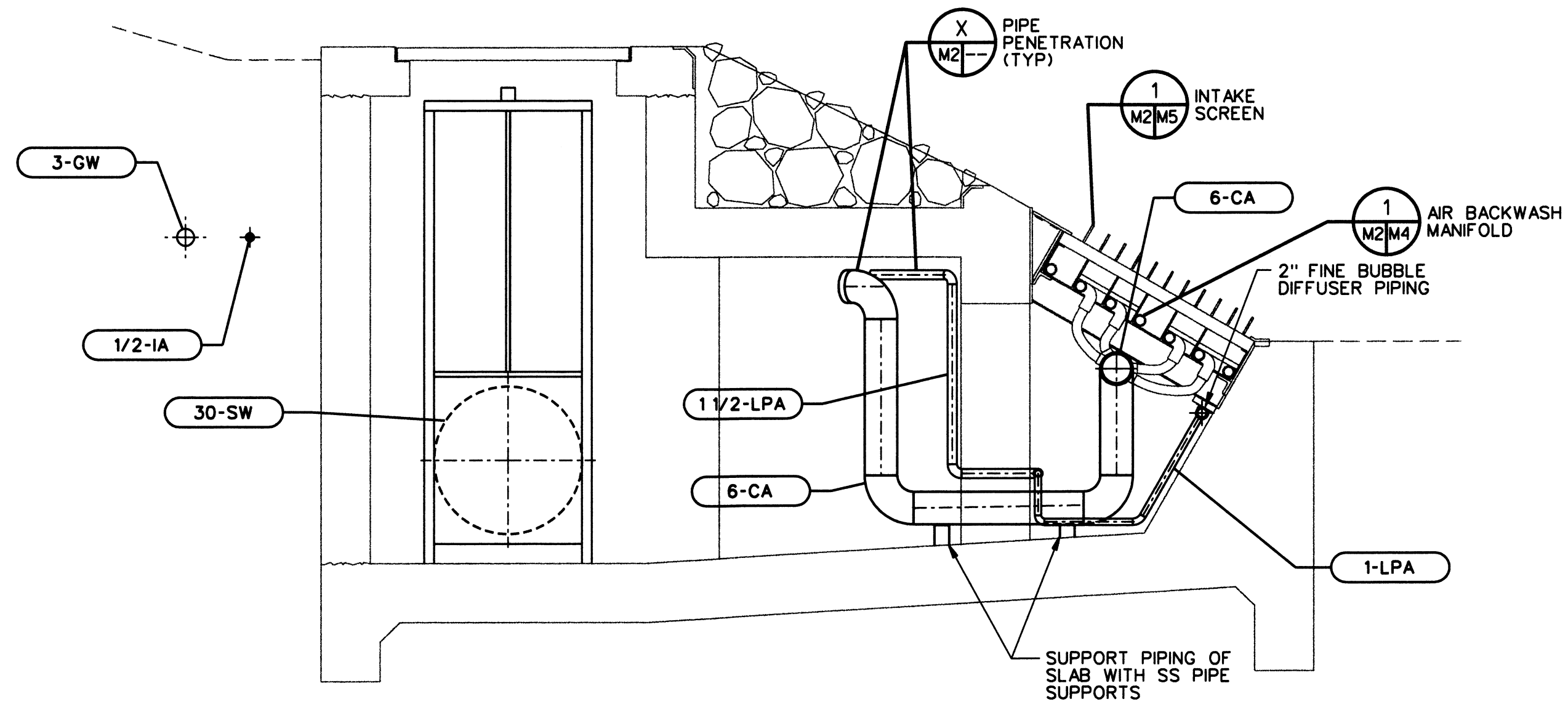
HDR | FISPRO

ME | McMILLEN ENGINEERING
BOISE, IDAHO

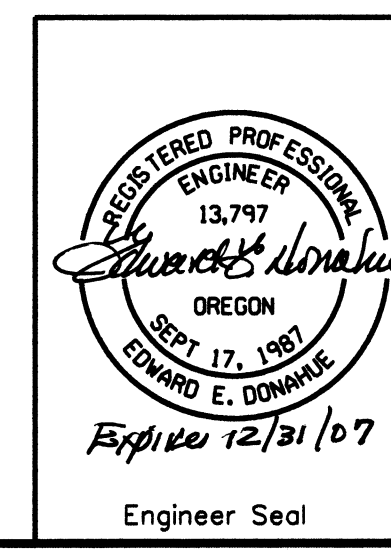
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Design	S. SPICKELMIER	UNITED STATES DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION HEADQUARTERS, PORTLAND, OREGON					
Drawn	R. GUERRERO	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY					
Chkd	M. McMILLEN	OVERALL MECHANICAL PLAN					
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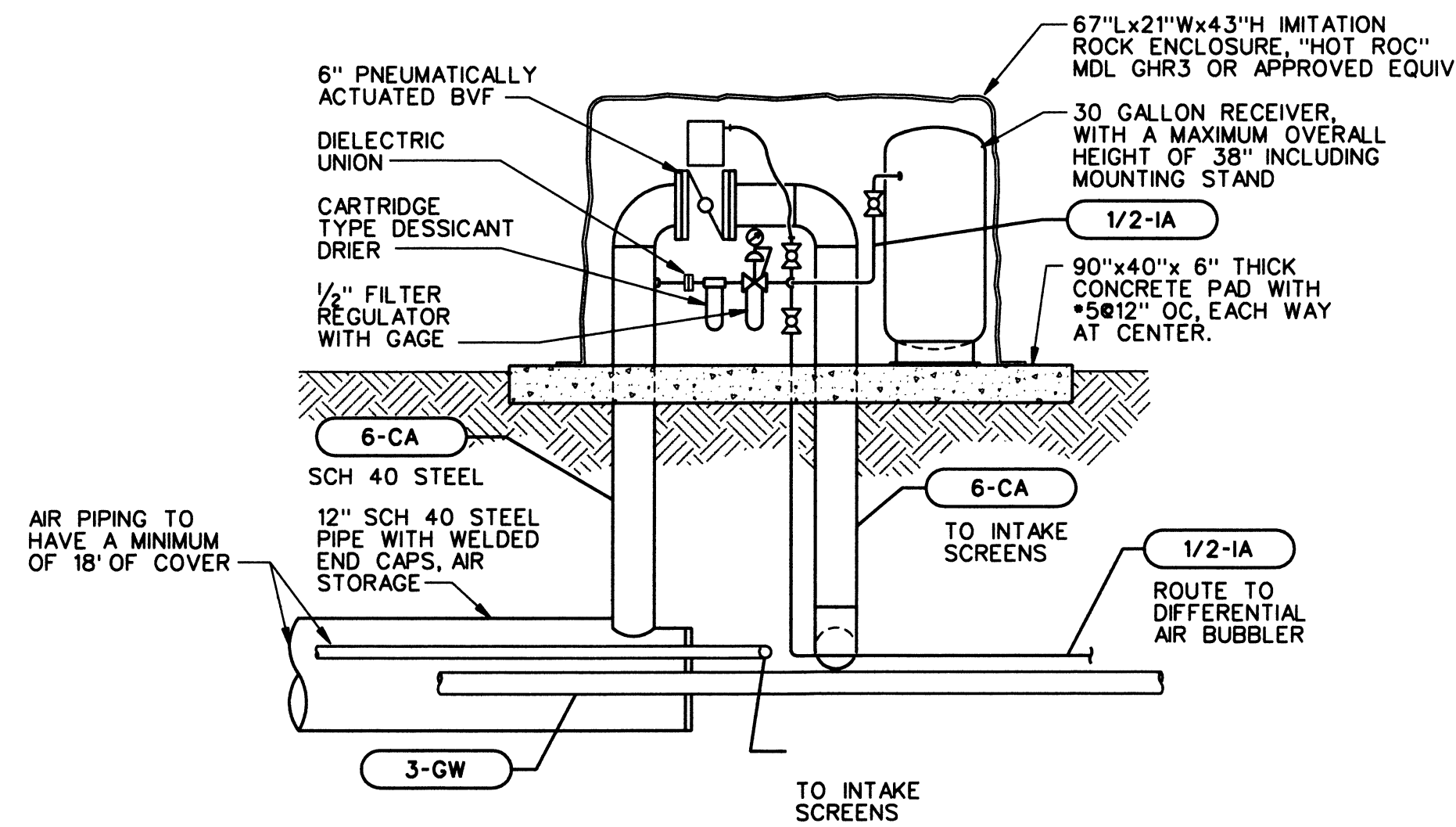
PLAN
 0 2 4 8 FT
 SCALE: 3/8"=1'-0"
 1 C5M2



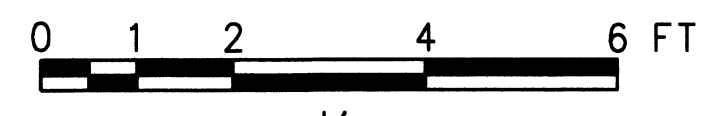
SECTION
 0 1 2 4 6 FT
 SCALE: 1/2"=1'-0"
 A M2M2



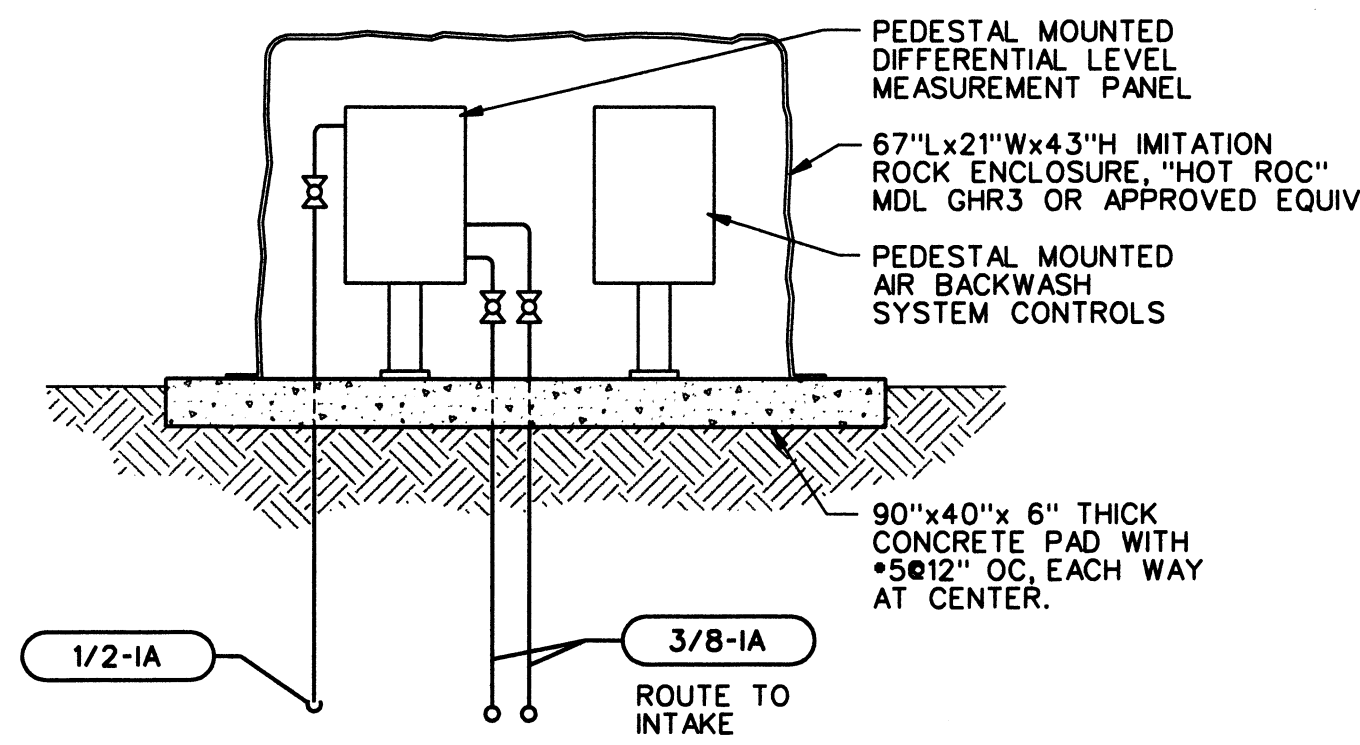
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C-CONTRACT CONSTR., FA-FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M2_NEOH.dgn							
Design	LP	UNITED STATES DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION HEADQUARTERS, PORTLAND, OREGON					
Drawn	ACB	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY					
Chkd	EED	INTAKE STRUCTURE PLAN AND SECTION					
Sub		SERIAL	SOURCE	SHEET NO.	SHEET	OF	REVISION
Rec				M2			
Rec							
Appr							
Date	04/10/06						



SECTION - COMPRESSED AIR EQUIPMENT SHELTER



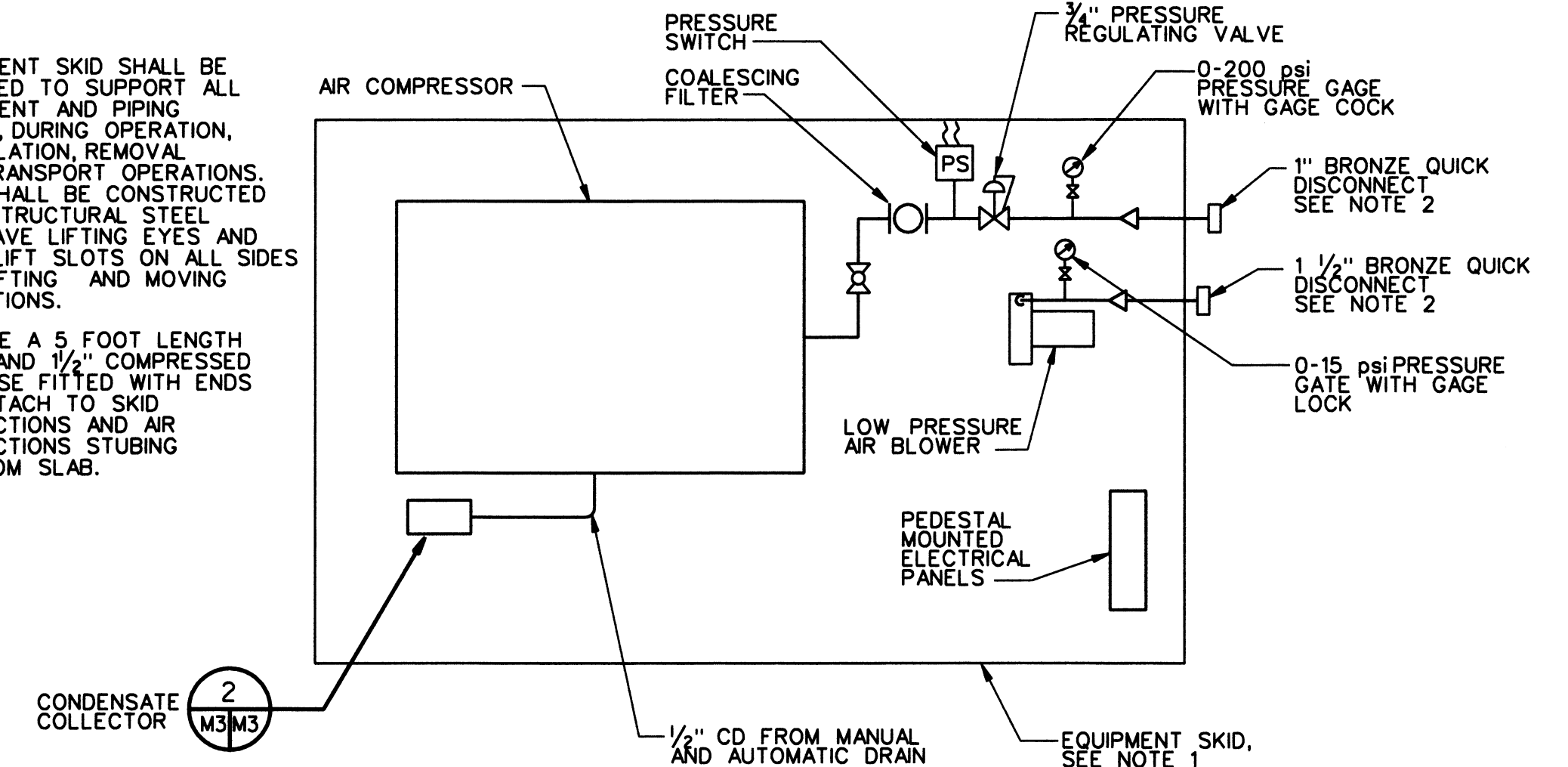
A M2/M3



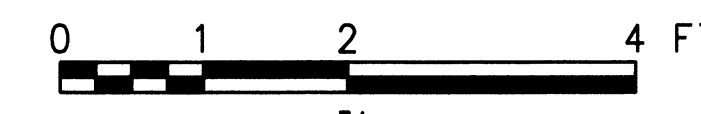
SECTION - CONTROL SYSTEM SHELTER



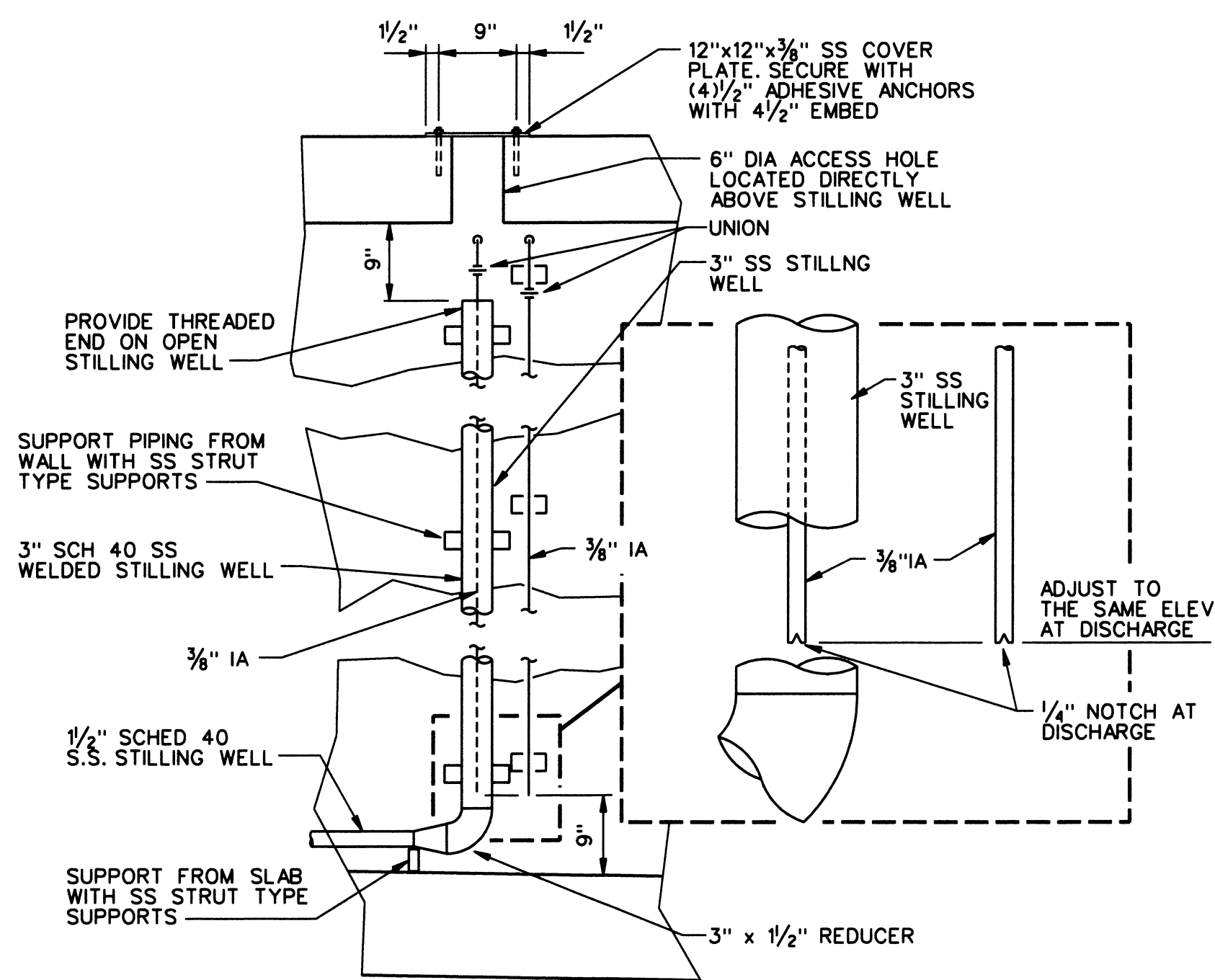
B M2/M3



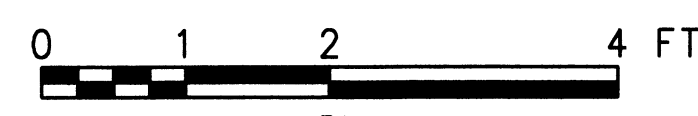
PLAN - AIR BACKWASH SYSTEM EQUIPMENT SKID



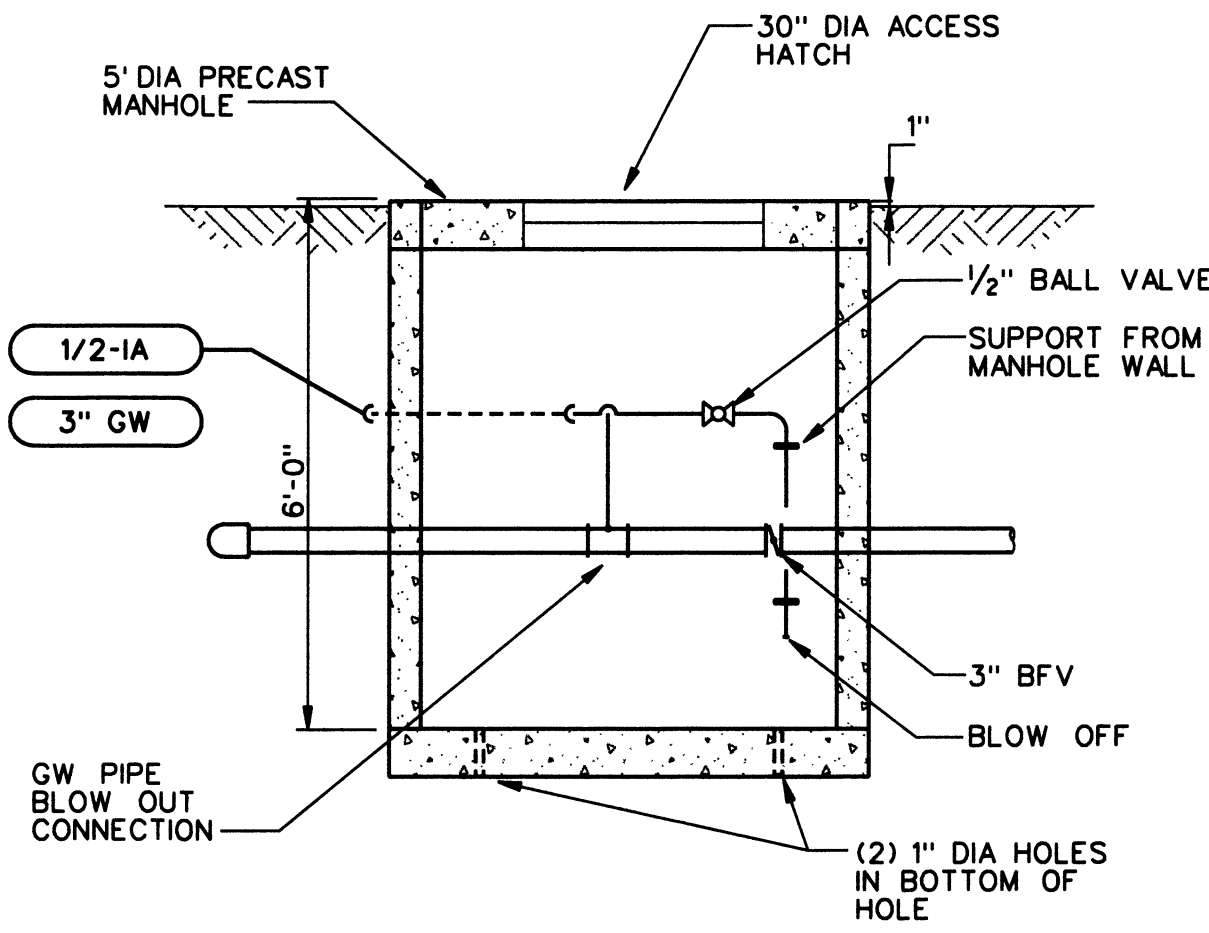
1 C5/M3



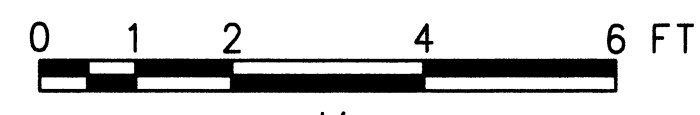
SECTION



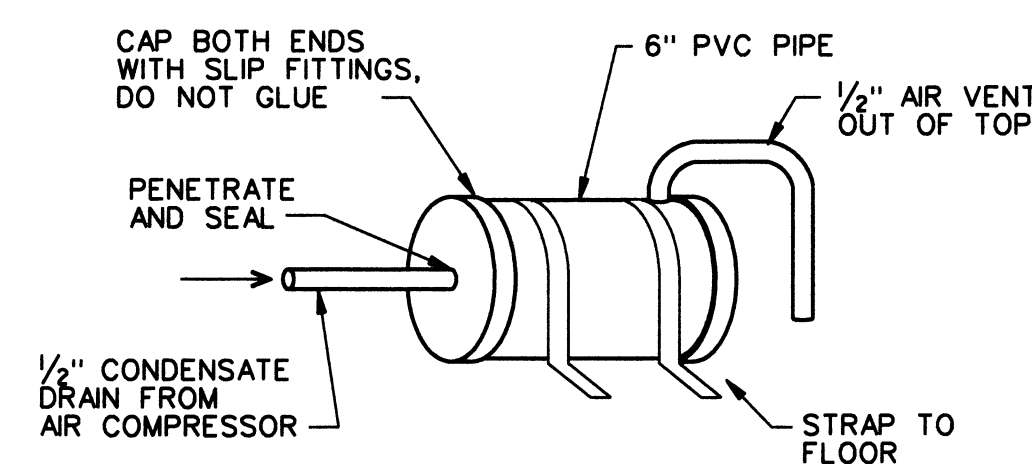
C M2/M3



SECTION BLOW OFF VAULT



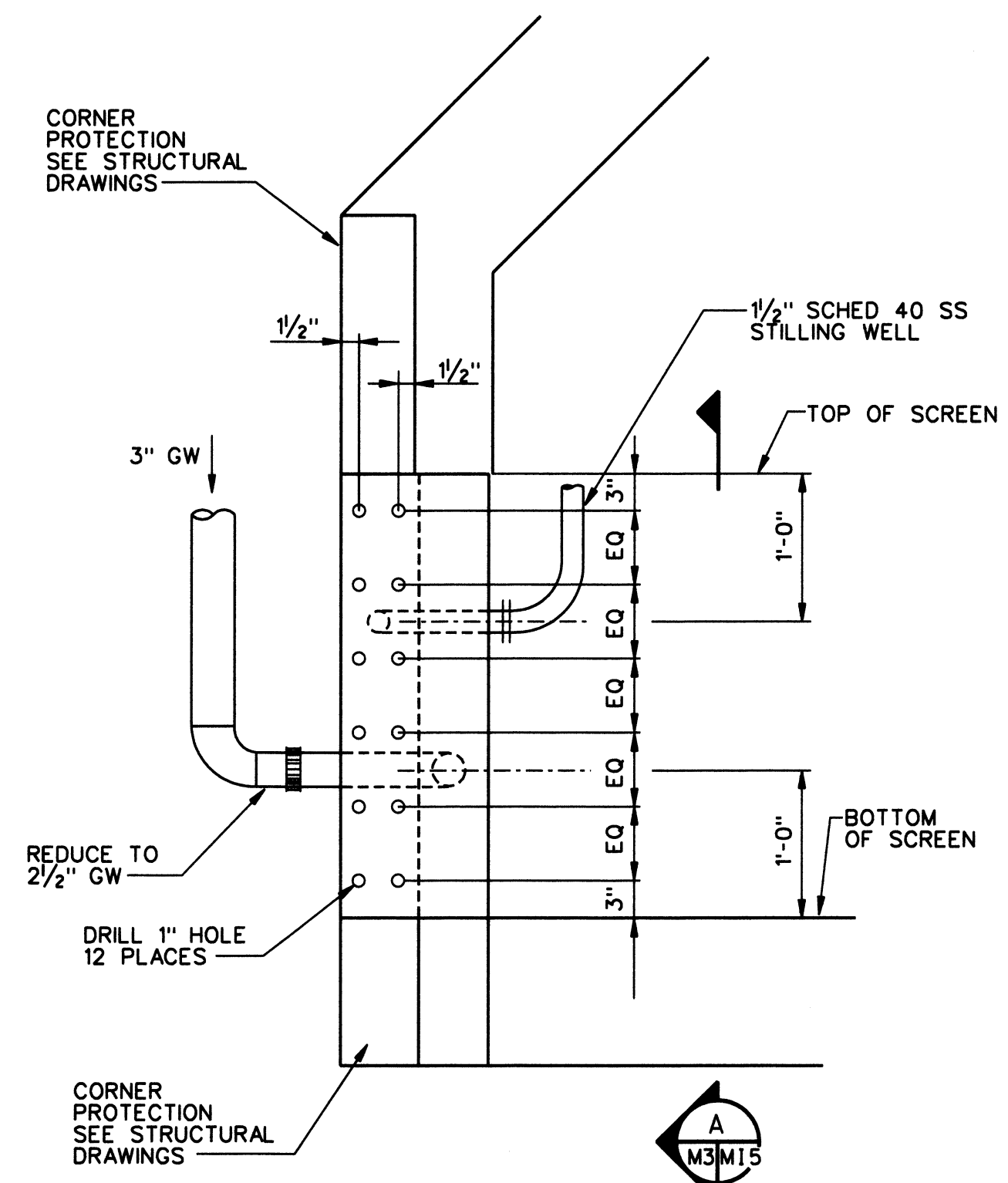
D M3/M3



CONDENSATE COLLECTOR

NO SCALE

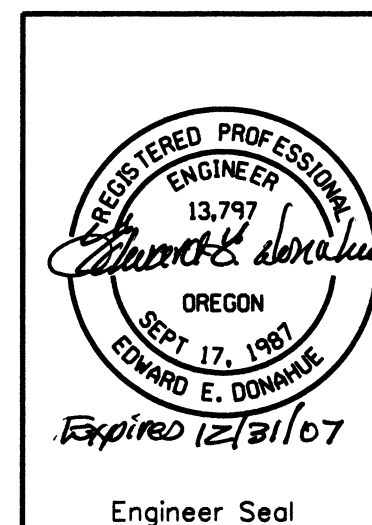
2 M3/M3



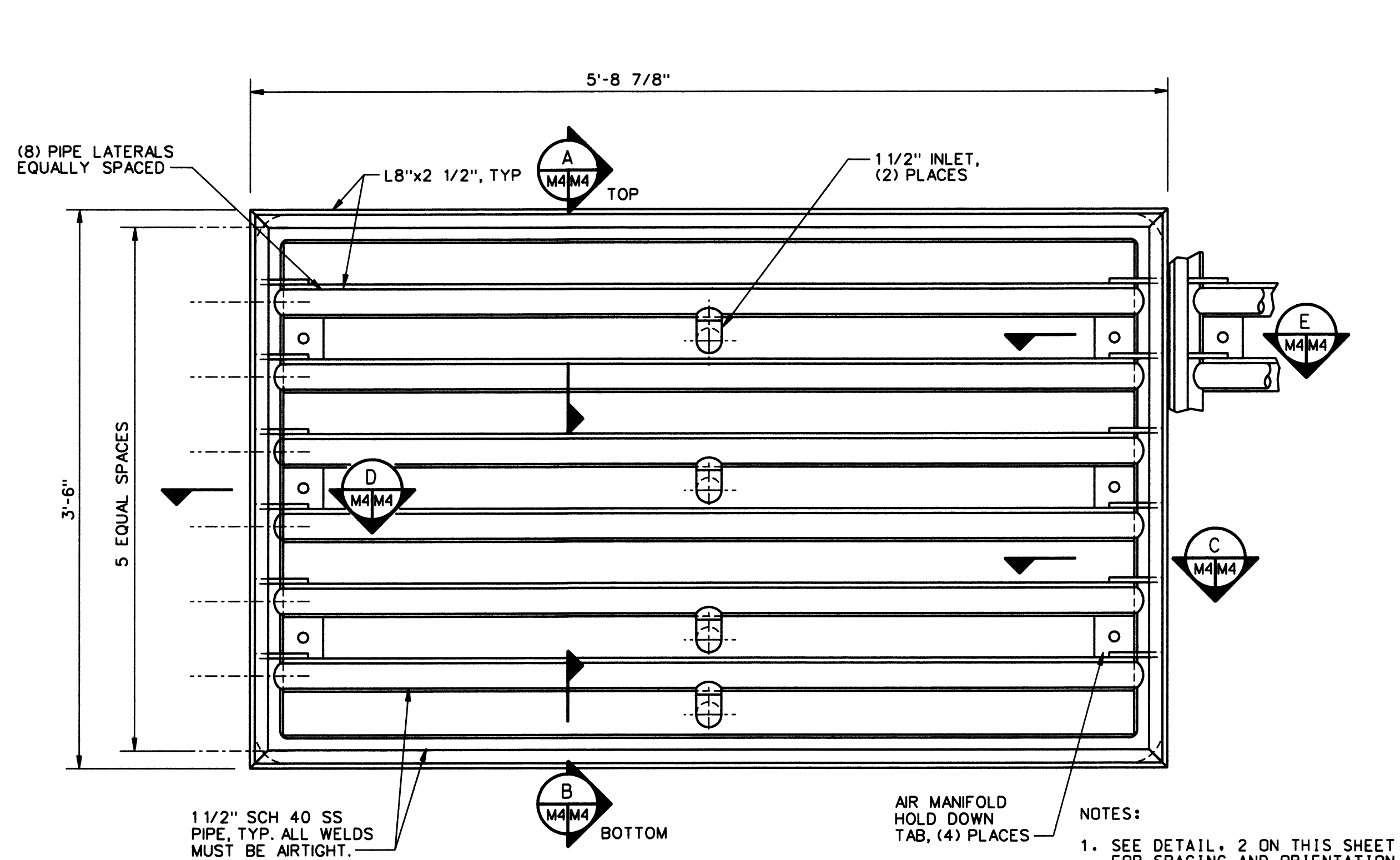
PARTIAL PLAN

3 M2/M3

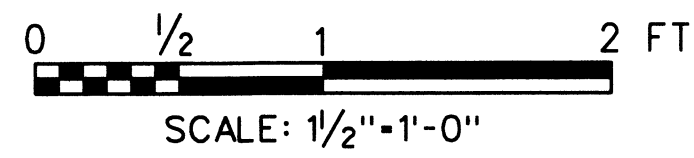
- NOTES:
- EQUIPMENT SKID SHALL BE DESIGNED TO SUPPORT ALL EQUIPMENT AND PIPING SHOWN, DURING OPERATION, INSTALLATION, REMOVAL AND TRANSPORT OPERATIONS. SKID SHALL BE CONSTRUCTED WITH STRUCTURAL STEEL AND HAVE LIFTING EYES AND FORT LIFT SLOTS ON ALL SIDES FOR LIFTING AND MOVING OPERATIONS.
 - PROVIDE A 5 FOOT LENGTH OF 1" AND 1/2" COMPRESSED AIR HOSE FITTED WITH ENDS TO ATTACH TO SKID CONNECTIONS AND AIR CONNECTIONS STUBING UP FROM SLAB.



NO.	W/O	COMPUTER	REVISION ONLY	BY	DATE	APPROVED
C-CONTRACT CONSTR., FA-FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M3_NEOH.dgn						
Design	LKP	UNITED STATES DEPARTMENT OF ENERGY		BONNEVILLE POWER ADMINISTRATION		
Drawn	KCP	HEADQUARTERS, PORTLAND, OREGON		NORTHEAST OREGON HATCHERY PROGRAM		
Chkd	EED	IMNAHA SATELLITE FACILITY		INTAKE STRUCTURE		
Sub		MECHANICAL SECTIONS		AND DETAILS		
Rec		SERIAL	SOURCE	SHEET NO.	SHEET	REVISION
Rec				M3	OF	
Appr						
Date	04/10/06					

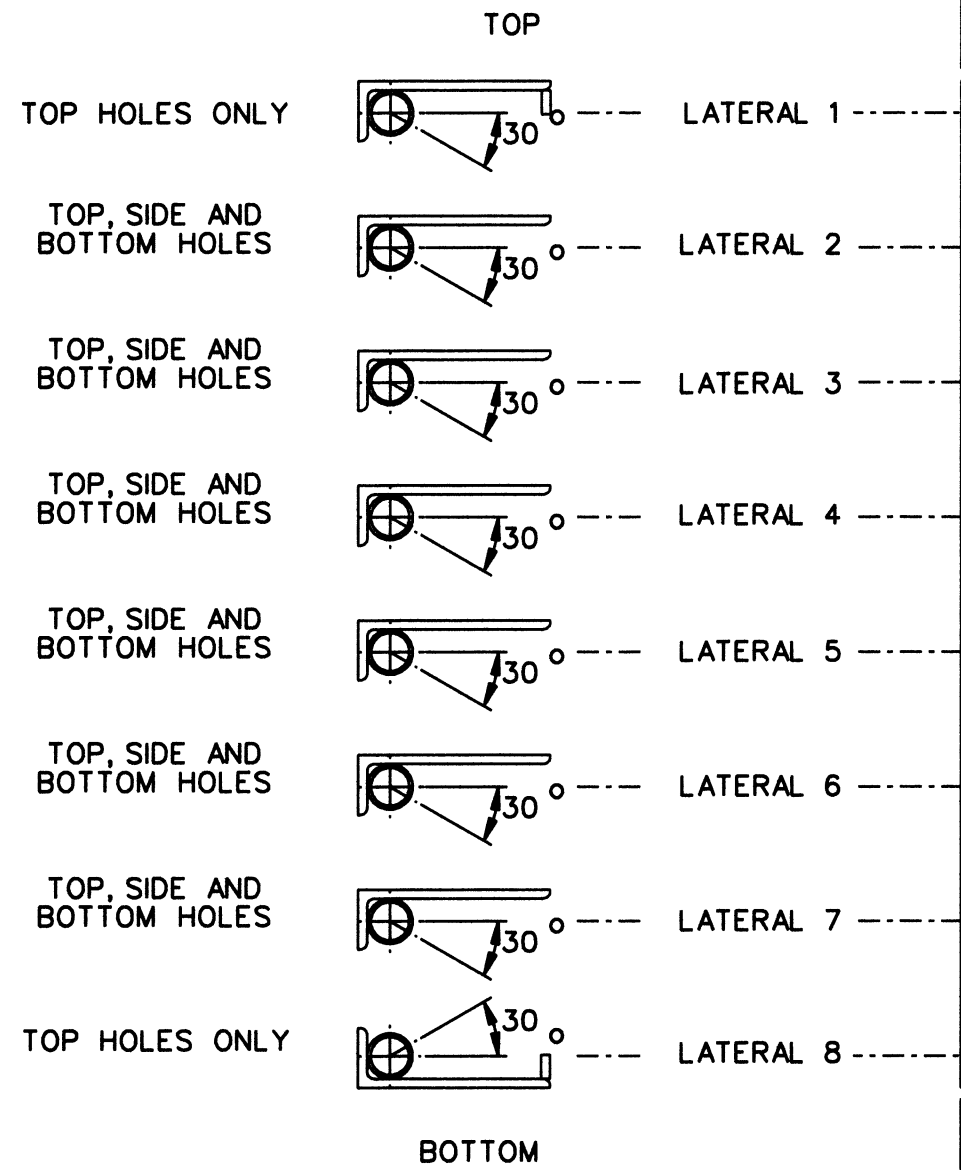


MANIFOLD PLAN



1
M4/M4

- NOTES:
1. SEE DETAIL, 2 ON THIS SHEET FOR SPACING AND ORIENTATION.
 2. L8"x2 1/2"x3/8" TYPE 304 SS SPECIAL SECTION TO AVOID WELDED FABRICATION



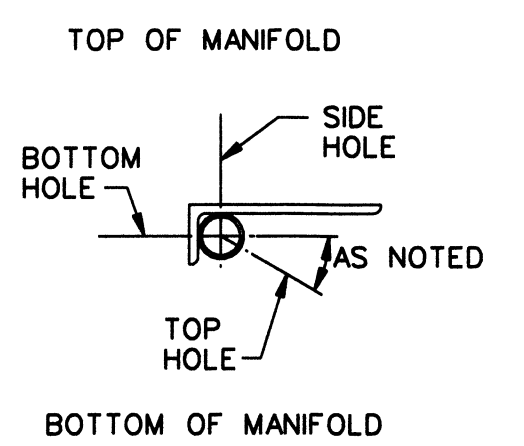
MANIFOLD HOLE SPACING AND ORIENTATION DETAIL

NO SCALE

2
M4/M4

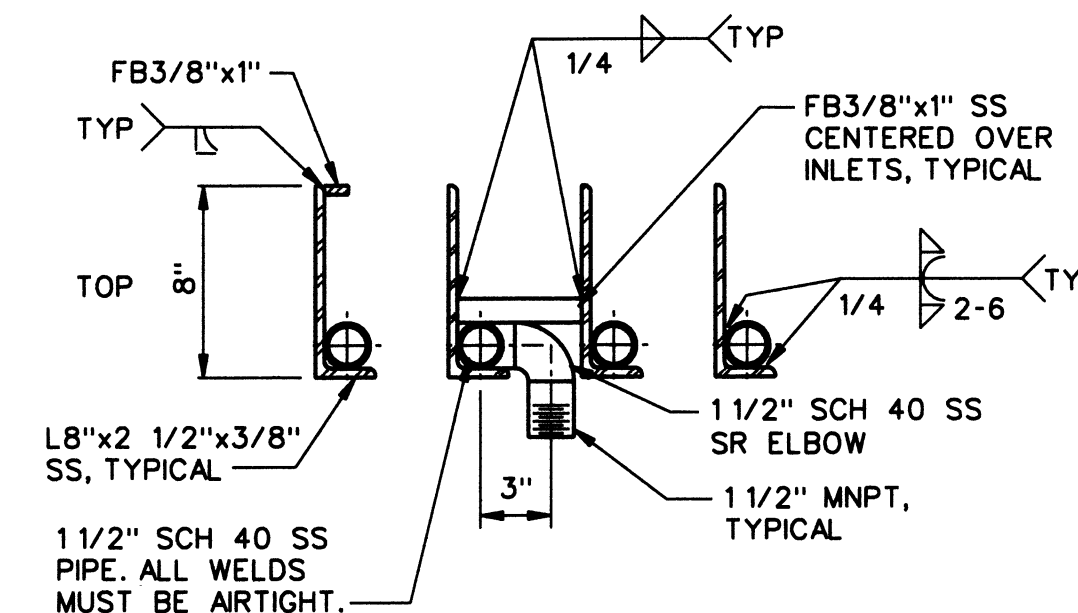
LEGEND

- - TOP HOLES
- ▼ - SIDE HOLES
- - BOTTOM HOLES

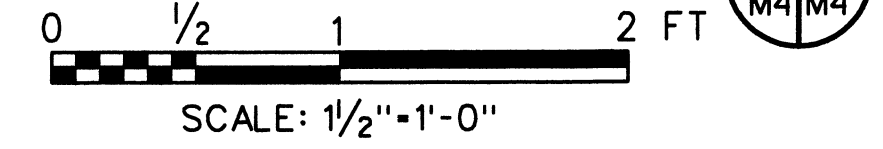


HOLE ORIENTATION

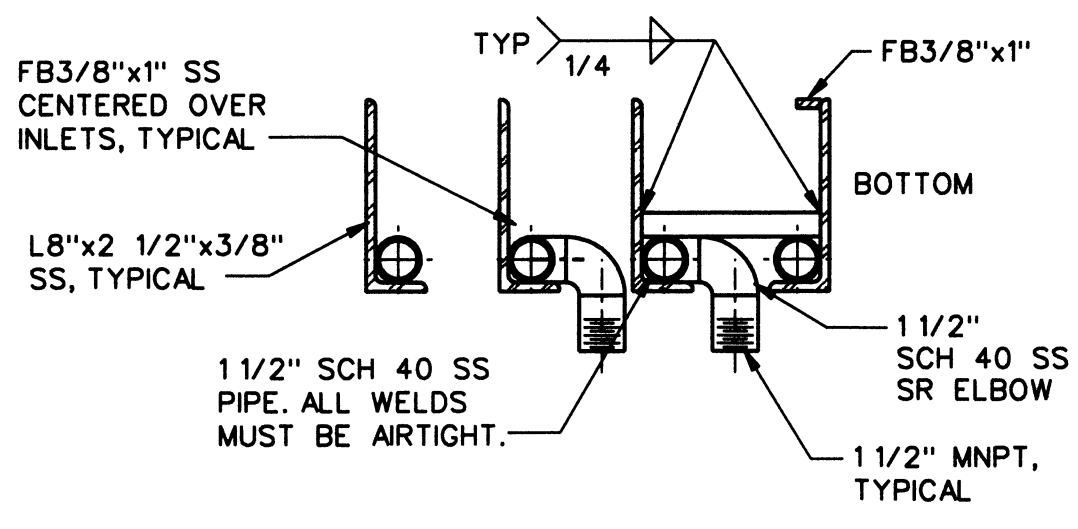
NOTE:
ALL AIR DISTRIBUTION HOLES SHALL BE 1/8" DIA.



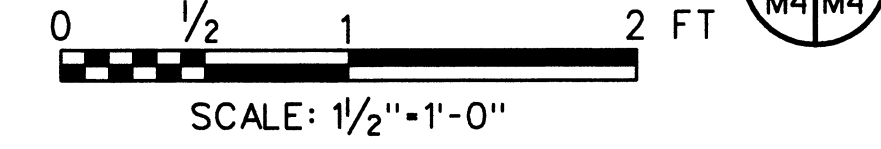
SECTION



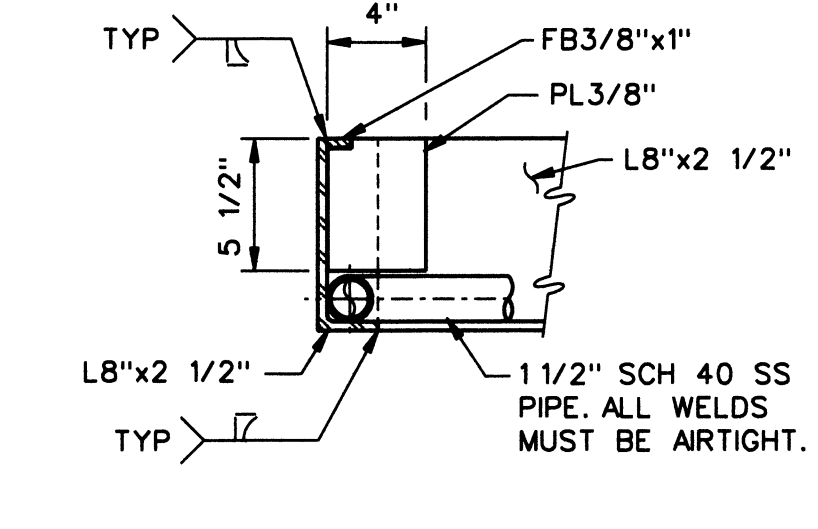
A
M4/M4



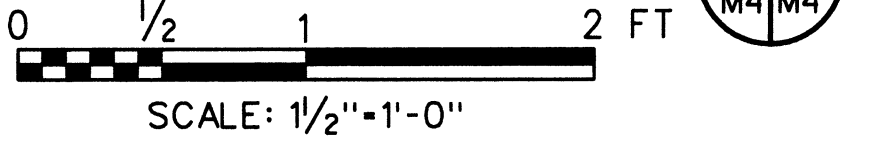
SECTION



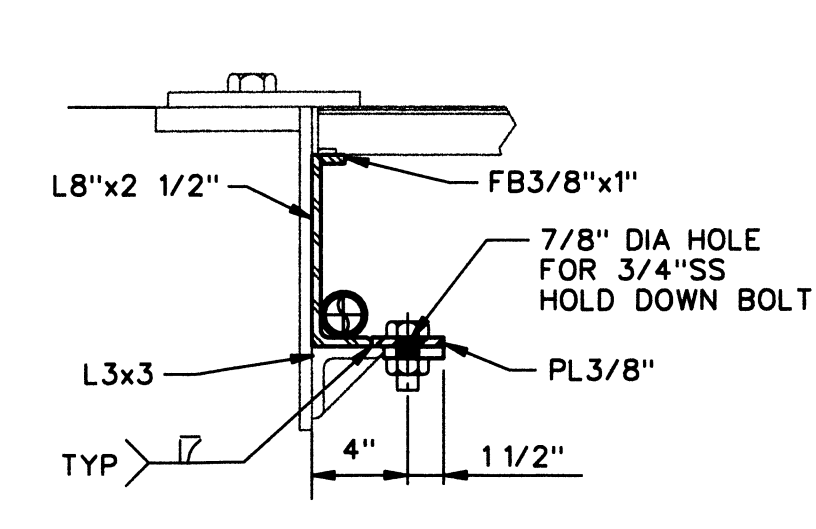
B
M4/M4



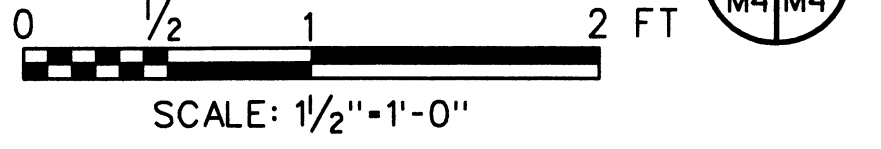
SECTION



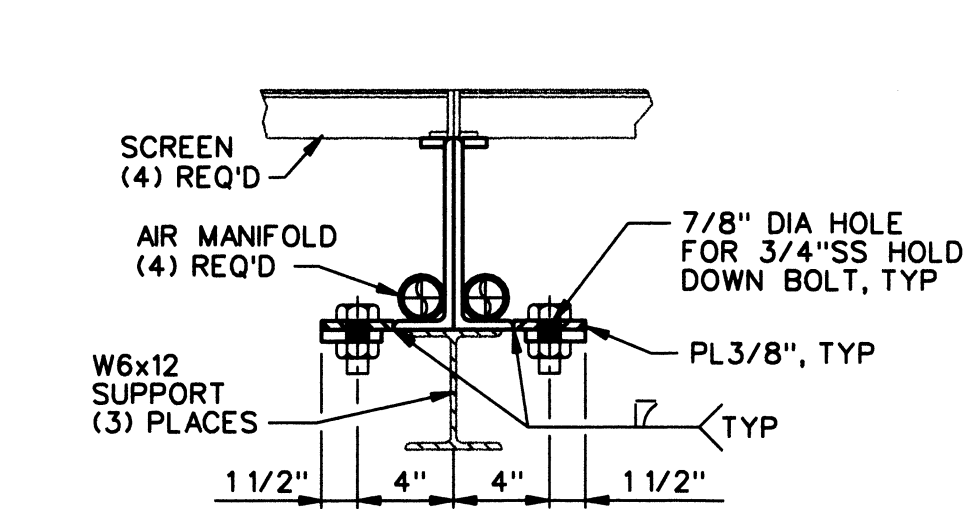
C
M4/M4



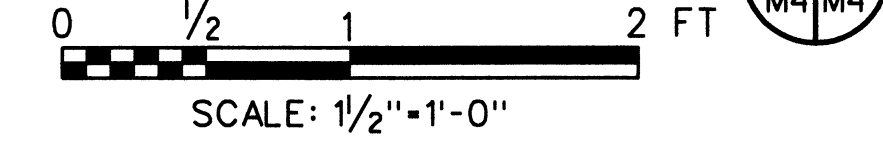
SECTION



D
M4/M4

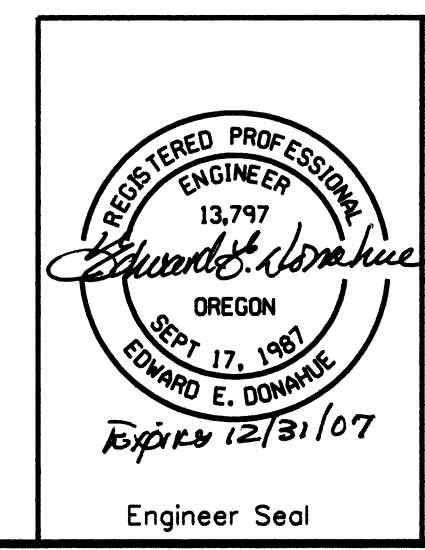


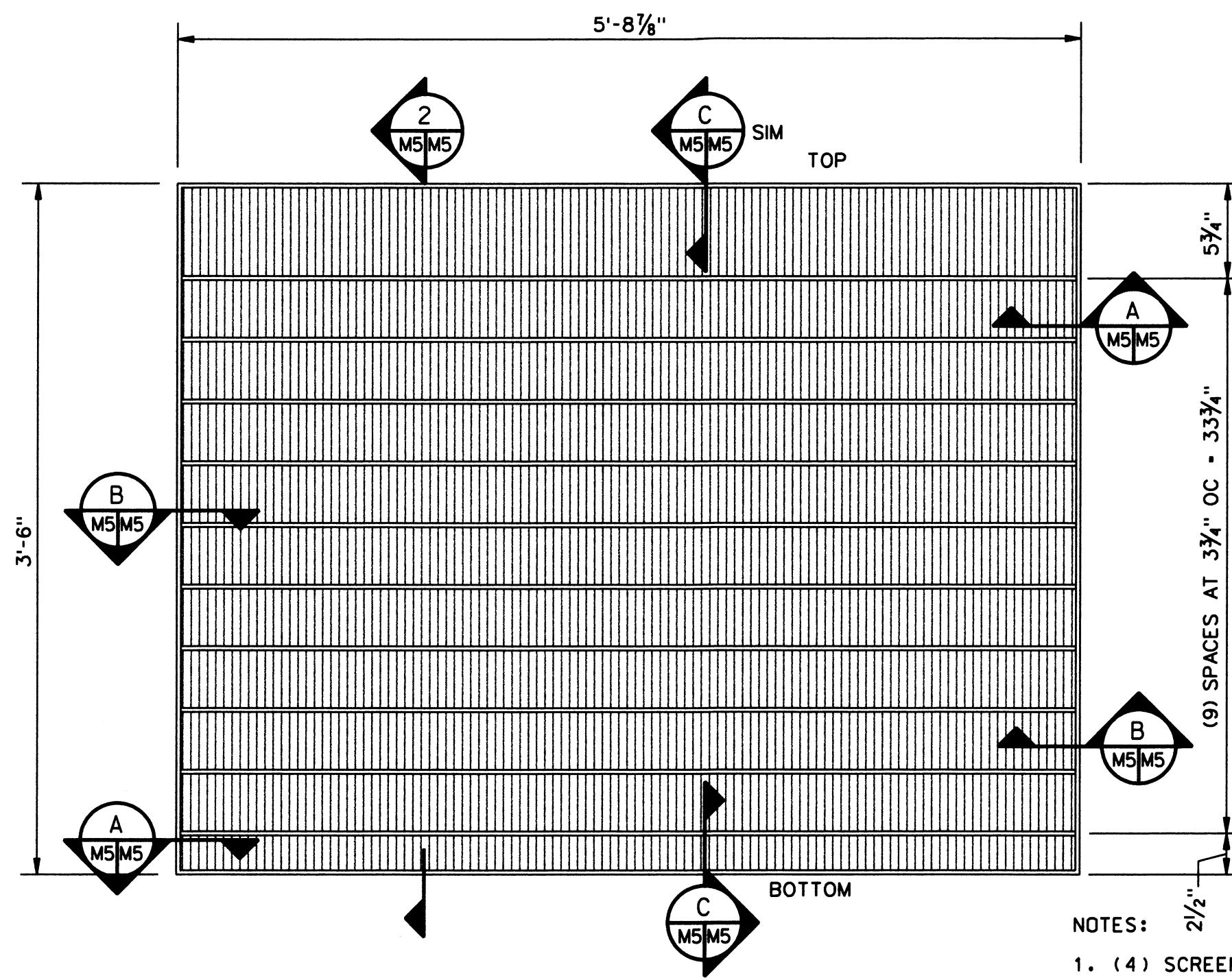
SECTION



E
M4/M4

NO.	W/O	COMPUTER	REVISION	ONLY	BY	DATE	APPROVED
C-CONTRACT CONSTR., FA-FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M4_NEOH.dgn							
Design	LKP	UNITED STATES DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION HEADQUARTERS, PORTLAND, OREGON					
Drawn	SLS	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY INTAKE SCREEN					
Chkd	EED	AIR BURST MANIFOLD PLAN, SECTIONS AND DETAILS					
Sub		SERIAL	SOURCE	SHEET NO.	SHEET	REVISION	
Rec				M4	OF		
Rec							
Appr							
Date	04/10/06						

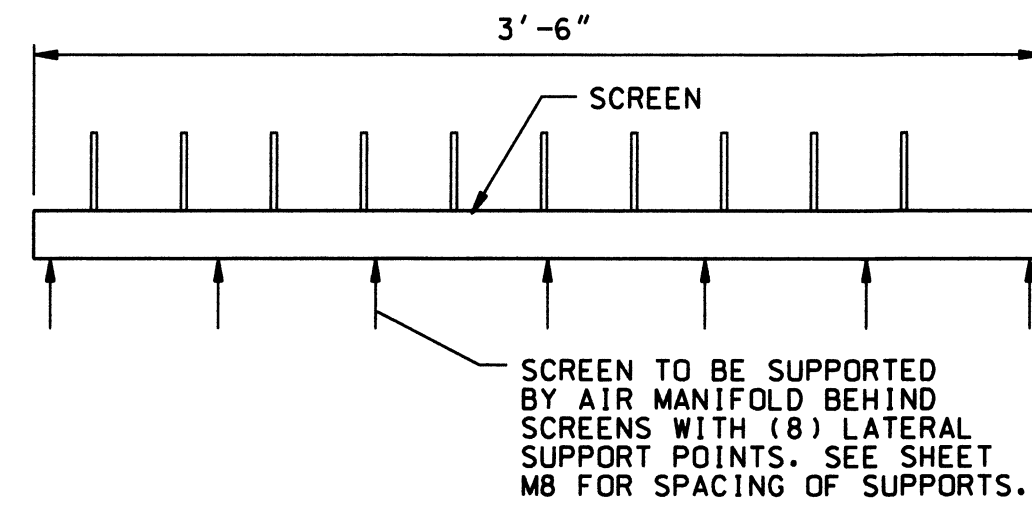




MANIFOLD PLAN
NO SCALE

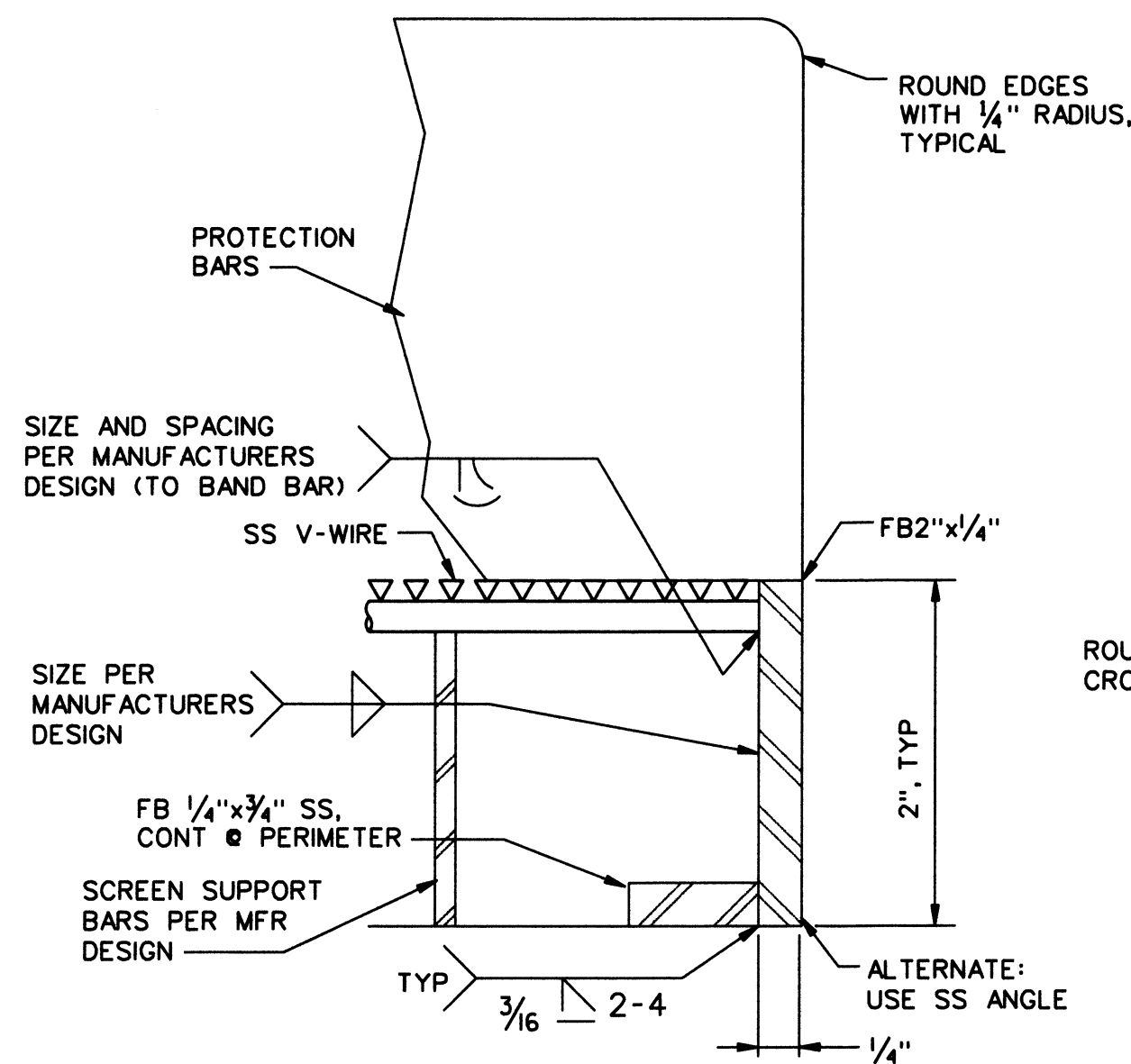
1
M2|M5

- NOTES:
- (4) SCREEN ASSEMBLIES REQUIRED.
 - SPACING OF SCREEN V-WIRE IS 1.75mm CLEAR.
 - TOTAL DESIGN HEAD FOR SCREEN IS 5 FT OF WATER WITH TOTAL OCCLUSION. REFER TO SCREEN SUPPORT DETAILS.
 - SIZE AND SPACING OF SUPPORT RODS AND BARS PER MANUFACTURERS DESIGN.
 - PROVIDE HOLES AS REQUIRED IN RIBS TO ALLOW INSTALLATION AND REMOVAL.



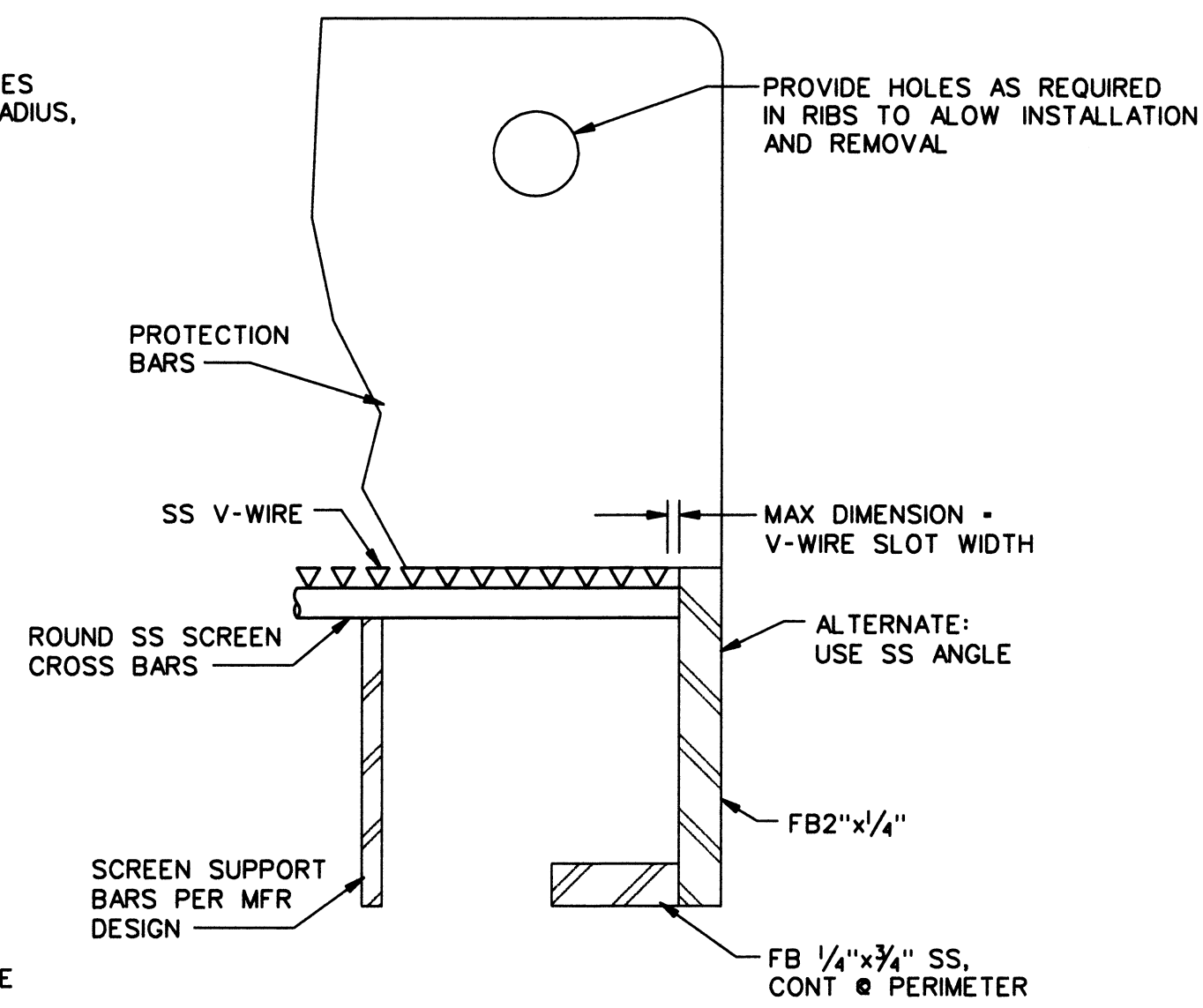
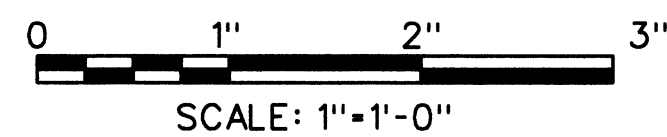
SCREEN SUPPORT DETAIL
NO SCALE

2
M5|M5



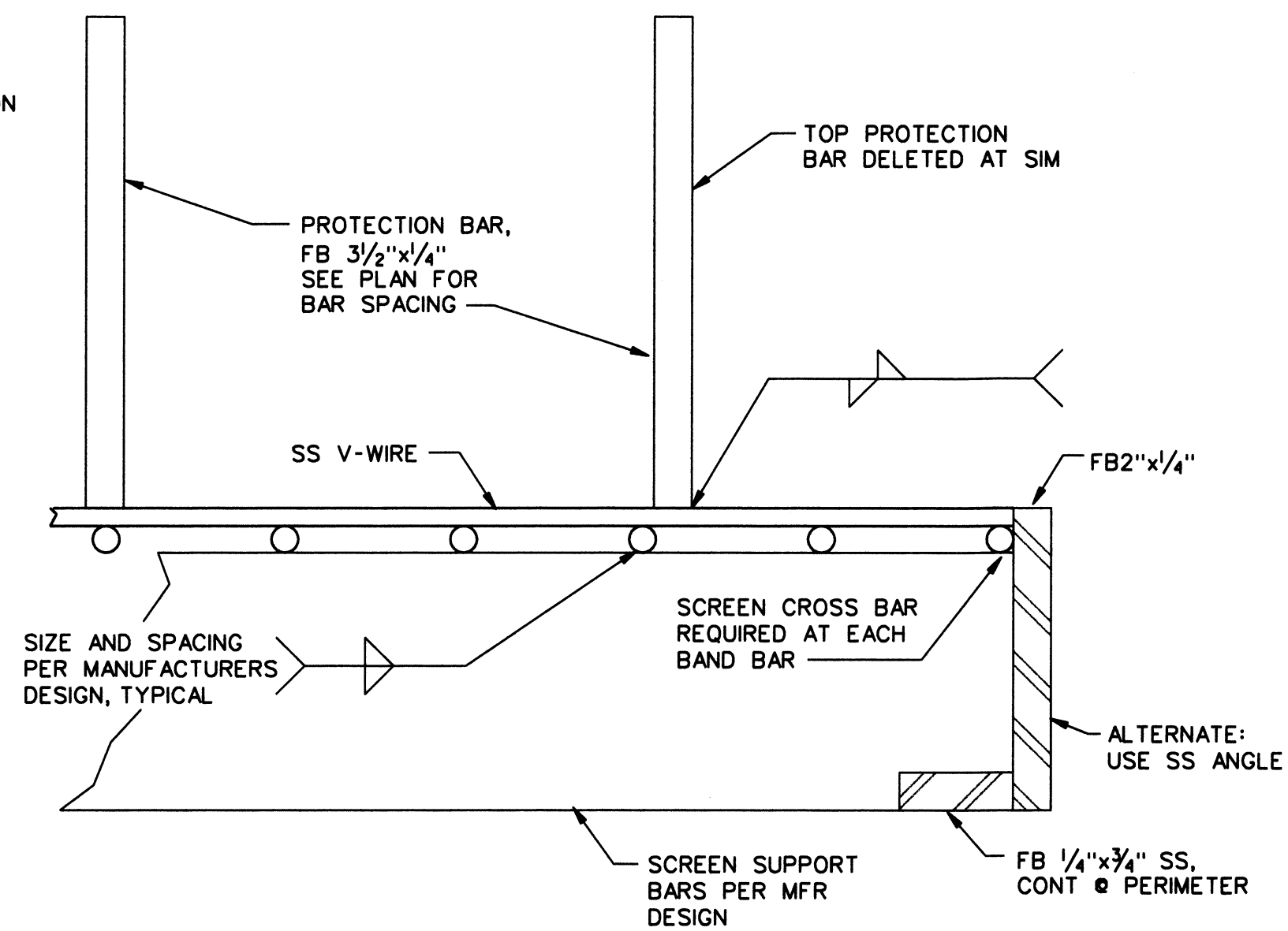
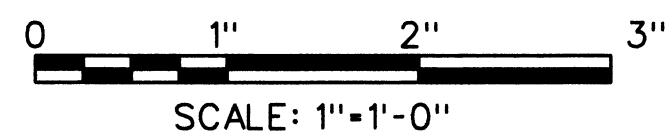
SECTION A

M5|M5



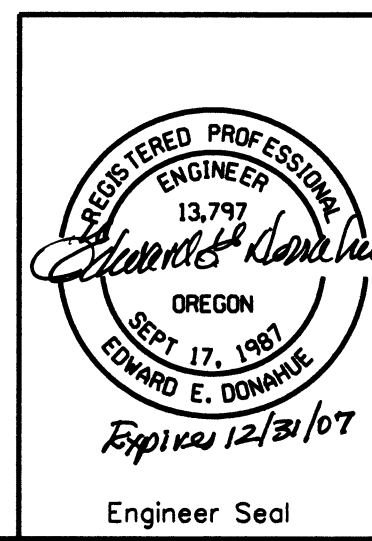
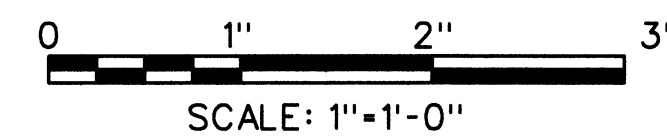
SECTION B

M5|M5

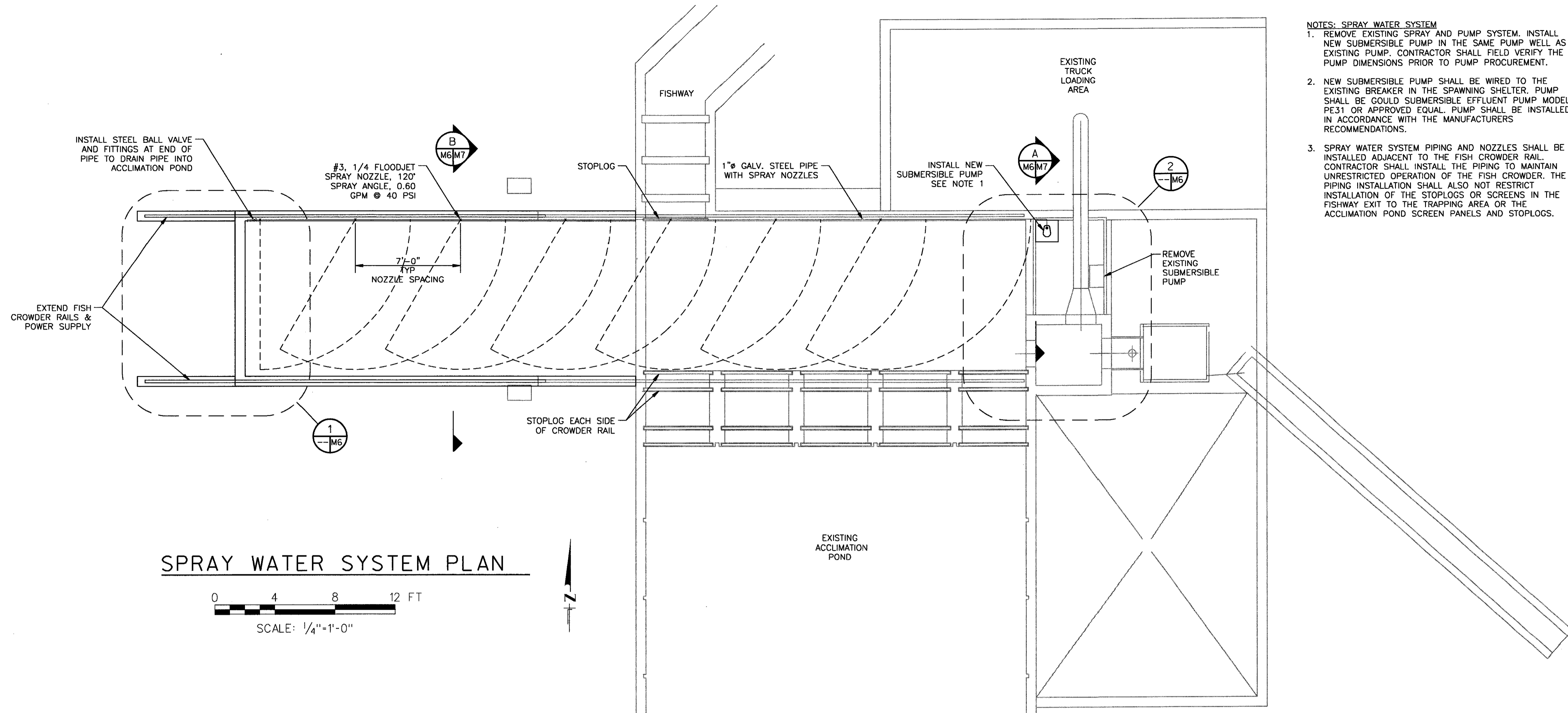


SECTION C

M5|M5

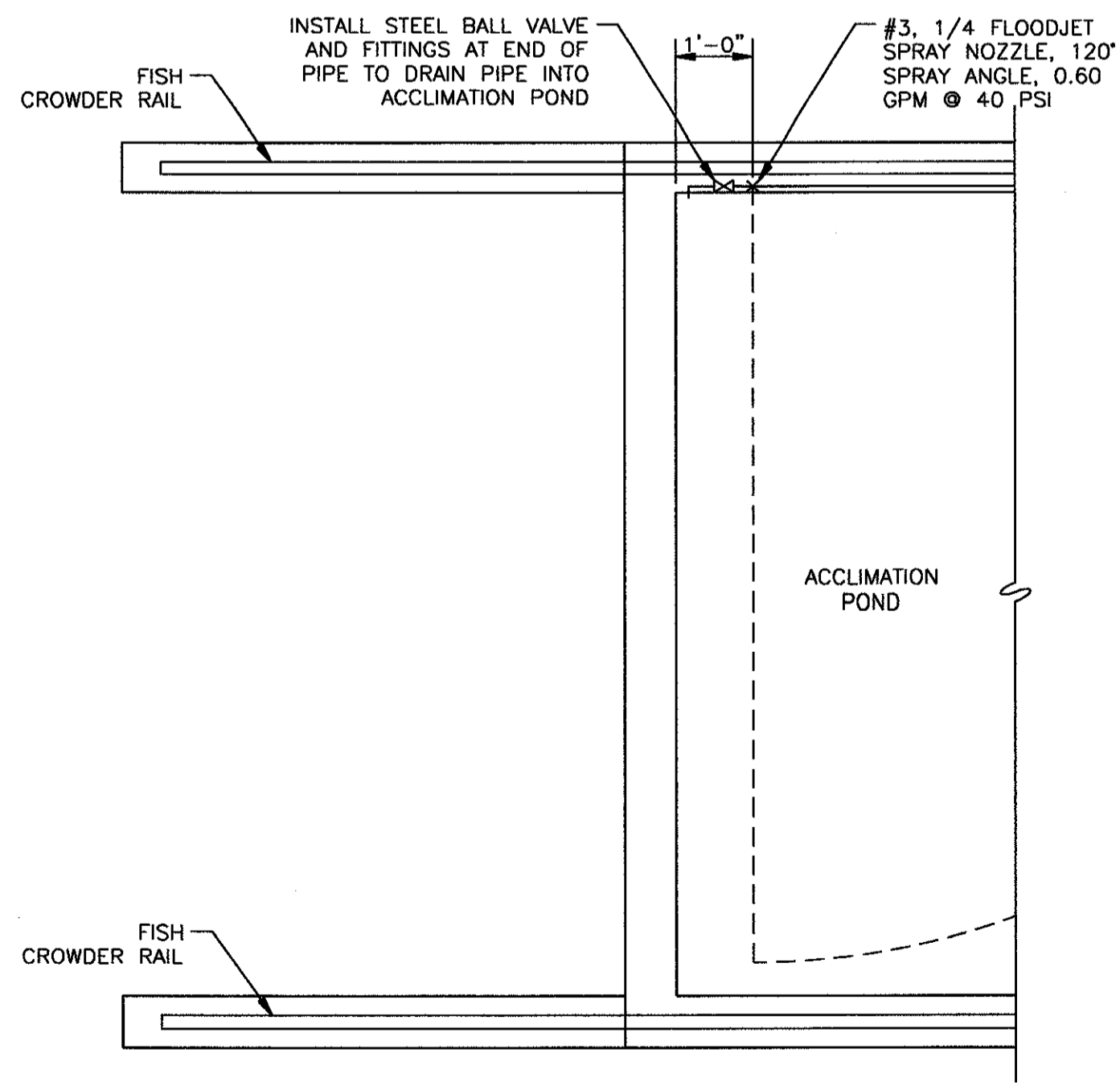
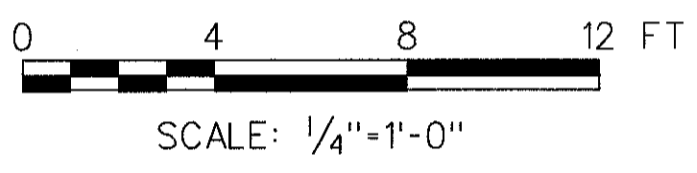


NO.	W/O	COMPUTER REVISION ONLY	BY	DATE	APPROVED
C-CONTRACT CONSTR., F+FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M5_NEOH.dgn					
Design	JDN	UNITED STATES DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION HEADQUARTERS, PORTLAND, OREGON			
Drawn	SLS	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY			
Chkd	EED	INTAKE SCREEN PLAN AND SECTIONS			
Sub		SERIAL	SOURCE	SHEET NO.	SHEET
Rec				M5	OF
Rec					
Appr					
Date	04/10/06				

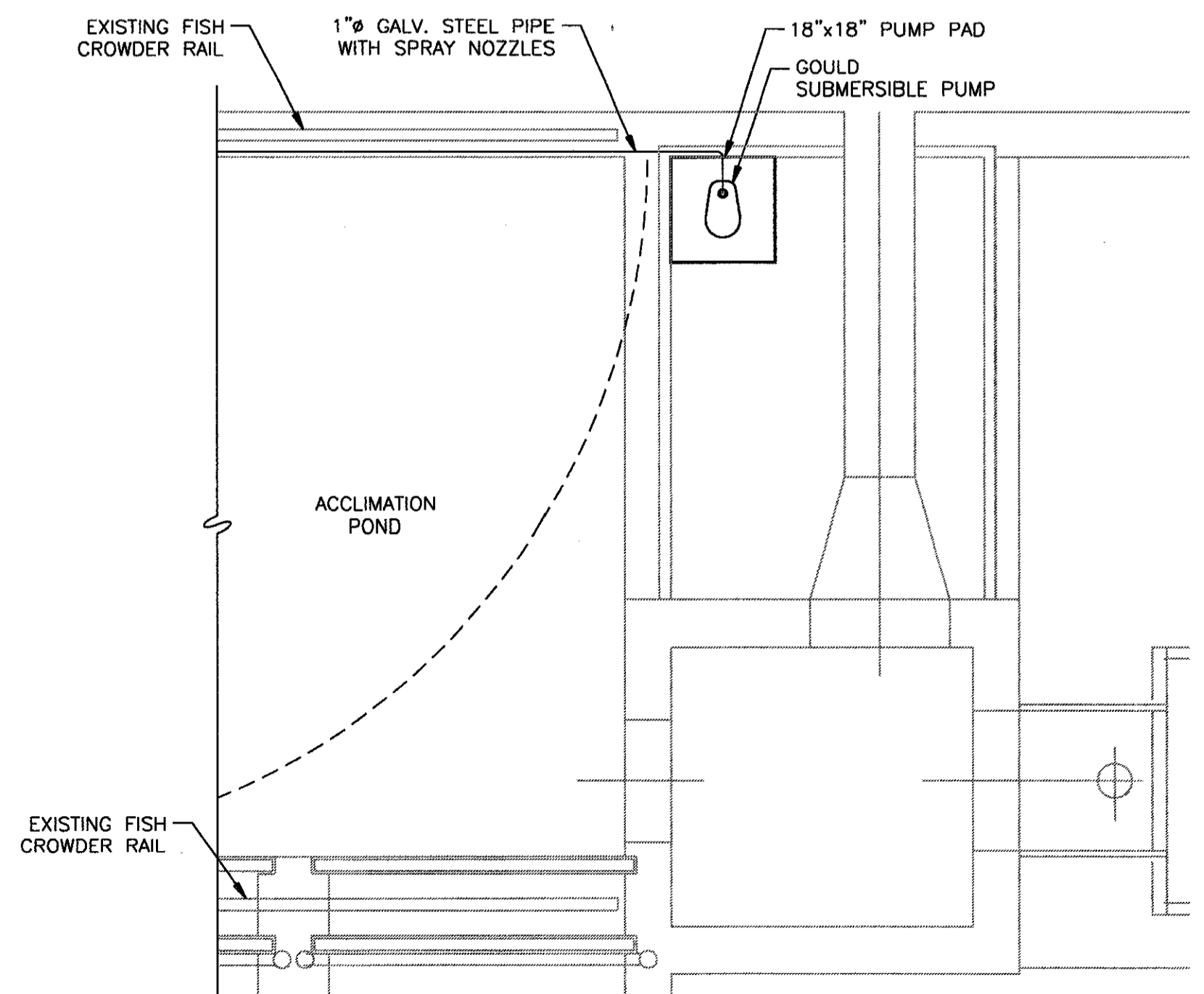
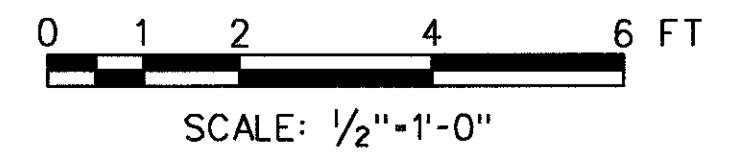


- NOTES: SPRAY WATER SYSTEM
1. REMOVE EXISTING SPRAY AND PUMP SYSTEM. INSTALL NEW SUBMERSIBLE PUMP IN THE SAME PUMP WELL AS EXISTING PUMP. CONTRACTOR SHALL FIELD VERIFY THE PUMP DIMENSIONS PRIOR TO PUMP PROCUREMENT.
 2. NEW SUBMERSIBLE PUMP SHALL BE WIRED TO THE EXISTING BREAKER IN THE SPAWNING SHELTER. PUMP SHALL BE GOULD SUBMERSIBLE EFFLUENT PUMP MODEL PE31 OR APPROVED EQUAL. PUMP SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
 3. SPRAY WATER SYSTEM PIPING AND NOZZLES SHALL BE INSTALLED ADJACENT TO THE FISH CROWDER RAIL. CONTRACTOR SHALL INSTALL THE PIPING TO MAINTAIN UNRESTRICTED OPERATION OF THE FISH CROWDER. THE PIPING INSTALLATION SHALL ALSO NOT RESTRICT INSTALLATION OF THE STOPLOGS OR SCREENS IN THE FISHWAY EXIT TO THE TRAPPING AREA OR THE ACCLIMATION POND SCREEN PANELS AND STOPLOGS.

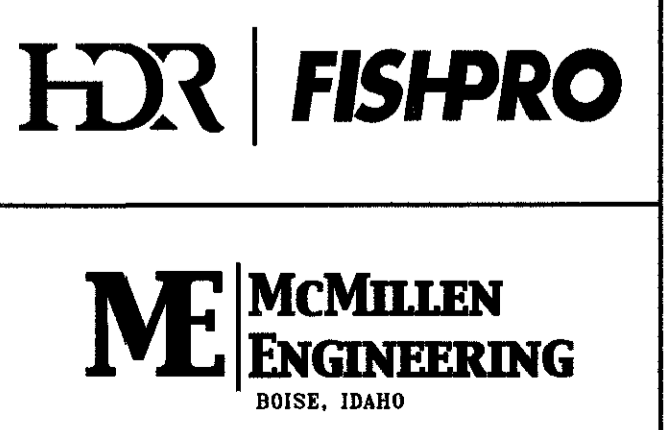
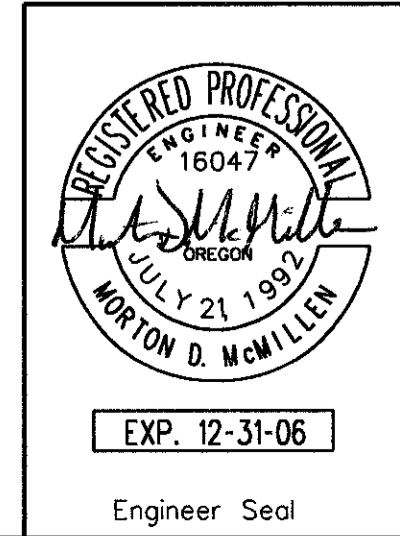
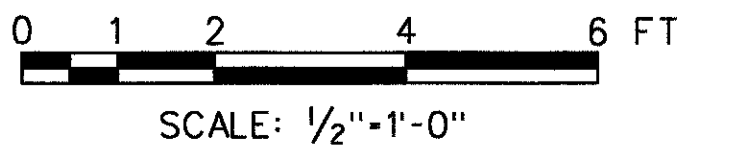
SPRAY WATER SYSTEM PLAN



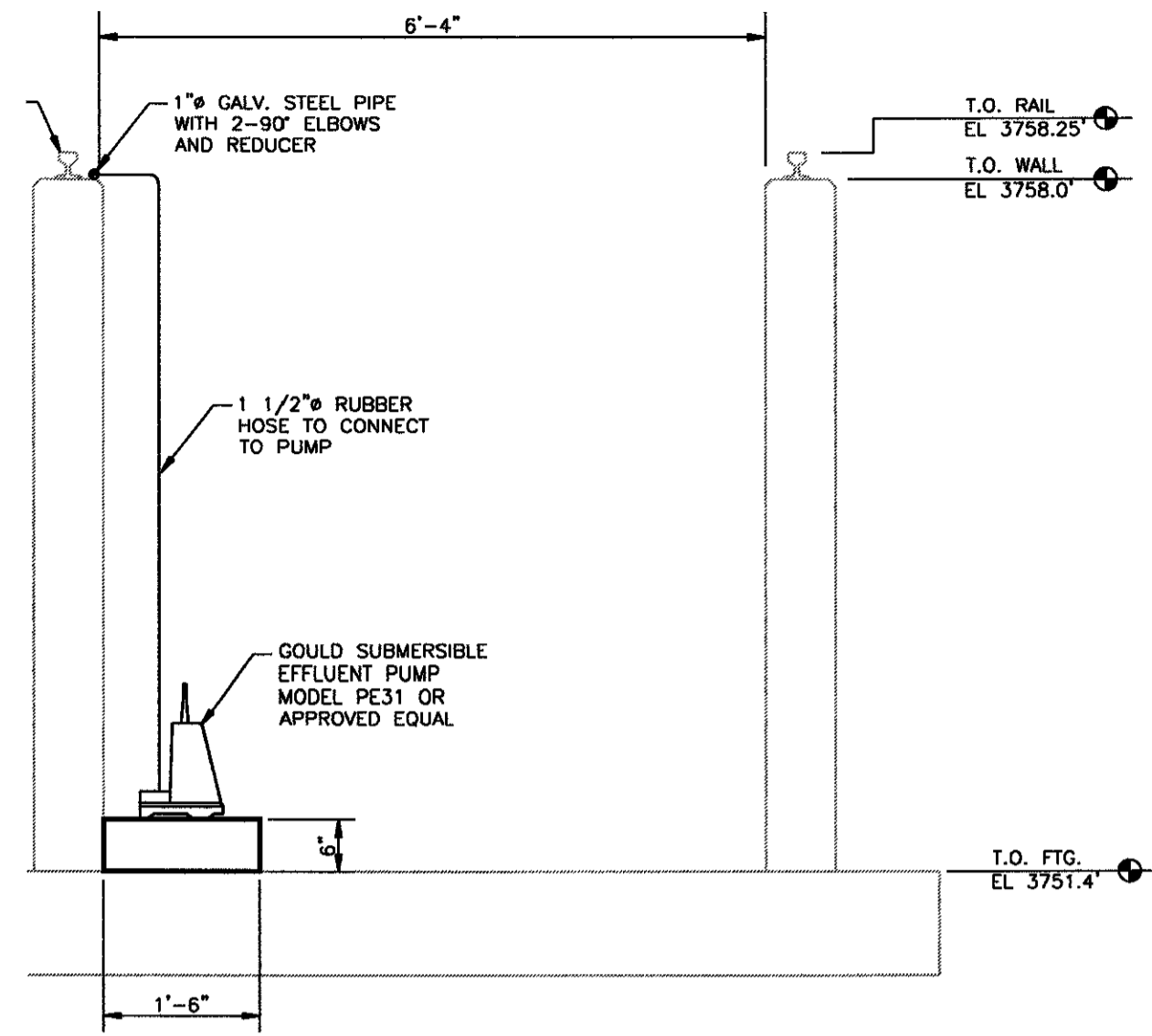
DETAIL - END SPRAY



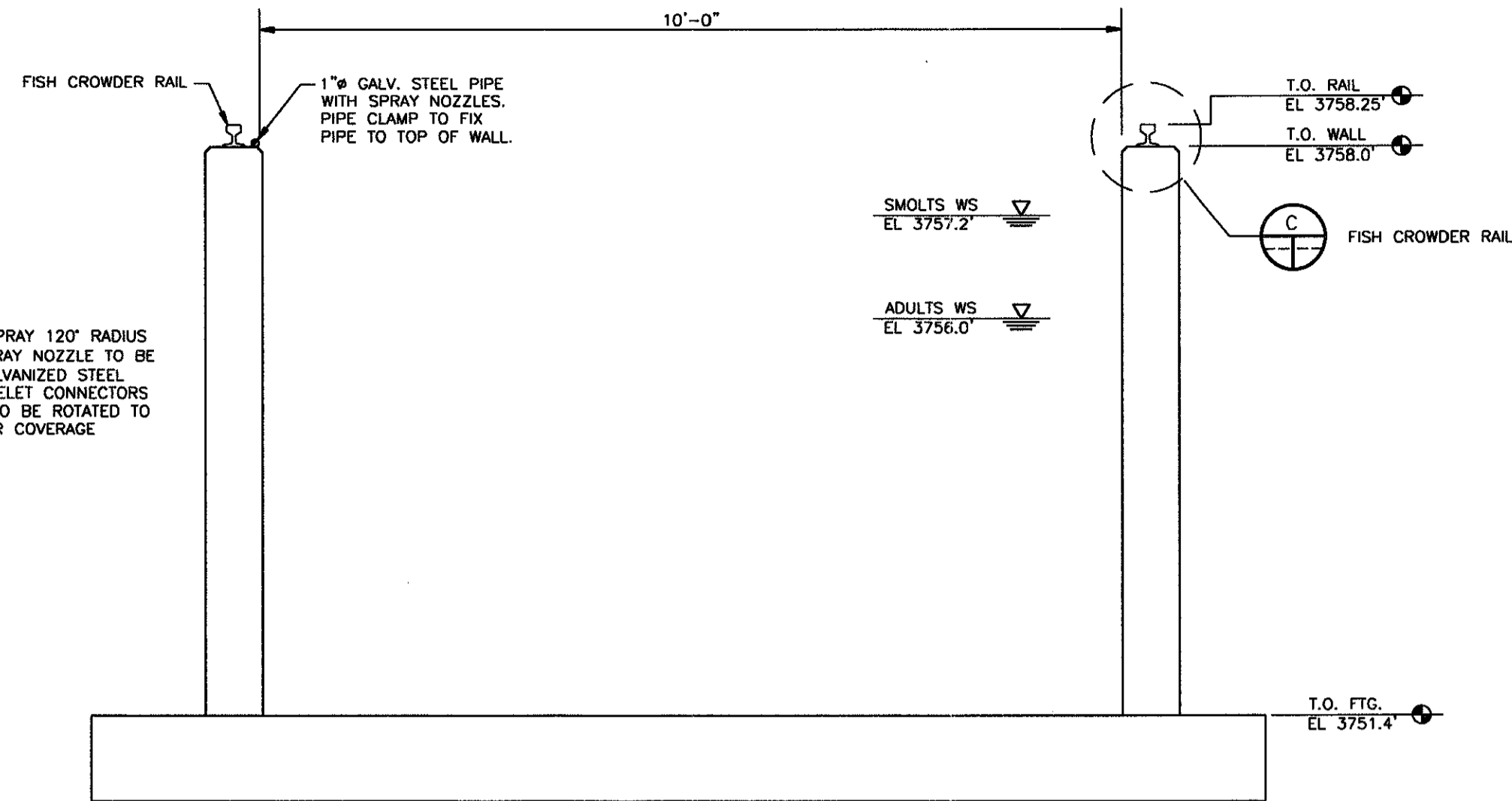
DETAIL - PUMP WELL



NO.	W/O	COMPUTER REVISION ONLY	BY	DATE	APPROVED
C-CONTRACT CONSTR., FA-FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M-6.dwg					
Design	S. SPICKELMIER	UNITED STATES DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION HEADQUARTERS, PORTLAND, OREGON			
Drawn	R. GUERRERO	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY ACCLIMATION POND			
Chkd	M. McMILLEN	SPRAY WATER SYSTEM AND FISH CROWDER MODIFICATIONS - PLANS AND SECTIONS			
Sub		SERIAL	SOURCE	SHEET NO.	SHEET
Rec				M6	OF
Rec					
Appr					
Date					

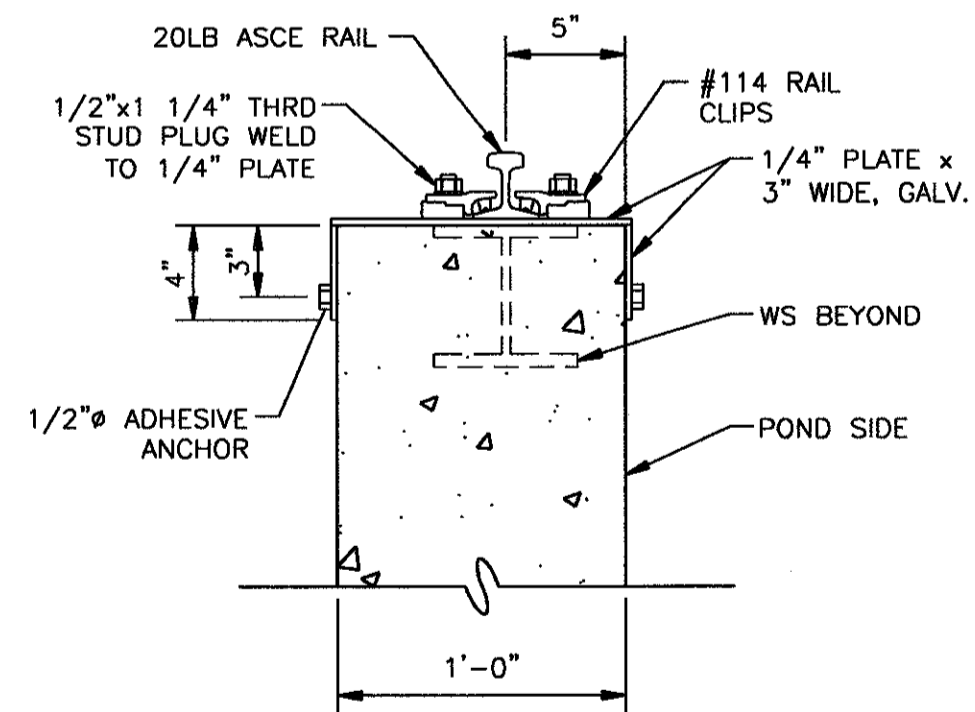


SECTION A
 0 1 2 4 FT
 SCALE: 3/4"=1'-0"



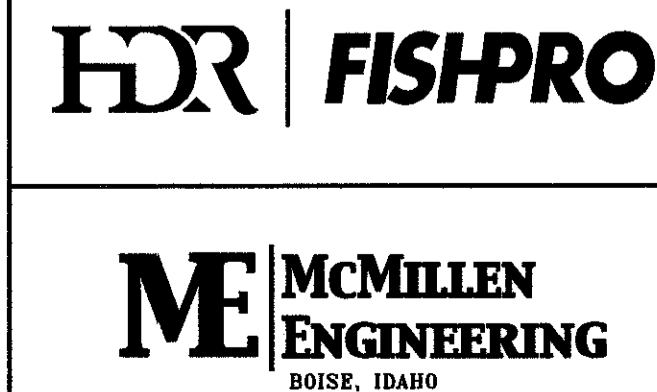
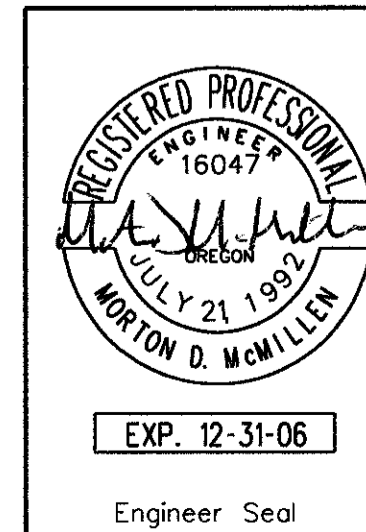
SECTION B
 0 1 2 4 FT
 SCALE: 3/4"=1'-0"

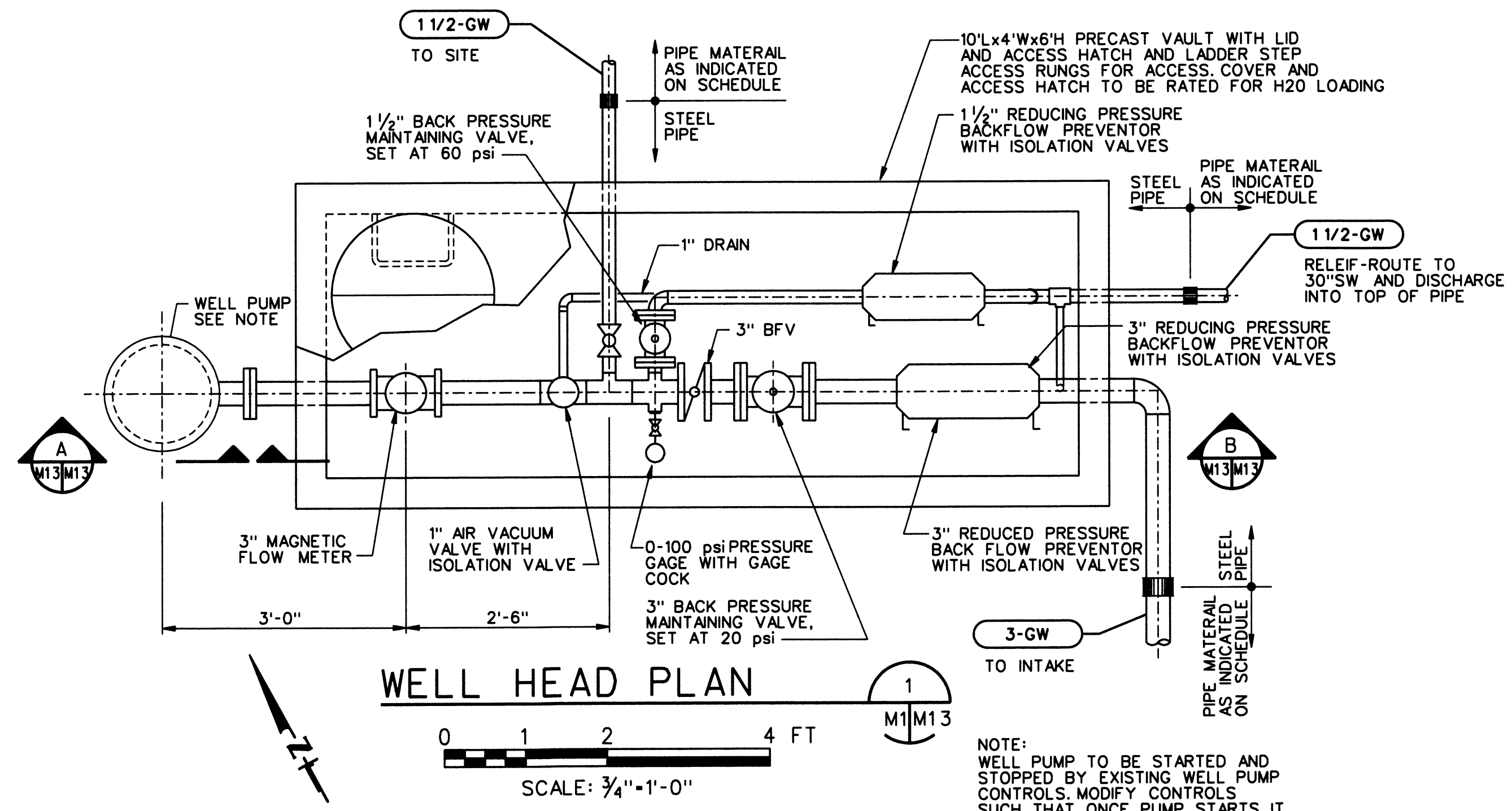
NOTE:
 1. SPRAY NOZZLE TO SPRAY 120° RADIUS WITH 10' REACH. SPRAY NOZZLE TO BE MOUNTED TO 1" GALVANIZED STEEL PIPE USING SPLIT EYELET CONNECTORS PIPE AND NOZZLES TO BE ROTATED TO PROVIDE FOR PROPER COVERAGE



FISH CROWDER RAIL C
 0 1/2 1 2 FT
 SCALE: 1/2"=1'-0"

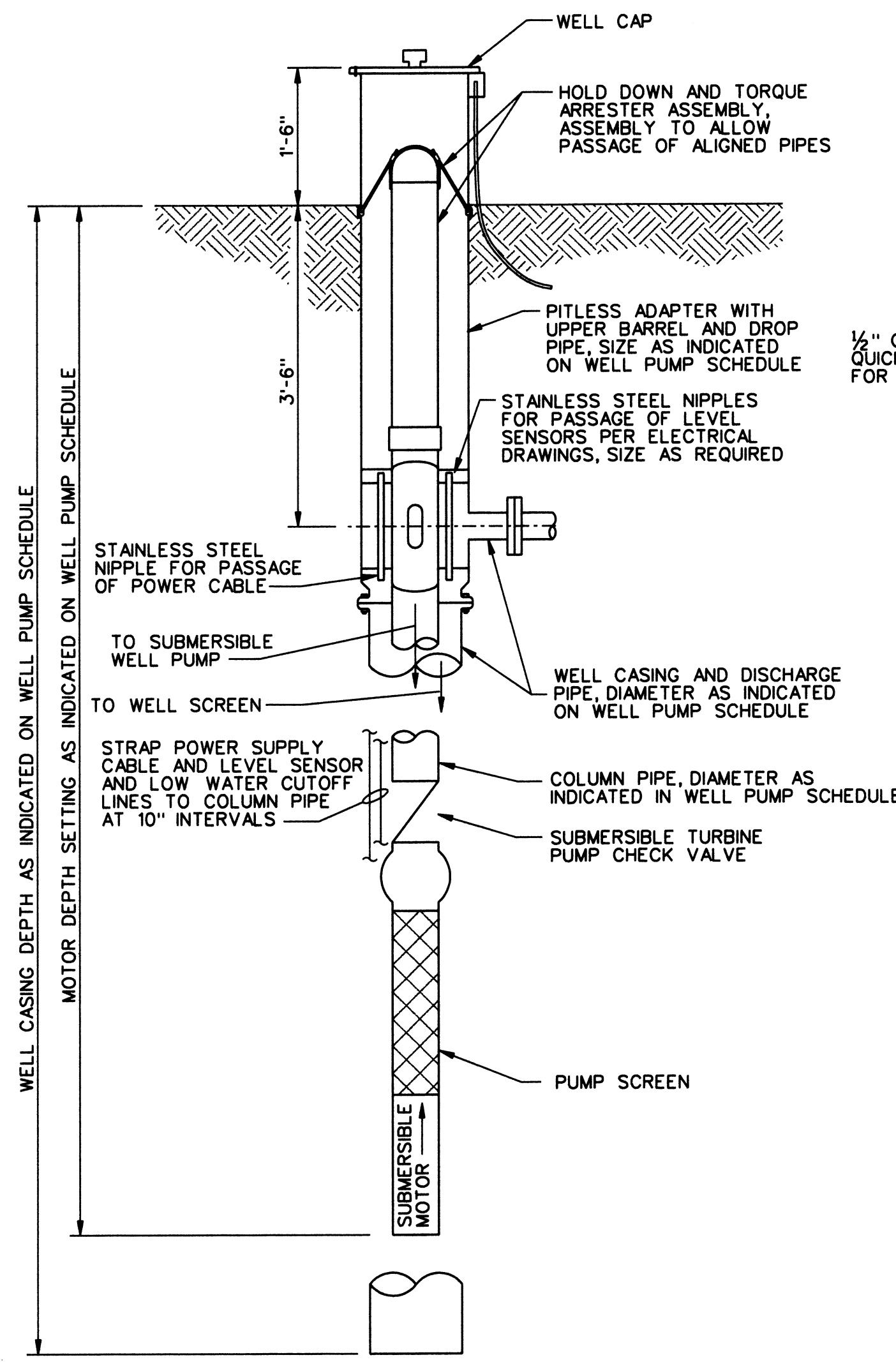
NO.	W/O	COMPUTER	REVISION	ONLY	BY	DATE	APPROVED
C-CONTRACT CONSTR., FA-FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M-7.dwg							
Design	S. SPICKELMIER	UNITED STATES DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION HEADQUARTERS, PORTLAND, OREGON					
Drawn	R. GUERRERO	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY ACCLIMATION POND					
Chkd	M. McMILLEN	SPRAY WATER SYSTEM SECTIONS AND DETAILS					
Sub		SERIAL	SOURCE	SHEET NO.	SHEET	REVISION	
Rec				M7	OF		
Appr							
Date							



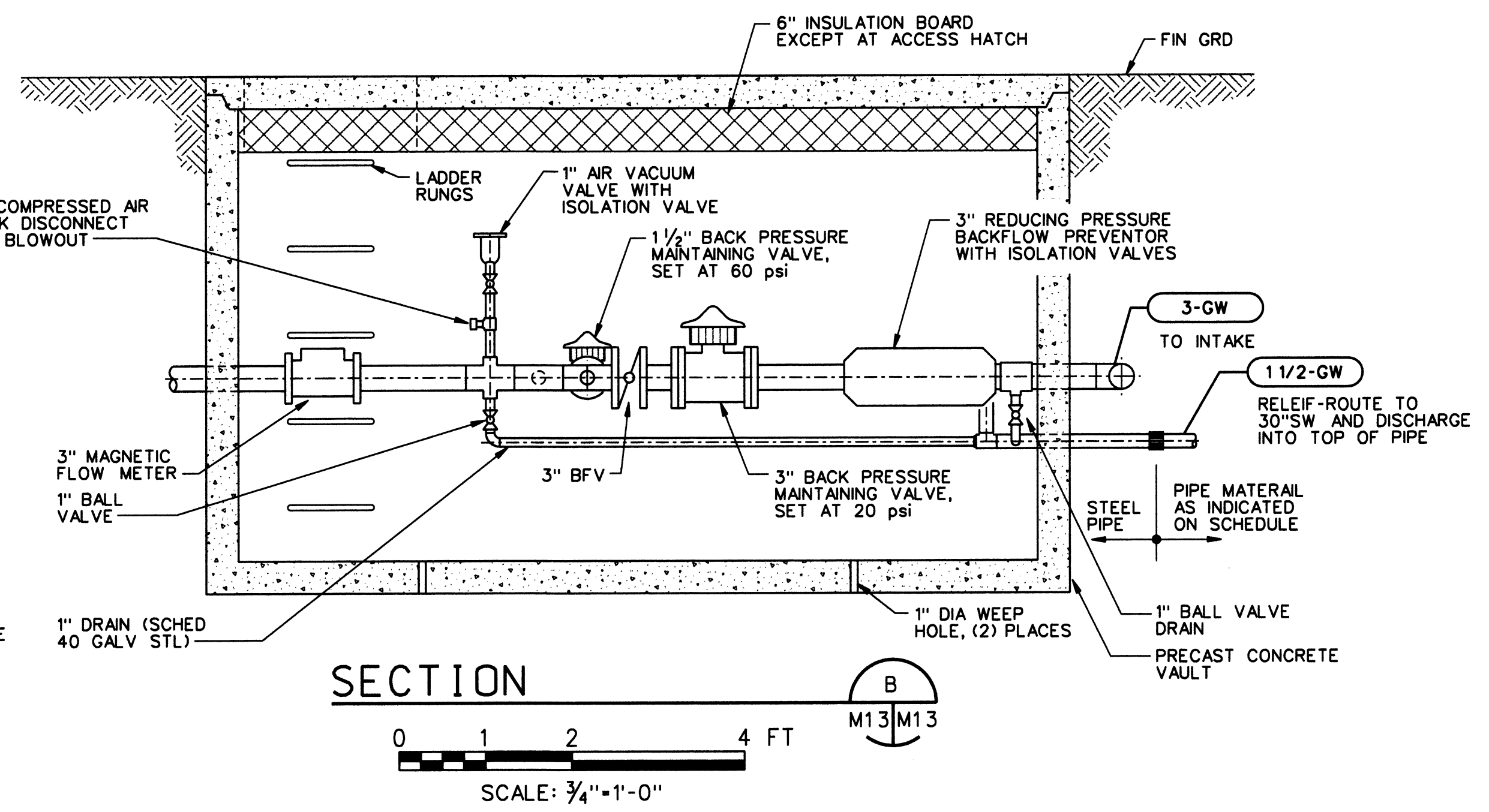


WELL HEAD PLAN

NOTE:
WELL PUMP TO BE STARTED AND STOPPED BY EXISTING WELL PUMP CONTROLS. MODIFY CONTROLS SUCH THAT ONCE PUMP STARTS IT RUNS FOR A MINIMUM OF 6 MINUTES



WELL HEAD SECTION

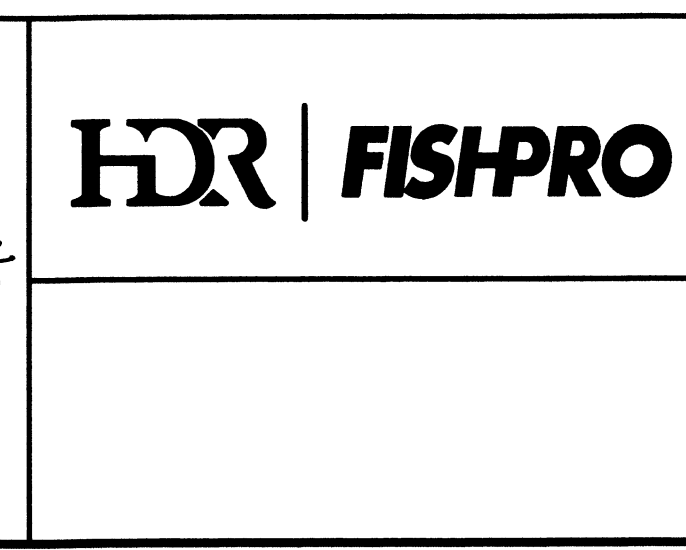
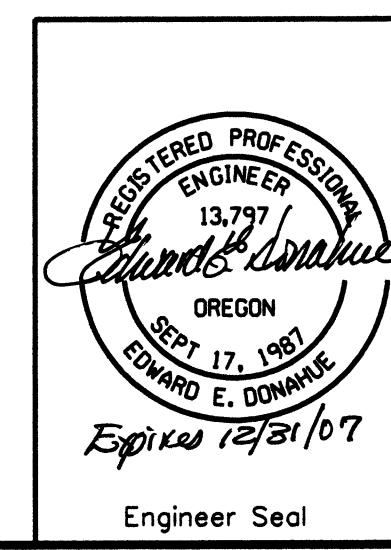


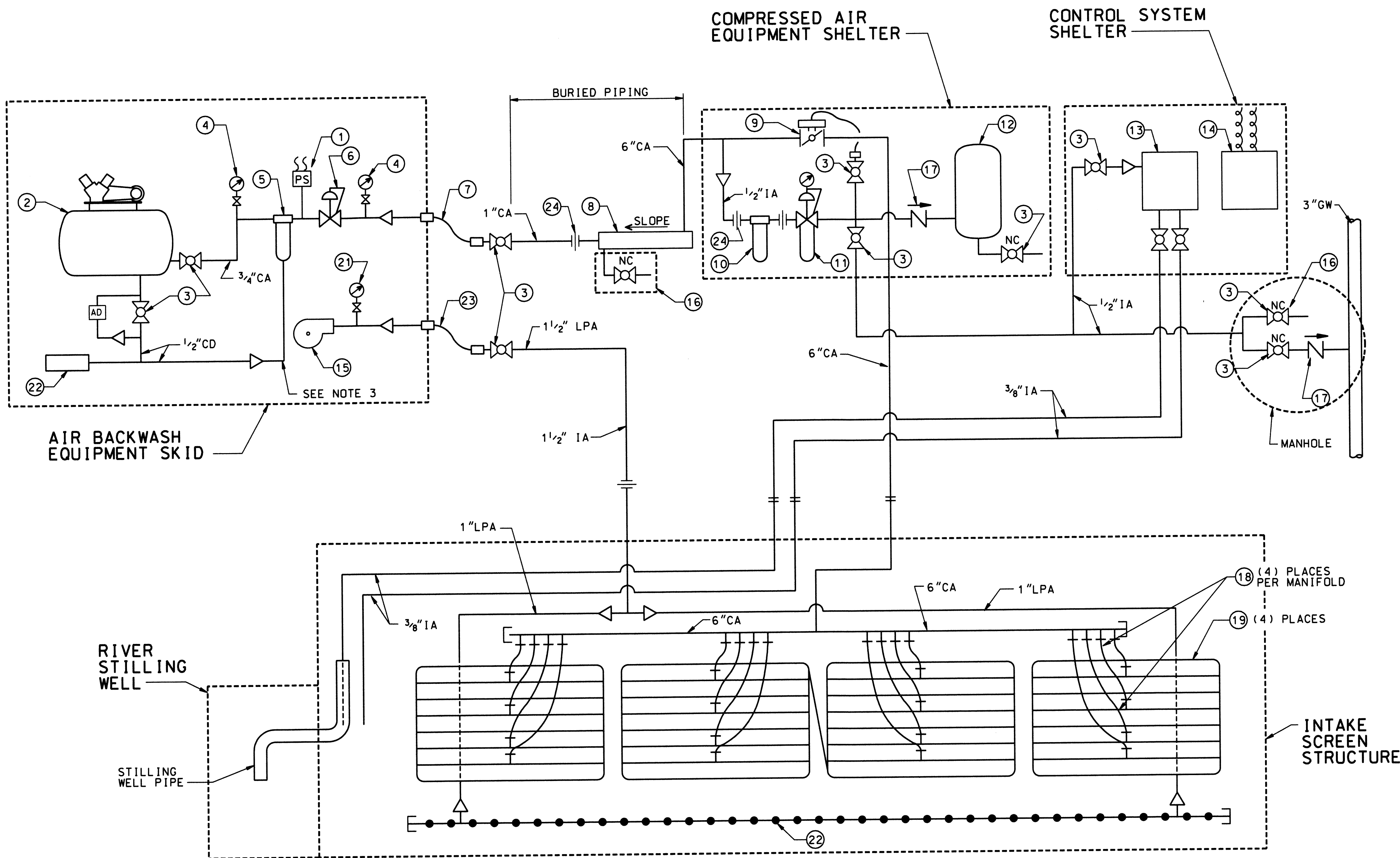
SECTION

WELL PUMP SCHEDULE		
WELL CASING INFORMATION	WELL CASING DIAMETER (IN) *	8
	CASING DEPTH (FT)**	224
PUMP INFORMATION	PUMP TYPE	SUBMERSIBLE TURBINE
	NUMBER OF STAGES	11
	IMPELLER MATERIAL	STAINLESS STEEL
	MOTOR DEPTH (FT) ***	120
	COLUMN PIPE DIAMETER (IN)	3
	DISCHARGE PIPE DIAMETER (IN)	3
	MOTOR HORSEPOWER	5
	MOTOR SERVICE FACTOR	1.15
	MOTOR VOLTAGE	240
	MOTOR PHASE	3
	RPM	3450
	SHUT OFF HEAD (FT)	307
	DESIGN FLOW (GPM)	80
	HEAD AT DESIGN FLOW (FT)	156
EFFICIENCY AT DESIGN FLOW	60%	
MAXIMUM FLOW (GPM)	100	
HEAD AT MAXIMUM FLOW (FT)	95	
EFFICIENCY AT MAXIMUM FLOW	45%	
MANUFACTURER AND MODEL NO OR EQUIVALENT	GOULDS 75GS	

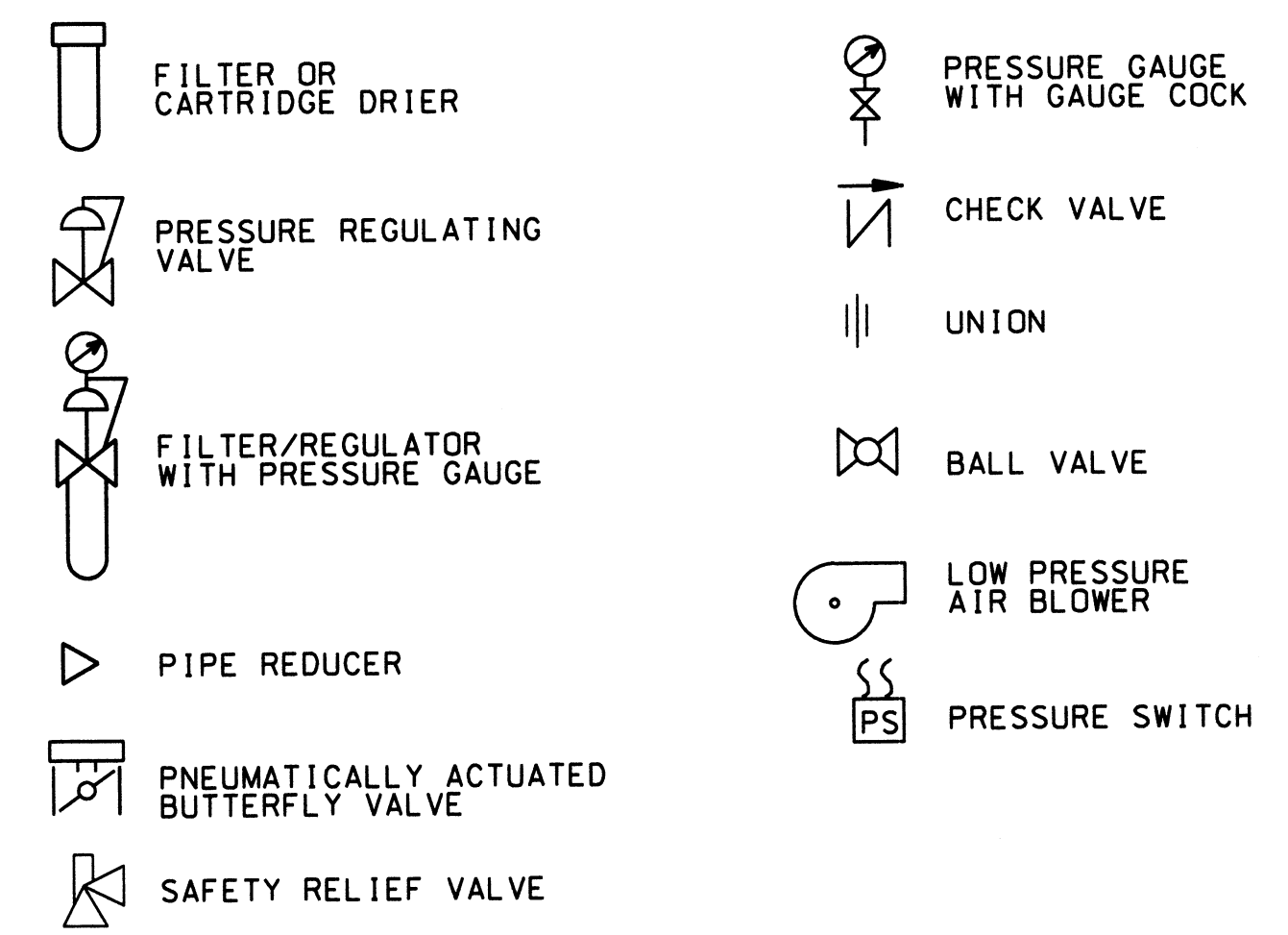
* CONTRACTOR TO VERIFY CASING DIAMETER PRIOR TO INSTALLATION AND PROCUREMENT OF PUMPS.
** CASING DEPTH IS MEASURED FROM FINISHED GRADE BOTTOM OF CASING. CASING HAS NO SCREEN.
*** MOTOR DEPTH IS MEASURED FROM FINISHED GRADE TO THE BOTTOM OF THE MOTOR.

NO.	W/O	COMPUTER	REVISION	ONLY	BY	DATE	APPROVED
C-CONTRACT CONSTR., FA-FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M13_NEOH.dgn							
Design	LJKP	UNITED STATES DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION HEADQUARTERS, PORTLAND, OREGON					
Drawn	ACB	NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY					
Chkd	EED	WELL HEAD PLAN SECTIONS AND SCHEDULE					
Sub							
Rec							
Rec							
Appr		SERIAL		SOURCE	SHEET NO.	SHEET	REVISION
Date	04/10/06				M13	OF	





LEGEND



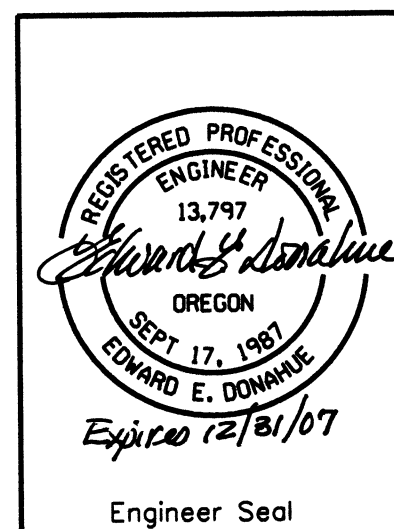
GW - GROUNDWATER
 AD - AUTOMATIC DRAIN
 NC - NORMALLY CLOSED
 CA - COMPRESSED AIR PIPING
 IA - INSTRUMENT AIR PIPING
 CD - CONDENSATE DRAIN PIPING

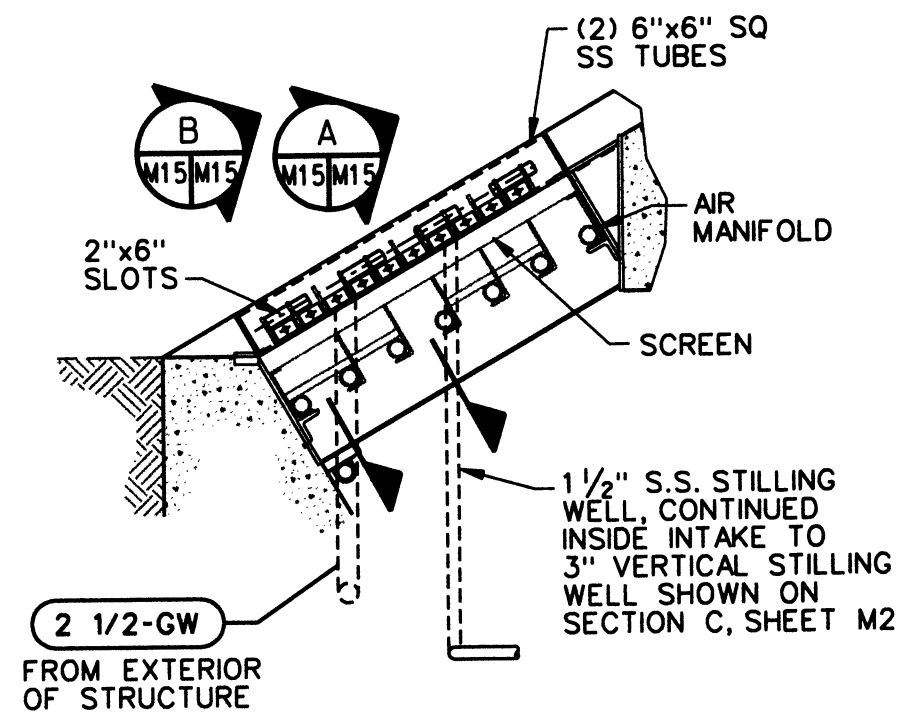
- NOTES:
1. THE COMPRESSED AIR DIAGRAM AND MECHANICAL DRAWINGS MAY NOT CALL OUT ALL OF THE FITTINGS, BUSHINGS, PIPING APPURTENANCES AND SUPPORT EQUIPMENT REQUIRED FOR THE INSTALLATION. EQUIPMENT SHALL BE INSTALLED WHETHER OR NOT SHOWN ON THE DRAWINGS OR DIAGRAM.
 2. WHERE PIPING COMES IN CONTACT WITH DISSIMILAR METAL, ISOLATING MATERIALS SHALL BE USED AT THE CONNECTION TO PREVENT DIRECT CONTACT UNLESS APPROVED BY THE ENGINEER.
 3. CONDENSATE DRAIN PIPING NOTED SHALL MATCH SIZE OF COMPONENT CONNECTION.
 4. THE COMPRESSOR CONTROLS SHALL BE DESIGNED BY THE MANUFACTURER OR MODIFIED BY THE THE CONTRACTOR TO START THE PROPANE ENGINE WHEN PRESSURE DROPS TO 150 psi AND SHUT OFF ENGINE WHEN THE PRESSURE REACHES 175 psi.

COMPONENTS

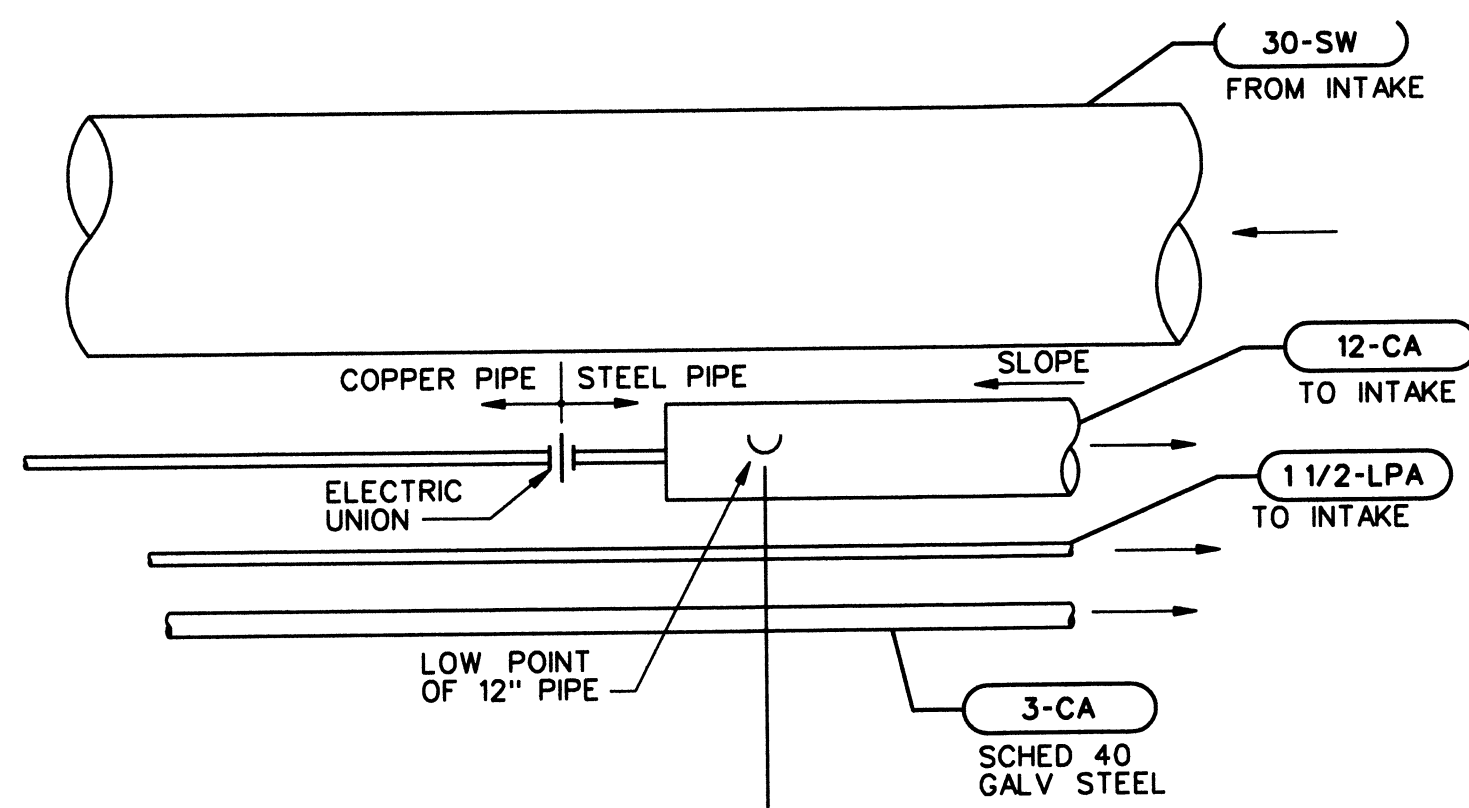
- | | |
|---|---|
| ① 1 PRESSURE SWITCH | ⑮ 5HP LOW PRESSURE AIR BLOWER RATED FOR 40SCFM @350 IN WC. |
| ② 30HP PROPANE POWERED COMPRESSOR, RATED FOR 59scfm @ 175 PSI, SEE NOTE 4 | ⑯ 1/2" KEY OPERATED SS BLOW DOWN VALVE LOCATED IN VAULT |
| ③ BALL VALVE, SIZE AS REQUIRED TO MATCH PIPING | ⑰ 1/2" CHECK VALVE |
| ④ 0-200 PSI PRESSURE GAUGE WITH GAGE COCK | ⑱ 1 1/2" STAINLESS STEEL AIR HOSE, LENGTH AS REQUIRED |
| ⑤ COALESCING FILTER | ⑲ AIR BACKWASH MANIFOLD |
| ⑥ 3/4" PRESSURE REGULATING VALVE, SET AT 110PSI | ⑳ 2" FINE BUBBLE DIFFUSER PIPING |
| ⑦ 1" AIR HOSE W/ QUICK DISCONNECT CONNECTIONS BOTH ENDS | ㉑ 0-15 PSI PRESSURE GAGE |
| ⑧ 12" DIA SCH40 STEEL PIPE (140' LONG) AIR STORAGE | ㉒ CONDENSATE DRAIN COLLECTOR |
| ⑨ 6" PNEUMATICALLY ACTUATED BUTTERFLY VALVE | ㉓ 1 1/2" AIR HOSE W/ QUICK DISCONNECT ON BOTH ENDS, 5' LONG |
| ⑩ CARTRIDGE TYPE DESICCANT DRIER | ㉔ DIELECTRIC UNION |
| ⑪ 1/2" FILTER REGULATOR, SET AT 80PSI | |
| ⑫ 30 GALLON, 200 PSI AIR RECEIVER | |
| ⑬ DIFFERENTIAL LEVEL MEASUREMENT PANEL | |
| ⑭ AIR BACKWASH CONTROL PANEL (SEE ELECTRICAL DRAWINGS) | |

NO.	W/O	COMPUTER	REVISION	ONLY	BY	DATE	APPROVED
C-CONTRACT CONSTR., FA-FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M14_NEOH.dgn							
Design LKP				UNITED STATES DEPARTMENT OF ENERGY			
Drawn ACB				BONNEVILLE POWER ADMINISTRATION			
Chkd FED				HEADQUARTERS, PORTLAND, OREGON			
Sub				NORTHEAST OREGON HATCHERY PROGRAM			
Rec				IMNAHA SATELLITE FACILITY			
Rec				AIR BACKWASH SYSTEM			
Appr				PROCESS AND			
Date 04/10/06				INSTRUMENTATION DIAGRAM			
SERIAL	SOURCE	SHEET NO.	SHEET	REVISION			
		M14	OF				

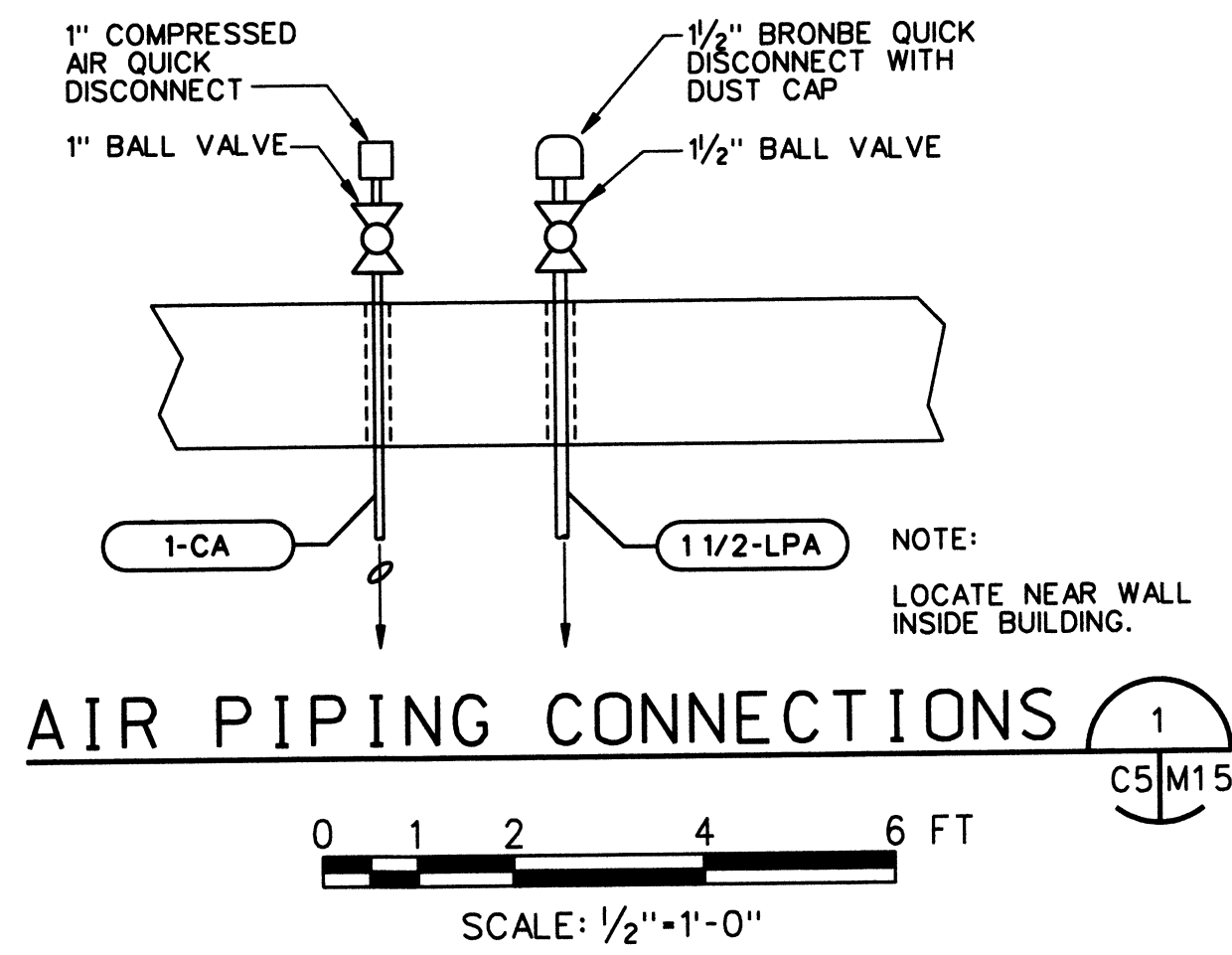
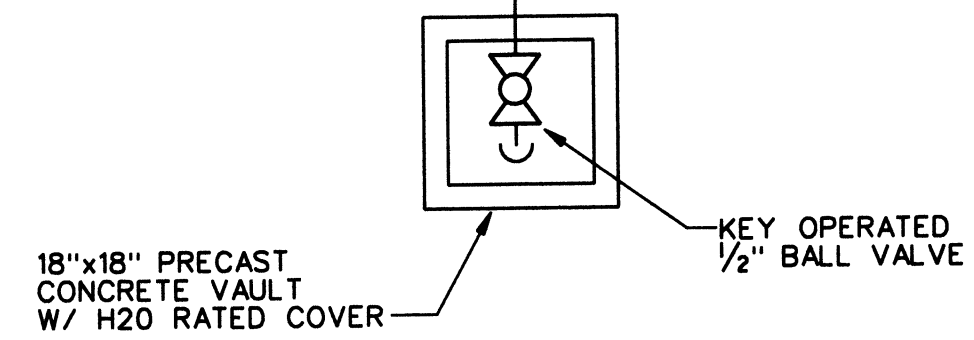




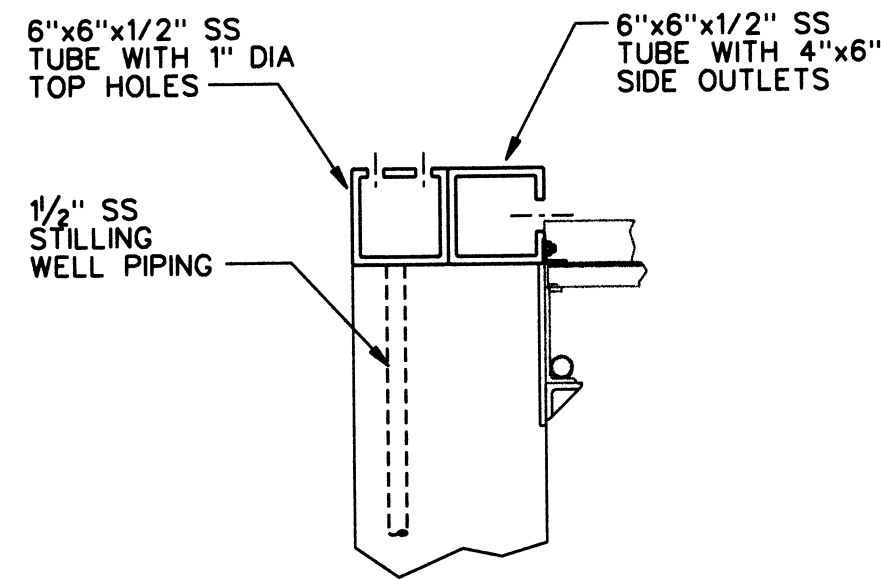
SECTION
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 A
 M3/M15



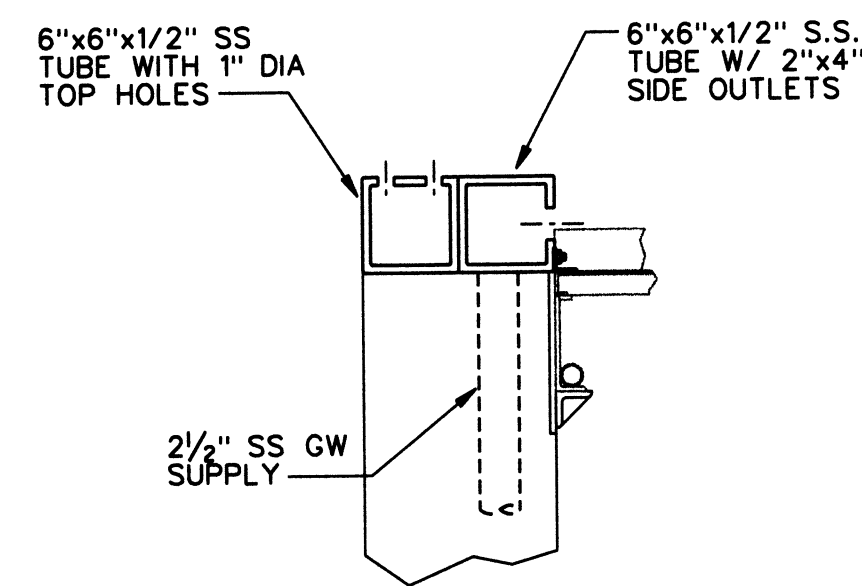
BLOW OFF / DRAIN
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 3
 C5/M15



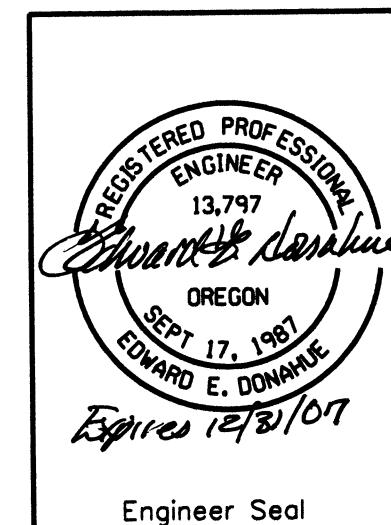
AIR PIPING CONNECTIONS
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 C5/M15



DETAIL
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 SCALE: 1"=1'-0"
 A
 M15/M15



DETAIL
 0 1 2 3 FT
 SCALE: 1"=1'-0"
 B
 M15/M15



HDR | FISHPRO

NO.	W/O	COMPUTER	REVISION	ONLY	BY	DATE	APPROVED
C-CONTRACT CONSTR., FA-FORCE ACCOUNT CONSTR., R-RECORD FILE NAME: ISF_M15_NEOH.dgn							
UNITED STATES DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION HEADQUARTERS, PORTLAND, OREGON							
NORTHEAST OREGON HATCHERY PROGRAM IMNAHA SATELLITE FACILITY							
MECHANICAL DETAILS 1							
Design	LKP						
Drawn	ACB						
Chkd	EED						
Sub							
Rec							
Rec							
Appr							
Date	04/10/06	SERIAL	SOURCE	SHEET NO.	SHEET	REVISION	
				M15	OF		