

ADDENDUM NO. 3

Spectacle Pond Water Treatment Plant Filter Media Replacement
Project No. 24DPW07
Ayer DPW

This addendum amends and/or supplements the bid documents as indicated below. Only these items alter the Bid Documents; any verbal discussions or responses are hereby declared null and void.

Sealed Bids for the General Contract will be received from General Contractors for the Spectacle Pond Water Treatment Plant Filter Media Replacement Project at the Ayer DPW Office, 25 Brook Street, Ayer, MA 01432 until **2:00 PM on Wednesday, December 13, 2023** and at that time and place bids will be publicly opened and read aloud.

Bidder shall acknowledge receipt of this addendum on the Form for General Bid.

BID OPENING

1. Bid Opening has been changed from 2:00 PM on Friday, December 8, 2023 to **2:00 PM Wednesday, December 13, 2023**.

ATTACHMENTS

1. Section 11225 Pressure Filter Media Replacement –
Replace Section 11225 with the version attached to this Addendum.
2. Hydro-Pure Systems Company, Inc. Filter System Drawings. Included are:
 - a) Vessel Detail
 - b) Panel Layout
 - c) Internal Screen Assembly
 - d) Header Lateral Assembly -Underdrain
 - e) Header Lateral Assembly – Air Distribution.This attachment is added to the bid document as Appendix D.

Attachments:

Section 11225, Revised.

Hydro-Pure Systems Company, Inc. Drawings for the Spectacle Pond Filters

SECTION 11225

PRESSURE FILTER MEDIA REPLACEMENT

PART 1 GENERAL

1.01 SUMMARY

- A. This section of the specification covers all labor, materials, tools and equipment required to replace and rehabilitate the filter media in the existing fully automatic pressure-type iron and manganese removal filtration system.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Documents affecting the work of this Section include, but are not necessarily limited to, General Conditions and Sections in Division 1 of these Specifications.

1.03 DESIGN CRITERIA

- A. The pressure filtration system was specifically designed to provide filtration and removal of iron and manganese from groundwater well water sources with the filter influent receiving a continuous pretreatment of chlorine and potassium permanganate solutions as necessary for oxidation of soluble iron and manganese and to regenerate the manganese greensand media. Potassium hydroxide is added post-filtration for pH adjustment.
- B. The pressure filter system was designed for the following requirements:
1. Design rate of flow: 2004 gpm (total for 6 filters)
 2. Filter area: 113 sq. ft. (each filter)
 3. Filter loading rate at design rate of flow: 3.0 gpm/sq. ft.
 4. Normal maximum operating pressure: 150 psi
 5. Filter dimensions: 12-foot diameter by 8'-4" height
 6. Backwashing Operations:
 - a. Washwater Flow: 12.8 gpm/sq. ft. (1450 gpm)
 7. Media Arrangement:

Media	Effective Size (mm)	Uniformity Coefficient	Depth (inches)	Volume (cu. ft.)
Anthracite Coal	0.60 - 0.80	< 1.85	18.5	170
Manganese GreensandPlus™	0.30 - 0.35	< 1.60	21.5	198

Gravel	Depth (inches)	Volume (cu. ft.)
1/8" - 1/16"	3.5	32.5
1/4" - 1/8"	3.5	32.5
1/2" - 1/4"	2.0	18.5
3/4" - 1/2"	2.0	18.5
1½" - 3/4"	5.0	46.5

A screen is located between the manganese greensand and gravel layer to prevent mixing of these two materials.

- C. Current Influent Water Quality (maximum observed values):
- 1 Iron: 3.0 mg/L
 - 2 Manganese: 1.5 mg/L
 - 3 pH: 7.1
- D. Plant Effluent Guarantee: The pressure filter media manufacturer shall review the filter influent raw water quality and the specific requirements of these specifications. The pressure filter media manufacturer shall guarantee in writing that the media supplied herein, when installed in the existing filtration system, will produce a plant effluent having maximum iron and manganese concentrations as noted below for the one (1) year guarantee period. If, during the guarantee period, the plant effluent does not meet the requirements stated herein, the filter media manufacturer shall make all necessary changes to the filtration system to meet the guarantee at no additional cost to the Owner.
- 1 Iron: Less than 0.10 mg/L, maximum 0.30 mg/L
 - 2 Manganese: Less than 0.05 mg/L
- E. All materials including paints, coatings and sealants to be in contact with potable water shall be suitable for submerged use in potable water and shall be a product acceptable to the National Sanitation Foundation (NSF) for use in potable water and shall be so listed in the most current NSF summary of approved products (ANSI/NSF Standard 61). Materials shall be NSF-61 certified and meet the lead-free standards of ANSI-NSF 372 for Drinking Water System Components -Lead Content.

1.04 REQUIREMENTS

- A. The manufacturer of the existing pressure filter system, Hydro-Pure Systems Company, Inc., appears to no longer be in business. The replacement filter media shall be coordinated through and approved by Hungerford and Terry Inc., 226 Atlantic Ave, Clayton, NJ 08312.
- B. The Contractor shall guarantee for one (1) year from the date of Substantial Completion that all material is free from defects in design and workmanship. Replacements for any defective media shall be provided at no additional cost.

1.05 SUBMITTALS

- A. The Contractor shall submit to the Engineer shop drawings, details, data sheets and other descriptive drawings and material as may be required to fully describe the material proposed and verify compliance with the Contract Documents.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. All equipment shall be constructed of corrosion-resistant materials or be protected with corrosion-resistant coatings as specified hereinafter and/or as approved by the Engineer.

2.02 GRAVEL SUPPORT BED

- A. The graded gravel support bed in each filter shall be 16-inches in depth and shall consist of five (5) sizes of graded gravel, with the largest size loaded into the filter first and the succeeding smaller sizes placed on top. The gravel gradations are indicated in Part 1.03 B. 7. above.
- B. The gravel shall be "Cape May" quality, washed and screened and shipped in clearly marked bags. The gravel must meet the requirements of the American Water Works Association (AWWA) Specification B100.
- C. All gravel shall be field installed by the Contractor. All necessary steps shall be taken to prevent contamination.

2.03 FILTER MEDIA

- A. Each filter compartment shall be provided with a 21.5-inch bed depth of GreensandPlus™ as manufactured by Inversand Company. For purposes of maintaining compatibility with the existing fully automatic pressure-type iron and manganese removal filtration system, no substitutions shall be allowed. The GreensandPlus™ filter media shall be approved under Standard 61 of the National Sanitation Foundation. The GreensandPlus™ media shall meet the following criteria:

Specific Gravity:	Approximately 2.4
Effective Size:	0.30 to 0.35 mm
Uniformity Coefficient:	Less than 1.6

- B. Each filter cell shall be provided with an 18.5-inch bed depth of specially graded anthracite. The anthracite shall meet the following criteria:

Specific Gravity:	Approximately 1.6 to 1.7
Effective Size:	0.60 to 0.80 mm
Uniformity Coefficient:	Less than 1.85

- C. The GreensandPlus™ must be backwashed and the fines skimmed from the filter bed surface before the anthracite is packed to avoid any excess pressure drop. The filter manufacturer's procedure for backwashing and skimming of the fines must be followed.
- D. The final filtering bed depth (GreensandPlus™ and anthracite) shall total 40 inches. All GreensandPlus™ and support gravel shall be supplied in one-half (1/2) cubic foot bags, and all anthracite shall be shipped in one (1) cubic foot bags, palletized and shrink wrapped.

- E. The GreensandPlus™ shall be conditioned with sodium hypochlorite prior to placing the filters into service. A sufficient quantity of NSF approved sodium hypochlorite shall be supplied by the Owner for this conditioning. The filter media supplier's procedure must be followed for this conditioning in conjunction with any requirements or limitations of the filter manufacturer or Hungerford and Terry Inc.
- F. All filter media shall be field installed and conditioned by the Contractor.

2.04 ACCESSORIES

- A. The Contractor shall provide new gaskets for all manways and hatches on the existing pressure vessels which are accessed or operated during the course of the Work. Manways are oval measuring 12" x 16", see Appendix D.

PART 3 EXECUTION

3.01 PRIOR TO INSTALLATION OF NEW FILTER MEDIA

- A. Contractor shall protect all existing equipment with polyethylene sheeting prior to the start of the filter media replacement.
- B. Contractor shall remove the existing gravel support bed, manganese greensand, and anthracite filter bed from each filter, utilize wet dumpsters and legally dispose the materials off site. Disposal shall include, but not be limited to, all sampling, storage and costs required to dispose of the materials legally. No material shall be allowed in the backwash tank or Town sewer system without prior approval from the Ayer DPW.
- C. Contractor shall retain the services of the Hungerford and Terry Inc. to inspect the interior components of the existing filters after media removal. This includes the interior coating, filter underdrain, and air grid to the maximum extent practicable, as part of this Contract. The gravel screen shall be carefully removed, it shall be reused unless otherwise determined by the Engineer. The costs associated with any needed repairs to or replacements of components following the inspection shall be included under the hourly labor rate and material markup portion of the Bid when approved by the Owner.
- D. Contractor shall clean all interior components of the filters prior to the inspection of the internal components and installation of new filter media.

3.02 COORDINATION WITH THE OWNER

- A. The Spectacle Pond WTP shall remain in operation during filter media replacement, rehabilitation, and repair. One (1) filter initially followed by no more than two (2) filters at a time will be temporarily taken out of service to allow for filter media replacement, rehabilitation, and repair. The remaining filters must remain in operation supplying water to the distribution system. Work on the first filter must be complete and back on-line, before work may proceed to the next set of filters. The Contractor shall coordinate the timing and duration of shutdown required to complete the work with the Owner and Engineer. All work shall be completed by the Substantial Completion date of the Contract, unless extended by the Owner, to minimize the impacts to the water system due to taking the WTP out of service. The Owner recognizes additional time may be required based on the repair needs of the internals of the vessels.

3.03 INSTALLATION

- A. The supervisory service of a Hungerford and Terry's factory trained service engineer, who is specifically trained in the type of equipment herein specified, shall be provided for a period of up to ten (10) cumulative 8-hour person-days during construction. Service engineer shall assist the contractor with technical advice on the inspection and installation of the major components of the treatment equipment to include:
 - 1. Inspection of the interior components of the filters.
 - 2. Placement of gravel support material by the Contractor.
 - 3. Proper placement and conditioning of each lift of filter media.
- B. All equipment specified herein shall be installed in accordance with the manufacturer's written recommendations and the Contract Drawings as approved by the Engineer.
- C. Installation of the gravel bed, GreensandPlus™ media and anthracite media is to be accomplished under the supervision of the Hungerford and Terry Inc. for the first filter. Subsequent filters are anticipated to follow the same process as the first filter.
- D. GreensandPlus™ shall be loaded into the filters, backwashed, skimmed and conditioned in accordance with the filter manufacturer's recommendations. GreensandPlus™ fines must be removed from the filter prior to loading the anthracite to avoid excessive pressure drop.
- E. Do not close or obstruct walks, drives or other occupied or used spaces or facilities without the written permission of the Owner and the authorities having jurisdiction. Do not interrupt utilities serving occupied or used facilities without the written permission of the Owner and authorities having jurisdiction. If necessary, provide temporary utilities.
- F. Repair demolition performed in excess of that required, at no cost to the Owner.

3.04 STARTUP AND TRAINING

- A. After completion of the Work on each set of filters, the filters shall be operated for a period of three days for demonstration before starting work on the next filters.
- B. Upon completion of the installation, the services of the above service engineer shall be provided for a period of up to two (2) cumulative 8-hour person-days to check the completed installation, make any recommendations for operations of the plant.
- C. Discharge of Water During Start-up
 - 1 The Contractor may discharge spent washwater to the backwash holding tanks which discharge to the Town's wastewater collection system.
 - 2 The Contractor shall make every effort to minimize the amount of water pumped to waste during the start-up of the filters.

3.05 APPROVAL

- A. No form of energy shall be turned on to any part of the filtration system prior to receipt by the Owner and Engineer of a certified statement of approval of the installation from the Hungerford and Terry Inc. indicating the media was installed by Hungerford and Terry's instructions.

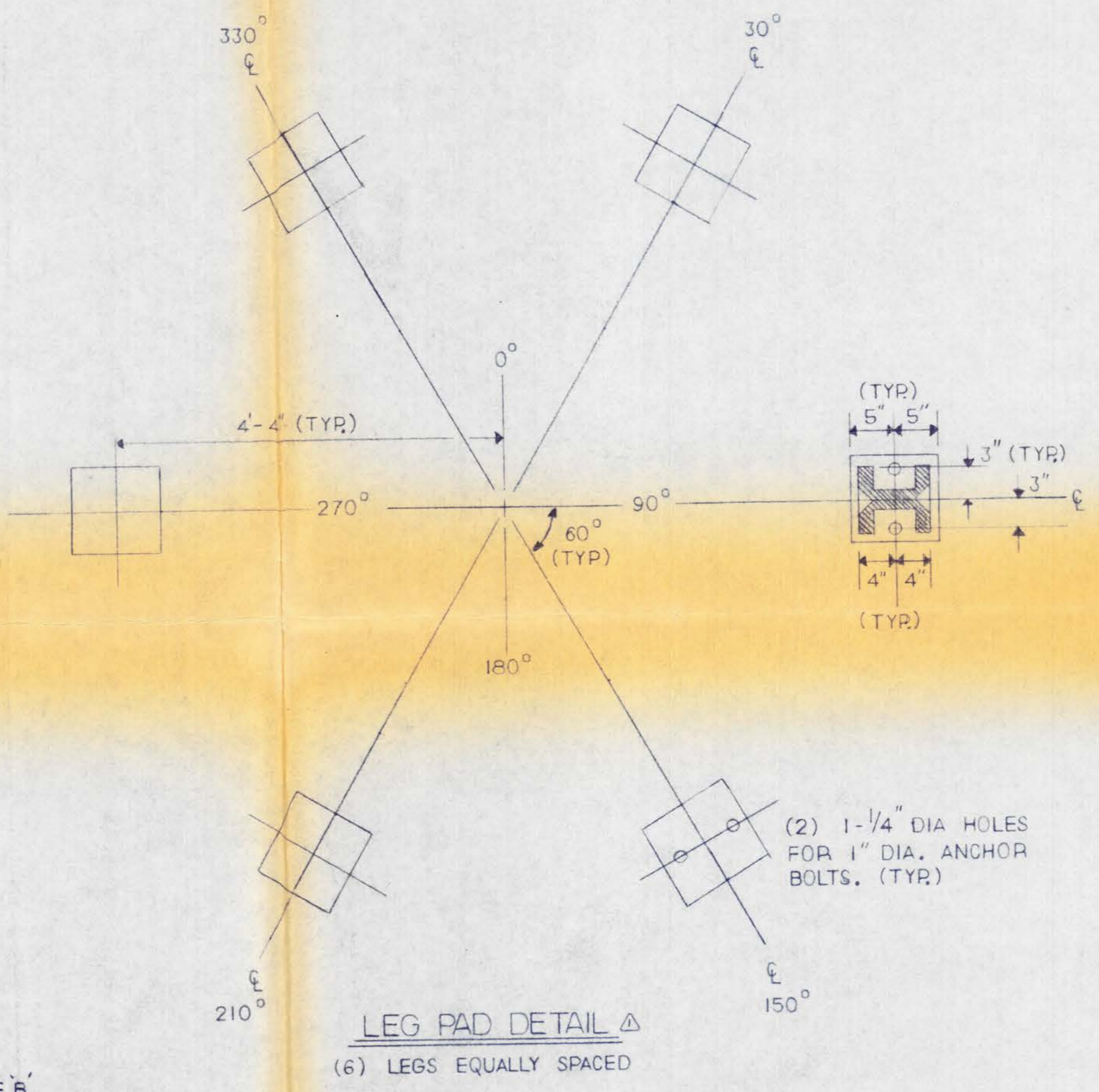
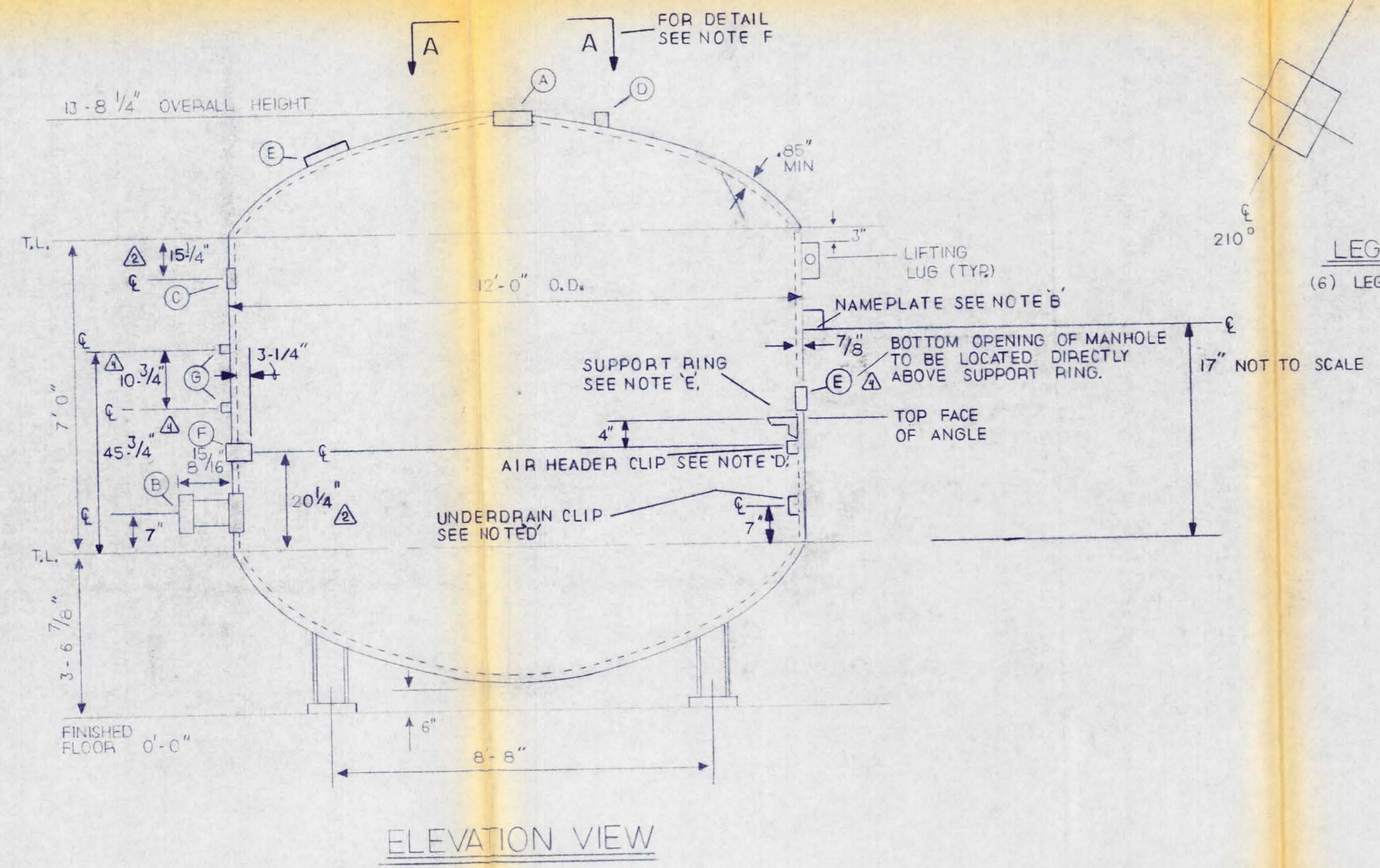
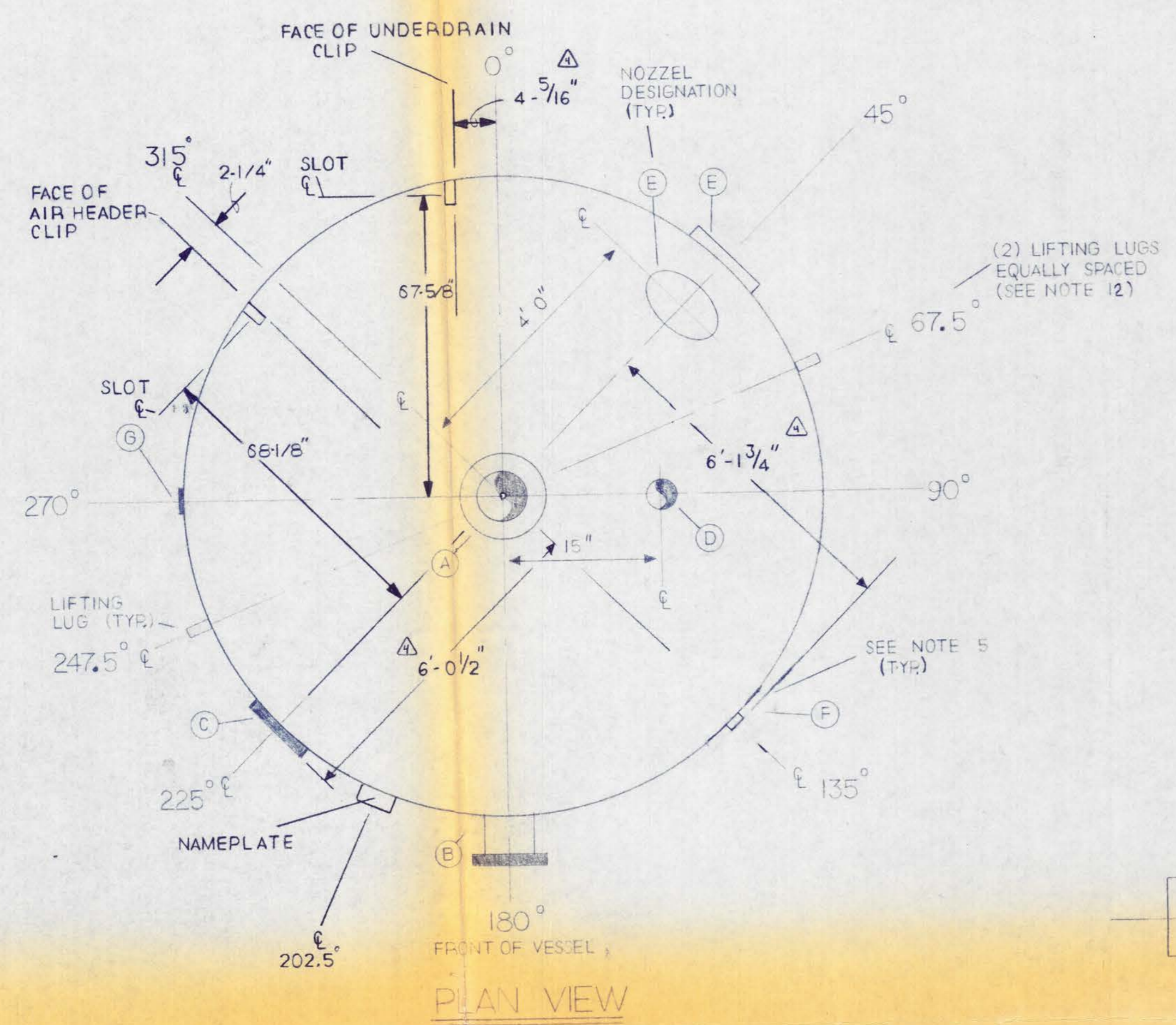
3.06 CLEAN UP

- A. Prior to start-up and field testing, all foreign matter shall be removed from the filter, channels, piping and blower. Spillage of lubricants used in servicing the system shall be cleaned from all equipment and concrete surfaces.
- B. Prior to Substantial Completion of the Work, the Contractor shall drain/pump out, and remove and dispose of all accumulated material from within the spent washwater holding tank in an approved manner. No residuals, filter media fines, or any other materials shall remain in the spent washwater holding tank following the completion of the filter media replacement in all filters.

3.07 DISINFECTION

- A. At the conclusion of filter installation work, and as soon as water is available, each filter shall be thoroughly disinfected by chlorination in accordance with AWWA C653 (Disinfection of Water Treatment Plants).

END OF SECTION



NOTES

DIAMETER..... 12'-0" O.D. STRAIGHT SIDE ... 7'-0"	HEAD(S)..... SA-516 GR 70	SHELL(S)..... SA-516 GR 70
MATERIALS OF CONSTRUCTION: HEAD(S)..... SA-516 GR 70	CLIPS..... A36 CS	VESSEL ATTACHMENTS... A36 CS
HEAD THICKNESS..... 0.85"	SHELL THICKNESS.. 0.875"	CORROSION ALLOWANCE.. N/A
TEST PRESSURE..... 300 PSIG	DESIGN PRES..... 200 PSIG	OPERATING PRES..... 200 PSIG
TEST TEMPERATURE..	DESIGN TEMP.....	OPERATING TEMP..... AMBIENT

NOZZLE/SPOOL/CONNECTION SCHEDULE:

ITEM	SIZE	TYPE	RATING	FUNCTION	DESCRIPTION
A	8"	FF	150#	SERVICE INLET	PAD FLANGE
B	8"	FF	150#	SERVICE OUTLET	EXTERNAL SPOOL (SCH 40) WITH INTERNAL PAD FLANGE
C	3"	FF	150#	DRAIN	PAD FLANGE
D	2"	FNPT	3000#	VENT	HALF COUPLING (CARBON STEEL)
E	12x16	YORK		MANWAY	MANWAY WITH GASKETS AND FASTENING HARDWARE
F	3"	FF	3000#	AIR INLET	FULL COUPLING
G	3/4"	FNPT	3000#	SAMPLE POINT	HALF COUPLING (CARBON STEEL)

- NUMBER OF VESSELS TO BE FABRICATED: SIX (6)
- IDENTIFICATION OF VESSELS (TAG NOS.): NO. 1, NO. 2, NO. 3, NO. 4, NO. 5 & NO. 6
- DIMENSIONS AND DEGREES OF ORIENTATION TO BE HELD TO A TOLERANCE OF $\pm 1/8"$.
- DIMENSIONS ARE TO FACE OF STEEL (INSIDE WALL OF VESSEL FOR DIMENSIONS INSIDE TANK AND OUTSIDE WALL OF VESSEL FOR DIMENSIONS OUTSIDE OF TANK).
- ALL TANK NOZZLES AND FLANGES ARE TO BE DRILLED AND FACED WITH DIMENSIONS FOR CLASS 125# CAST IRON FITTINGS UNLESS OTHERWISE NOTED. FACE OF PAD FLANGES TO EXTEND FROM EXTERIOR OF VESSEL $1/2"$.
- FOR MANHOLE SUPPLY; COVER, GASKETS, AND FASTENING HARDWARE.
- EXTERIOR PAINTING AND SURFACE PREPARATION: STAINLESS STEEL SURFACES SHALL NOT BE PAINTED. CARBON STEEL SURFACES SHALL BE PAINTED USING THE VENDOR'S STANDARD MATERIALS BUT SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
SURFACE PREPARATION- SAND BLAST CLEAN IN ACCORDANCE WITH SSPC-SP-6, COMMERCIAL GRADE, IMMEDIATELY PRIOR TO PRIMING, PER SPECIFICATION.
- PRIME COAT- RED OXIDE PRIMER
- FINISH COAT-PER SPECIFICATION (IN FIELD BY CONTRACTOR, CONTRACTOR TO SUPPLY H-P WITH TYPE OF FINISH COATING SYSTEM FOR COMPATIBILITY WITH SHOP APPLIED PRIMER).
- INTERIOR LINING: NONE
- INTERIOR SURFACE PREPARATION: MILL FINISH
- ALL OPENINGS SHALL BE COVERED AND PROTECTED. FLANGE CLOSURES SHALL CONSIST OF FULL FACE, $1/4"$ THICK, PLYWOOD COVER FASTENED WITH AT LEAST FOUR (4) FULL SIZE BOLTS. THREADED OPENINGS SHALL BE PROTECTED WITH METAL OR PLASTIC INSERTS OR CAPS. OTHER METHODS OF PROTECTION MUST BE APPROVED BY HYDRO-PURE.
- ITEMS SHIPPED LOOSE ARE TO BE BOXED OR CRATED FOR FULL PROTECTION DURING SHIPMENT.
- VESSEL IS TO BE BUILT IN ACCORDANCE WITH LATEST EDITION OF SECTION VIII, LATEST EDITION, A.S.M.E. CODE WITH STAMP.
- LIFTING LUGS TO BE OF VESSEL MANUFACTURERS STANDARD DESIGN WITH A 2" DIAMETER HOLE.
- BOLT HOLES TO STRADDLE 0-180° CENTERLINE OF FLANGE CONNECTIONS.
- HYDRO-PURE TO BE NOTIFIED FOR: WITNESS HYDRO STATIC TESTING AND INSPECTION, IN ADDITION FORWARD ALL COPIES OF CERTIFICATIONS TO HYDRO-PURE.
- MISC. MATERIALS: BOLTS/STUDS-A 307-B (PER SPEC.) UNLESS OTHERWISE NOTED, NUTS -A 307-B (PER SPEC.) UNLESS OTHERWISE NOTED, GASKETS -1/16" US PIPE FLANGE-TYPE, SBR RUBBER.
- HEAD TO BE 2:1 ELLIPTICAL
- SUPPLY ALL FASTENING HARDWARE (STUDS, NUTS, ETC.) AND GASKETS AS CALLED FOR BY DRAWINGS.
- ALL REINFORCEMENTS FOR NOZZELS, LEGS, APPURTENANCES, ETC. (IF REQUIRED) BY VESSEL MANUFACTURER.

HYDRO-PURE REFERENCE DRAWINGS:

A. NOT USED.	
B. NAMEPLATE BRACKET/STAMPING:	A-20829-B03
C. PAD FLANGES:	B-20829-B02
D. HEADER CLIPS:	A-20829-B06
E. SUPPORT RING & BARS:	C-20829-B07
F. INLET DISTRIBUTOR:	B-20829-B05

HYDRO-PURE SYSTEMS CO.
CERTIFIED FOR CONSTRUCTION
By: *[Signature]* Date: 11/27/83

TOWN GRAYER, MA.
SPECTACLE POND WELL
WATER TREATMENT PLANT
CUSTOMER: PEABODY N.E., INC
P.O. # 804
HYDRO-PURE JOB #20829

NO.	DATE	REVISION						
4	2/7/84	FABRICATION DETAILS (SUB. REV. 01)						
3	11/15/83	CHANGE FOR FAB. RL						
2	11/15/83	RELOCATE 'C', 'E', 'F'						
1	11/15/83	ADD EQ ORIENTATION						
		CHANGE SIZE OF VENT						
<table border="1"> <tr> <td>SCALE: <i>1/4" = 1'-0"</i></td> <td>APPROVED BY: <i>[Signature]</i></td> <td>DRAWN BY: <i>[Signature]</i></td> </tr> <tr> <td>DATE: 6/9/83</td> <td></td> <td>REVISED:</td> </tr> </table>			SCALE: <i>1/4" = 1'-0"</i>	APPROVED BY: <i>[Signature]</i>	DRAWN BY: <i>[Signature]</i>	DATE: 6/9/83		REVISED:
SCALE: <i>1/4" = 1'-0"</i>	APPROVED BY: <i>[Signature]</i>	DRAWN BY: <i>[Signature]</i>						
DATE: 6/9/83		REVISED:						
<p>THIS DRAWING AND THE DESIGN IT COVERS ARE THE PROPERTY OF THE HYDRO-PURE SYSTEMS COMPANY, INC. ALL RIGHTS WITH RESPECT TO THIS DRAWING ARE RESERVED AND NEITHER THIS DRAWING NOR ANY PART THEREOF MAY BE COPIED, REPRODUCED OR MADE AVAILABLE TO OTHERS EXCEPT BY WRITTEN CONSENT FROM THE HYDRO-PURE SYSTEMS COMPANY, INC.</p>								
<p>VESSEL DETAIL</p> <p>D-20829-B01</p>		<p>DRAWING NUMBER</p>						

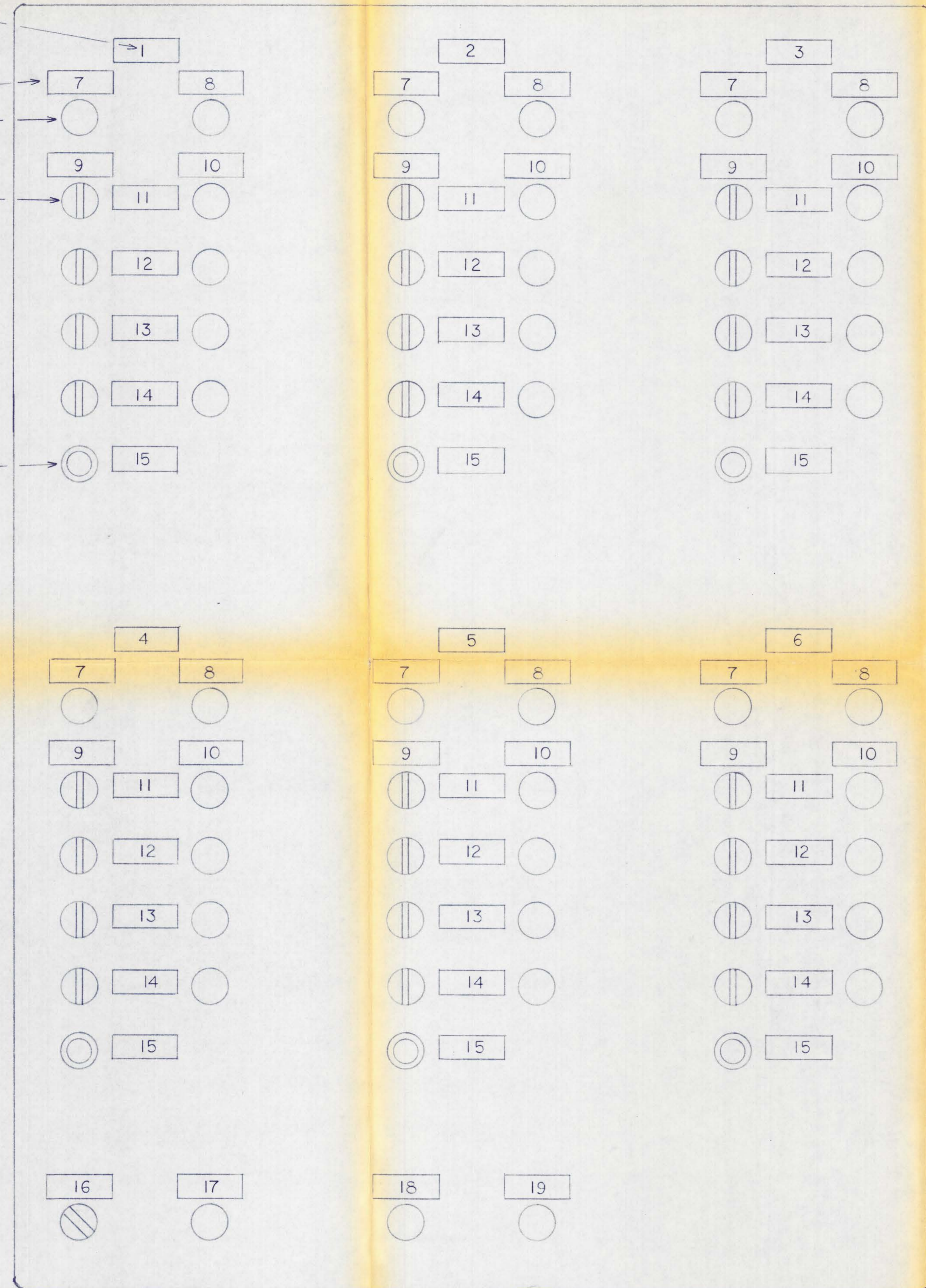
NAMEPLATE LEGEND
IDENTIFICATION
NUMBER (TYR)

NAMEPLATE
(TYR)

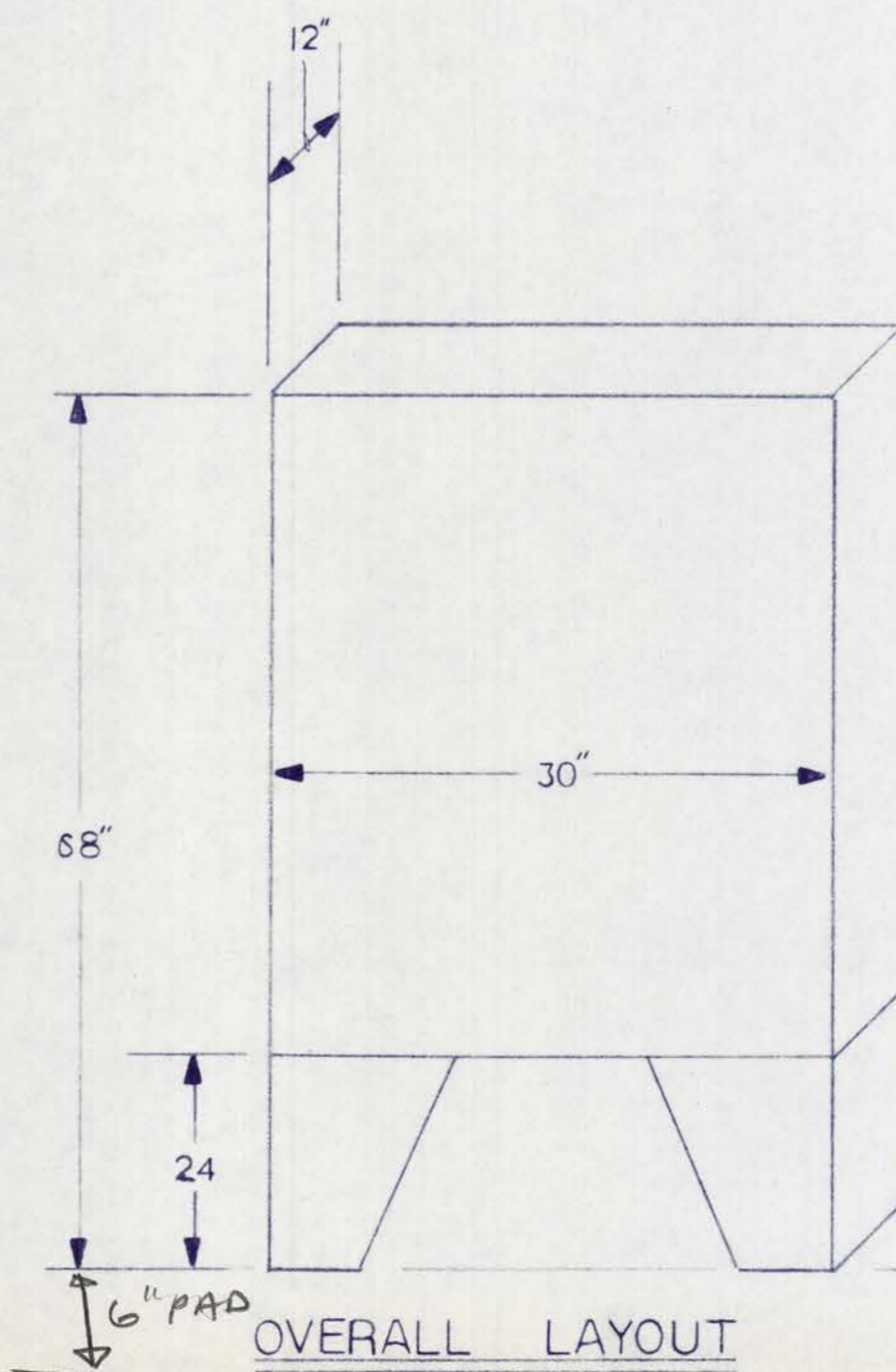
LIGHT (TYR)

SWITCH (TYR)

PUSHBUTTON
(TYR)

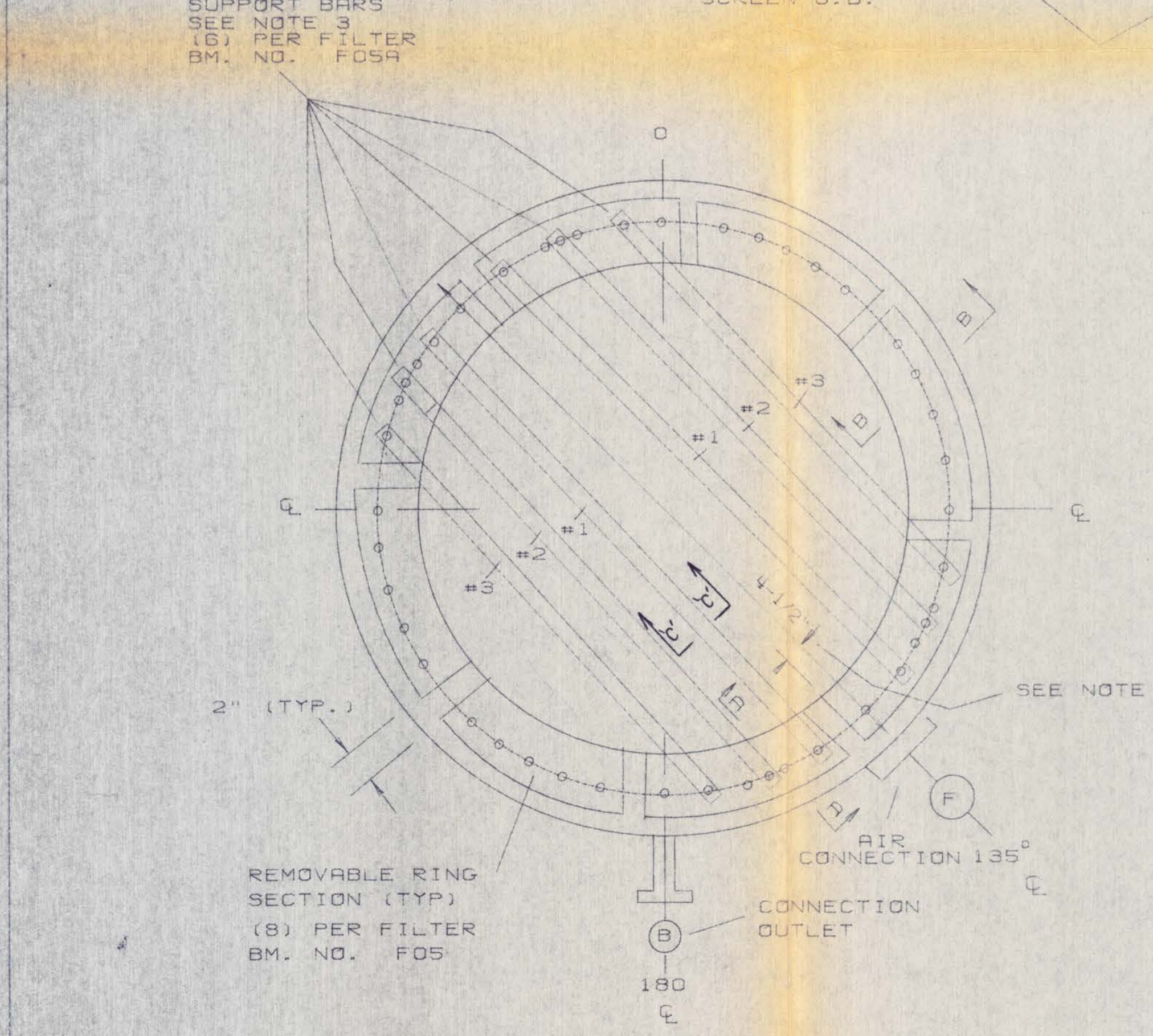
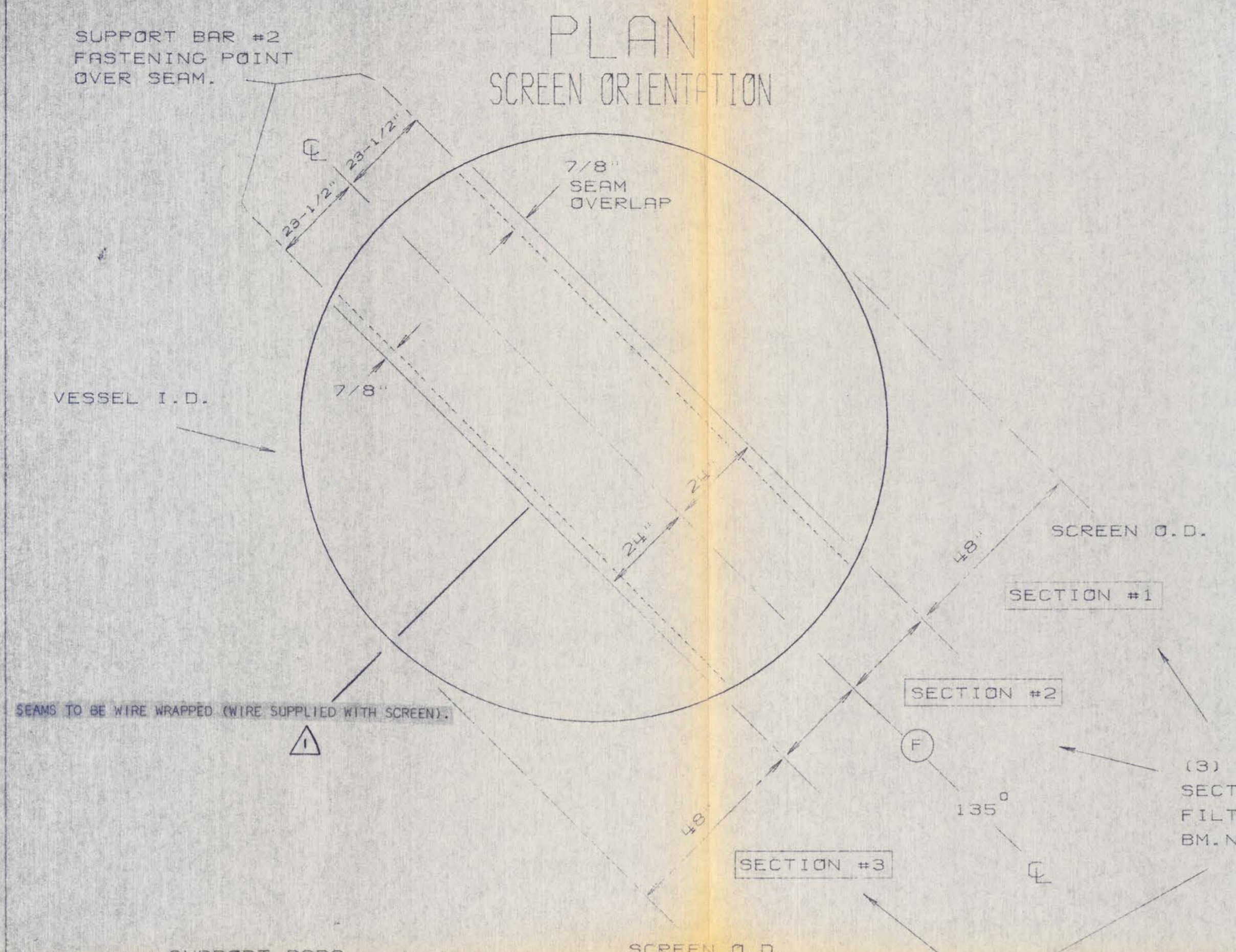


IDENTIFICATION NUMBER	NAMEPLATE LEGEND
1	FILTER NO. 1
2	FILTER NO. 2
3	FILTER NO. 3
4	FILTER NO. 4
5	FILTER NO. 5
6	FILTER NO. 6
7	SERVICE
8	BACKWASH
9	VALVE OPEN-CLOSE-AUTO
10	VALVE OPEN
11	INLET VALVE
12	OUTLET VALVE
13	WASTE VALVE
14	RINSE VALVE
15	SEMI-AUTO START
16	PROGRAM TIMER ON-OFF
17	PROGRAM TIMER DISABLE
18	HYDROPNEUMATIC LOW PRESSURE
19	OUT OF SEQUENCE

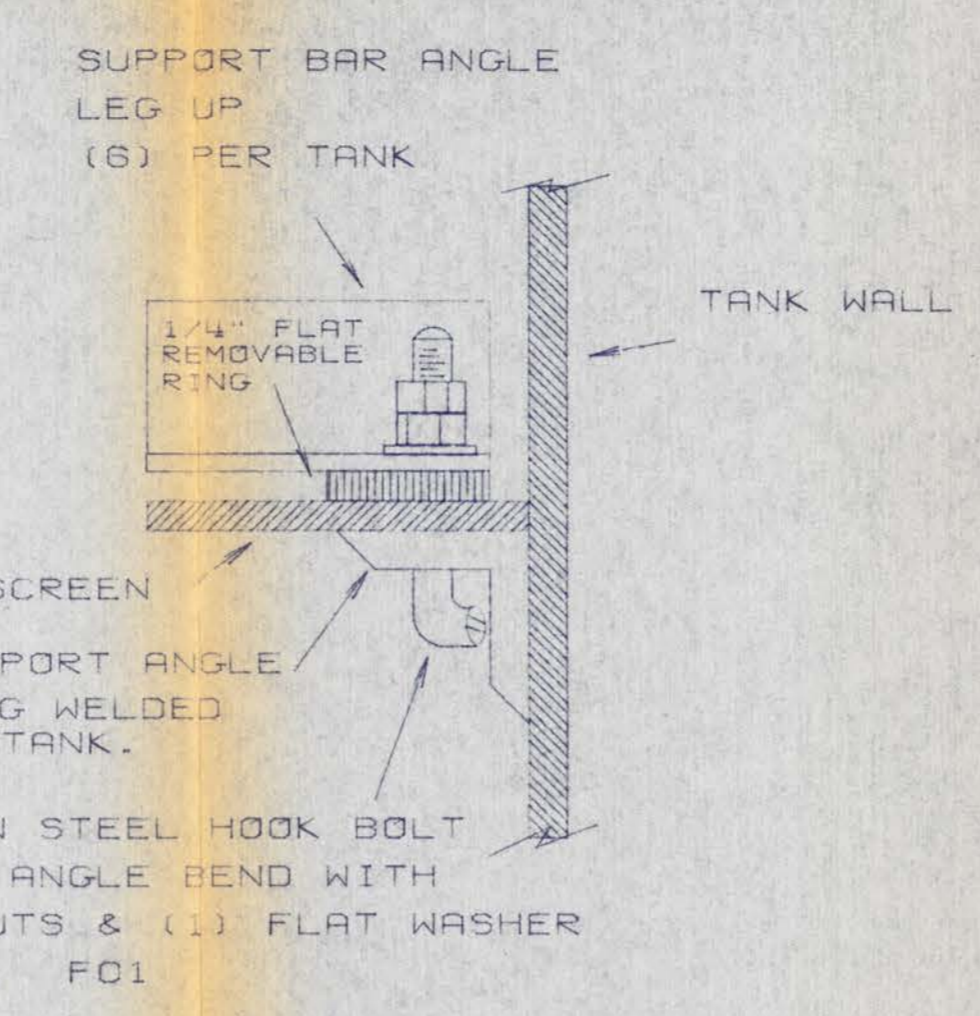


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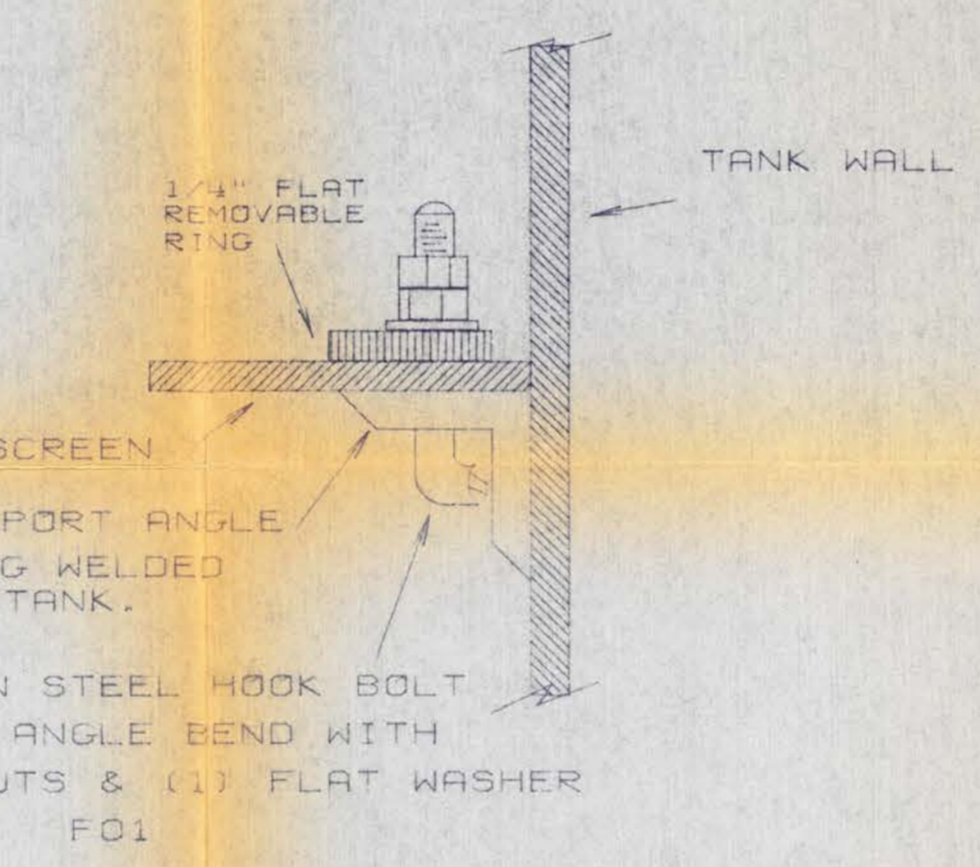
		Hydro-Pure Systems Co., Inc 75 Bloomfield Avenue Denville, New Jersey 07834	
SCALE: <i>1/2"</i>	APPROVED BY: <i>JW</i>	DRAWN BY: <i>JW</i>	REVISED:
DATE: 9/19/83			
PANEL LAYOUT			DRAWING NUMBER
D-20829-PO1			



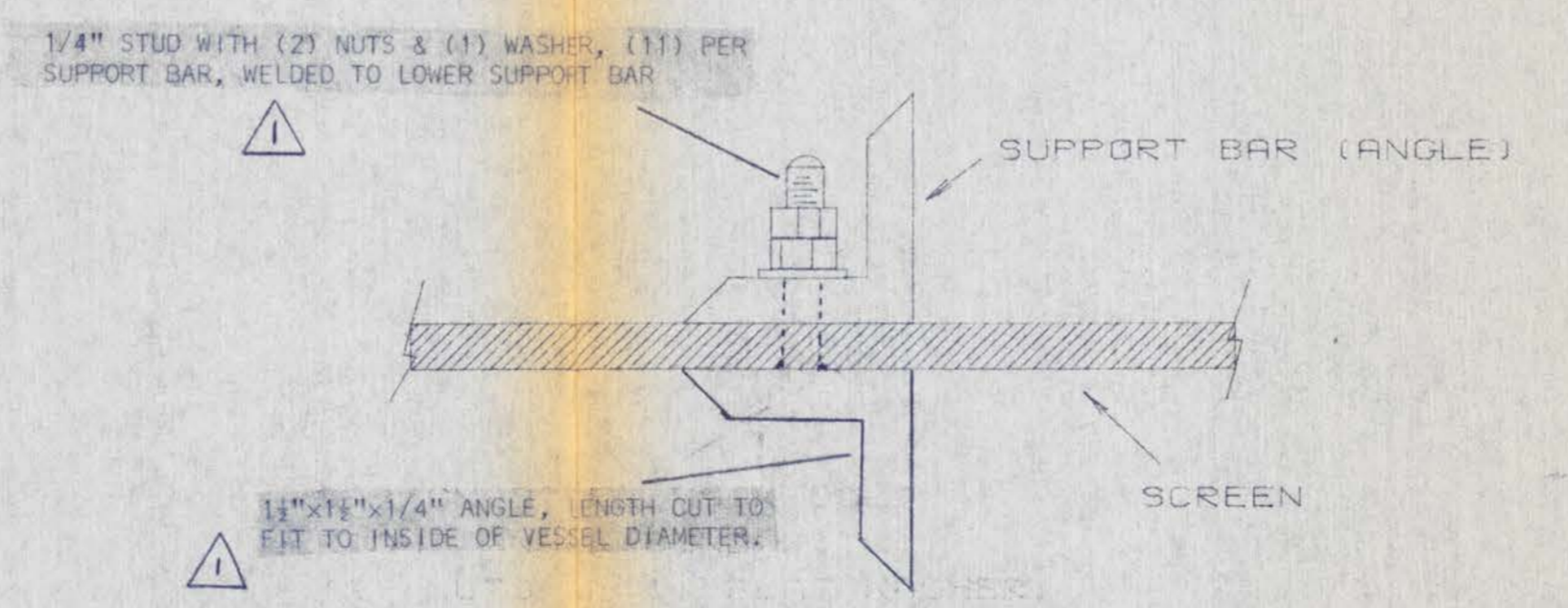
PLAN
SUPPORT BAR, FLAT RING ORIENTATION



FASTENING DETAIL 'A-A' (TYP)
SUPPORT BAR TO SUPPORT ANGLE & REMOVABLE RINGS.
(12) LOCATIONS PER FILTER



FASTENING DETAIL 'B-B' (TYP)
REMOVABLE RING(S) TO SUPPORT ANGLE
(32) LOCATIONS PER FILTER



FASTENING DETAIL 'C-C' (TYP)
SUPPORT BAR TO SCREEN
(11) LOCATIONS PER SUPPORT BAR #1
(10) LOCATIONS PER SUPPORT BAR #2
(10) LOCATIONS PER SUPPORT BAR #3

NOTES

1. REMOVABLE FLAT RINGS TO BE EQUALLY SPACED ON SUPPORT ANGLE (APPROX. 2" BETWEEN SECTIONS) WITH THE FIRST SECTION STARTING 4-1/2" PAST 135° ORIENTATION. (APPROX 138.5°)
2. NOTES 1 & 2 OF DWG # D-20829-C01 TO APPLY.
3. SUPPORT BARS TO BE CUT AND DRILLED PER DWG # D-20829-I12.
4. REFER TO DATA SHEET # D/0424.829 FOR HOOK BOLT INSTALLATION.

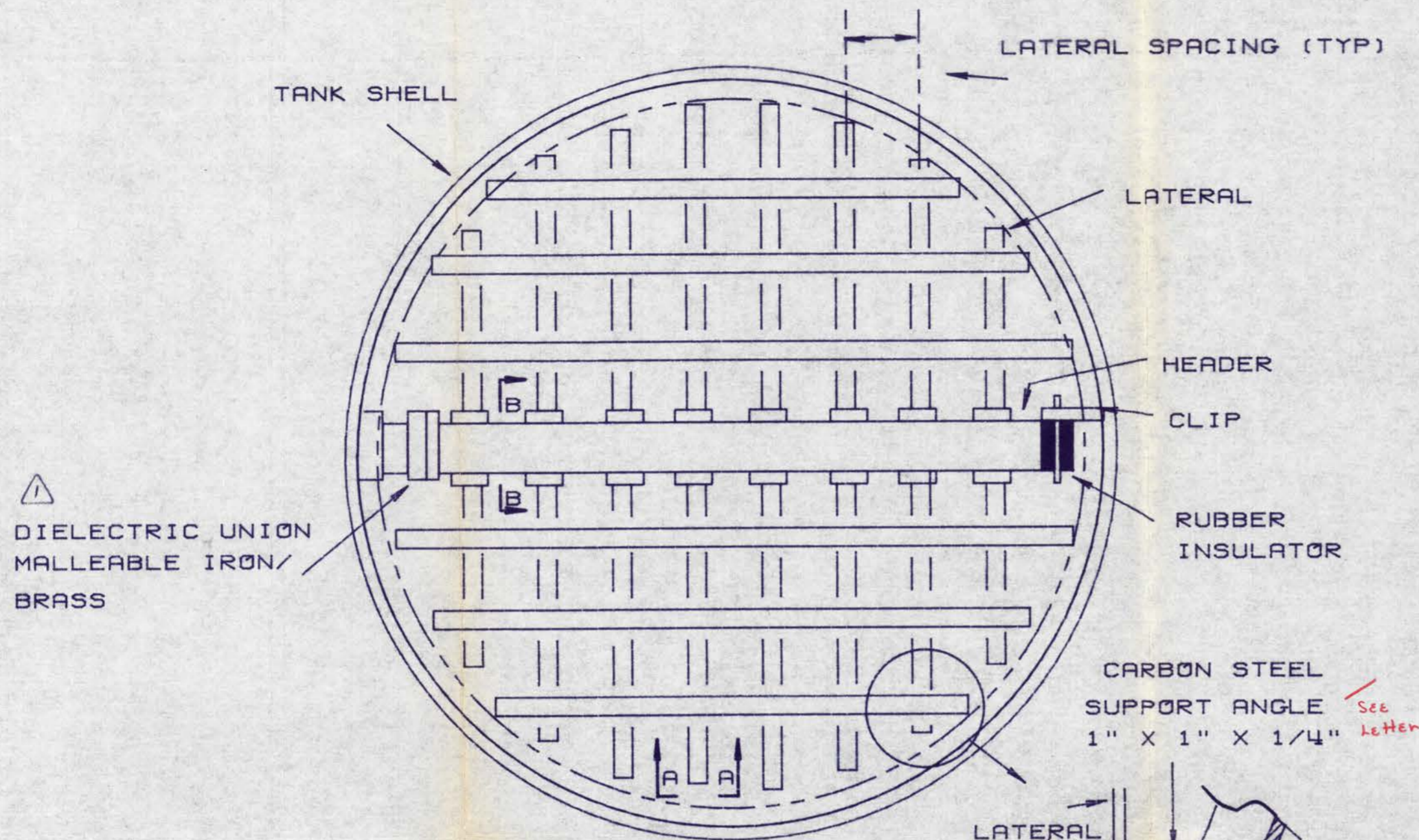
Redesign Office File 15A

3 (C) E
AUG - 8 1984
PEABODY N.E. INC.

HYDRO-PURE SYSTEMS CO.
CERTIFIED
FOR CONSTRUCTION
By *JW* Date *4/27/84*

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NO.	DATE	DESCRIPTION
1	7-3-84	ADD LOWER BAR, REMOVE HOOK BOLT FASTEN BARS
HYDRO-PURE SYSTEMS COMPANY, INC. 75 BLOOMFIELD AVE. DENVER, NJ 07834 201-827-1315		
SCALE:	APPROVAL:	CHECKED:
NONE	<i>JW</i> 4/20/84	
DATE:	ENGINEER:	DRAWN BY:
4/26/84	L. WNEK	J.P. NOON
TITLE:		
INTERNAL: SCREEN ASSEMBLY		
NUMBER:	D-20829-I15	REVISION:
		1



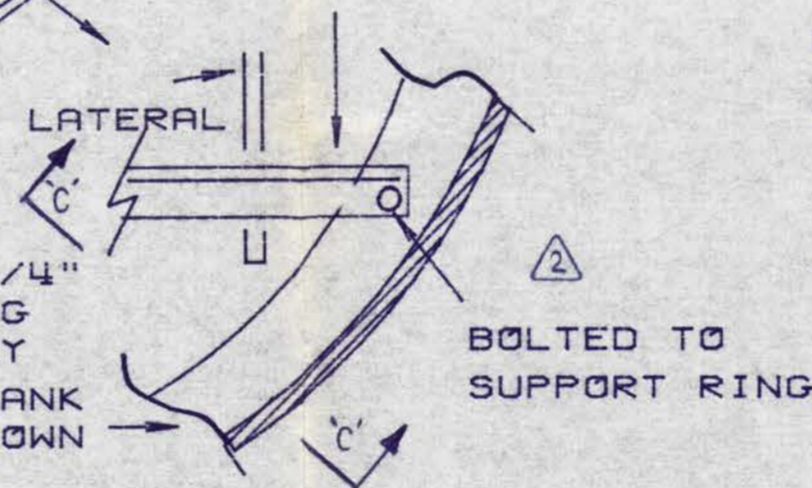
TABLE

HEADER	FUNCTION	AIR DISTRIBUTOR
	SIZE/SCH	3"/40
	MATERIAL	RED BRASS
LATERAL	QUANTITY	38 -19 PER SIDE
	SPACING	7-1/2"
	SIZE/SCH	3/8"/40
	MATERIAL	RED BRASS
	TYPE	DRILLED (ROUND) UNWRAPPED
SUPPORT BARS	QUANTITY	(6)

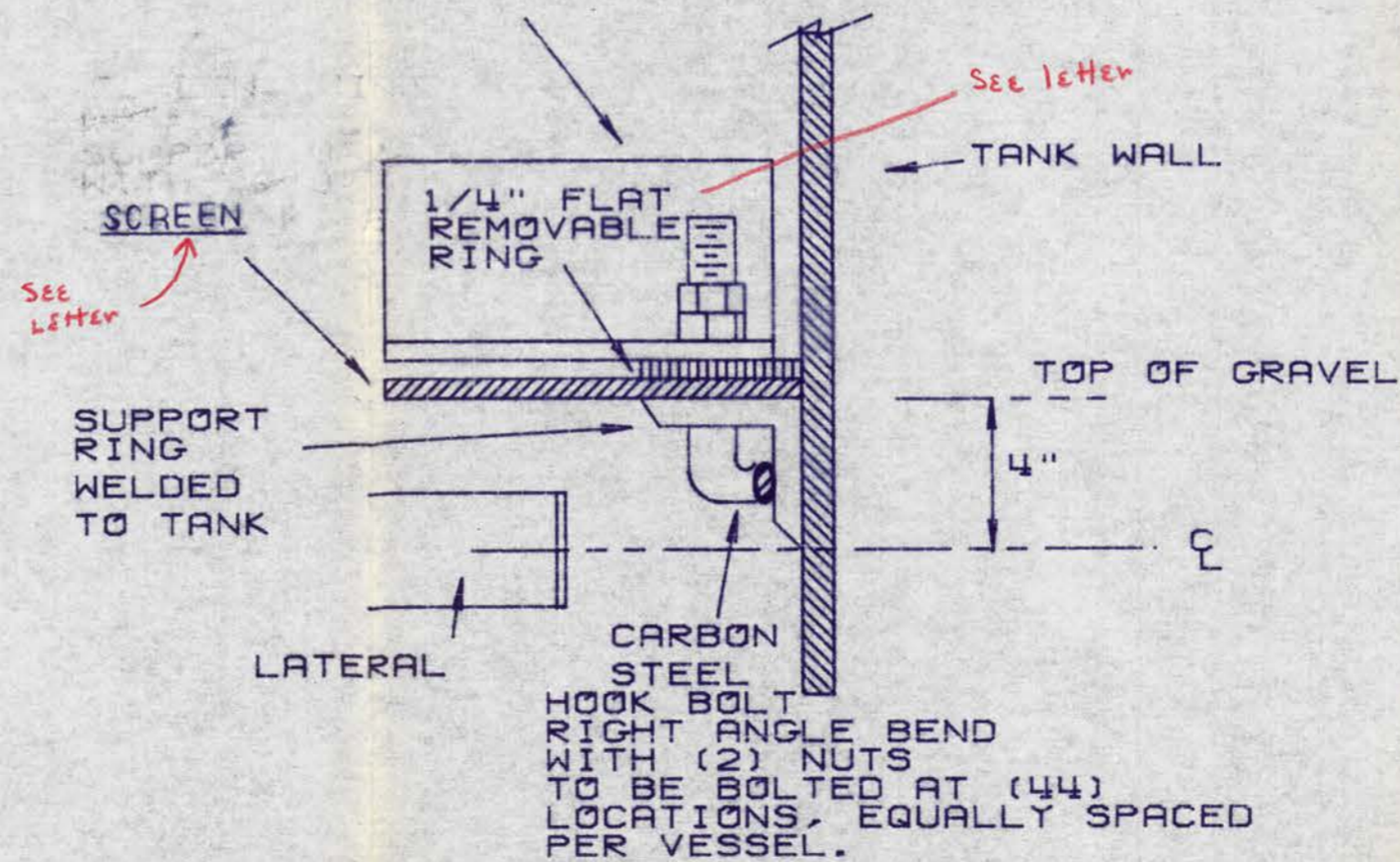
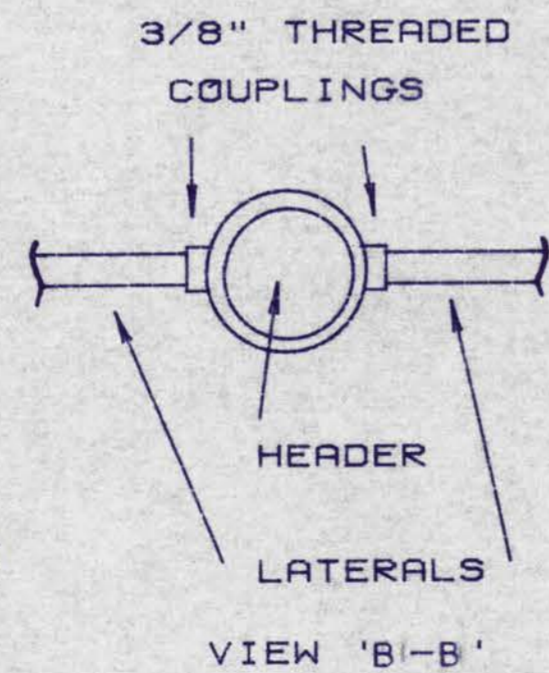
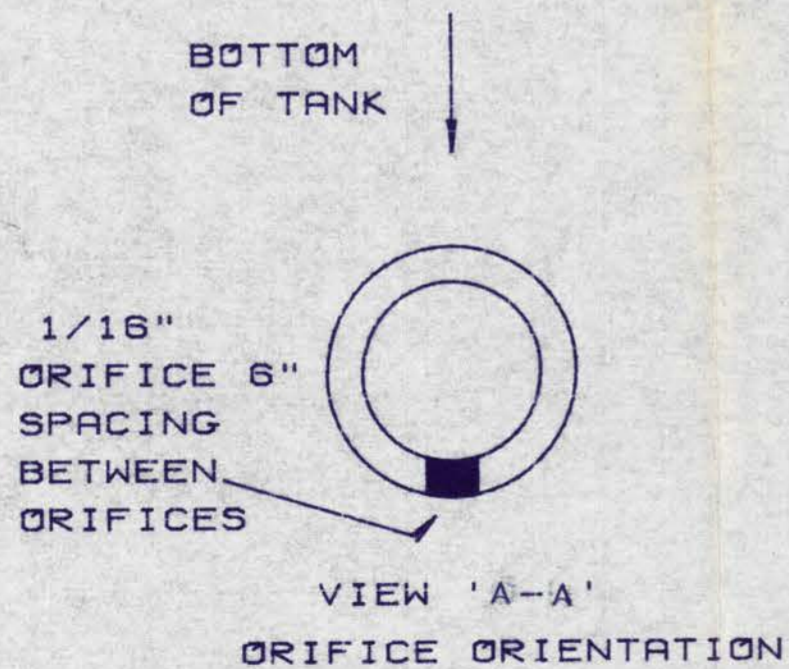
NOTES

1. NUMBER OF LATERALS SHOWN ON DRAWING MAY VARY, ACTUAL NUMBER TO BE UTILIZED IS INDICATED IN TABLE ABOVE.
2. QUANTITY GIVEN PER VESSEL.

2" X 2" X 1/4" SUPPORT RING CONTINUOUSLY WELDED TO TANK WALL, LEG DOWN

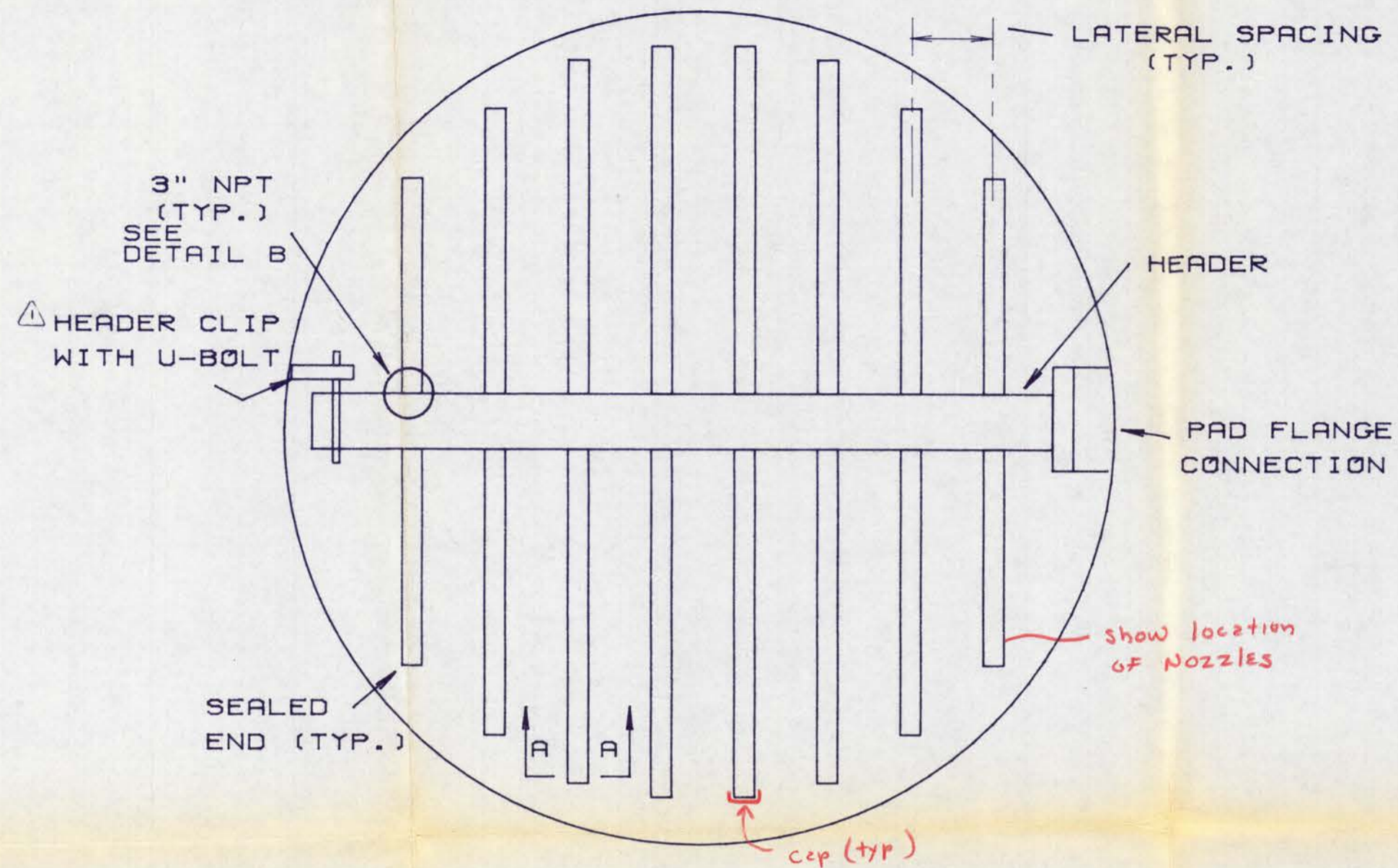


SUPPORT ANGLE, LEG UP (6) PER TANK, TO BE BOLTED AS LOCATIONS REQUIRED



DETAIL '0-0'

2	2/9/84	FOR RESUBMITTAL
1	10/1/83	PER CUST. COMMENTS 8/30/83 LETTER
NO.	DATE	DESCRIPTION
HYDRO-PURE SYSTEMS COMPANY, INC.		
75 BLOOMFIELD AVE. DENVER, CO. 80202		
SCALE:	APPROVAL:	CHECKED:
DATE:	ENGINEER:	DRAWN BY:
2/9/84	L. WNEK	JPN
TITLE:		
HEADER LATERAL ASSEMBLY		
NUMBER:	C-20829-104	REVISION:
		2

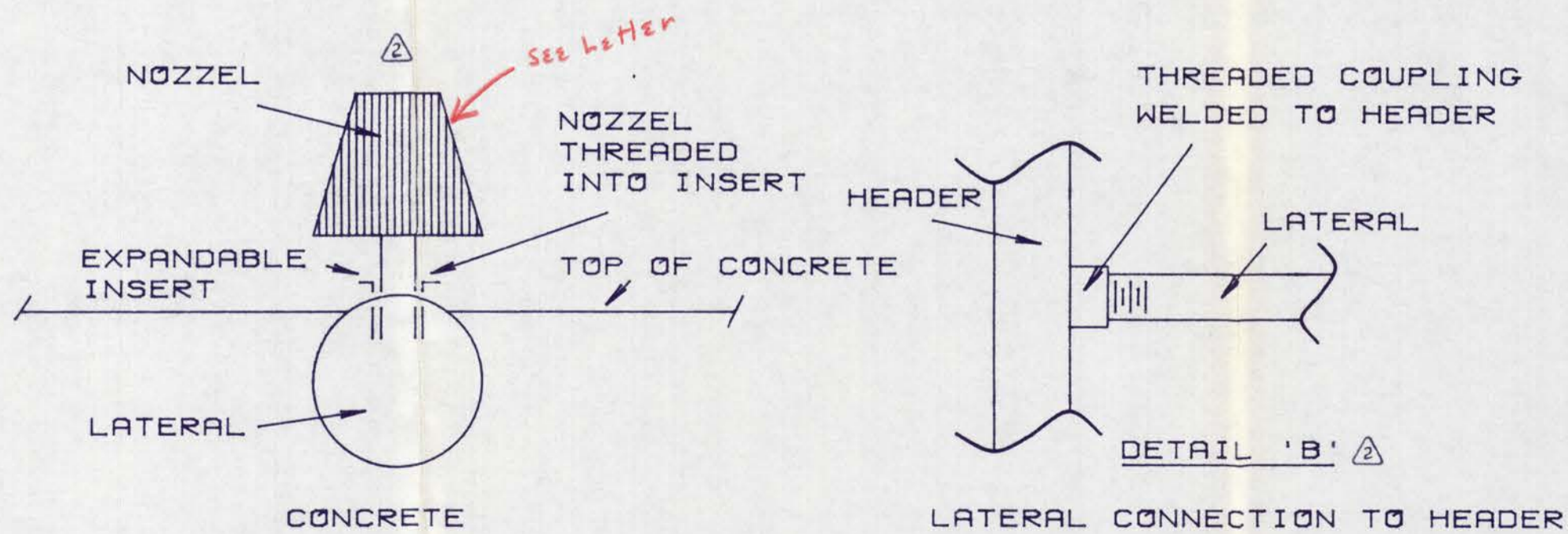


TABLE

HEADER	FUNCTION	UNDERDRAIN
	SIZE/SCH	8"/SCH 80
	MATERIAL	PVC
LATERAL	QUANTITY	16 (8 PER SIDE)
	SPACING	18"
	SIZE/SCH	3"
	MATERIAL	PVC
	TYPE	NOZZELS
SUPPORT BARS		

NOTES

1. NUMBER OF LATERALS SHOWN ON DRAWING MAY VARY, ACTUAL NUMBER TO BE UTILIZED IS INDICATED IN THE ABOVE TABLE.
2. QUANTITY GIVEN PER VESSEL.
3. NOZZEL DETAILS
 QUANTITY PER FILTER : 80
 FILTER FLOW AREA, PER NOZZEL: 1.5 SQ.FT.



2	2-8-84	FOR RESUBMITTAL
1	10-10-83	SHOW HEAD CLIP & LATERAL CONN
NO. DATE DESCRIPTION		
HYDRO-PURE SYSTEMS COMPANY, INC.		
75 BLAIFIELD AVE. ORVILLE, NJ 07068		
SCALE:	APPROVAL:	CHECKED:
NONE	<i>[Signature]</i>	<i>[Signature]</i>
DATE:	ENGINEER:	DRAWN BY:
2-7-84		JPN
TITLE:		
HEADER LATERAL ASSEMBLY		
NUMBER:	REVISION:	
C-20829-102	2	