

HUNGERFORD & TERRY, INC.

Manufacturers of Water Treating Equipment
226 Atlantic Avenue
Clayton, NJ 08312-0650
Phone (856) 881-3200 Fax (856) 881-6859

DOCUMENT TRANSMITTAL

URGENT ATTENTION REQUIRED!

File No.: SUB_M345-06

To: Steckbeck Engineering & Surveying, Inc.
279 N. Zinns Mill Road
Lebanon, PA 17042

Date: April 24, 2024
Page: 1 of 1
H&T Contract No.: M-345

Attention: Paul Lutzkanin, PE, CSE
Email: plutzkanin@steckbeck.net

Job: Fredericksburg Sewer & Water Auth.
Fredericksburg, PA

We are:

- | | |
|--|---|
| <input type="checkbox"/> Submitting for approval | <input type="checkbox"/> Sending as requested |
| <input type="checkbox"/> Resubmitting for approval | <input type="checkbox"/> _____ |
| <input checked="" type="checkbox"/> Sending for information only | |

The following enclosed under separate cover

Format	Dwg. No.	Rev.	Title or Description
PDF	33552-A02	1	Tank Details
	-A04	1	Piping Layout
	-A05	1	Piping Plan Views
	-A06	1	Air Blower Piping Layout
	-C01	2	Valve & Equipment List

Remarks:

- Please return to us, as soon as possible, one copy of each drawing with your approval and or comments noted.
- Fabrication is proceeding in accordance with these drawings.
- Fabrication is being held pending return of approved prints. Delay in returning drawings will extend the delivery schedule.
- Fabrication of major equipment is proceeding in accordance with these drawings.
- Minor Equipment is being held pending return of approved prints.

REPRESENTATIVE:

HUNGERFORD & TERRY, INC.



William J. Probasco
Chief Engineer

MECHANICAL DRAWINGS

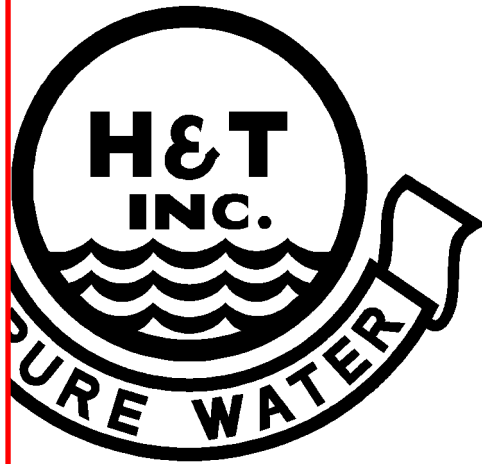
**FOR: Fredericksburg Sewer & Water Authority
Fredericksburg, PA**

REVIEWED REVISE AND RESUBMIT
 REJECTED FURNISH AS CORRECTED

Corrections or comments on shop drawings during this review do not relieve the Contractor from compliance with the drawings and/or specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The contractor is responsible for: confirming and correlating all dimensions and quantities; selecting fabrication processes and techniques of construction; coordinating his work with that or all other trades; and performing his work in a safe and satisfactory manner.

Date: April 29, 2024 By: Paul Lutzkanin, P.E.

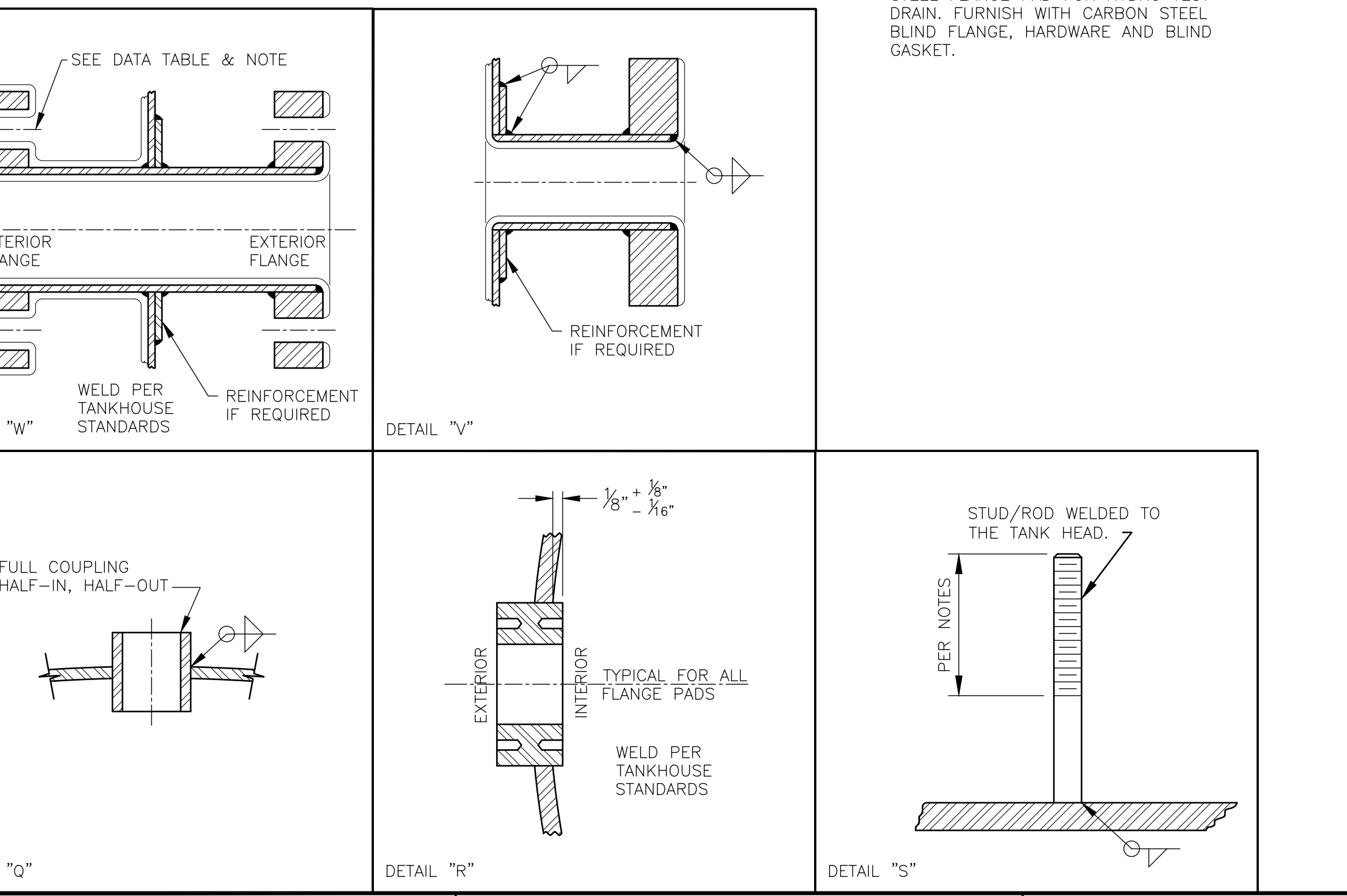
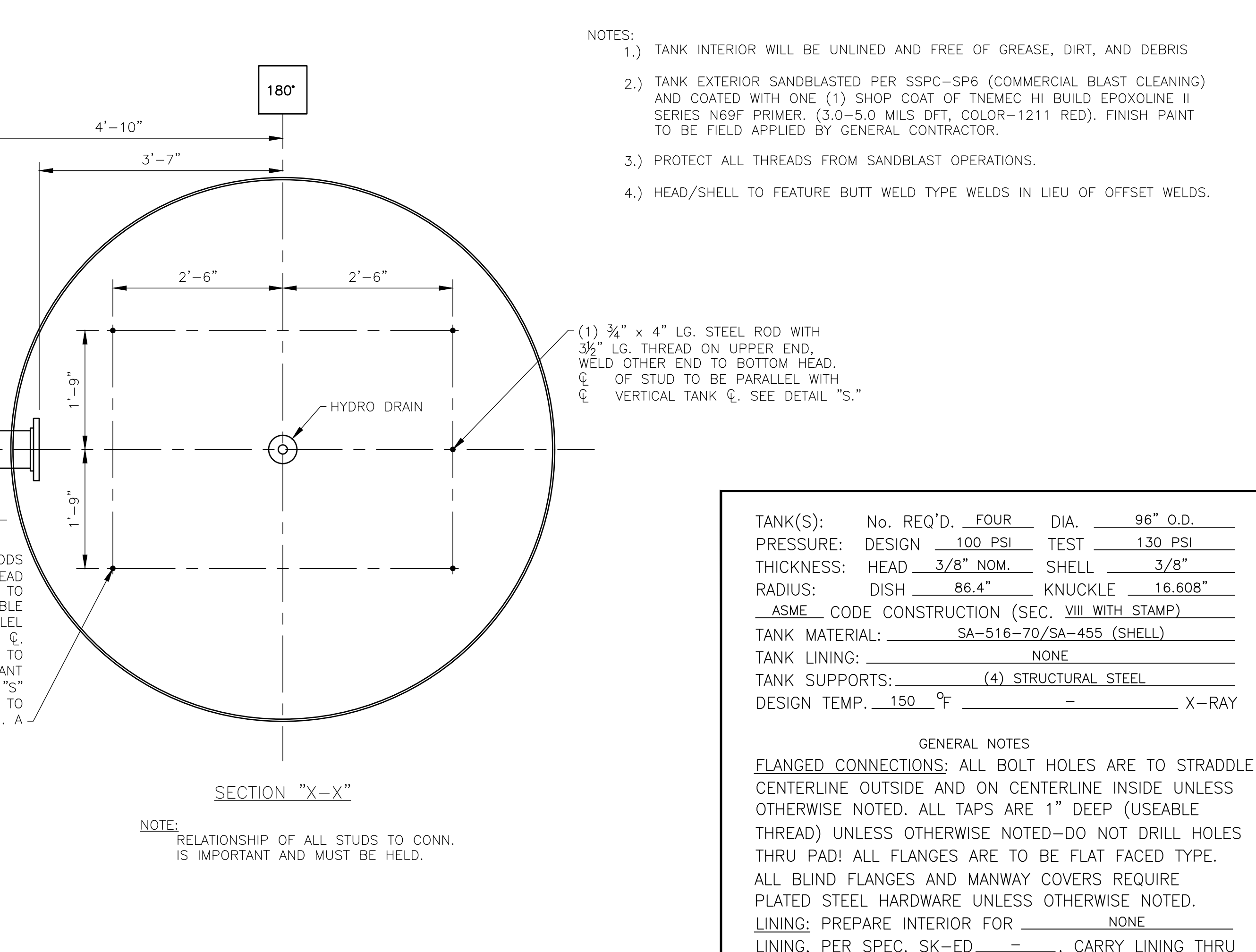
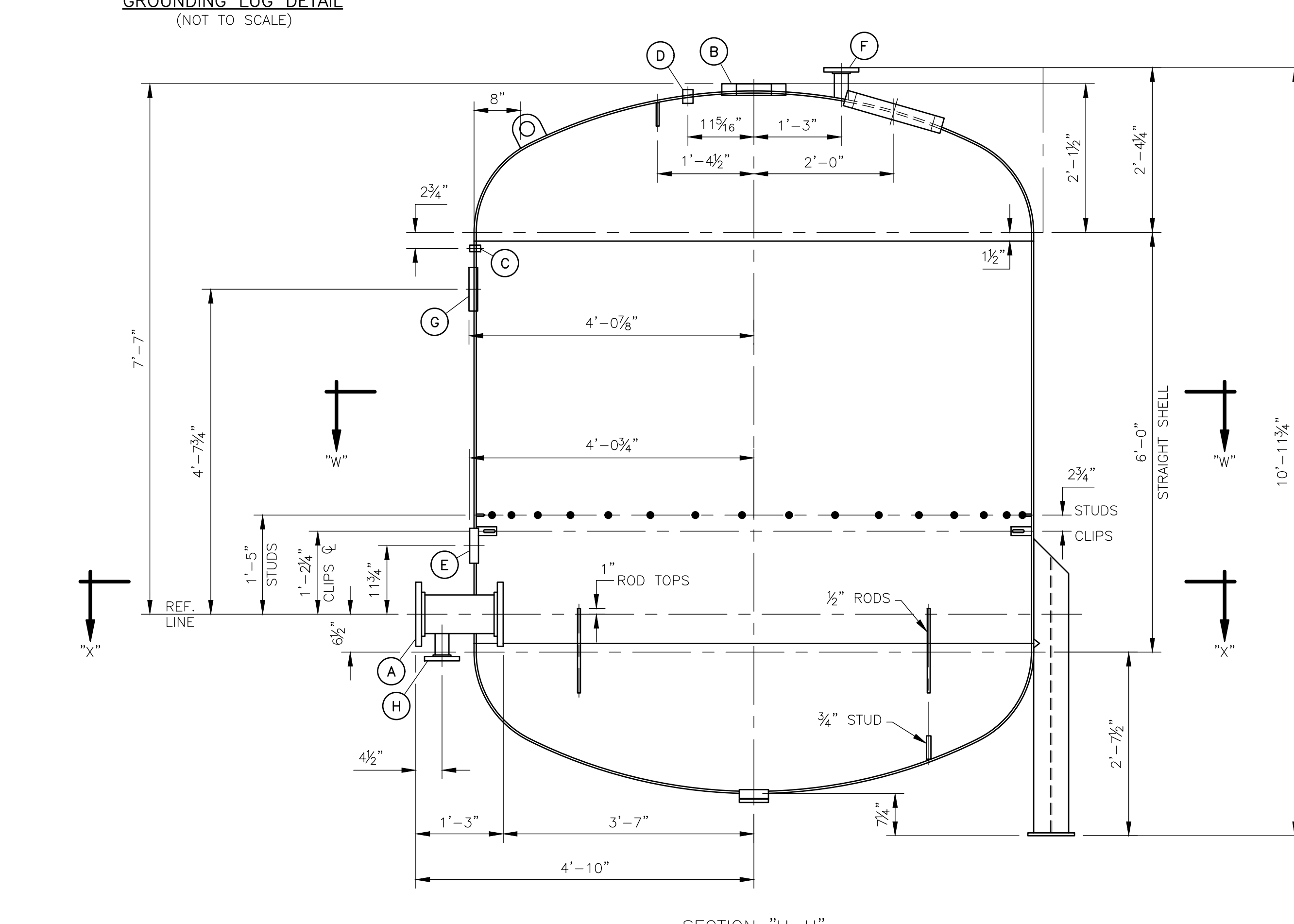
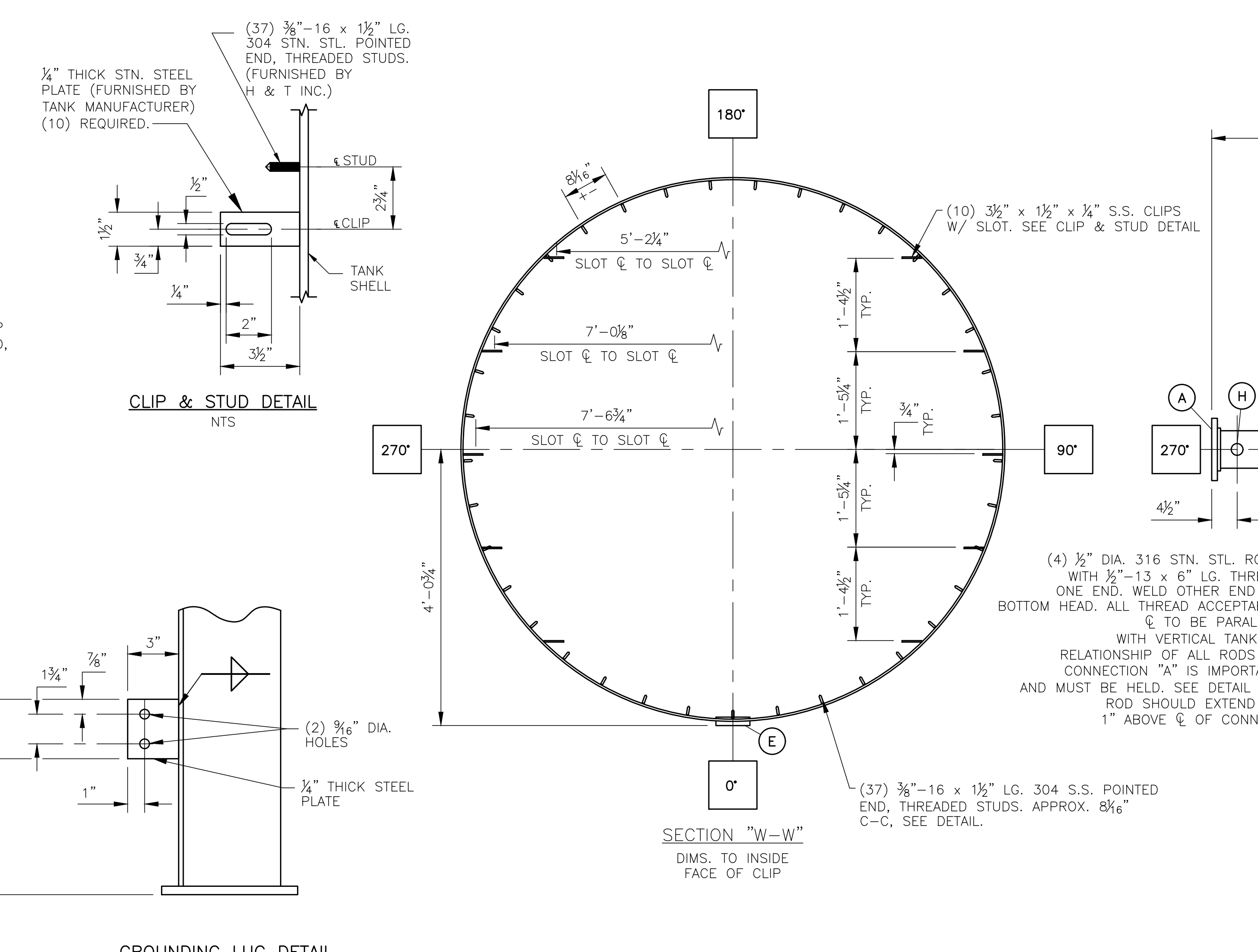
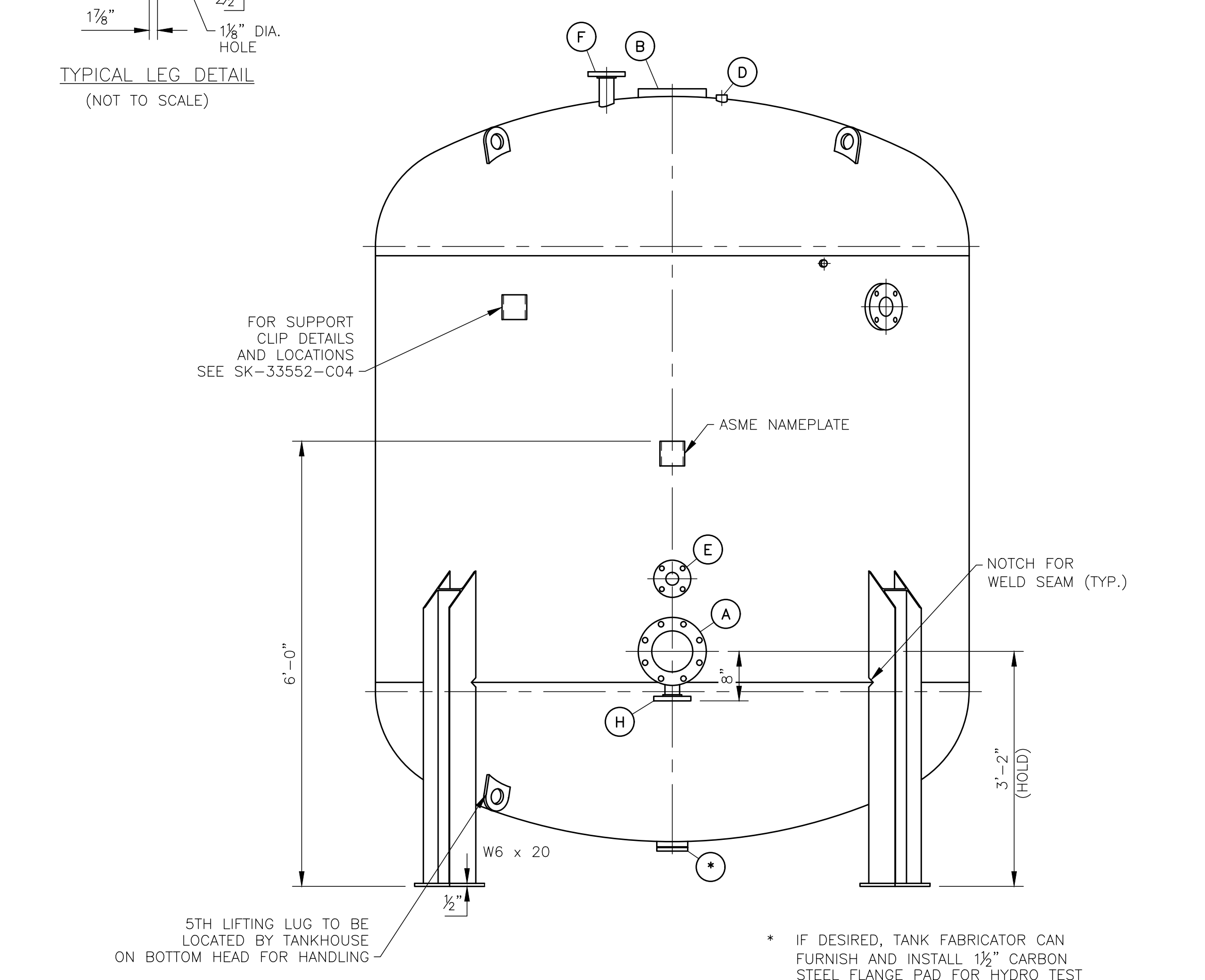
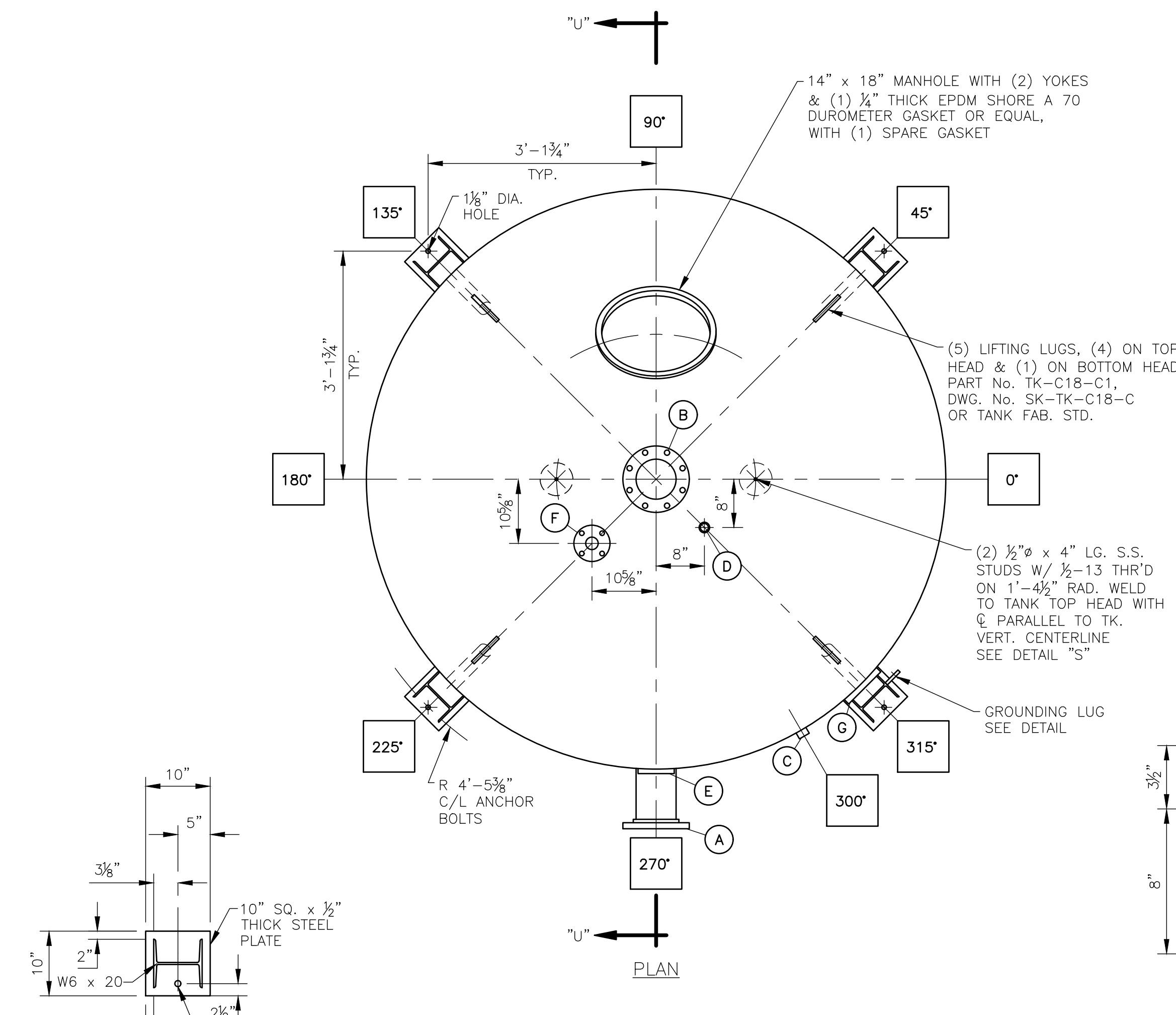
STECKBECK ENGINEERING & SURVEYING, INC.



ERFORD & TERRY, INC.

226 Atlantic Avenue
Clayton, New Jersey

Contract No.: **M-345**
Drawing Series No.: **33552**
Submitted: **April 24, 2024**



MARK	CONNECTION TYPE	I.D. OR SIZE	O.D.	THK. OR WGT & TYPE	SCH. PIPE	B.C.	No. HOLES	DIA.	B.C.	No. TAPS	SIZE TAPS	B.C.	No. TAPS	SIZE TAPS	REMARKS	No. REQ'D	CONNECTION FUNCTION
(H)	FLANGED NOZZLE	2"	6"	150 LB. STEEL	40	4 3/4"	4	3/4"	-	-	-	-	-	-	FLAT FACE, SLIP ON FLANGE. SEE DETAIL "V."	1	TANK DRAIN
(G)	FLANGE PAD	3"	7 1/2"	1 1/2"	-	-	-	-	6	4	3/8"-11	6	4	3/8"-11	1" DEEP USABLE THREADS. SEE DETAIL "R."	1	DRAINDOWN
(F)	FLANGED NOZZLE	2"	6"	150 LB. STEEL	40	4 3/4"	4	3/4"	-	-	-	-	-	FLAT FACE, SLIP ON FLANGE. SEE DETAIL "V."	1	AIR PRESSURIZING	
(E)	FLANGE PAD	2"	6"	1 1/2"	-	-	-	-	4 3/4"	4	3/8"-11	5 1/2"	4	3/8"-11	1" DEEP USABLE THREADS. SEE DETAIL "R."	1	AIRWASH INLET
(D)	FULL COUPLING	1"	-	3000 LB. STN. STL.	-	-	-	-	-	-	-	-	-	(THREADED) HALF-IN, HALF-OUT, WELD INSIDE & OUT SEE DETAIL "Q."	1	VENT	
(C)	FULL COUPLING	1/2"	-	3000 LB. STN. STL.	-	-	-	-	-	-	-	-	-	(THREADED) HALF-IN, HALF-OUT, WELD INSIDE & OUT SEE DETAIL "Q."	1	TELLTALE	
(B)	FLANGE PAD	6"	11"	2"	-	-	-	-	9 1/2"	8	3/4"-10	9 1/2"	8	3/4"-10	1" DEEP USABLE THREADS. SEE DETAIL "R."	1	INLET
(A)	FLANGED NOZZLE	6"	11"	150 LB. STEEL	-	9 1/2"	8	7/8"	-	-	-	-	-	FLAT FACE, SLIP ON FLANGE. SEE DETAIL "W."	1	OUTLET	

NOTES:

- TANK INTERIOR WILL BE UNLINED AND FREE OF GREASE, DIRT, AND DEBRIS
- TANK EXTERIOR SANDBLASTED PER SSPC-SP6 (COMMERCIAL BLAST CLEANING) AND COATED WITH ONE (1) SHOP COAT OF TNEC HI BUILD EPOXYLINE II SERIES N69F PRIMER, (3.0-5.0 MILS DFT, COLOR-1211 RED). FINISH PAINT TO BE FIELD APPLIED BY GENERAL CONTRACTOR.
- PROTECT ALL THREADS FROM SANDBLAST OPERATIONS.
- HEAD/SHELL TO FEATURE BUTT WELD TYPE WELDS IN LIEU OF OFFSET WELDS.

(1) 3/4" x 4" LG. STEEL ROD WITH 3/8" LG. THREAD ON UPPER END, WELD OTHER END TO BOTTOM HEAD. CENTERLINE OF STUD TO BE PARALLEL WITH VERTICAL TANK CENTERLINE. SEE DETAIL "S."

TANK(S): No. REQ'D. FOUR DIA. 96" O.D.
 PRESSURE: DESIGN 100 PSI TEST 130 PSI
 THICKNESS: HEAD 3/8" NOM. SHELL 3/8"
 RADIUS: DISH 86.4" KNUCKLE 16.608"
 ASME CODE CONSTRUCTION (SEC. VIII WITH STAMP)
 TANK MATERIAL: SA-516-70/SA-455 (SHELL)
 TANK LINING: NONE
 TANK SUPPORTS: (4) STRUCTURAL STEEL
 DESIGN TEMP. 150 °F X-RAY

GENERAL NOTES

FLANGED CONNECTIONS: ALL BOLT HOLES ARE TO STRADDLE CENTERLINE OUTSIDE AND ON CENTERLINE INSIDE UNLESS OTHERWISE NOTED. ALL TAPS ARE 1" DEEP (USEABLE THREAD) UNLESS OTHERWISE NOTED-DO NOT DRILL HOLES THRU PAD! ALL FLANGES ARE TO BE FLAT FACED TYPE. ALL BLIND FLANGES AND MANWAY COVERS REQUIRE PLATED STEEL HARDWARE UNLESS OTHERWISE NOTED. LINING: PREPARE INTERIOR FOR NONE CARRY LINING THRU ALL OPENINGS AND OVER THE FACE OF ALL FLANGES. DIMENSIONS SHOWN ON THIS DRAWING ARE BEFORE LINING. ADD APPROPRIATE THICKNESS FOR LINING. EXTERIOR PAINTING: EXTERIOR SURFACES OF TANK ARE TO BE CLEANED BY SEE NOTE 1 PER SPEC. SK-ED-98-1 BEFORE APPLYING SEE NOTE 1

SHIPMENT: ALL FLANGES, COUPLINGS, ENDS OF PIPE, AND MANWAYS SHALL BE PROTECTED FROM DAMAGE DURING SHIPMENT. THE TANKHOUSE SHALL FURNISH NECESSARY COVER PLATES, C.I. CAPS OR PLUGS, AND STUDS, NUTS AND BOLTS TO SECURE COVER IN PLACE BEFORE SHIPMENT IS MADE. ALL DIMENSIONAL ALIGNMENT TOLERANCES ARE TO BE IN ACCORDANCE WITH DRAWING SK-TK-C22

ATTACHMENT WELDS FOR SUPPORTS OR CONNECTIONS SHALL NOT BE PLACED CLOSER TO THE EDGE OF A WELD IN A MAIN JOINT (LONGITUDINAL OR CIRCUMFERENTIAL) THAN 1/2" FOR PLATES 1/2" THICK OR LESS AND 1" FOR PLATES ABOVE 1/2" THICK.

RUBBER LINER: PAINT IN (-) PLACE(S) ON TANK: "CAUTION LINED TANK, DO NOT WELD".

ALL WELDS TO BE CONTINUOUS UNLESS OTHERWISE NOTED. PROTECT ALL THREADS (MALE & FEMALE) BEFORE SANDBLASTING AND PAINTING.

PER ASME SECT. VIII UG-125 a) AND g) THE CUSTOMER SHALL FURNISH AND INSTALL PRESSURE RELIEF DEVICES ON ALL PRESSURE SOURCES TO OUR SYSTEM.

TANK EMPTY WEIGHT: 5400 LBS

DATE 12/12/23
 STARTED 12/12/23
 FINISHED 2/22/24
 CHECKED 2/22/24
 APPROVED 3/8/24

SCALE 3/4" = 1'-0"
 FORM NO. M-345
 CONT NO.

DRAWING NO. 33552-A02
 REV. 1

HUNGERFORD & TERRY, Inc.
 MANUFACTURERS OF WATER TREATING EQUIPMENT
 CLAYTON, NEW JERSEY

FREDERICKSBURG SEWER & WATER AUTHORITY
 FREDERICKSBURG, PA

96" O.D. GREENSANDPLUS FILTERS
 TANK DETAILS

(4) 96" O.D. x 6'-0" STRAIGHT SHELL GREENSANDPLUS FILTERS (100 PSI WORKING PRESSURE) ASME CODE CONSTRUCTION (SECTION VIII) WITH STAMP

HARDWARE SIZING CHART (STN. STL. PIPE)

CONNECTION SIZE	CONNECTION TYPE	STUD SIZE	*MIN. LENGTH
2"	FLANGE-FLANGE	5/8"	3 1/2"
2"	FLANGE-PAD	5/8"	2 3/4"
2"	FLG-VALVE-FLG	5/8"	5 1/2"
2"	FLG-CHECK-FLG	5/8"	5 1/4"

HARDWARE SIZING CHART (PVC PIPE)

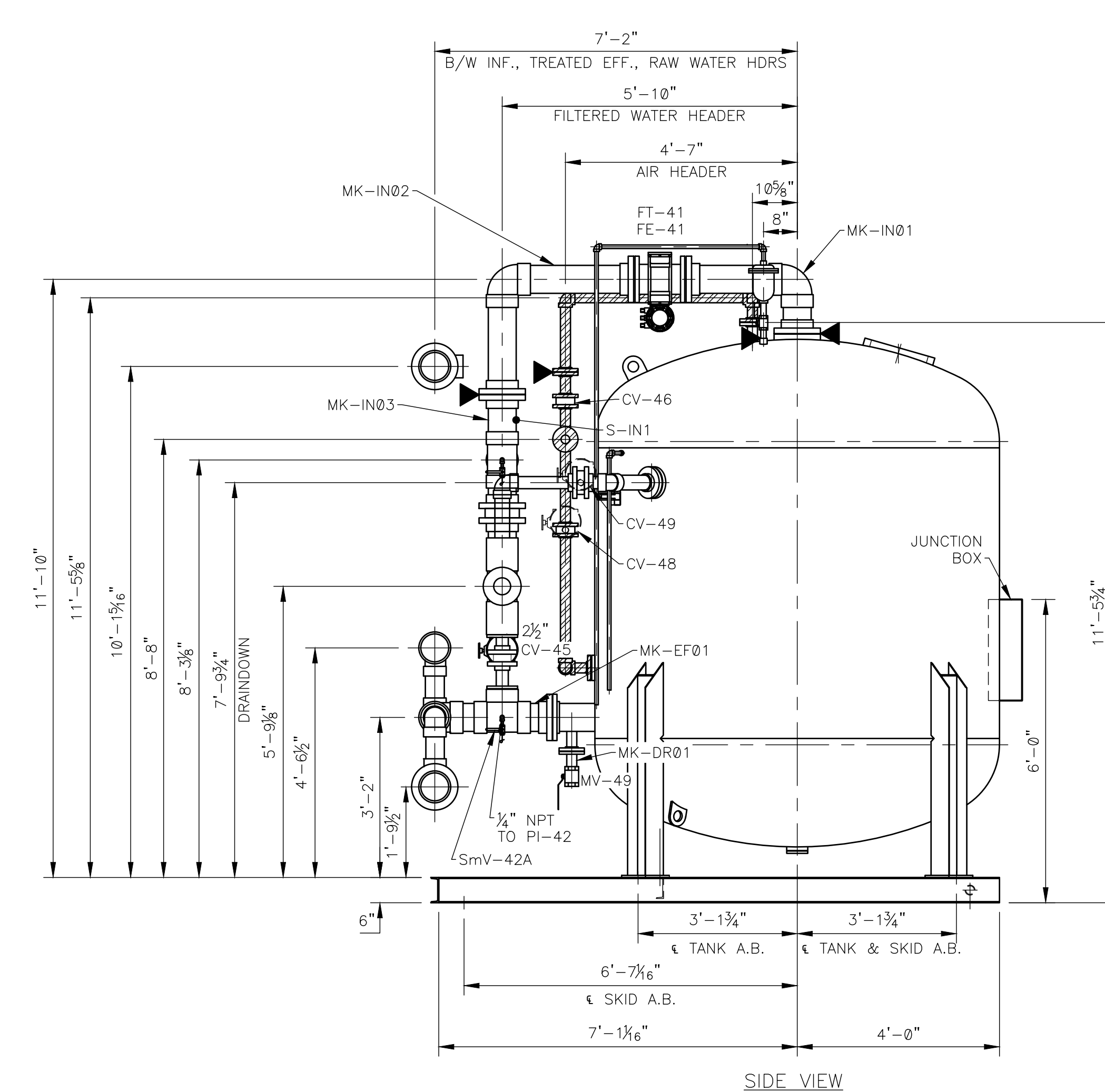
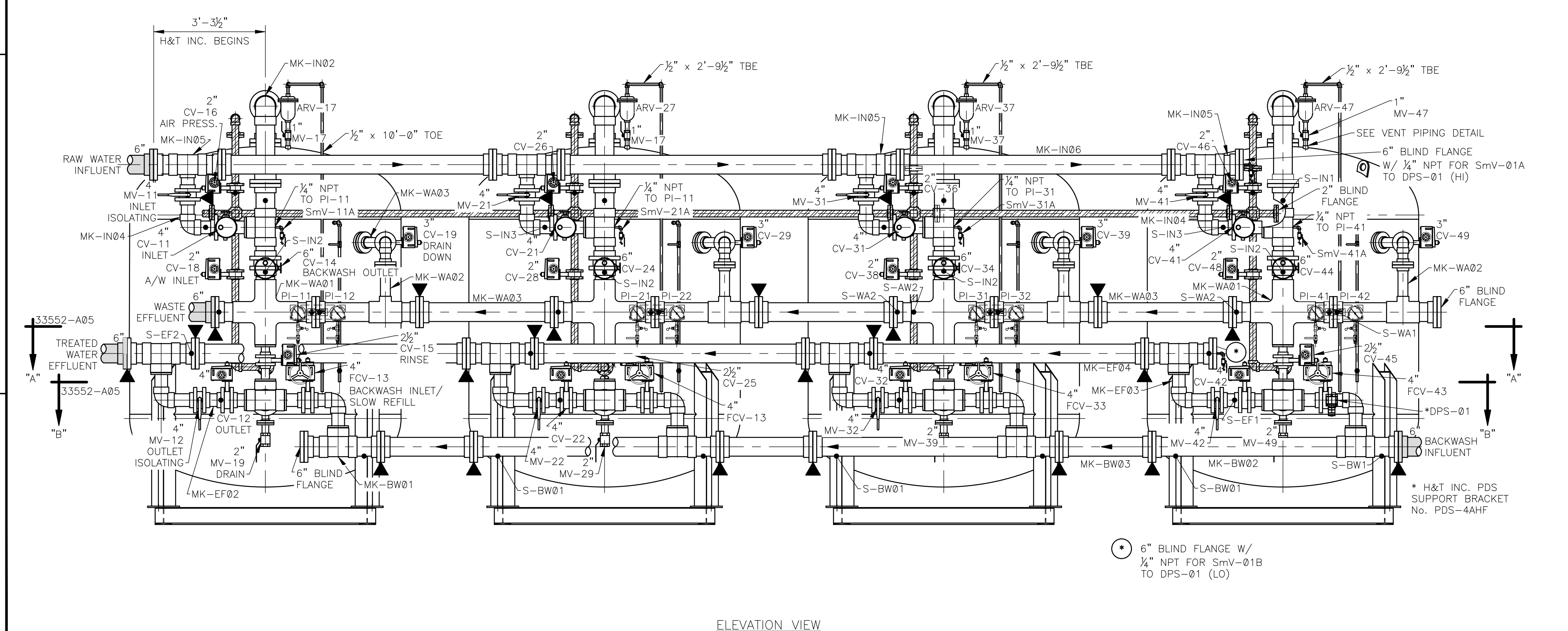
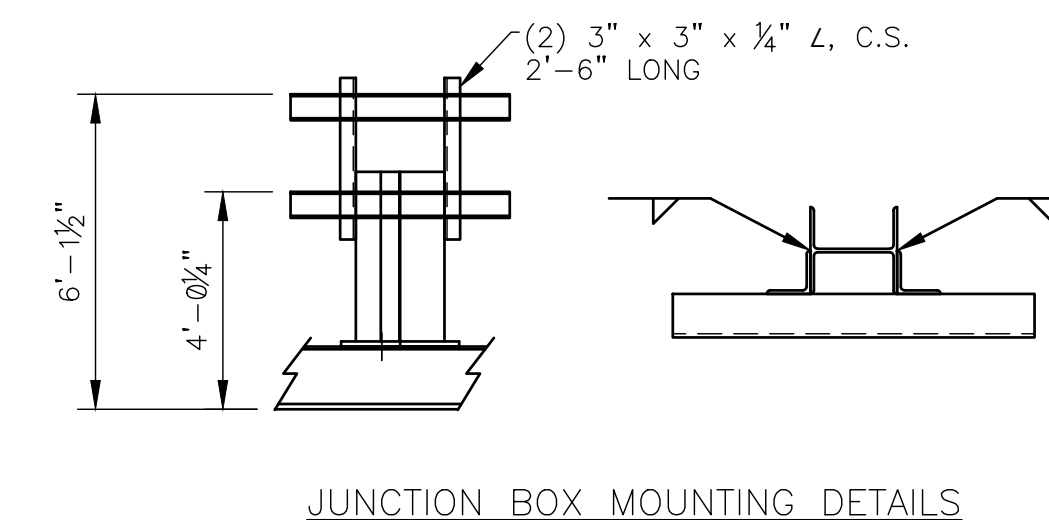
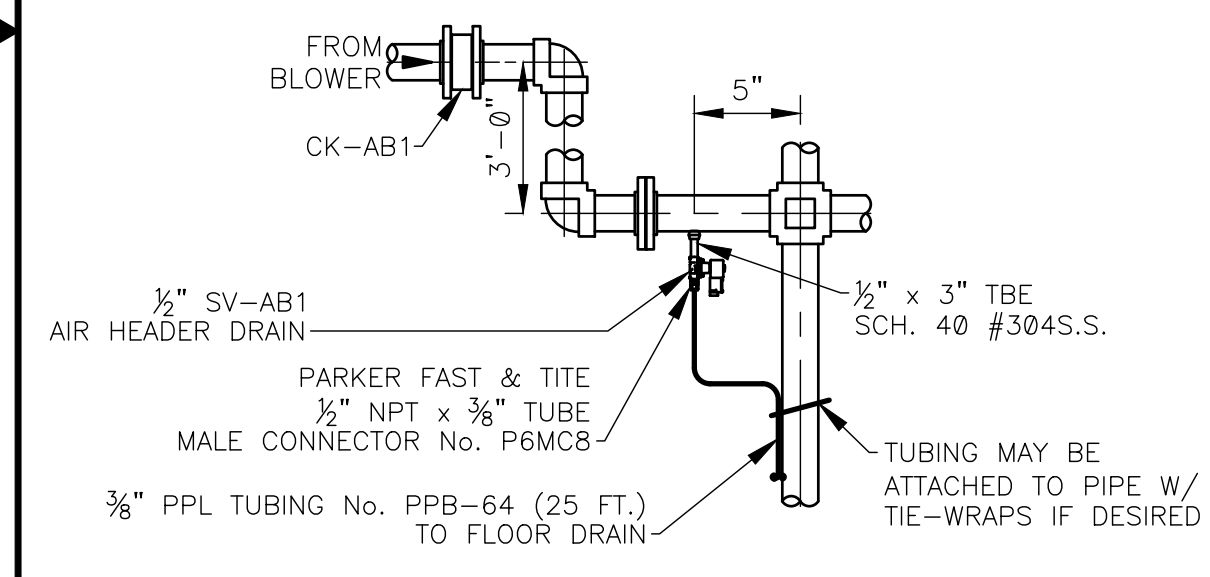
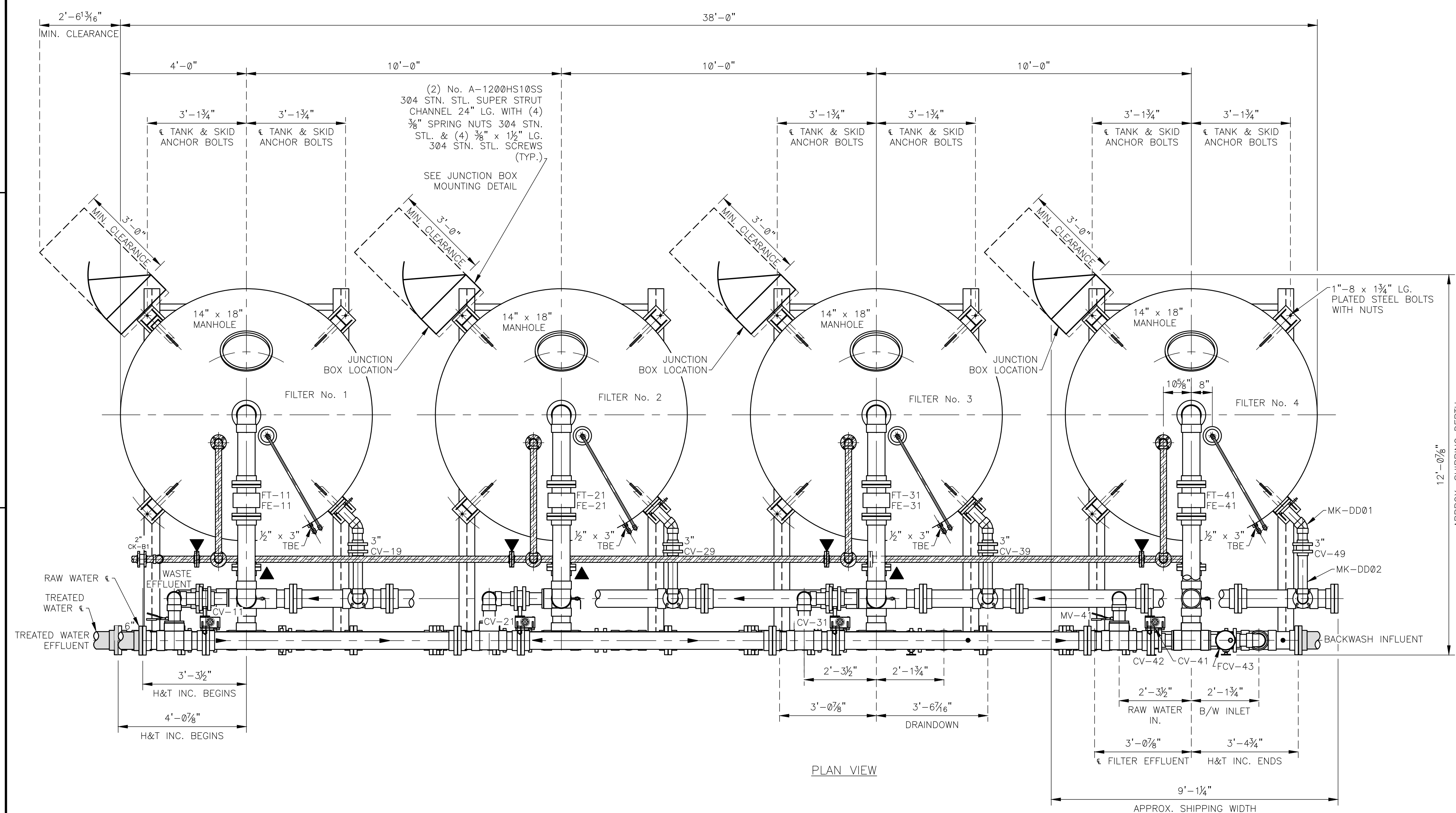
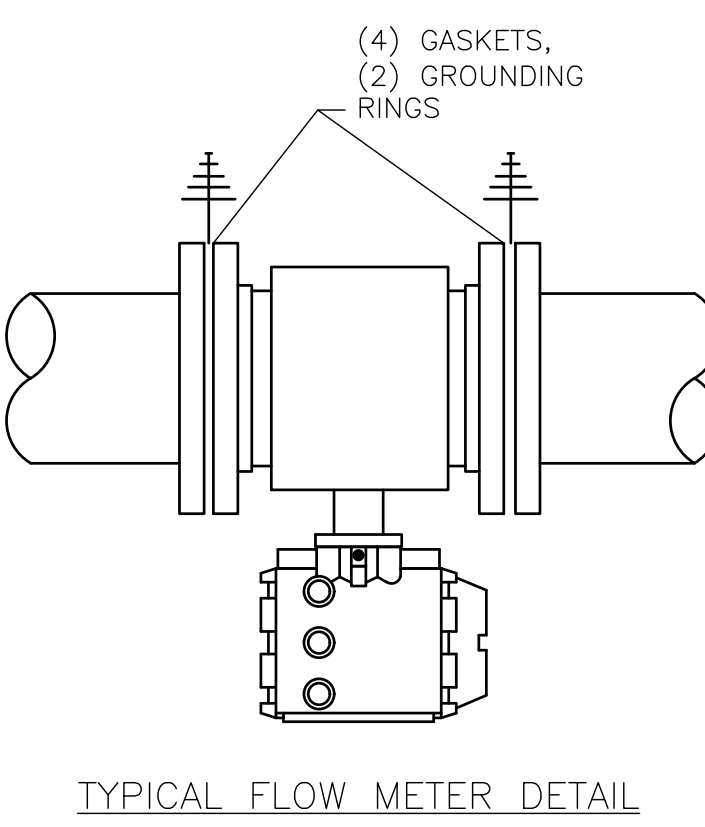
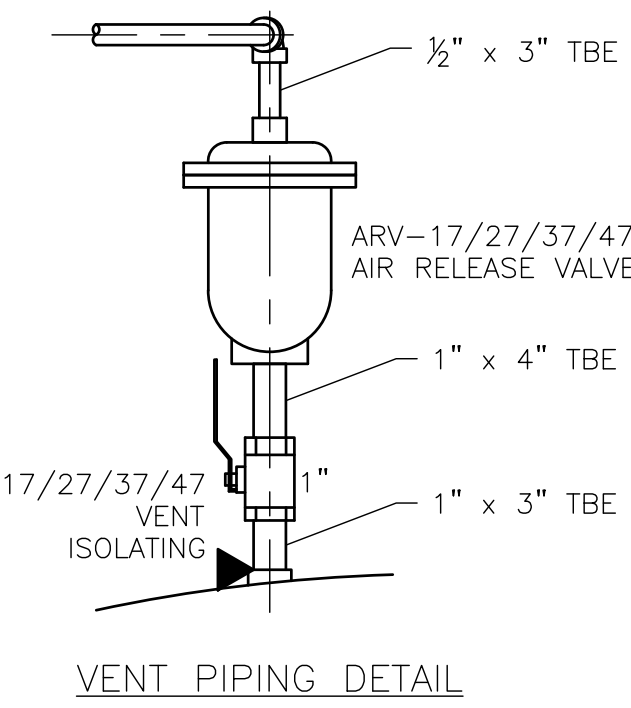
CONNECTION SIZE	CONNECTION TYPE	STUD SIZE	*MIN. LENGTH
6"	FLANGE-FLANGE	3/4"	5 1/4"
6"	FLG-VALVE-FLG	3/4"	7 1/4"
6"	FLG-METER-FLG	3/4"	5 1/4"
6"	FLANGE-PAD	3/4"	3 3/4"
4"	FLG-VALVE-FLG	5/8"	6 1/4"
3"	FLG-VALVE-FLG	5/8"	6"
3"	FLANGE-PAD	5/8"	2 3/4"
3"	FLG-FLG	5/8"	4 1/4"
2 1/2"	FLG-VALVE-FLG	5/8"	6"
2"	FLANGE-FLANGE	5/8"	4 1/4"

* NOTE: FOR STUDS WITH INSTRUMENT SUPPORTS, ADD 1/4" TO LENGTH.

NOTES:

- PROCESS WATER PIPING IS PVC SCH. 80 WITH SCH. 80 SOCKET WELD FITTINGS & 150 LB. SOCKET WELD FLANGES FOR ALL FACE PIPING.
- PROCESS AIR PIPING IS SCH. 40 #304L S.S. WITH SCH. 40 #304L S.S. SOCKET WELD RAISED FACE FLANGES AND SOCKET WELD FITTINGS EXCEPT AS NOTED.
- VENT & SAMPLE PIPE IS SCH. 40 304L STAINLESS STEEL WITH 150 LB. THREADED FITTINGS.
- ALL PROCESS WATER PIPING TO BE FURNISHED WITH REQ'D: BOLTS: ASTM A307 GRADE B PLATED CARBON STEEL. STUDS: ASTM F593 316 STAINLESS STEEL HEX HEAD. NUTS: ASTM A563 OR A194 2H PLATED STEEL HEAVY DUTY HEX. WASHERS: PLATED STEEL FLAT (SAE). GASKETS: 1/2" THICK FULL RING EPDM OR EQUAL.
- ALL STAINLESS STEEL PIPING TO BE FURNISHED WITH REQ'D: BOLTS: ASTM F593 GRADE 8M 316 STAINLESS STEEL HEX HEAD. STUDS: ASTM F593 316 STAINLESS STEEL. NUTS: ASTM F593 GRADE 8M 316 STAINLESS STEEL. WASHERS: ASTM A193 STAINLESS STEEL FLAT WASHERS (SAE). GASKETS: 1/2" THICK FULL RING EPDM OR EQUAL.
- BUTTERFLY VALVES DO NOT REQUIRE GASKETS.
- INTERCONNECTING PIPE SUPPORTS FURNISHED BY OTHERS.
- SEE DWG. 33552-C01 FOR VALVE & EQUIPMENT LISTING.
- SEE DWG. SK-33552-C07 FOR PRESSURE GAUGE TUBING DETAILS.
- SEE DWG. SK-33552-C06 FOR "DPS-01" TUBING DETAILS.
- SEE DWG. 33552-A05 FOR PROCESS WATER MK- DETAILS.
- SEE DWG. 33552-B02 FOR PROCESS AIR MK- DETAILS.
- SEE DWG. 33552-A06 FOR AIR BLOWER PIPING LAYOUT.

- SEE NOTE No. 1
 SEE NOTE No. 2
 PIPING BY OTHERS
 INDICATES BREAK POINT FOR SHIPPING.
 INDICATES PIPE SUPPORT LOCATION.
 SKID SHIPPING WEIGHT:
 SKID OPERATING WEIGHT:



NO.	REVISIONS	DATE	CK'D
1	DESIGN REVIEW	4/5/24	WJP

H&T INC.
HUNGERFORD & TERRY, Inc.
 MANUFACTURERS OF WATER TREATING EQUIPMENT
 CLAYTON, NEW JERSEY

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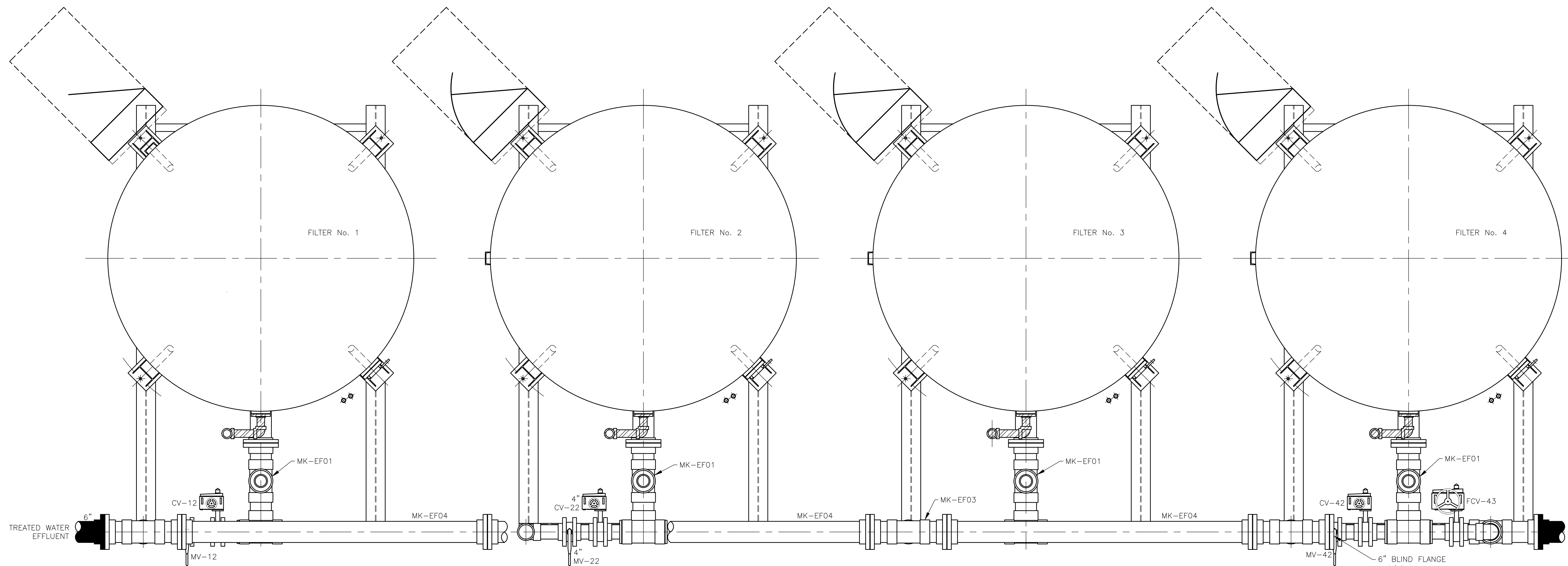
FREDERICKSBURG SEWER & WATER AUTHORITY
 FREDERICKSBURG, PA

96" O.D. GREENSANDPLUS FILTERS
 PIPING LAYOUT

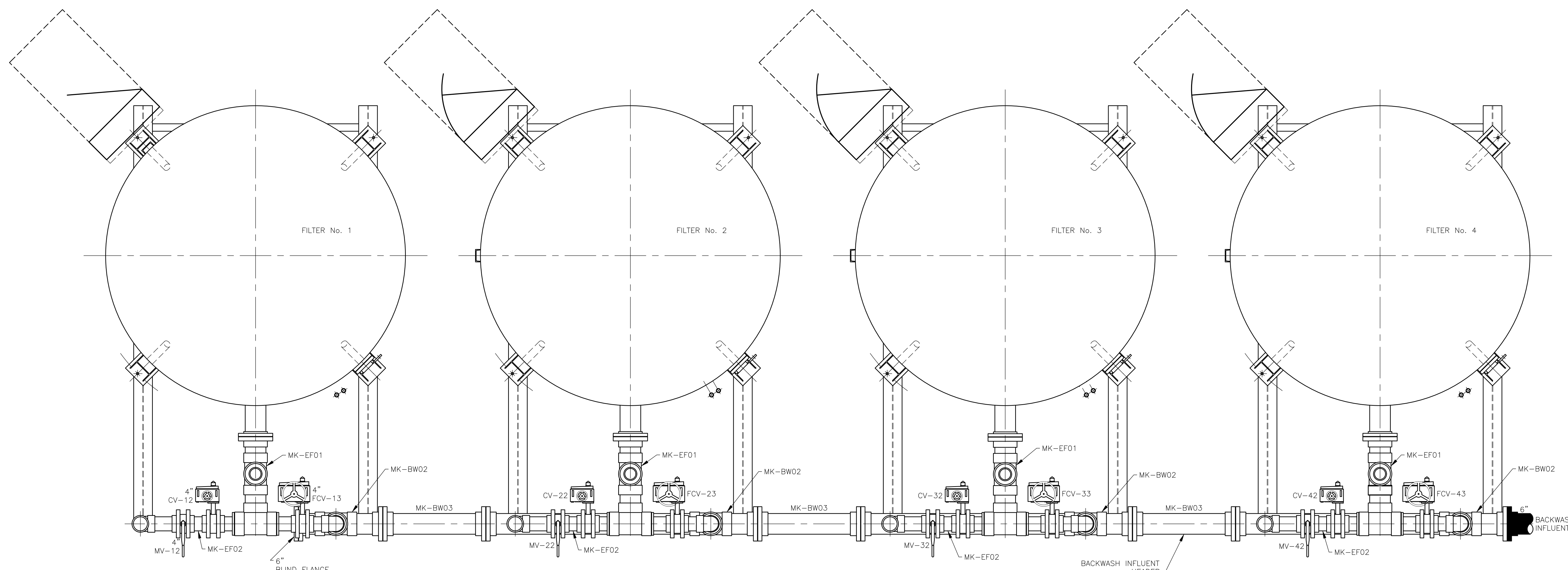
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 STARTED: 3/28/24
 FINISHED: 3/28/24
 CHECKED: 4/14/24
 APPROVED: 4/14/24

SCALE: 1/2" = 1'-0"
 FORM NO.: M-345
 CONT NO.: WJP

DRAWING NO.: 33552-A04
 REV.: 1



SECTION "A-A"



SECTION "B-B"

SEE DWG. 33552-A04 FOR NOTES

NO.	REVISIONS	DATE	CK'D
1	DESIGN REVIEW	4/5/24	WJP



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 CLAYTON, NEW JERSEY

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FREDERICKSBURG SEWER & WATER AUTHORITY
 FREDERICKSBURG, PA

96" O.D. GREENSANDPLUS FILTERS
 PIPING LAYOUT PLAN VIEWS

DATE	3/20/24	GRV	SCALE	3/4" = 1'-0"
STARTED	3/20/24	GRV	FORM NO.	M-345
FINISHED	3/29/24	WJP	CONT NO.	
CHECKED	3/29/24	WJP	DRAWING NO.	33552-A05
APPROVED	4/5/24	WJP	REV.	1



VALVE & EQUIPMENT LIST

DWG. No. 33552-C01

CONTRACT M-345

FREDERICKSBURG SEWER & WATER AUTHORITY
FREDERICKSBURG, PA

NOTES

Tagging: ALL EQUIPMENT TO HAVE DOUBLE SIDED CLEAR PLASTIC LAMINATED TAGS WITH LETTERS AND NUMBERS FOR ITEM DESCRIPTION & TAG.

REVISION HISTORY

<u>No.</u>	<u>PAGE(S)</u>	<u>DATE</u>	<u>CHECKED</u>
0		02/22/24	<u>WJP & BMC</u>
1	9	04/05/24	<u>WJP</u>
2	6, 7, 8	04/10/24	<u>WJP</u>

TAG No.	REV. DESCRIPTION	REV. MAKE & MODEL
<u>AUTOMATIC BUTTERFLY VALVES-MODULATING</u>		
FCV-13	FILTER No. 1 BACKWASH INLET/SLOW REFILL VALVE	4 INCH BRAY SERIES 3W-0600-119 BUTTERFLY VALVES RATED FOR 175 PSI
FCV-23	FILTER No. 2 BACKWASH INLET/SLOW REFILL VALVE	BI-DIRECTIONAL FLOW WITH WAFER STYLE CAST IRON BODY
FCV-33	FILTER No. 3 BACKWASH INLET/SLOW REFILL VALVE	NYLON 11 COATED DUCTILE IRON DISC, 416 STN. STL. STEM,
FCV-43	FILTER No. 4 BACKWASH INLET/SLOW REFILL VALVE	EPDM (FOOD GRADE) SEAT, SUPPLIED WITH BRAY SERIES 70-0031SVH MODULATING ACTUATOR WITH (4-20 mA) POSITION FEEDBACK TRANSMITTER, 120 VAC ELECTRIC WITH NEMA 4/4X ENCLOSURES, MANUAL HANDWHEEL OVERRIDE. EXTERNAL BI-DIRECTIONAL TRAVEL STOPS, VISUAL OPEN/CLOSE INDICATOR, REVERSIBLE MOTOR, (2) SPDT LIMIT SWITCHES, SET OF AUXILIARY LIMIT SWITCHES , THERMAL OVERLOAD PROTECTION, SERIES 70 INTEGRAL HEATER. MODULATING SERVICE. NORMAL MAXIMUM OPERATING CONDITION: 100 PSI WATER.

TAG No.	REV.	DESCRIPTION	REV.	MAKE & MODEL
<u>AUTOMATIC BUTTERFLY VALVES</u>				
CV-14		FILTER No. 1 BACKWASH OUTLET VALVE		6 INCH BRAY SERIES 3W-0400-119 BUTTERFLY VALVES RATED FOR 175 PSI BI-DIRECTIONAL FLOW WITH WAFER STYLE CAST IRON BODY NYLON 11 COATED DUCTILE IRON DISC, 416 STN. STL. STEM, EPDM (FOOD GRADE) SEAT, SUPPLIED WITH BRAY SERIES 70-0201H 120 VAC ELECTRIC ACTUATOR WITH NEMA 4/4X ENCLOSURE, TWO POSITION, HEATER, MANUAL HANDWHEEL OVERRIDE, EXTERNAL BI-DIRECTIONAL, TRAVEL STOPS, VISUAL OPEN/CLOSE INDICATOR, REVERSIBLE MOTOR, (2) SPDT LIMIT SWITCHES, SET OF AUXILIARY LIMIT SWITCHES , THERMAL OVERLOAD PROTECTION, AND SUPPLIED WITH IRB BOARD. TWO-POSITION (ON/OFF) SERVICE. NORMAL MAXIMUM OPERATING CONDITION: 100 PSI WATER.
CV-24		FILTER No. 2 BACKWASH OUTLET VALVE		
CV-34		FILTER No. 3 BACKWASH OUTLET VALVE		
CV-44		FILTER No. 4 BACKWASH OUTLET VALVE		
CV-11		FILTER No. 1 INLET VALVE		4 INCH BRAY SERIES 3W-0400-119 BUTTERFLY VALVES RATED FOR 175 PSI BI-DIRECTIONAL FLOW WITH WAFER STYLE CAST IRON BODY NYLON 11 COATED DUCTILE IRON DISC, 416 STN. STL. STEM, EPDM (FOOD GRADE) SEAT, SUPPLIED WITH BRAY SERIES 70-0031H 120 VAC ELECTRIC ACTUATOR WITH NEMA 4/4X ENCLOSURE, TWO POSITION, HEATER, MANUAL HANDWHEEL OVERRIDE, EXTERNAL BI-DIRECTIONAL, TRAVEL STOPS, VISUAL OPEN/CLOSE INDICATOR, REVERSIBLE MOTOR, (2) SPDT LIMIT SWITCHES, SET OF AUXILIARY LIMIT SWITCHES , THERMAL OVERLOAD PROTECTION, AND SUPPLIED WITH IRB BOARD. TWO-POSITION (ON/OFF) SERVICE. NORMAL MAXIMUM OPERATING CONDITION: 100 PSI WATER.
CV-12		FILTER No. 1 OUTLET VALVE		
CV-21		FILTER No. 2 INLET VALVE		
CV-22		FILTER No. 2 OUTLET VALVE		
CV-31		FILTER No. 3 INLET VALVE		
CV-32		FILTER No. 3 OUTLET VALVE		
CV-41		FILTER No. 4 INLET VALVE		
CV-42		FILTER No. 4 OUTLET VALVE		
CV-19		FILTER No. 1 DRAINDOWN VALVE		3 INCH BRAY SERIES 3W-0300-119 BUTTERFLY VALVES RATED FOR 175 PSI BI-DIRECTIONAL FLOW WITH WAFER STYLE CAST IRON BODY NYLON 11 COATED DUCTILE IRON DISC, 416 STN. STL. STEM, EPDM (FOOD GRADE) SEAT, SUPPLIED WITH BRAY SERIES 70-0031H 120 VAC ELECTRIC ACTUATOR WITH NEMA 4/4X ENCLOSURE, TWO POSITION, HEATER, MANUAL HANDWHEEL OVERRIDE, EXTERNAL BI-DIRECTIONAL, TRAVEL STOPS, VISUAL OPEN/CLOSE INDICATOR, REVERSIBLE MOTOR, (2) SPDT LIMIT SWITCHES, SET OF AUXILIARY LIMIT SWITCHES , THERMAL OVERLOAD PROTECTION, AND SUPPLIED WITH IRB BOARD. TWO-POSITION (ON/OFF) SERVICE. NORMAL MAXIMUM OPERATING CONDITION: 100 PSI WATER.
CV-29		FILTER No. 2 DRAINDOWN VALVE		
CV-39		FILTER No. 3 DRAINDOWN VALVE		
CV-49		FILTER No. 4 DRAINDOWN VALVE		

TAG No.	REV.	DESCRIPTION	REV.	MAKE & MODEL
<u>AUTOMATIC BUTTERFLY VALVES (CONT)</u>				
CV-15		FILTER No. 1 RINSE VALVE		2-1/2 INCH BRAY SERIES 3W-0250-119 BUTTERFLY VALVES RATED FOR 175 PSI BI-DIRECTIONAL FLOW WITH WAFER STYLE CAST IRON BODY NYLON 11 COATED DUCTILE IRON DISC, 416 STN. STL. STEM, EPDM (FOOD GRADE) SEAT, SUPPLIED WITH BRAY SERIES 70-0031H 120 VAC ELECTRIC ACTUATOR WITH NEMA 4/4X ENCLOSURE, TWO POSITION, HEATER, MANUAL HANDWHEEL OVERRIDE, EXTERNAL BI-DIRECTIONAL, TRAVEL STOPS, VISUAL OPEN/CLOSE INDICATOR, REVERSIBLE MOTOR, (2) SPDT LIMIT SWITCHES, SET OF AUXILIARY LIMIT SWITCHES , THERMAL OVERLOAD PROTECTION, AND SUPPLIED WITH IRB BOARD. TWO-POSITION (ON/OFF) SERVICE. NORMAL MAXIMUM OPERATING CONDITION: 100 PSI WATER.
CV-25		FILTER No. 2 RINSE VALVE		
CV-35		FILTER No. 3 RINSE VALVE		
CV-45		FILTER No. 4 RINSE VALVE		
CV-16		FILTER No. 1 AIR PRESSURIZING VALVE		2 INCH BRAY SERIES 3W-0200-119 BUTTERFLY VALVES RATED FOR 175 PSI BI-DIRECTIONAL FLOW WITH WAFER STYLE CAST IRON BODY NYLON 11 COATED DUCTILE IRON DISC, 416 STN. STL. STEM, EPDM (FOOD GRADE) SEAT, SUPPLIED WITH BRAY SERIES 70-0031H 120 VAC ELECTRIC ACTUATOR WITH NEMA 4/4X ENCLOSURE, TWO POSITION, HEATER, MANUAL HANDWHEEL OVERRIDE, EXTERNAL BI-DIRECTIONAL, TRAVEL SWITCHES, SET OF AUXILIARY LIMIT SWITCHES , THERMAL OVERLOAD PROTECTION, AND SUPPLIED WITH IRB BOARD. TWO-POSITION (ON/OFF) SERVICE. NORMAL MAXIMUM OPERATING CONDITION: 100 PSI WATER.
CV-18		FILTER No. 1 AIR WASH INLET VALVE		
CV-26		FILTER No. 2 AIR PRESSURIZING VALVE		
CV-28		FILTER No. 2 AIR WASH INLET VALVE		
CV-36		FILTER No. 3 AIR PRESSURIZING VALVE		
CV-38		FILTER No. 3 AIR WASH INLET VALVE		
CV-46		FILTER No. 4 AIR PRESSURIZING VALVE		
CV-48		FILTER No. 4 AIR WASH INLET VALVE		
<u>SOLENOID VALVE</u>				
SV-B1		AIR BLOWER AB-1 DRAIN VALVE		1/2 INCH ASCO #JKF8210G034 GENERAL SERVICE SOLENOID VALVE WITH BRASS BODY, 120 V/60 Hz., NBR SEATING. NORMALLY OPEN - ENERGIZE TO CLOSE VALVE

TAG No.	REV.	DESCRIPTION	REV.	MAKE & MODEL
<u>MANUAL BUTTERFLY VALVES</u>				
MV-11		FILTER No. 1 INLET ISOLATING VALVE		4 INCH BRAY SERIES 3W-0400-119 BUTTERFLY VALVES RATED FOR 175 PSI BI-DIRECTIONAL FLOW WITH WAFER STYLE CAST IRON BODY NYLON 11 COATED DUCTILE IRON DISC, 416 STN. STL. STEM, EPDM (FOOD GRADE) SEAT, SUPPLIED WITH BRAY SERIES 01 LEVER HANDLE AND 10-POSITION NOTCH PLATE. NORMAL MAXIMUM OPERATING CONDITION: 100 PSI WATER.
MV-12		FILTER No. 1 OUTLET ISOLATING VALVE		
MV-21		FILTER No. 2 INLET ISOLATING VALVE		
MV-22		FILTER No. 2 OUTLET ISOLATING VALVE		
MV-31		FILTER No. 3 INLET ISOLATING VALVE		
MV-32		FILTER No. 3 OUTLET ISOLATING VALVE		
MV-41		FILTER No. 4 INLET ISOLATING VALVE		
MV-42		FILTER No. 4 OUTLET ISOLATING VALVE		
MV-B1		AIR BLOWER ISOLATING VALVE		2 INCH BRAY SERIES 3W-0200-119 BUTTERFLY VALVES RATED FOR 175 PSI BI-DIRECTIONAL FLOW WITH WAFER STYLE CAST IRON BODY NYLON 11 COATED DUCTILE IRON DISC, 416 STN. STL. STEM, EPDM (FOOD GRADE) SEAT, SUPPLIED WITH BRAY SERIES 01 LEVER HANDLE AND 10-POSITION NOTCH PLATE. NORMAL MAXIMUM OPERATING CONDITION: 100 PSI WATER.

TAG No.	REV.	DESCRIPTION	REV.	MAKE & MODEL
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MANUAL VALVES

MV-19		FILTER NO. 1 TANK DRAIN VALVE	2	2 INCH FLOW-TEK SERIES S85 STAINLESS STEEL FULL PORT BALL VALVE THREADED, WITH MANUAL LEVER OPERATOR.
MV-29		FILTER NO. 2 TANK DRAIN VALVE		
MV-39		FILTER NO. 3 TANK DRAIN VALVE		
MV-49		FILTER NO. 4 TANK DRAIN VALVE		
MV-17		FILTER No. 1 AIR VENT VALVE	2	1 INCH FLOW-TEK SERIES S85 STAINLESS STEEL FULL PORT BALL VALVE THREADED, WITH MANUAL LEVER OPERATOR.
MV-27		FILTER No. 2 AIR VENT VALVE		
MV-37		FILTER No. 3 AIR VENT VALVE		
MV-47		FILTER No. 4 AIR VENT VALVE		
SmV-13		FILTER No. 1 BACKWASH TELL-TALE VALVE		1/2 INCH FLOW-TEK SERIES S80 STAINLESS STEEL BALL VALVE THREADED, WITH MANUAL LEVER OPERATOR.
SmV-23		FILTER No. 2 BACKWASH TELL-TALE VALVE		
SmV-33		FILTER No. 3 BACKWASH TELL-TALE VALVE		
SmV-43		FILTER No. 4 BACKWASH TELL-TALE VALVE		
SmV-01A		DIFF PRESSURE HIGH ISOLATING VALVE		1/4 INCH FLOW-TEK SERIES S80 STAINLESS STEEL BALL VALVE THREADED, WITH MANUAL LEVER OPERATOR.
SmV-01B		DIFF PRESSURE LOW ISOLATING VALVE		
SmV-01C		DIFF PRESSURE BALANCING VALVE		
SmV-11A		PRESSURE GAUGE ISOLATING VALVE		
SmV-11B		PRESSURE GAUGE SAMPLING VALVE		
SmV-12A		PRESSURE GAUGE ISOLATING VALVE		
SmV-12B		PRESSURE GAUGE SAMPLING VALVE		
SmV-21A		PRESSURE GAUGE ISOLATING VALVE		
SmV-21B		PRESSURE GAUGE SAMPLING VALVE		
SmV-22A		PRESSURE GAUGE ISOLATING VALVE		
SmV-22B		PRESSURE GAUGE SAMPLING VALVE		
SmV-31A		PRESSURE GAUGE ISOLATING VALVE		
SmV-31B		PRESSURE GAUGE SAMPLING VALVE		
SmV-32A		PRESSURE GAUGE ISOLATING VALVE		
SmV-32B		PRESSURE GAUGE SAMPLING VALVE		
SmV-41A		PRESSURE GAUGE ISOLATING VALVE		
SmV-41B		PRESSURE GAUGE SAMPLING VALVE		
SmV-42A		PRESSURE GAUGE ISOLATING VALVE		
SmV-42B		PRESSURE GAUGE SAMPLING VALVE		

TAG No.	REV.	DESCRIPTION	REV.	MAKE & MODEL
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AIR RELEASE VALVE

ARV-17		FILTER No. 1 AIR RELEASE VALVE		APCO MODEL 200A AIR RELEASE VALVE WITH THREADED, CAST IRON BODY, STAINLESS STEEL FLOAT, BUNA-N SEAT, 1 INCH NPT INLET, 1/2 INCH NPT OUTLET CONNECTIONS AND 3/16 INCH ORIFICE (100 PSI.)
ARV-27		FILTER No. 2 AIR RELEASE VALVE		
ARV-37		FILTER No. 3 AIR RELEASE VALVE		
ARV-47		FILTER No. 4 AIR RELEASE VALVE		

CHECK VALVE

CK-B1		AIR BLOWER CHECK VALVE	2	2 INCH BRAY/RITE MODEL 210 ANSI CHECK VALVE, CODE # V02-15-XBT WITH 150 LB. WAFER STYLE STAINLESS STEEL BODY, BUNA-N SEAT, AND TEFLON SPACER.
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TAG No.	REV.	DESCRIPTION	REV.	MAKE & MODEL
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PRESSURE EQUIPMENT

PI-11		FILTER No. 1 INLET PRESSURE GAUGE		ASHCROFT MODEL 45-1279SS-02L-0/160 PSI DURAGAGE PRESSURE
PI-12		FILTER No. 1 OUTLET PRESSURE GAUGE		GAUGE WITH #316 STAINLESS STEEL BOURDON AND SOCKET
PI-21		FILTER No. 2 INLET PRESSURE GAUGE		4.5 IN. DIAL, 1/4 INCH NPT LOWER CONNECTION, AND
PI-22		FILTER No. 2 OUTLET PRESSURE GAUGE		0-160 PSIG PRESSURE RANGE.
PI-31		FILTER No. 3 INLET PRESSURE GAUGE		
PI-32		FILTER No. 3 OUTLET PRESSURE GAUGE		
PI-41		FILTER No. 4 INLET PRESSURE GAUGE		
PI-42		FILTER No. 4 OUTLET PRESSURE GAUGE		

DIFFERENTIAL PRESSURE EQUIPMENT

DPS-01		DIFFERENTIAL PRESSURE SWITCH		ASHCROFT MODEL D420B-XUD-30PSI SNAP ACTING DIFFERENTIAL PRESSURE SWITCH WITH BUNA-N ACTUATOR SEAL, STAINLESS STEEL PRESSURE CONNECTION, AND 1/4 INCH NPT CONNECTIONS. NEMA 4 ENCLOSURE. 0-30 PSI DIFFERENTIAL PRESSURE RANGE. SWITCH TO BE SET FOR 10 PSID INCREASING PRESSURE.
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FLOW EQUIPMENT

FE/FT-11		FILTER No. 1 FLOW METER	2	6 INCH ROSEMOUNT MAGNETIC FLOWTUBE MODEL
FE/FT-21		FILTER No. 2 FLOW METER		8750WDMT1A4FTSA060CA1M4G1AXDW WITH PTFE LINING,
FE/FT-31		FILTER No. 3 FLOW METER		316 STN STL TWO MEASUREMENT ELECTRODES, ANSI 150# CARBON
FE/FT-41		FILTER No. 4 FLOW METER		STEEL FLANGE, DIRECT MOUNT TRANSMITTER WITH 120 VAC POWER SUPPLY, 4-20 mA OUTPUT (HART PROTOCOL.)
				OPERATOR INTERFACE LOCAL DISPLAY, DIGITAL INPUT & OUTPUT. (SET UP FOR BI-DIRECTIONAL FLOW).
				RANGE: 4 mA= 0 GPM AND 20 mA=600 GPM.
				FURNISHED WITH: TWO (2) 6 INCH GROUNDING DISCS
				CL 150, 316L STN. STL. MATERIAL.

TAG No.	REV.	DESCRIPTION	REV.	MAKE & MODEL
<u>AIR BLOWER EQUIPMENT</u>				
B-1		AIR BLOWER	1	ROOTS MODEL 22 URAI AIR BLOWER RATED 40 ICFM @ 6 PSI COMPLETE WITH SERIES 300 FLEXIBLE CONNECTORS, V-BELT DRIVE WITH ENCLOSED OSHA STYLE GUARD, UNIVERSAL 1.5 INCH INLET FILTER WITH PAPER FILTER, 1.5 INCH INLET SILENCER WITH SUPPORTS, 1.5 INCH DISCHARGE SILENCER WITH SUPPORTS, WEIGHTED STYLE 1 INCH FNPT RELIEF VALVE SET FOR 7 PSIG, 1/4 INCH MPT DISCHARGE DRAIN, AND 3 HP, 1800 RPM 3/60/230-460 TEFC MOTOR. BLOWER FURNISHED WITH ACOUSTICALLY TREATED SOUND ENCLOSURE WITH LIFT OFF PANELS AND INLET & DISCHARGE VENT HOODS.
B-2		AIR BLOWER		
PI-B1		AIR BLOWER B-1 PRESSURE GAUGE		EQUIPMENT INCLUDED AS PART OF BLOWER PACKAGE: OUTLET PRESSURE GAUGE: PRECISION INSTRUMENT MODEL 201L WITH 2-1/2 INCH DIAL. RANGE 0-15 PSI.
PI-B2		AIR BLOWER B-2 PRESSURE GAUGE		

TAG No.	REV. DESCRIPTION	REV. MAKE & MODEL
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SPARE PARTS

FILTER MANWAY GASKET (ONE PER MANWAY)

14" X 18" ELLIPTICAL MANWAY GASKET, 1/4 INCH THICK EPDM
70 DUROMETER (SHORE A) PER MANWAY. SEE NOTE ON DWG 33552-A02.