

SERVICE	PIPING		TAKEDOWN JOINTS		VALVES		FITTINGS	FLEX CONNECTIONS	REMARKS	
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY				TRIM
POTABLE WATER VENT AND FILL IN HOLD MAWP: 50 PSIG MAX TEMP: 120°F	ALL	COPPER, SEAMLESS HARD DRAWN, ASTM B88, TYPE K	FLANGE, 150#, ANSI B16.24, SOLDER JOINT, COPPER	ARAMID FIBERS WITH A NEOPRENE BINDER	BOLTS: STAINLESS STEEL ASTM A193 GRADE B8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2		WROT COPPER, ANSI B16.22, ASTM B75			
FUEL OIL FILL & VENT, LO FILL & VENT, WO PUMP-OFF & VENT IN HOLD MAWP: 50 PSIG TEMP: 120°F	ALL	CARBON STEEL ASTM A53 OR A106, GRADE B SEAMLESS ANSI B36.10 SCH 80	FLANGE CARBON STEEL ASTM A105 ANSI B16.5 150# SLIP-ON OR WELD NECK	INORGANIC FIBERS WITH A NITRILE BINDER ABS FIRE-SAFE TYPE APPROVED			CARBON STEEL ASTM A234, GR WPB ANSI B16.9 BUTT WELD LONG RADIUS			
SEA CHEST VENT IN HOLD MAWP: 50 PSIG TEMP: 120°F	ALL	CU-NI 90/10 ASTM B466 OR MIL-T-16420 SEAMLESS CLASS 200	UNION CU-NI 90/10 MSS SP-83 3000# SOCKET END				CU-NI 90/10 MSS SP-83 3000# SOCKET END			
ZERO DISCHARGE PUMP OFF & VENT IN HOLD MAWP: 50 PSIG TEMP: 120°F	ALL	CPVC SCH 80 ASTM D1784 ASTM F441	SOCKET FLANGE CPVC ASTM F439 ANSI B16.5 150#	EPDM RUBBER ASTM-D1331 FULL FACE			CPVC ASTM F439		NOTE 21	
POTABLE WATER FILL & VENT, ZERO-DISCHARGE TANK PUMP-OFF & VENT, BALLAST VENT, FO FILL & VENT, LO FILL & VENT, WO PUMP OFF & VENT IN WEATHER MAWP: 50 PSIG MAX TEMP: 120°F	ALL	STAINLESS STEEL ASTM A312 TYPE 316 ANSI B36.10 SCH 80	FLANGE STAINLESS STEEL ASTM A182 TY 316 ANSI B16.5 150# SLIP-ON OR WELD NECK UNION STAINLESS STEEL ASTM A182 TY 316 ANSI B16.11 3000#	SEE IN HOLD GASKET MATERIAL			BALL: STAINLESS STEEL BODY THREADED OR SW, 1500 PSI BALL: STAINLESS STEEL BALL RPTFE SEATS STAINLESS STEEL ASTM A182 TYPE 316 ANSI B16.9 BUTT WELD LONG RADIUS			

- VENTS TERMINATING IN THE MACHINERY SPACE SHALL BE POSITIONED TO PRECLUDE THE POSSIBILITY OF OVERFLOWING ON ELECTRICAL EQUIPMENT, ENGINES, OR HEATED EQUIPMENT.
- PROVIDE CONTAINMENT AT OIL FILLS, PUMP-OFFS AND VENTS. SUBMIT DETAILS OF CONTAINMENT TO OWNER FOR APPROVAL PRIOR TO FABRICATION. CONTAINMENT VOLUME SHALL BE A MINIMUM OF 42 GALLONS.
- PIPE BENDS SHALL BE USED IN LIEU OF ELBOWS WHERE PRACTICABLE. BEND RADI FOR VENT AND OVERFLOWS SHALL BE 5 TIMES NOMINAL PIPE DIAMETER AND 10 FEET FOR SOUNDING TUBES.
- SOUNDING TUBES THAT TERMINATE AT THE FREEBOARD DECK SHALL HAVE FLUSH SOUNDING TUBE CAPS, STAINLESS STEEL COMMERCIAL WELD-IN TYPE (NOT A PIPE COUPLING) WITH A BRONZE PLUG. EACH FLUSH SOUNDING TUBE SHALL HAVE THE TANK NAME LABELED ON OR NEAR THE CAP. SOUNDING TUBES THAT TERMINATE BELOW THE FREEBOARD DECK SHALL BE FITTED WITH A SELF-CLOSING GATE VALVE. EACH VALVE SHALL HAVE A LABEL INDICATING THE TANK SERVED.
- SOUNDING TUBES SHALL BE AS VERTICAL AS PRACTICAL AND SHALL TERMINATE AS CLOSE AS POSSIBLE TO THE DEEPEST POINT OF THE TANK OR VOID.
- VENT TERMINALS SHALL BE BALL CHECK TYPE WITH PROTECTIVE MESH SCREEN.
- VENT TERMINALS FOR THE FUEL OIL, LUBE OIL, WASTE OIL SHALL BE FURNISHED WITH SS FLAME SCREENS.
- SOUNDING TUBE TERMINALS SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
- TANKS SHALL BE FITTED WITH LEVEL SENSORS, HIGH LEVEL ALARMS, AND LOW LEVEL ALARMS PER REF 1. LEVEL SENSORS AND ALARMS SHALL BE INTERFACED WITH THE SHIP'S ALARM AND MONITORING SYSTEM. SEE REF 1.
- WHERE STEEL PIPING PENETRATES BULKHEADS OR DECKS, REINFORCING SLEEVES SHALL BE USED. SEE DETAIL 2-3B.
- SEE REFERENCES 4-9 FOR TANK DETAILS.
- SEE REFERENCE 6 FOR SANITARY DRAINS VENT LINES.
- MATERIAL TRANSITIONS FROM STEEL TO COPPER SHALL BE ACCOMPLISHED VIA FLANGED JOINTS, THE JOINTS SHALL BE FITTED WITH GALVANIC ISOLATION KITS TO PREVENT DIRECT METAL TO METAL CONTACT.
- CPVC PIPE AND FITTINGS SHALL HAVE A USCG CERTIFICATE OF APPROVAL THAT STATES CPVC PIPE AND FITTINGS MEET LOW FLAME SPREAD, AND TOXICITY REQUIREMENTS OF THE FTP CODE ANNEX 1, PARTS 2 AND 5. INSTALL PIPING IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION GUIDELINES.
- WHERE PLASTIC OR COPPER PIPE PENETRATES BULKHEADS OR DECKS, STEEL PENETRATION SLEEVES WITH USCG APPROVED SEALANT AND CRUSHING SLEEVES SHALL BE USED. SEALANT AND SLEEVES SHALL BE RATED FOR WATERTIGHT AND A-60 APPLICATIONS. INSTALL PIPING TRANSITS IN ACCORDANCE WITH MANUFACTURER'S APPROVED INSTALLATION DETAILS.

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	2-4A	1. REMOVED FO FILL CROSS-CONNECT	MEJ	8/31/17	LGB

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURER'S CERTIFIED DRAWINGS AS APPROPRIATE.
- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
- AVOID POCKETS IN THE PIPE LINES. BOSSES AND VALVES OR SCREWED PLUGS SHALL BE FITTED TO ENABLE COMPLETE DRAINING OF PIPES WHERE POCKETS DO OCCUR.
- PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES. ALL COPPER-NICKEL AND COPPER PIPING SHALL BE SUPPORTED USING INSULATED HANGERS.
- EACH VENT PIPE SHALL BE SLOPED CONTINUOUSLY TO PROVIDE EFFECTIVE DRAINAGE BACK TO THE TANK.
- PROVIDE AN ENGRAVED LABEL PLATE AT EACH FILL, PUMP-OFF, VENT AND SOUND IN ACCORDANCE WITH REF 1.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-201-1 MACHINERY ARRANGEMENT
- 16101-200-256-1 COOLING SYSTEM SCHEMATIC
- 16101-200-261-1 FUEL OIL PIPING SCHEMATIC
- 16101-200-528-1 SANITARY DRAINS SCHEMATIC
- 16101-200-529-1 BILGE AND BALLAST SCHEMATIC
- 16101-200-529-2 LUBE OIL AND WASTE OIL PIPING SCHEMATIC
- 16101-200-533-1 POTABLE AND SANITARY WATER PIPING SCHEMATIC



**Elliott Bay Design Group**  
North Carolina, PLLC

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RALEIGH, NORTH CAROLINA

PROJECT: NEW RIVER CLASS FERRY



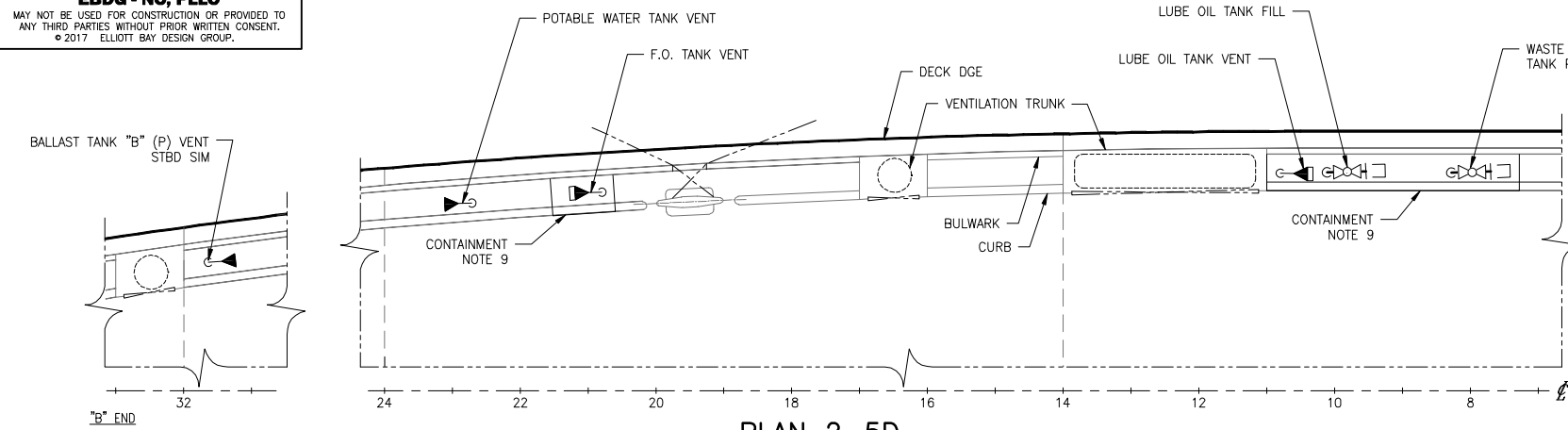
FILLS, VENTS, AND SOUNDS

SIZE	D	DWG NO.	16101-200-506-1	REV	A
SCALE	NTS	FILE NAME	16101-200-506-1A	SHEET	1 OF 2
DWN	MWR	MOD	JEH	CKD	NJB
APVD	LGB	APVD DATE	7/21/17		

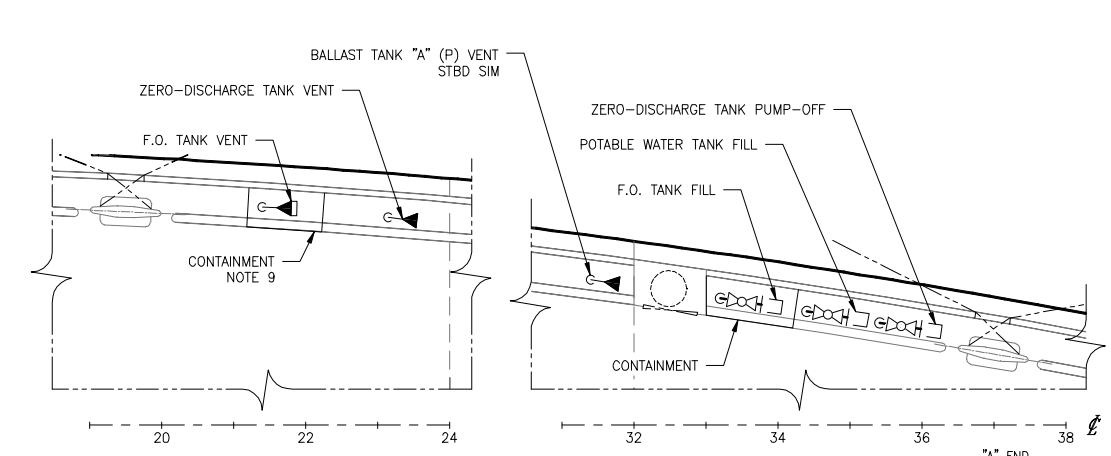
SPACE	QTY.	FILL/PUMP-OFF			VENT		SOUNDING TUBE	
		SIZE	TYPE	VALVE	SIZE	VALVE	SIZE	TYPE
POTABLE WATER TANK	1	1 1/2"	FEMALE CAM-LOCK W/PLUG	BALL	2"	BALLCHECK	NONE	-
FUEL OIL TANKS	2	2"	QUICK DISCONNECT	BALL	2-1/2"	BALLCHECK	1 1/2"	FLUSH
EDG FUEL OIL TANK	1	-	-	-	1"	BALLCHECK	1 1/2"	FLUSH
LUBE OIL TANK	1	1 1/2"	MALE CAM-LOCK W/CAP & PLUG	BALL	2"	BALLCHECK	1 1/2"	SELF-CLOSING VALVE
WASTE OIL TANK	1	1 1/2"	MALE CAM-LOCK W/CAP & PLUG	BALL	2"	NONE	1 1/2"	SELF-CLOSING VALVE
ZERO-DISCHARGE TANKS	2	2"	MALE CAM-LOCK W/CAP & PLUG	BALL	3"	BALLCHECK	NONE	-
BALLAST TANKS	4	-	-	-	5"	BALLCHECK	1 1/2"	FLUSH
SEA CHESTS	2	-	-	NONE	1-1/2"	NONE	NONE	-
MARINE SANITATION DEVICE	1	-	-	-	5"	BALLCHECK	NONE	-

—	FILL/PUMP-OFF PIPING
-----	VENT PIPING
—○ / ○	PIPE UP
—○	PIPE DOWN
⊙	VENT TERMINAL, FLAME SCREEN & BALL CHECK
◇	MATERIAL TRANSITION
●	SOUNDING TUBE TERMINAL
⊕	BULKHEAD PENETRATION
⊗	SELF-CLOSING VALVE
□	CAMLOCK FITTING, TABLE 1-5B
⊗	BALL VALVE
	UNION
⊙	VENT TERMINAL WITH BALL CHECK
	FLANGE

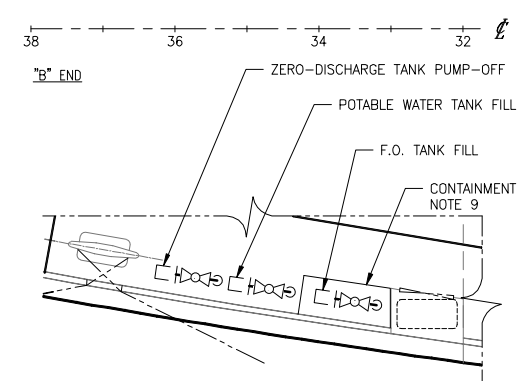
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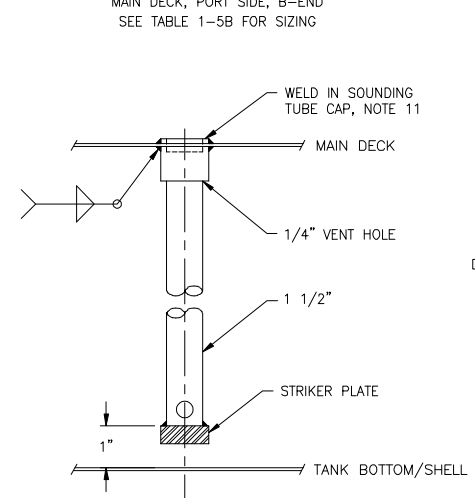
**PLAN 2-5D**  
 VENTS AND FILL/PUMP-OFF CONNECTIONS  
 MAIN DECK, PORT SIDE, B-END  
 SEE TABLE 1-5B FOR SIZING



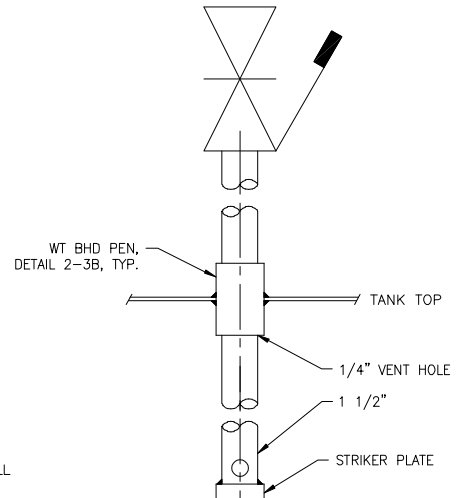
**PLAN 2-2D**  
 VENTS AND FILL/PUMP-OFF CONNECTIONS  
 MAIN DECK, PORT SIDE, A-END  
 SEE TABLE 1-5B FOR SIZING



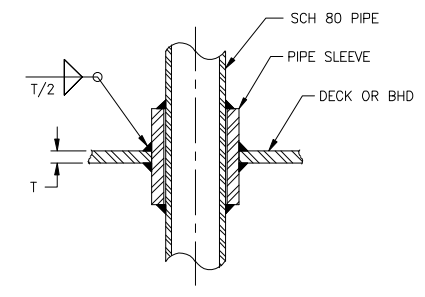
**PLAN 2-6B**  
 VENTS AND FILL/PUMP-OFF CONNECTIONS  
 MAIN DECK, STBD SIDE, B-END  
 SEE TABLE 1-5B FOR SIZING



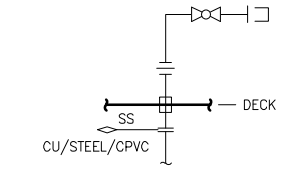
**DETAIL 2-5B**  
 SOUNDING TUBE AT FREEBOARD DECK  
 FUEL OIL & BALLAST TANKS



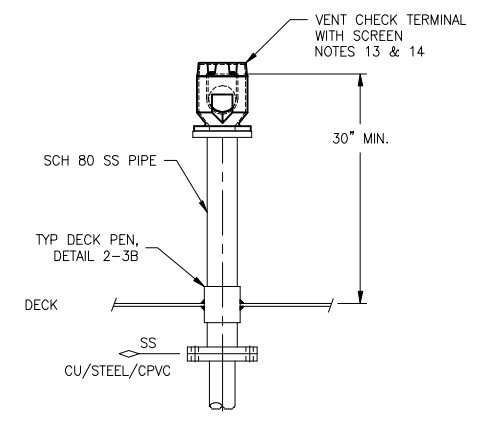
**DETAIL 2-4B**  
 SOUNDING TUBE IN ENGINE ROOM  
 WASTE OIL & LUBE OIL TANKS



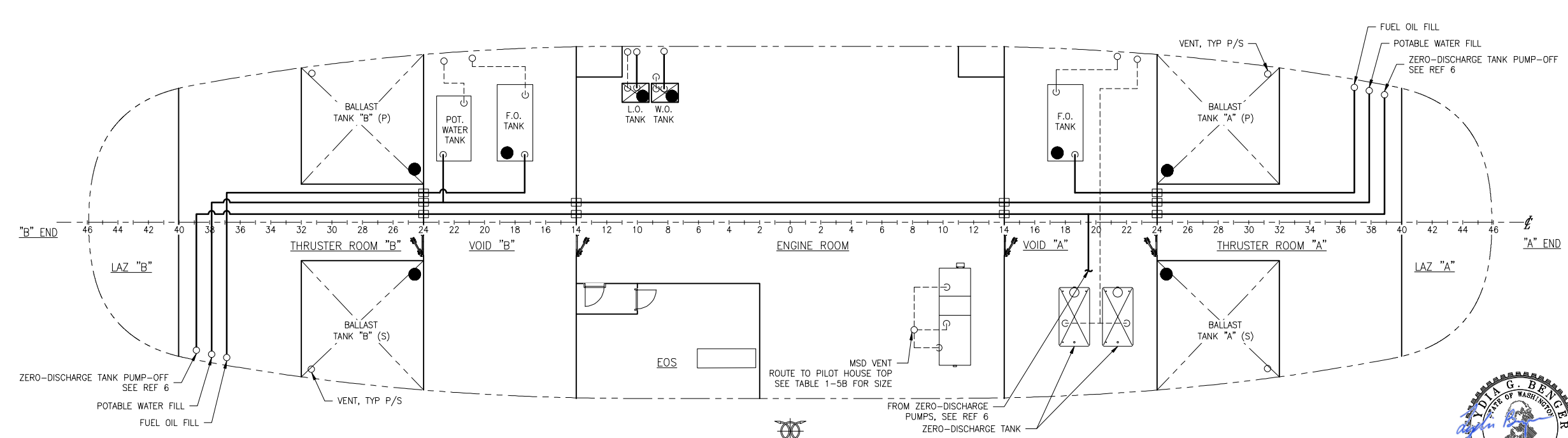
**DETAIL 2-3B**  
 TYP DECK/BHD PENETRATION



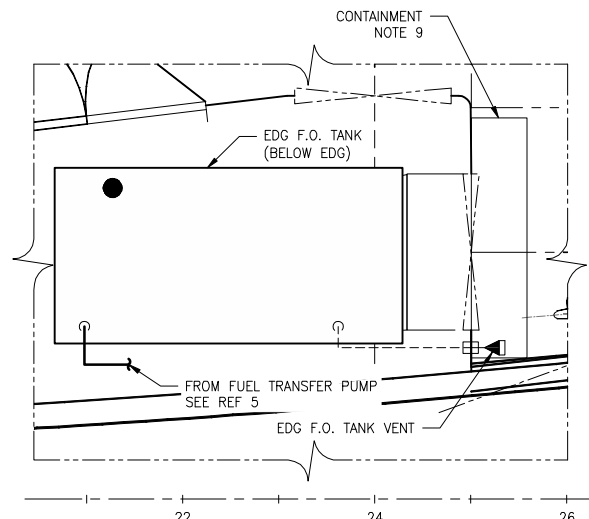
**DETAIL 2-2B**  
 TYPICAL DECK CONNECTION



**DETAIL 2-1B**  
 TYPICAL VENT



**PLAN 2-4A**  
 HOLD



**PLAN 2-1A**  
 EGEN ROOM



SIZE	D	OWG NO.	16101-200-506-1	REV	A
SCALE	NTS	FILE NAME	16101-200-506-1A	SHEET	2 OF 2

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