MATERIAL SCHEDULE

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS			VALVES		FLEX CONN'S	FITTINGS TYPE & MATERIAL	MAX WORKING CONDITIONS			REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY	TRIM			SYSTEM	PRESSURE	TEMP	
FUEL OIL SYSTEM (USCG CLASS II)	ALL	316L STAINLESS STEEL OR FLARED TUBING, ASTM A269, SEAMLESS OR ERW, ANSI B36.19	FLANGE: 316L SST UNION, BUTTWELD: 316L SST, ASTM A276, 3000#	INORGANIC FIBER WITH NITRILE BINDER, GARLOCK 5500 OR EQUAL	BOLTS: 304 SST, ASTM A320 NUTS/WASHERS: 304 SST	BALL: SOCKET-WELD, BUTTWELD OR UNION STAINLESS STEEL, ASTM A351, ANSI B16.34M, 1000#	STAINLESS STEEL	SAE J1942, ASTM F1123 COMPLIANT	316L SST: SOCKET-WELD, BELLED END, BUTTWELD, FLARED, ANSI B16.9, ASTM A276, ASTM F1387-99, SAE J514	FUEL OIL	5 PSI	140F	

EQUIPMENT LIST

ID	QTY	DESCRIPTION	CAPACITY/RATING	MFR AND PART NO.	REMARKS
541-01	1	LIQUID LEVEL SENSOR	FILL LEVEL, HLA, AND LLA	HEADHUNTER TANK SENTRY (OR EQUAL)	24VDC/0.4A (PILOTHOUSE MONITOR), 120VAC/0.13A (TANK PROBE), NYLON TUBE PRESSURE PROBE
541-02	1	DUPLEX FUEL FILTER	360 GPH	RACOR 751000MAXM10 (OR EQUAL)	METAL BOWL, 10 MICRON, BUILT-IN 4-WAY VALVE

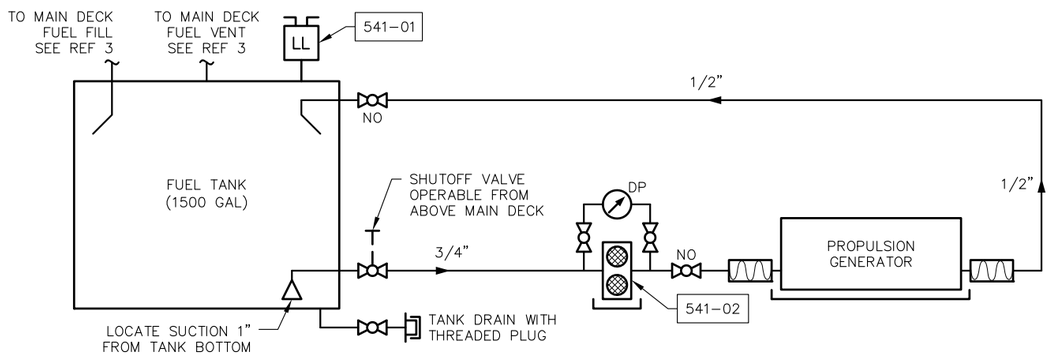

DIAGRAM 1-5B
FUEL SYSTEM
PIPING LAYOUT

GENERAL NOTES

1. PIPING SYSTEM DESIGN, MATERIAL, INSTALLATION, TESTING AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH U.S. COAST GUARD REQUIREMENTS.
2. THIS DRAWING IS A DIAGRAMMATIC ILLUSTRATION OF A PIPING SYSTEM. PIPING ARRANGEMENTS WITHIN THE VESSEL SHALL BE DEVELOPED BY THE CONTRACTOR. DIAGRAM DATA SHALL BE CONFIRMED BY THE CONTRACTOR BASED ON THE ACTUAL PIPING ARRANGEMENTS AND MANUFACTURER'S CERTIFIED DATA FOR EQUIPMENT SELECTED.
3. SYSTEM INSTALLATION SHALL PERMIT CLEAR PASSAGE ALONG WALKWAYS AND LADDERWAYS; CLEAR ACCESS FOR OPERATION AND ROUTINE MAINTENANCE; CLEAR ACCESS TO ALL DOORS, HATCHES AND OPENINGS; AND, AS MUCH AS IS PRACTICABLE, BE FREE OF INTERFERENCE TO THE READY REMOVAL OF EQUIPMENT AND COMPONENTS USING PIPING TAKEDOWN JOINTS.
4. BULKHEAD AND DECK PIPING PENETRATIONS SHALL MAINTAIN THE WATERTIGHT, FUMETIGHT AND FIRE RATING OF THE BOUNDARY PER REGULATORY BODY REQUIREMENTS. REINFORCING PENETRATION SLEEVES SHALL BE FITTED TO MAINTAIN STRUCTURAL INTEGRITY OF THE BOUNDARY.
5. SYSTEM INSTALLATION SHALL COMPLY WITH THE FOLLOWING ASTM SHIPBUILDING AND MARINE TECHNOLOGY STANDARDS:
   - A. RIGID PIPE HANGERS SHALL BE IN ACCORDANCE WITH ASTM F708. EXCEPTION: PARAGRAPH 1.3 IS NOT APPLICABLE.
   - B. INSTRUMENTATION PIPING ASSEMBLIES SHALL BE IN ACCORDANCE WITH ASTM F721. EXCEPTION: INSTALL 1/2-INCH ROOT VALVE WITH ≤ 4 INCH STAND-OFF.
   - C. VALVE LABEL PLATES SHALL BE IN ACCORDANCE WITH ASTM F922. INSTALL TYPE 1, GRADE E, CLASS 2, LETTER SIZE 2, PLATE SIZE TO SUIT.
   - D. ALL DECK AND WATERTIGHT BULKHEAD PENETRATIONS SHALL HAVE REINFORCING METALLIC SLEEVES.
6. FLEXIBLE CONNECTIONS SHALL BE DESIGNED TO ALLOW FOR MAXIMUM EXCURSIONS OF RESILIENTLY MOUNTED EQUIPMENT.
7. TANK VENT PIPING SHALL BE SELF DRAINING BACK TO THE TANK.
8. FUEL OIL FILL AND RETURN LINE TANK PENETRATIONS SHALL BE INSTALLED TO REDUCE ACCUMULATION OF FOAM WITHIN THE FUEL TANK.
9. PIPING OF DISSIMILAR METALS SHALL BE ISOLATED USING APPROPRIATELY INSTALLED AND INSPECTED GALVANIC ISOLATION KITS.

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPD

PIPING SYMBOL LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PIPE (NEW)	X"	DIRECTION OF FLOW ARROW WITH PIPE SIZE
	VALVE, BALL		FLEXIBLE CONNECTION
NO	VALVE, NORMALLY OPEN	T	VALVE, REMOTELY OPERATED
	FILTER, DUPLEX		DRIP PAN
	DECK PENETRATION		CAP OR PLUG, SCREW TYPE
LE	LIQUID LEVEL SENSOR, REMOTE REPORTING		SUCTION BELLMOUTH

REFERENCES

1. GLOSTEN FILE NO. 17097.02-832-01: TECHNICAL SPECIFICATIONS
2. GLOSTEN DWG. NO. 17097.02-070-01: GENERAL ARRANGEMENT
3. GLOSTEN DWG. NO. 17097.02-506-01: VENTS AND FILLS DIAGRAM

JEFFREY M. RUDER — STATE OF WASHINGTON — 52278 — REGISTERED PROFESSIONAL ENGINEER

SKAGIT COUNTY WASHINGTON — Growing With Pride

SKAGIT COUNTY PUBLIC WORKS
MT VERNON, WASHINGTON

GUEMES ISLAND FERRY REPLACEMENT
FUEL OIL SERVICE
PIPING SCHEMATIC

Glosten — More than DESIGN. — 1201 WESTERN AVENUE, SUITE 200, SEATTLE, WASHINGTON 98101, T +1 206.624.7850 GLOSTEN.COM

Drawn	Checked	Approved	Size	Issue Date
ACB	JMR	MSM	B	2020/08/25

Scale	Drawing Number	Sheet	of	Revision
AS NOTED	17097.02-541-01	1	1	P0