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MATERIAL SCHEDULE

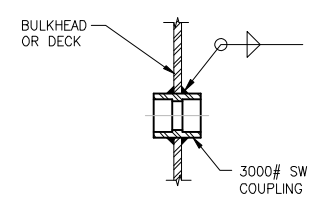
SERVICE	SIZE	PIPE	COMPONENTS				VALVES		BOLTING		REMARKS
			TAKEDOWN JOINTS	FITTINGS	FLEX CONNECT	GASKETS	BODY	TRIM	BOLTS/STUDS	NUTS/WASHERS	
WASTE OIL MAWP: 40 PSIG MAWT: 120°F	ALL	CARBON STEEL, SCH 80, SEAMLESS OR ERW, ASTM A53 OR ASTM A106, GRADE B, ANSI B36.10	FLANGE #150, SOCKET WELD CARBON STEEL, ASTM A105, ANSI B16.5 UNION GROUND JOINT SOCKET WELD CARBON STEEL, ASTM A105, MSS-SP-83	SOCKET WELD CARBON STEEL, ASTM A105 OR ASTM A234 GRADE WPB, ANSI B16.11	HOSE: SEE NOTE 12	ARAMID FIBERS WITH AN NBR BINDER	BALL THREADED, CARBON STEEL, ASTM A105, ASTM A181, OR ASTM A216 GR WCB CHECK THREADED, CARBON STEEL, ASTM A105, ASTM A181, OR ASTM A216 GR WCB	BALL CHROME PLATED BALL, RPTFE OR VITON SEATS CHECK CRES DISC	-	-	

SYMBOLS LIST

	PIPE
	REDUCER
	CHECK VALVE
	BALL VALVE
	BALL VALVE, LOCKING
	GEAR PUMP
	CAMLOCK
	DRIP PAN
	HOSE REEL
	BULKHEAD PIPE PENETRATION
	PRESSURE GAUGE
	GOOSENECK VENT
	UNION JOINT

EQUIPMENT & PUMP LIST

QTY	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
1	WASTE OIL TRANSFER PUMP	GEAR PUMP W/RELIEF	-	16 GPM @ 30 PSI	2 HP TEFC 208 VAC 3Ø 60 Hz 1800 RPM



DETAIL 1-4A
TYP DECK/BHD PENETRATION
FOR SCH 80 STEEL PIPE 2" AND BELOW

2
GENERAL NOTES (CONT.)

12. FLEXIBLE HOSE ASSEMBLIES SHALL BE SUITABLE FOR LUBE OIL AND WASTE OIL SERVICE. SUCTION HOSES SHALL BE NON-COLLAPSING.

13. ARRANGE HOSE AND HOSE REEL FOR COMPLETE DRAINAGE TO WASTE OIL TANK. HOSE TO BE STORED DRAINED AND DISCONNECTED.

14. ARRANGE LEVEL INDICATOR TO PROVIDE INDICATION THROUGH THE GREATEST RANGE OF TANK LEVEL AS PRACTICABLE.

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	SHT 2	1. REMOVED PROPRIETARY DETAILS	MWR	7/26/17	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 MANUFACTURERS' CERTIFIED DRAWINGS.
- 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.
- PROVIDE GAUGE PIPING ASSEMBLIES AND MATERIALS FOR GAUGES AND INSTRUMENTS CONFIGURED IN ACCORDANCE WITH ASTM F721. VALVES, TUBING, AND FITTINGS SHALL BE 316 STAINLESS STEEL.
- WHERE PIPES PENETRATE TANK BOUNDARIES, BULKHEADS, OR DECKS, HEAVY WEIGHT SPOOL PIECES OR REINFORCING PENETRATION FITTINGS SHALL BE USED. SEE DETAIL 1-4A.
- 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 ATTACHED BY WELDING DIRECTLY TO PIPES.
- ARRANGE LEVEL INDICATOR TO PROVIDE INDICATION THROUGH THE GREATEST RANGE OF TANK LEVEL AS PRACTICABLE.
- LUBE OIL PIPING SHALL NOT BE ROUTED NEAR ELECTRICAL DEVICES OR EQUIPMENT. LUBE OIL PIPING SHALL BE AT LEAST 18 INCHES AWAY FROM ANY SURFACE THAT NORMALLY HAS AN OPERATING TEMPERATURE OF 450°F OR GREATER.
- GALVANIZED PIPE, FITTINGS, COMPONENTS, ETC. SHALL NOT BE USED.
- DRIP PANS WITH UP-TURNED, SEALED, FLANGED EDGES SHALL BE PROVIDED BENEATH ALL FILTERS, PUMPS, STRAINERS, HOSE REELS AND ANY OTHER EQUIPMENT THAT CONTAINS OIL AND REQUIRES PERIODIC MAINTENANCE. DRIP PANS SHALL BE PROVIDED WITH DRAIN VALVES.
- FIT EACH MAIN ENGINE, GENERATOR, AND REDUCTION GEAR SUMP WITH A LOCKING DRAIN VALVE, 1" FEMALE CAMLOCK, AND DUST PLUG. TETHER DUST PLUG TO DRAIN LINE WITH A STAINLESS STEEL CHAIN OR CABLE.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-506-1 FILLS, VENTS, AND SOUNDS



Elliott Bay Design Group
North Carolina, PLLC

CLIENT: NORTH CAROLINA D.O.T.
RALEIGH, NORTH CAROLINA

PROJECT: NEW RIVER CLASS FERRY



LUBE OIL AND WASTE OIL PIPING SCHEMATIC

SIZE: D DWG NO.: 16101-200-529-2 REV: A

SCALE: NONE FILE NAME: 16101-200-529-2A SHEET 1 OF 2

DWN: LGB MOD: CKD: NJB APVD: LGB APVD DATE: 7/21/17

7/27/2017 7:29:18 AM

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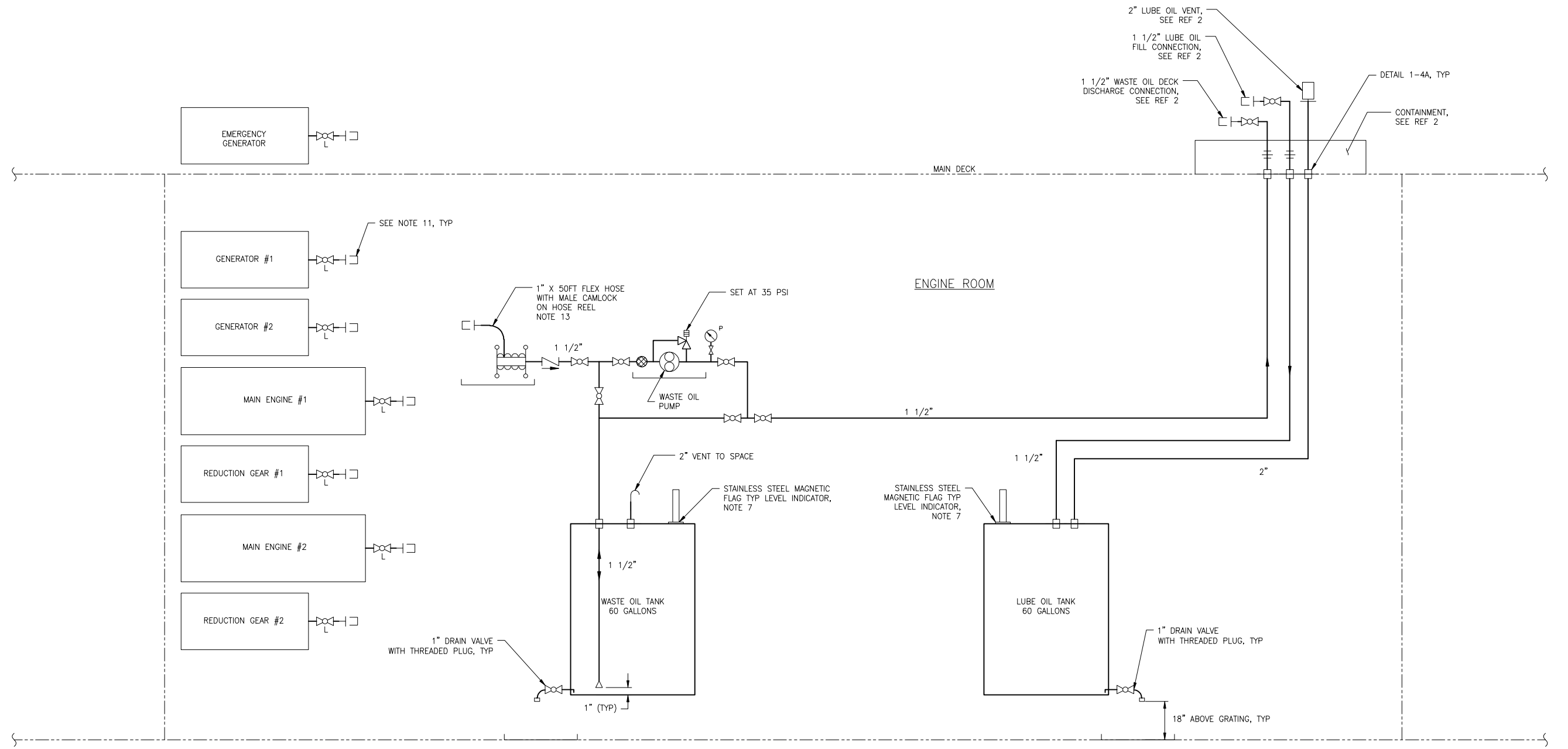


DIAGRAM 2-4A
 LUBE OIL AND WASTE OIL SYSTEM



SIZE	D	DWG NO.	16101-200-529-2	REV	A
SCALE	NONE	FILE NAME	16101-200-529-2A	SHEET	2 OF 2

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