MATERIAL SCHEDULE

SERVICE	DESIGN TEMP & PRESSURE	SIZE	PIPE	TAKEDOWN JOINTS				FITTINGS	VALVES	
				MATERIAL	GASKETS	BOLTING	NUTS		BODY	TRIM
FRESH WATER FOR ENGINE COOLING	50 PSIG AND 210° F	ALL	SMLS OR E.R.W. CARBON STL., ASM A106 GR B OR A53 GR B TY S OR E	FLGD & UNIONS, CARBON STL ASTM A105 SCRD UNIONS, BRONZE ASME SB61 OR SB62	RUBBER CLOTH INSERT	ASTM A307 GRADE B	ASTM A563 GRADE A	FLGD, CARBON STL ASTM A 234 GR WCB OR A105 S.W. OR THREADED, CARBON STEEL ASTM234 GR WPB SCRD, BRONZE ASTM SB61 OR SB62	BUTTERFLY WAFER, D.I. ASTM A395 FLGD OR B.W., CARBON STL ASTM A105 SCRD, BRONZE ASME SB61 OR SB62	S.S. OR BRONZE

GENERAL NOTES:

1. ALL INSTALLATION, WORKMANSHIP AND MATERIALS TO COMPLY WITH THE REQUIREMENTS OF THE 46 CFR SUBCHAPTER K AND THE USCG OCMI.

2. ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO ANY FABRICATION OR MODIFICATION.

3. INSTALLATION TO BE IN ACCORDANCE WITH FERNSTRUM INSTRUCTIONS AND ENGINE MANUFACTURER REQUIREMENTS.

4. GRID COOLER TO BE FLUSH MOUNTED TO HULL, NOT IN A RECESS.

5. COOLER GUARD TO BE CONSTRUCTED OF 1/2" A36 PLATE AND WELDED. GUARD TO BE BLASTED AND COATED WITH SAME UNDERWATER COATING SCHEDULE AS HULL.

6. ALL HOLES CUT IN HULL TO BE SMOOTH, WITH NO RAGGED EDGES.

7. ALL MATERIALS TO BE GALVANICALLY COMPATIBLE TO ONE ANOTHER IN A MARINE ENVIRONMENT.

8. COFFERDAMS WILL BE INSTALLED ON ANY THROUGH HULL FASTENERS REQUIRED FOR MOUNTING THE GRIDCOOLER TO THE HULL. THE COFFERDAMS WILL BE CONSTRUCTED OF A SUITABLE DIAMETER SCH 80 PIPE AND HAVE AN ACCESS PLATE BOLTED TO AN ANSI 150# FLANGE.

9. FINAL INSTALLATION LOCATION OF GRIDCOOLERS TO BE DETERMINED BY THEIR PROXIMITY TO STRUCTURE, OTHER PIPING SYSTEMS AND OTHER INTERFERENCES.

10. COOLING PIPE VENT COCKS TO BE LOCATED AT THE HIGHEST POINTS OF COOLING WATER LINES.

11. GRID COOLER AND ZINC ANODES ARE NOT TO BE PAINTED.

12. RESERVE FINAL DETAILS OF INSTALLATION PENDING SELECTION OF MAIN PROPULSION ENGINE MANUFACTURER. FINAL ARRANGEMENTS TO BE APPROVED BY NAVAL ARCHITECTS.

13. BOM QUANTITIES TO BE VERIFIED BY CONTRACTOR.

ABBREVIATIONS

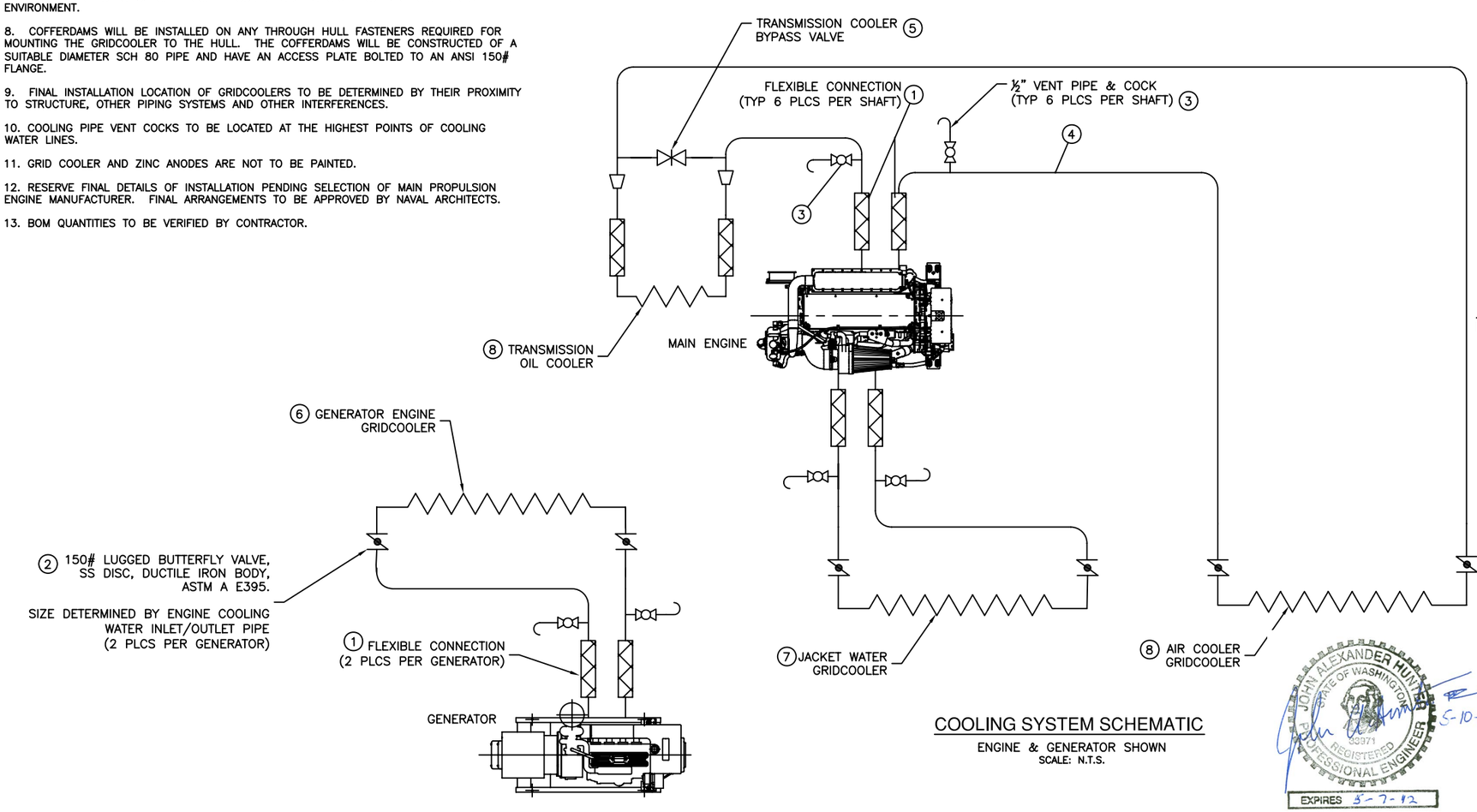
C.S.	CAST STEEL
D.I.	DUCTILE IRON
E.R.W.	ELECTRIC RESISTANCE WELDED
FGD.	FORGED
FLGD.	FLANGED
F.S.	FORGED STEEL
N.C.	NORMALLY CLOSED
SCH.	SCHEDULE
SCRD.	SCREWED
SMLS.	SEAMLESS
S.S.	STAINLESS STEEL
S.W.	SOCKET WELD

SYMBOLS LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PIPING		BUTTERFLY VALVE, WAFER TYPE
	GATE VALVE		ANGLE VALVE, STOP CHECK
	GLOBE VALVE		VENT
	BALL VALVE		SUCTION STRAINER
	HORIZ SWING CHECK VALVE		FILTER
	GLOBE STOP CHECK VALVE		FLANGED FLEXIBLE CONNECTION
	CONCENTRIC REDUCER		VENT FLOAT & TRAP
	Y STRAINER		GATE VALVE, WITH REMOTER OPERATOR
	FLANGED JOINT		SIMPLEX STRAINER
	BUTTERFLY VALVE, MANUALLY OPERATED		DUPLEX STRAINER
	REACH ROD		LEVEL GAGE
	REDUCER	TLI	TANK LEVEL IND.
(N. C.)	NORMALLY CLOSED		

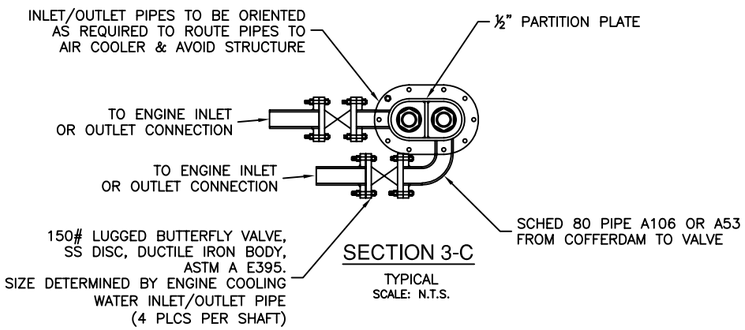
BILL OF MATERIALS

ITEM	PART CODE	DESCRIPTION	QTY	MOD.
1	–	AMERICAN BOA FLANGED FLEXIBLE CONNECTIONS	16	–
2	–	BUTTERFLY VALVE, LUG STYLE, SS DISC	12	–
3	–	1/2" SCREWED BALL VALVE, 300 WOG, SS BALL	12	–
4	–	SCHEDULE 40 PIPE	A/R	–
5	–	FLANGED GATE VALVE	2	–
6	BN1451U–L	GENERATOR GRIDCOOLER, FERNSTRUM U–L TYPE OR EQUAL	2	–
7	D1239U–L	M.E. JACKET WATER GRIDCOOLER, FERNSTRUM U–L TYPE	2	–
8	CN1287U–L	M.E. AIR COOLER GRIDCOOLER, FERNSTRUM U–L TYPE	2	–
9	–	1/2" PLATE, FOR GRIDCOOLER GUARD FRAME	A/R	–
10	–	–	–	–
11	–	–	–	–
12	–	–	–	–
13	–	–	–	–
14	–	–	–	–
15	–	–	–	–



COOLING SYSTEM SCHEMATIC

ENGINE & GENERATOR SHOWN
SCALE: N.T.S.



SECTION 3-C

TYPICAL
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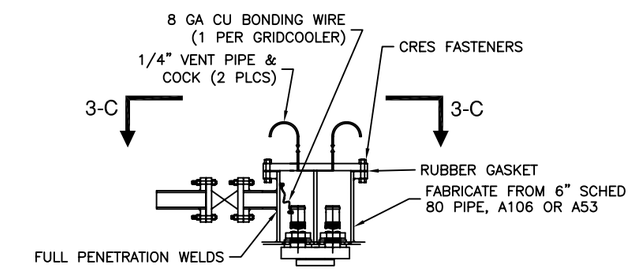

PROFILE OF GRIDCOOLER COFFERDAM

TYPICAL
SCALE: N.T.S.

JOHN ALEXANDER HUNT — STATE OF WASHINGTON — 33971 — REGISTERED PROFESSIONAL ENGINEER
5-10-10
EXPIRES 5-7-12

DO NOT SCALE, IF IN DOUBT ASK

APPROVALS:	SUBMIT DATE	APPRVD BY	APPRVD DATE	RE–SUBMIT DATE	APPRVD BY	APPRVD DATE
OWNER	–	–	–	–	–	–
USCG	–	–	–	–	–	–
ABS	–	–	–	–	–	–
USPHS	–	–	–	–	–	–

REV.	DATE	REVISION	PAGE	ZONE	AUTH°
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NO.	REFERENCES
7	–
6	–
5	–
4	–
3	–
2	–
1	283–32A–010, "GENERAL ARRANGEMENT"

CHECKED	AUTH°	SCALE
JAH 05–10–10	JEK 05–10–10	AS STATED
DRAWN	ORIG° DATE	DIMS IN INCHES UNLESS OTHERWISE STATED
JEK	05–10–10	

Seaworthy Systems, Inc.
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TEL: (860) 767–9061
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CASCO BAY LINES
PO BOX 4656
PORTLAND, ME 04112

TITLE 399 PASSENGER FERRY
MAIN ENGINE AND GENSET
COOLING SYSTEM SCHEMATIC

DRG No. 283–32A–204 REV. – SHEET 1 OF 3

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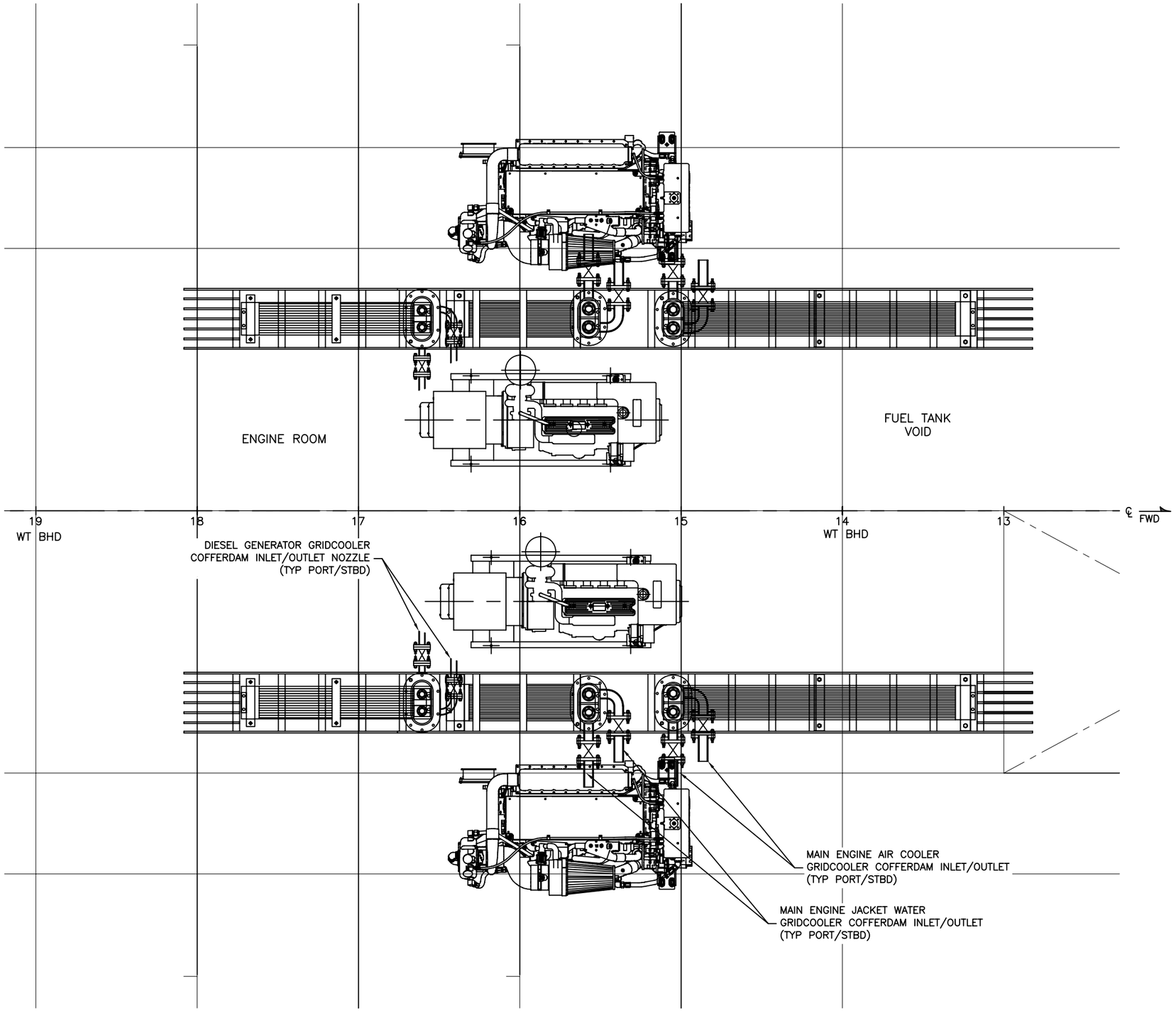

PLAN VIEW BELOW MAIN DECK

GRID COOLER GENERAL LOCATION

SCALE: N.T.S.

SCALE AS STATED DIMS IN INCHES UNLESS OTHERWISE STATED	Seaworthy Systems, Inc. P.O. BOX 965 ESSEX, CT 06426 USA TEL: (860) 767-9061 FAX: (860) 767-1263	CASCO BAY LINES PO BOX 4656 PORTLAND, ME 04112	TITLE 399 PASSENGER FERRY MAIN ENGINE AND GENSET COOLING SYSTEM SCHEMATIC DRG No. 283-32A-204 REV. – SHEET 2 OF 3 SSI FILE No. e:\active\projnumb\283-32\drafting\active\283-32A-204.dwg

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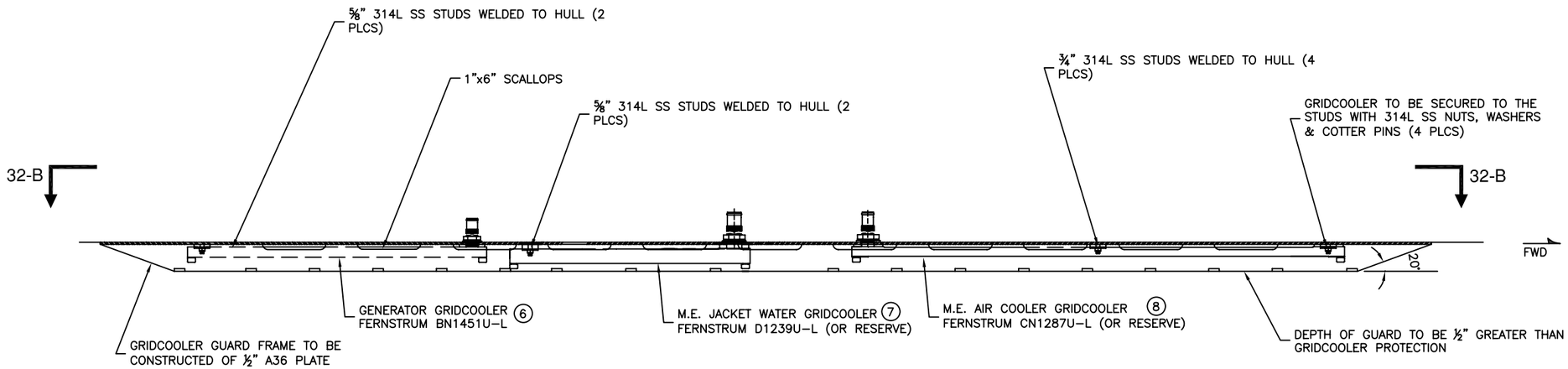
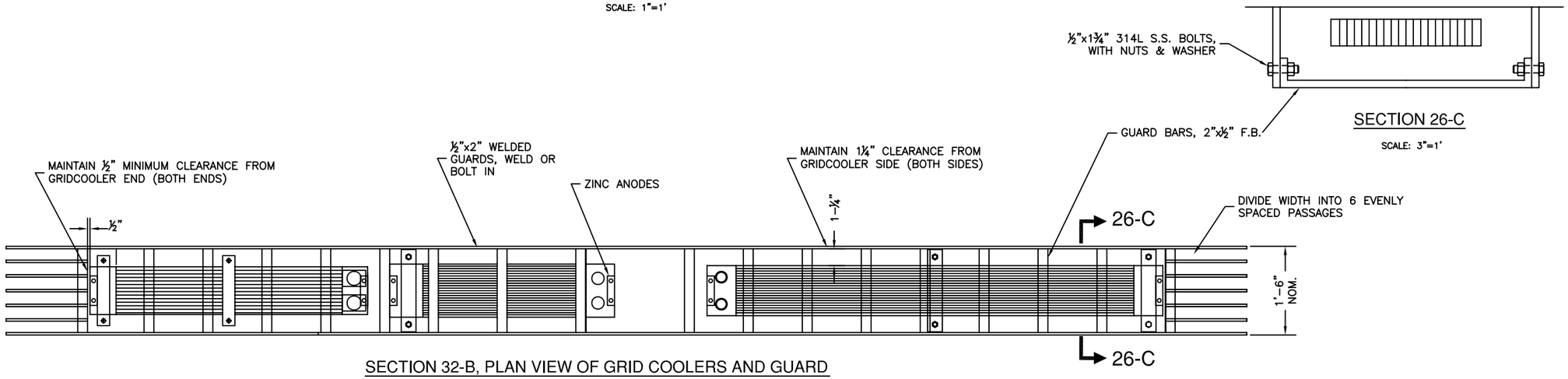


PROFILE VIEW OF GRID COOLERS AND GUARD

PORT AND STARBOARD SIMILAR AND OPPOSITE

SCALE: 1"=1'



SECTION 26-C

SCALE: 3"=1'

SECTION 32-B, PLAN VIEW OF GRID COOLERS AND GUARD

LOOKING UP (VIEW OF GRID COOLER BOTTOM)

SCALE: 1"=1'

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