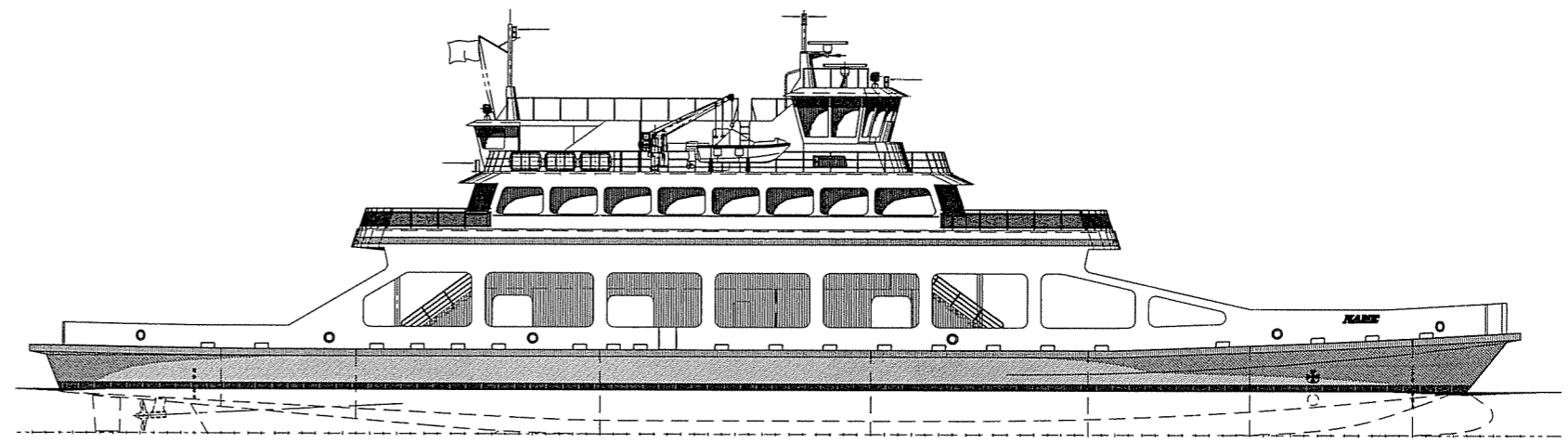



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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD

CONTRACT PLANS

07069-001-100-1	Lines Plan
07069-001-101-1	Profiles and Deck Arrangements
07069-001-110-1	Shell Plating and Frames
07069-001-120-1	Scantling Sections
07069-001-120-2	Inboard Structural Profile
07069-001-120-5	Long'l Bulkheads
07069-001-130-1	Main and Lower Deck Plating and Frames
07069-001-150-1	Superstructure and Pilothouse Structure
07069-001-200-1	Engine Room and Tank Room Arrangement
07069-001-243-1	Propulsion Shafting Arrangement and Details
07069-001-256-1	Engine Cooling Piping Schematic
07069-001-259-1	Engine Exhaust Schematic
07069-001-259-2	Main and Generator Engine Exhaust Arr. & Detail
07069-001-261-1	Fuel Oil Piping Schematic
07069-001-261-2	Fuel Oil Piping Arrangement and Detail
07069-001-264-1	Lube & Dirty Oil Schematic
07069-001-320-1	Electrical One-Line Diagram
07069-001-330-1	Lighting Plan
07069-001-506-1	Fills, Vents and Sounds Piping Schematic
07069-001-506-2	Fills, Vents and Sounds Piping Arr & Details
07069-001-521-1	Fire Main Piping Schematic
07069-001-521-2	Fire Main Piping Arrangement and Details
07069-001-522-1	Sprinkler Piping Schematic
07069-001-522-2	Sprinkler Piping Arrangement and Details
07069-001-526-1	Weather Deck Drains
07069-001-528-1	Sanitary Drains / Sewage Treatment System Schematic
07069-001-529-1	Bilge & Oily Water System Piping Schematic
07069-001-529-2	Bilge System Arrangement & Details
07069-001-533-1	Potable Water Piping Schematic
07069-001-533-2	Potable Water Piping Arrangement & Details
07069-001-551-1	Compressed Air Piping Schematic
07069-001-551-2	Compressed Air Piping Arrangements & Details
07069-001-562-1	Rudder Arrangement & Details
07069-001-600-1	Bulwark Arrangement
07069-001-635-1	Structural Fire Protection
07069-001-801-1	Life Saving Equipment Arrangement
07069-001-891-1	Evacuation Plan



	Elliott Bay Design Group	
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	<small>CLIENT</small> NORTH CAROLINA D.O.T., FERRY DIV <small>PROJECT</small> Raleigh, North Carolina NEW SOUND CLASS FERRY	

CONTRACT PLANS

DWN	DATE	SIZE	DWG. NO.	REV
CKD	DATE	D	07069-001	C
APVD	DATE	SCALE	FILE NAME 07069-001C	SHEET 1 OF

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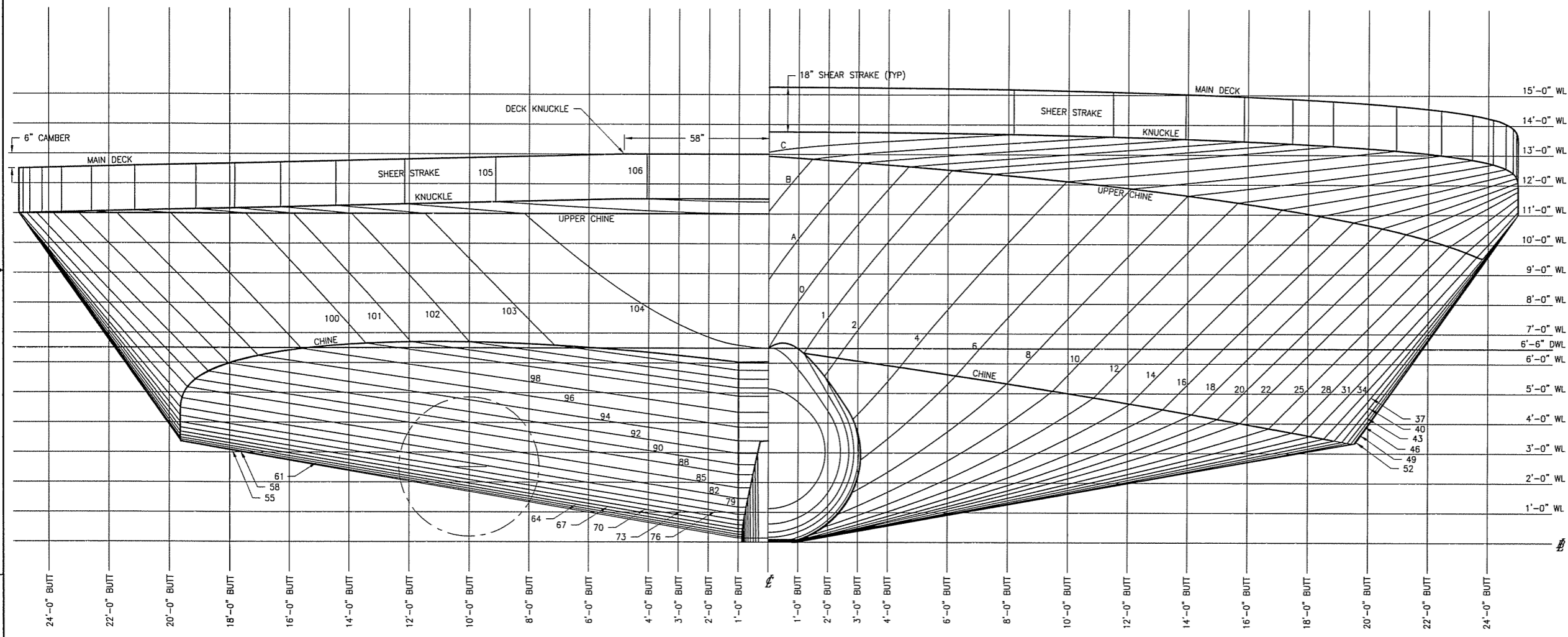
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PRINCIPLE DIMENSIONS

LENGTH OVERALL	220'-6"
LENGTH DESIGN LOAD WATERLINE	208'-0"
BEAM OVER GUARDS	50'-0"
DEPTH TO MAIN DECK AT SIDE	12'-6"
DRAFT TO DLWL	6'-6"

GENERAL NOTES

1. LINES MUST BE FAIRED PRIOR TO PARTS DEVELOPMENT
2. MAIN DECK HAS A MAXIMUM OF 6" STRAIGHT LINE CAMBER AFT OF FRAME 33 AND OUTBOARD OF THE 58" DECK KNUCKLE. WHERE THE BEAM IS LESS THAN MAXIMUM THE CAMBER MAINTAINS THE SAME ANGLE FORWARD OF FRAME 26 THE DECK HAS NO CAMBER.
3. PLAN VIEW FORWARD AND AFT SHALL BE VERIFIED TO FIT EXISTING TERMINAL BERTHS PRIOR TO FINAL LINES FAIRING



VIEW 1-4A
 BODY PLAN
 SCALE: 1/2" = 1'-0"

REFERENCES

1. 07069HULL 019.3DM HULL 3D MODEL
2. 07069-100-101-0 PROFILES AND DECK ARRANGEMENTS



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CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

LINES PLAN

DWN PDF	DATE 1/7/08	SIZE D	DWG NO. 07069-100-100-1	REV -
CKD	DATE	SCALE 1/2" = 1'-0"	FILE NAME 07069-100-1001-	SHEET 1 OF 3
APVD DMW	DATE 1/8/08			

1/8/2008 10:15:35 AM

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6

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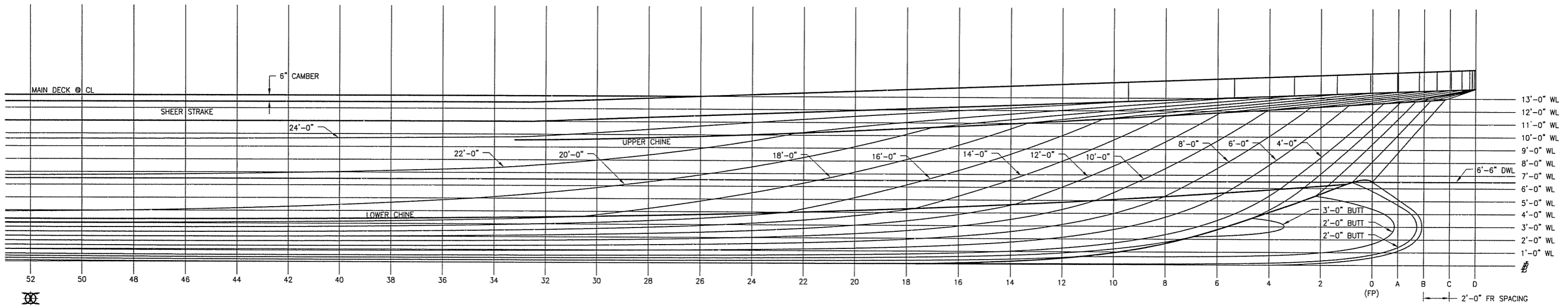
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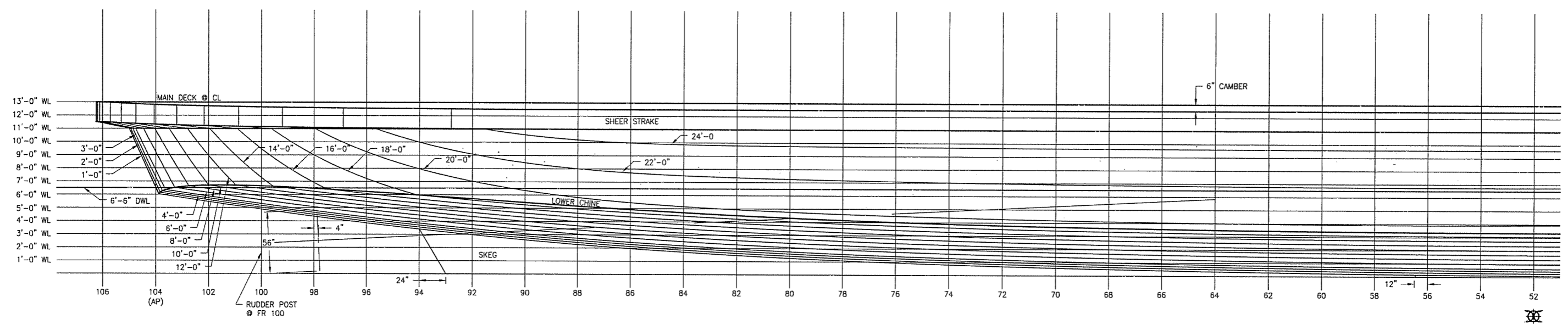
C

B

A



VIEW 2-4A
 SHEER PLAN - FORWARD
 SCALE: 1/4" = 1'-0"



VIEW 2-4A
 SHEER PLAN - AFT
 SCALE: 1/4" = 1'-0"

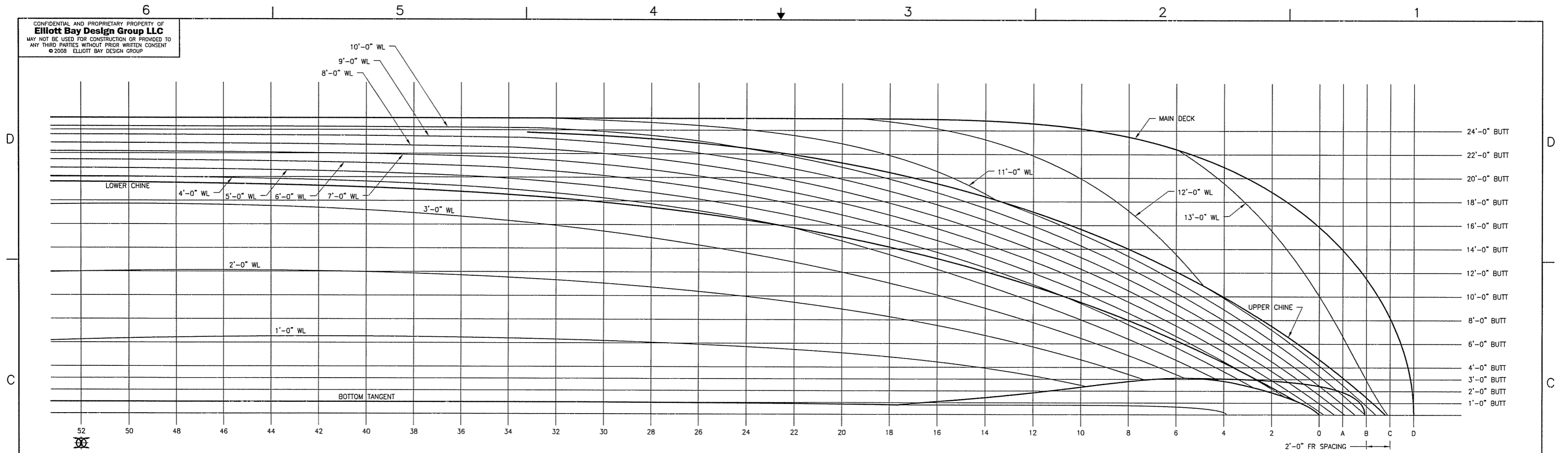


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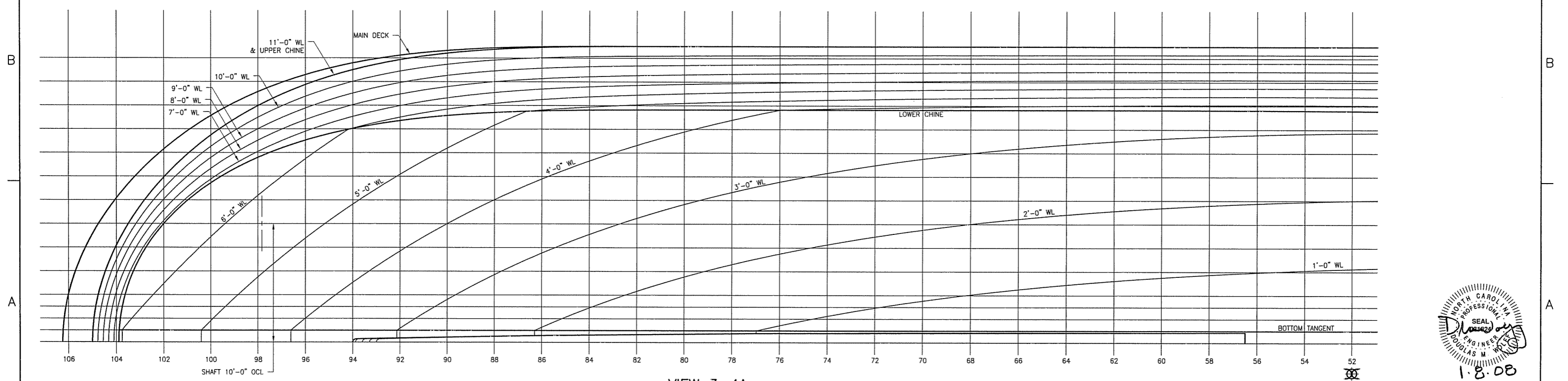
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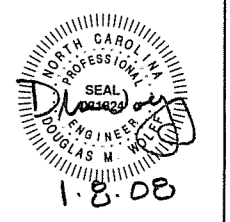
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VIEW 3-4B
 HALF BREADTHS - FORWARD
 SCALE: 1/4" = 1'-0"



VIEW 3-4A
 HALF BREADTHS - AFT
 SCALE: 1/4" = 1'-0"



SIZE	D	DWG NO.	07069-100-100-1	REV	-
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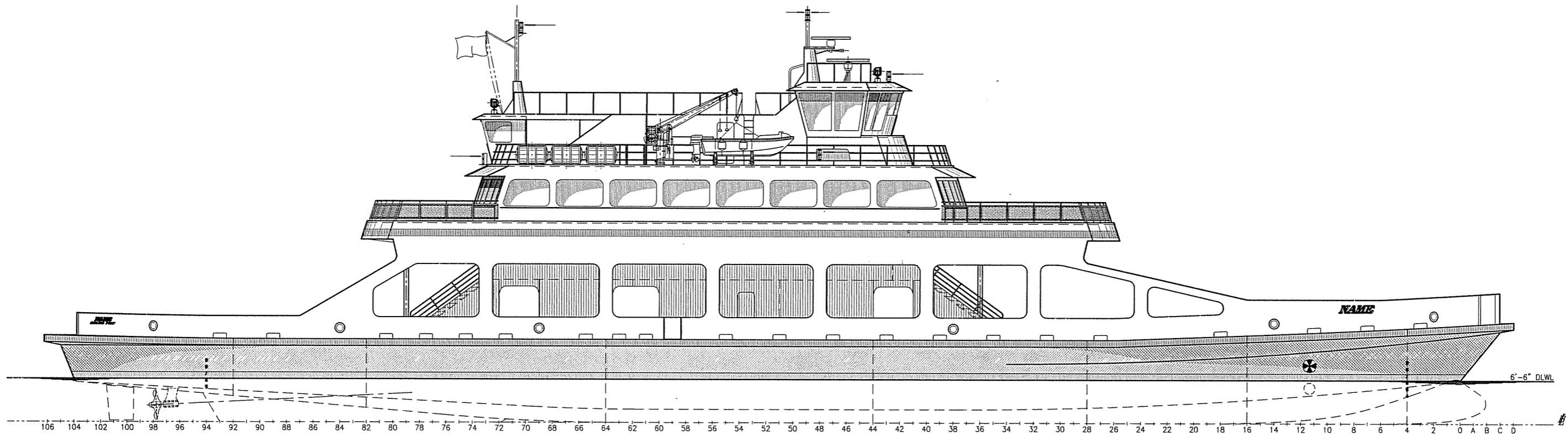
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REFERENCES

GENERAL NOTES

REVISION HISTORY

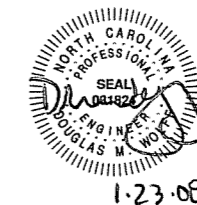
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OUTBOARD PROFILE

PRINCIPLE DIMENSIONS

LENGTH OVERALL	220'-6"
LENGTH DESIGN LOAD WATERLINE	208'-0"
BEAM OVER GUARDS	50'-0"
DEPTH TO MAIN DECK AT SIDE	12'-6"
DRAFT TO DLWL	6'-6"
VEHICLE CAPACITY	50 CARS
PASSENGER CAPACITY	300
CREW	6
HORSEPOWER	2100
SPEED (MAX)	13 KNOTS
FUEL CAPACITY	5000 GAL
POTABLE WATER CAPACITY	5000 GAL



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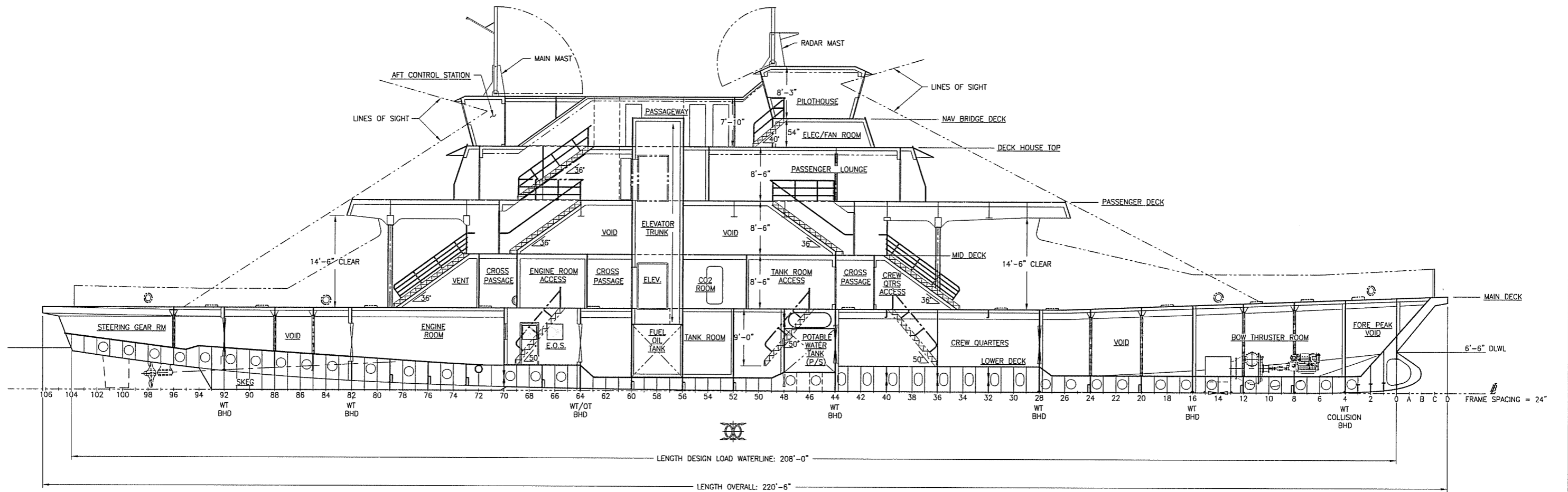
CLIENT: **NORTH CAROLINA D.O.T., FERRY DIV**
 Raleigh, North Carolina

PROJECT: **NEW SOUND CLASS FERRY**

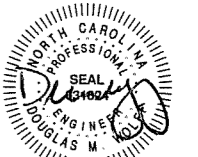
PROFILES AND
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APVD	DMW	DATE	1/9/08						

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INBOARD PROFILE



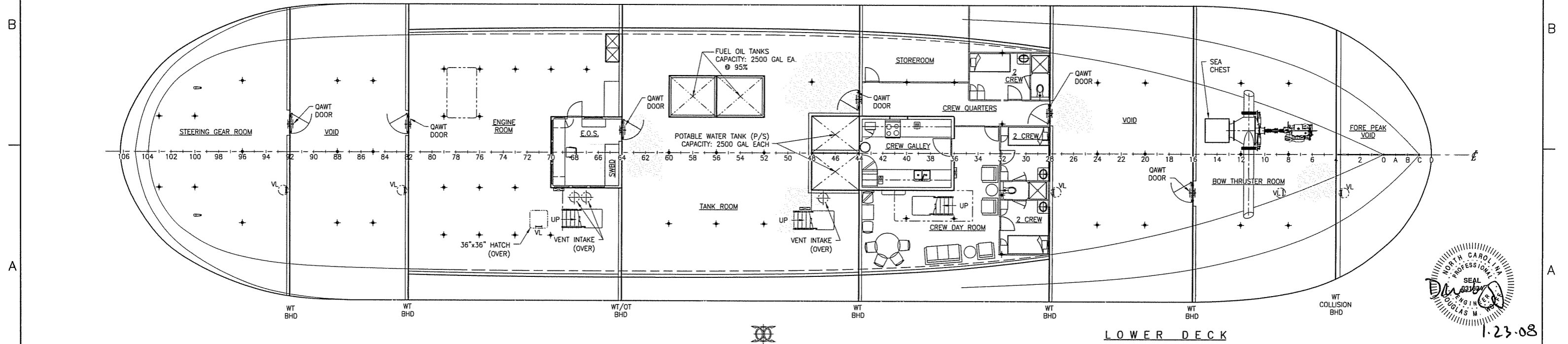
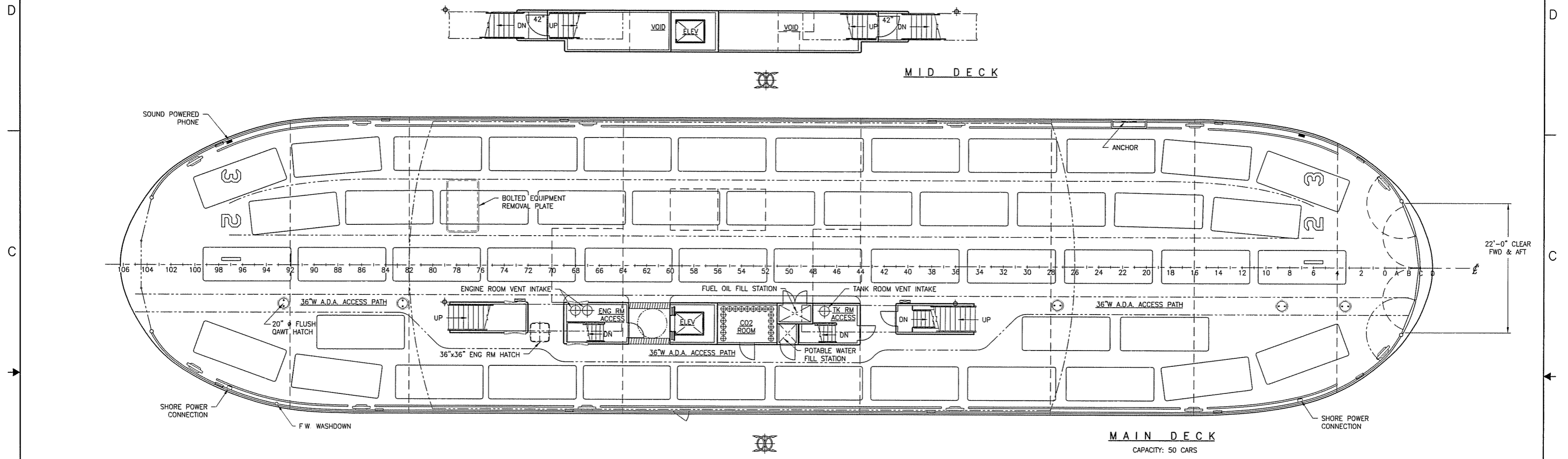
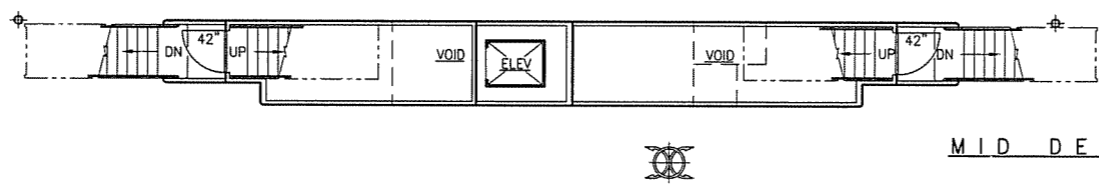
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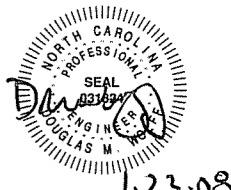
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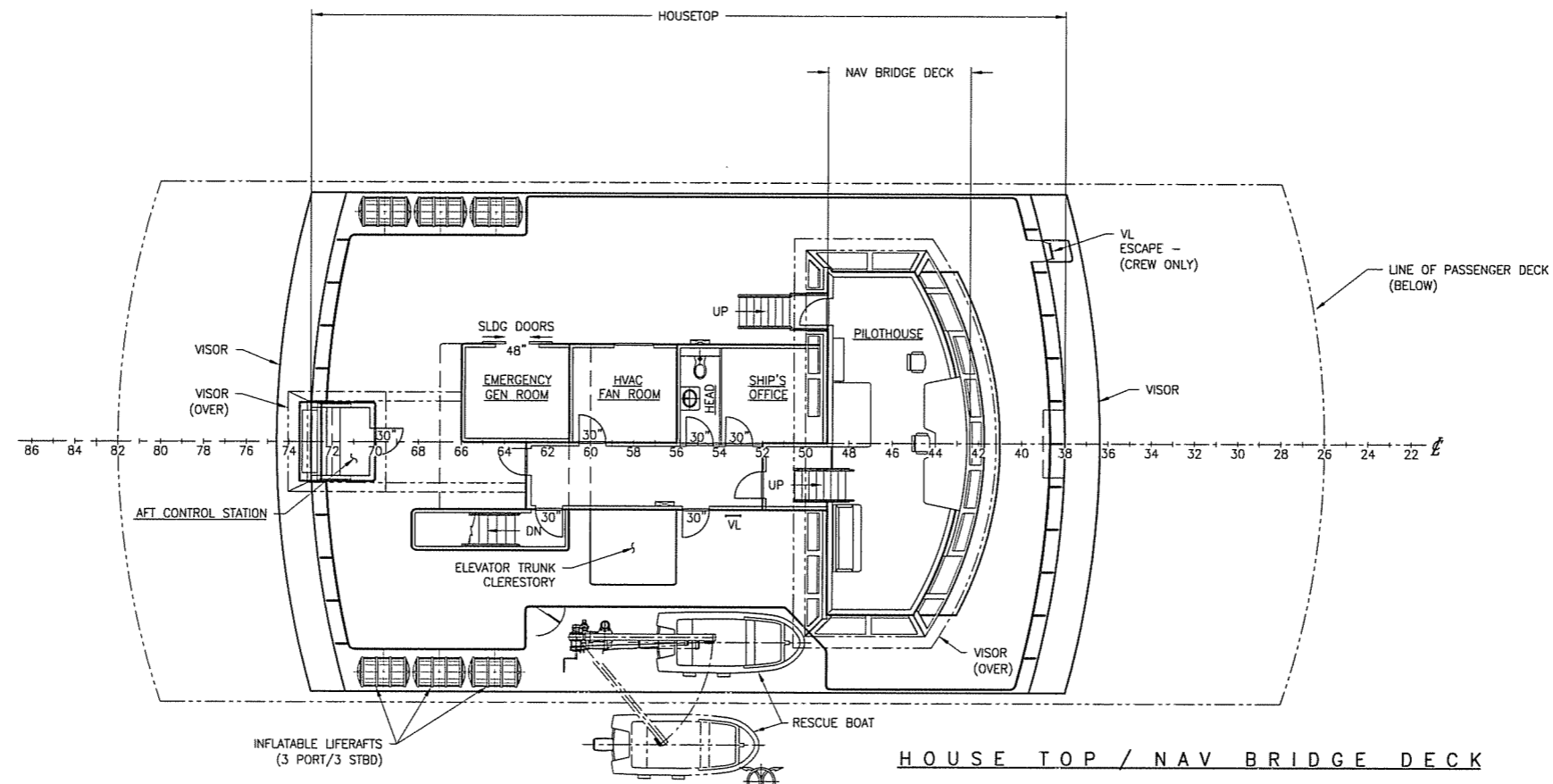


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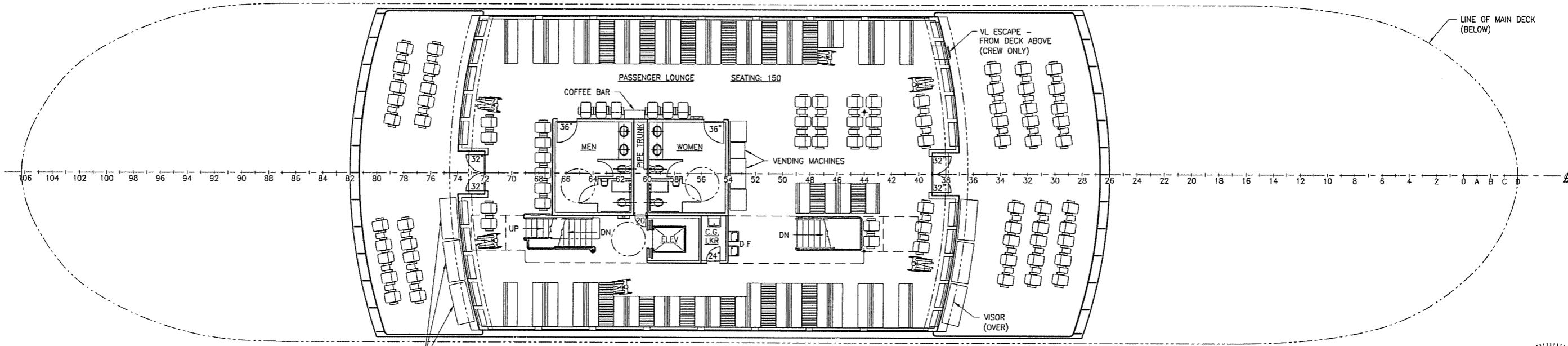


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HOUSE TOP / NAV BRIDGE DECK



PASSENGER DECK



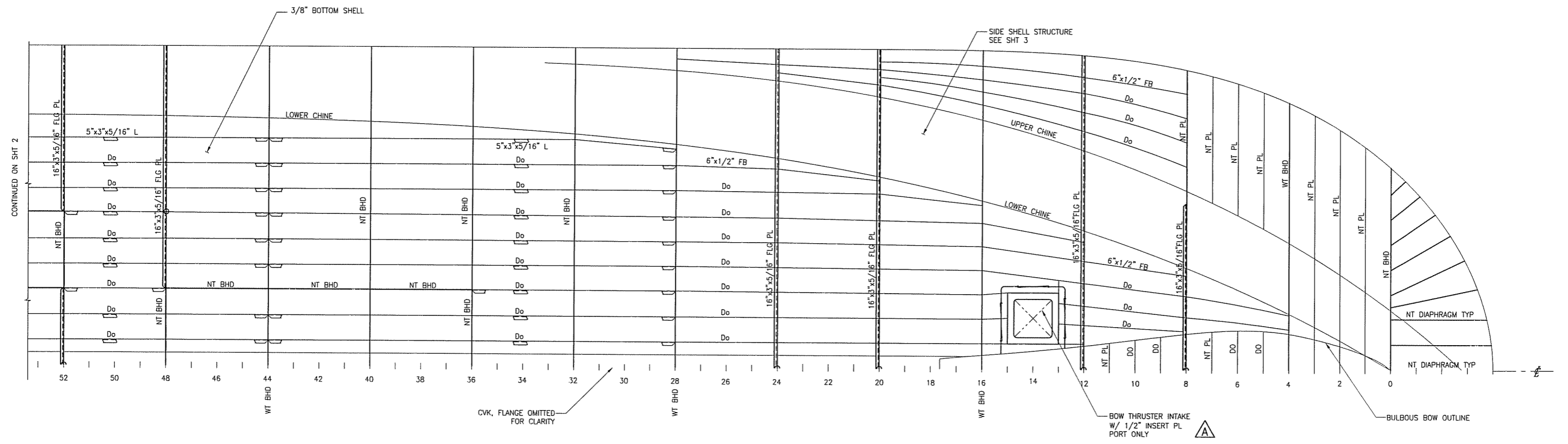
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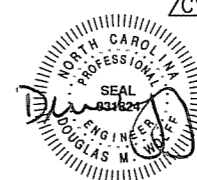
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	2-3B	SEACHEST DETAILS			
	3-3D	BOW THRUSTER DETAILS			
	ST 4	SHAFT STRUT DETAILS			
B	2-6C	RUDDER STOCK LOCATION CHANGE	JL	2/4/08	DMW
	4-6C	RUDDER STOCK STRUCTURE DETAIL			
	2-4C	STERN TUBE INSERT			
C	1	ADD REF 8	JXB	2/29/08	DMW
	2	REVISE PLATE & FRAMES AT STERN TUBE			
	3	ADD INSERTS AT ENGINE EXHAUST			

GENERAL NOTES



PLAN 1-4B
 BOTTOM PLATING AND FRAMING
 FORWARD END - PORT SHOWN STBD OPPOSITE HAND

REFERENCES		
1.	07069-001-832-1	TECHNICAL SPECIFICATION
2.	07069-001-120-1	SCANTLING SECTIONS
3.	07069-001-120-5	LONG'L BULKHEADS
4.	07069-001-130-1	MAIN AND LOWER DECK PLATING AND FRAMING
5.	07069-001-120-2	INBOARD STRUCTURAL PROFILE
6.	07069-001-243-1	PROPULSION SHAFTING
7.	07069-001-562-1	RUDDER ARRANGEMENT AND DETAIL
8.	07069-001-259-2	ENGINE EXHAUST ARRANGEMENT AND DETAIL



3.4.08

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 Raleigh, North Carolina

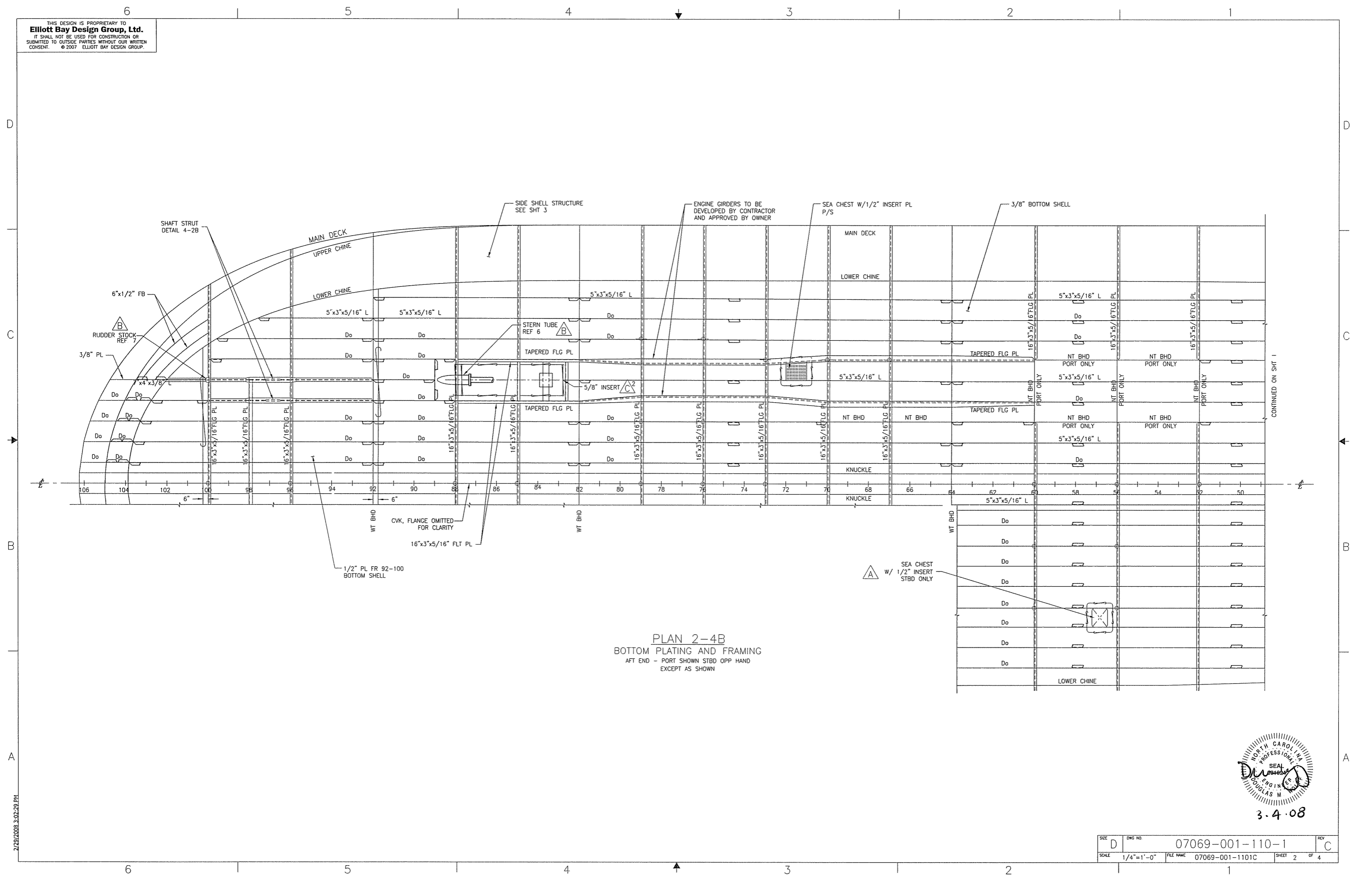
PROJECT: NEW SOUND CLASS FERRY

TITLE: SHELL PLATING AND FRAMES

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APVD	DMW	DATE 01/09/08	SCALE 1/4"=1'-0"	FILE NAME 07069-001-1101C	SHEET 1 OF 4

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PLAN 2-4B
 BOTTOM PLATING AND FRAMING
 AFT END - PORT SHOWN STBD OPP HAND
 EXCEPT AS SHOWN

CONTINUED ON SHT 1

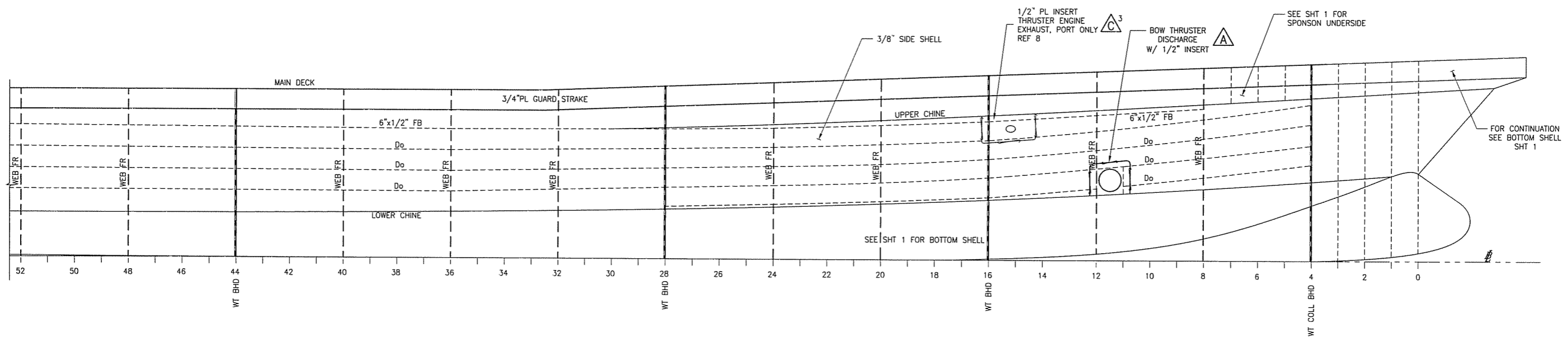


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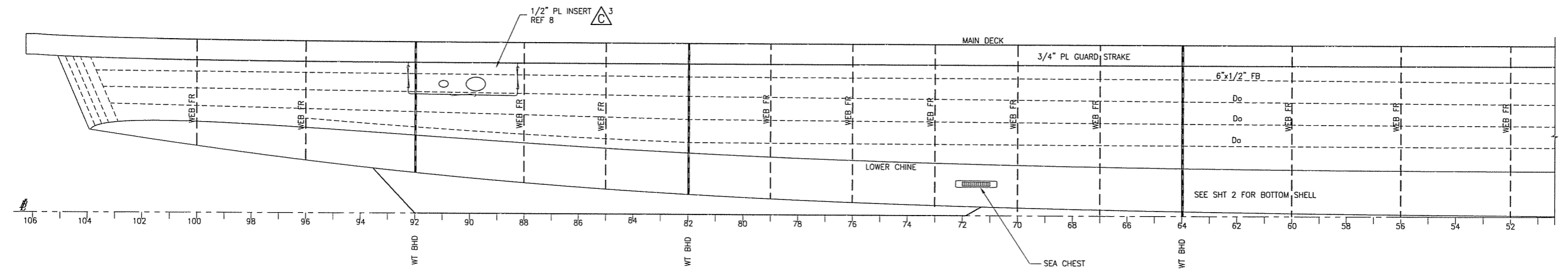
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ELEVATION 3-3C
 FWD SIDE SHELL
 STBD SHOWN PORT OPP HAND



ELEVATION 3-3A
 AFT SIDE SHELL
 STBD SHOWN PORT OPP HAND

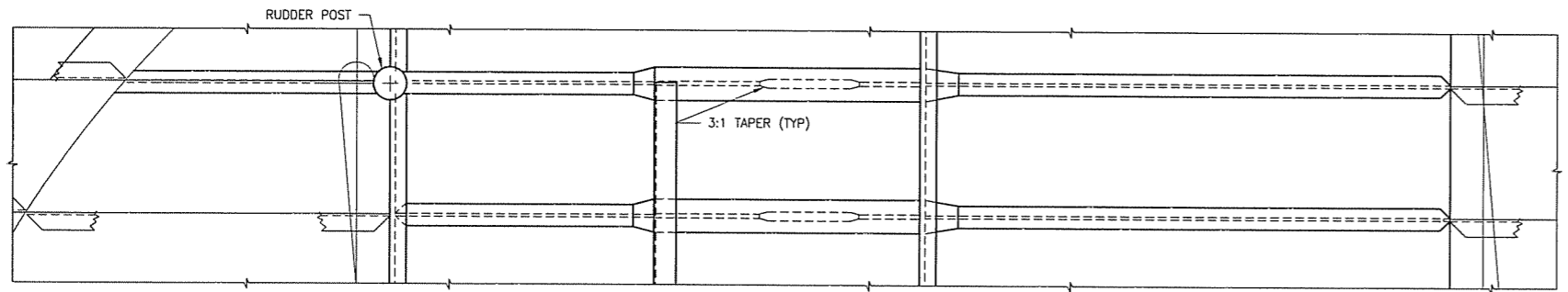


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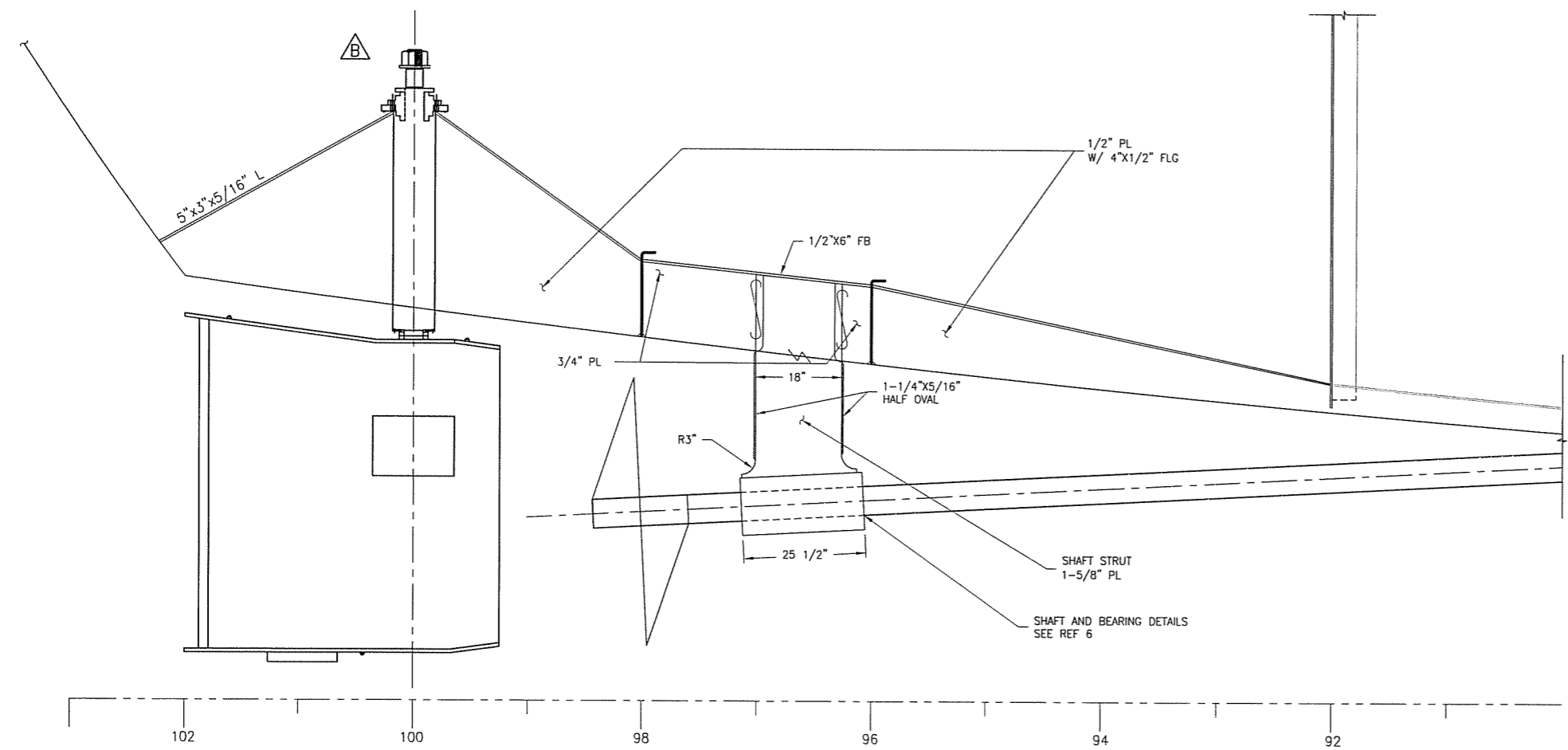
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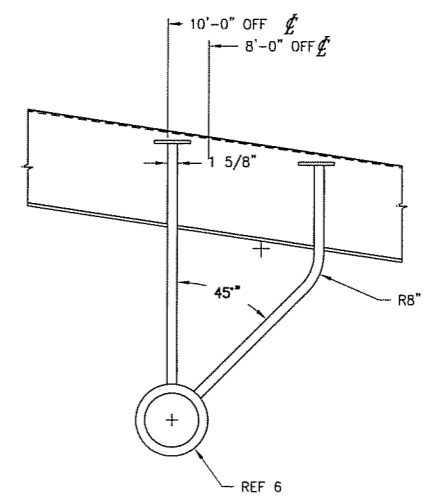
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PLAN VIEW 4-5C
 SHAFT STRUT DETAILS



ELEVATION VIEW 4-5A
 PORT LOOKING OUTBOARD



DETAIL 4-2B
 FR. 97 LOOKING FWD



3.4.08

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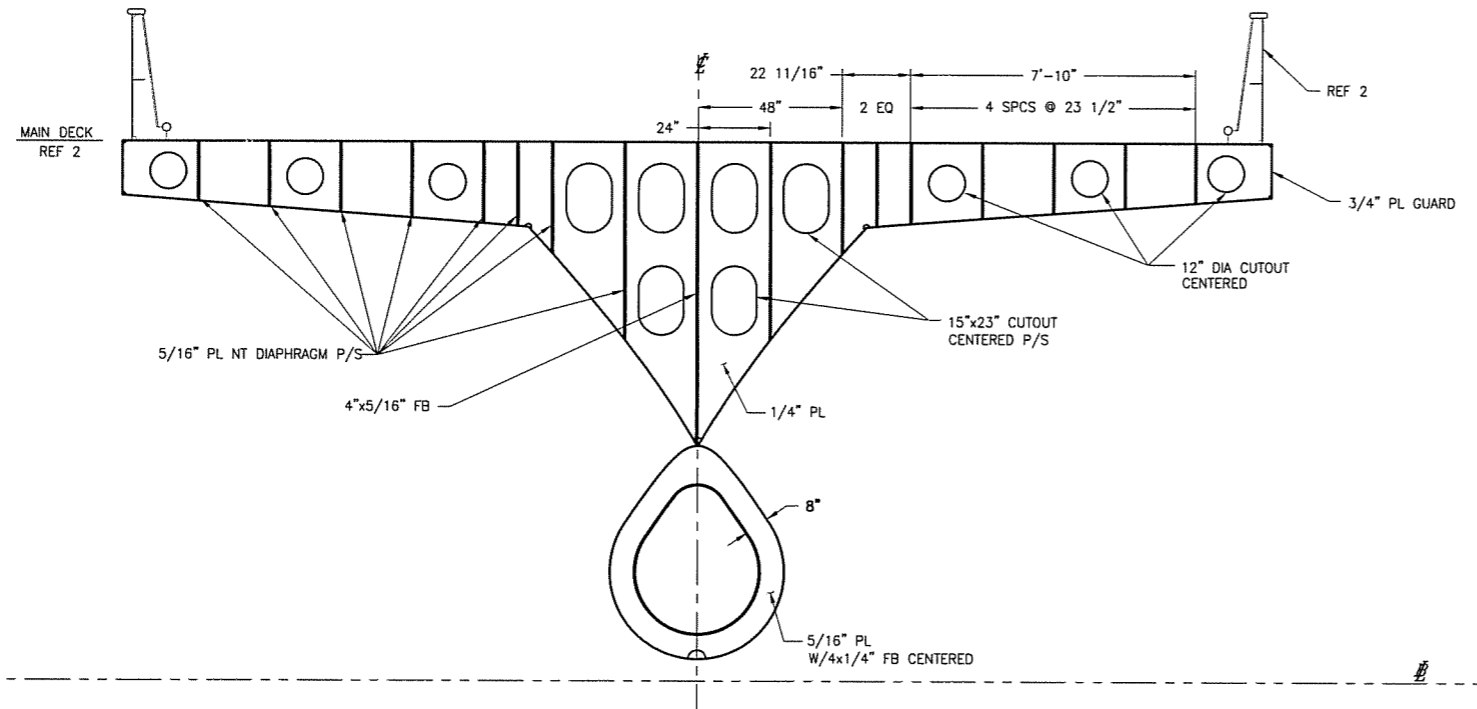
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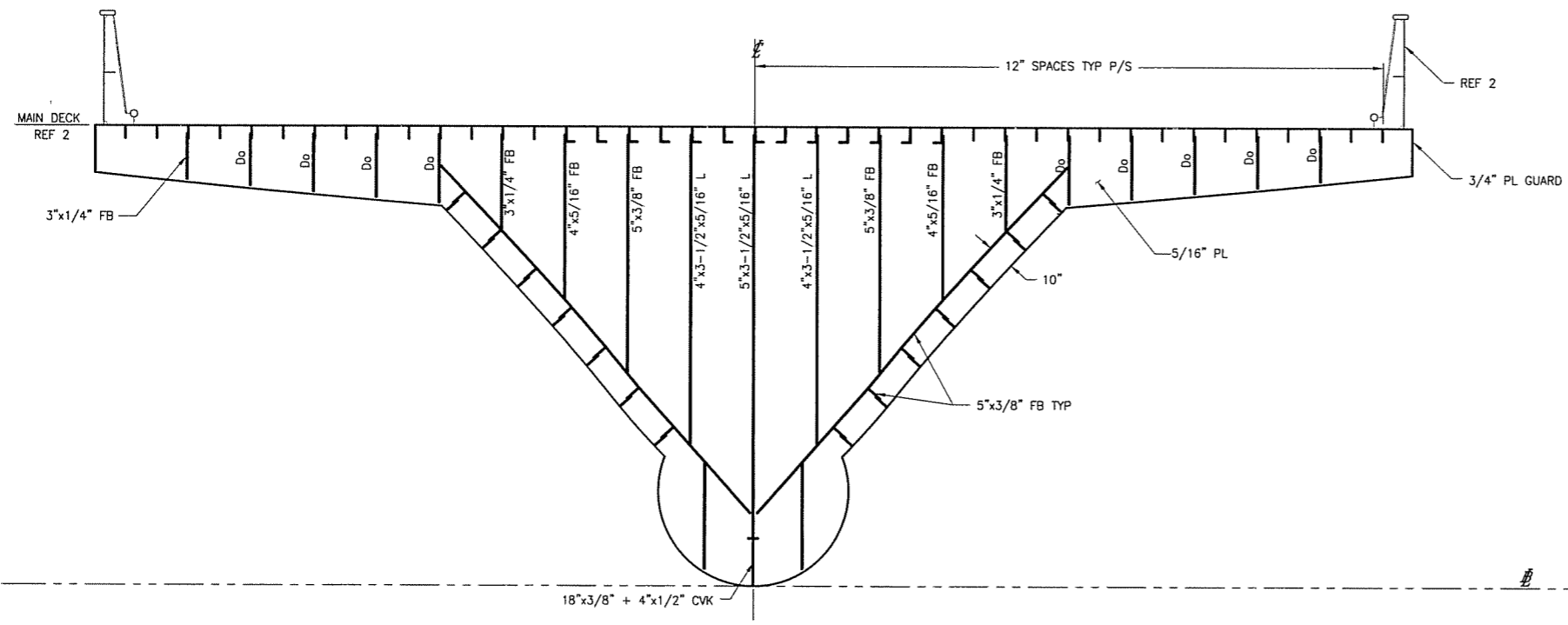
REVISION HISTORY

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SHEET NO.	SHEET CONTENT
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2	FRAME 8 & FRAME 16
3	FRAME 24 & FRAME 28
4	FRAME 36 & FRAME 44
5	FRAME 52 & FRAME 64
6	FRAME 76 & FRAME 82
7	FRAME 88 & FRAME 94



SECTION 1-4C
 NT FRAME 0
 LOOKING AFT

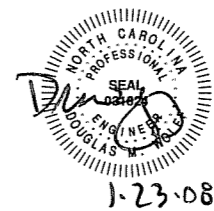


SECTION 1-4A
 WT BULKHEAD FRAME 4
 LOOKING FWD

GENERAL NOTES

REFERENCES

- 07069-001-110-1 SHELL PLATING AND FRAMES
- 07069-001-150-1 SUPERSTRUCTURE AND PILOTHOUSE STRUCTURE
- 07069-001-120-5 LONG'L BULKHEADS
- 07069-001-130-1 MAIN AND LOWER DECK PLATING AND FRAMING
- 07069-001-120-2 INBOARD STRUCTURAL PROFILE



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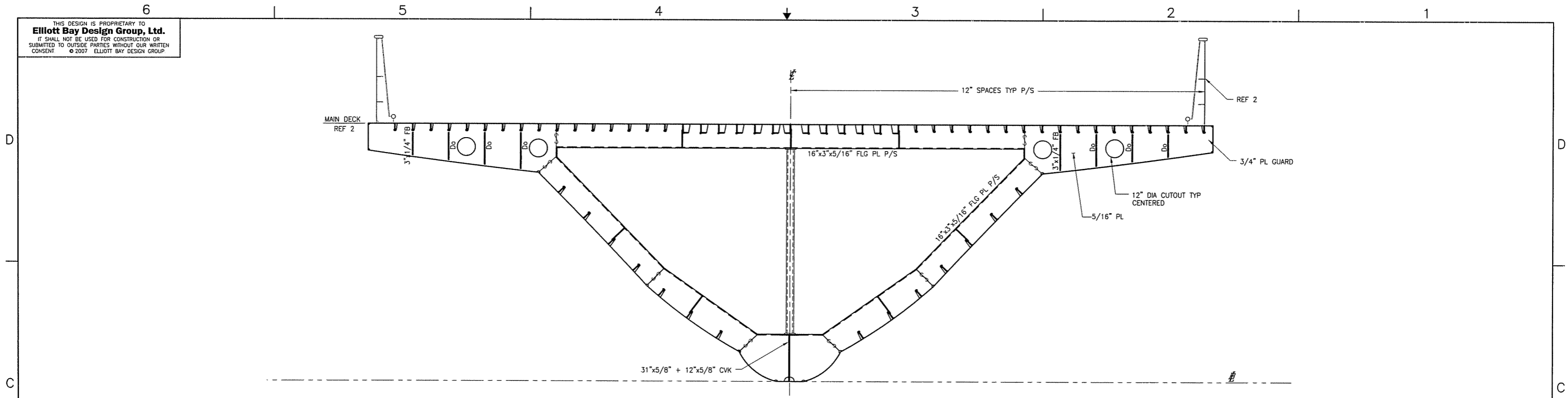
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 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

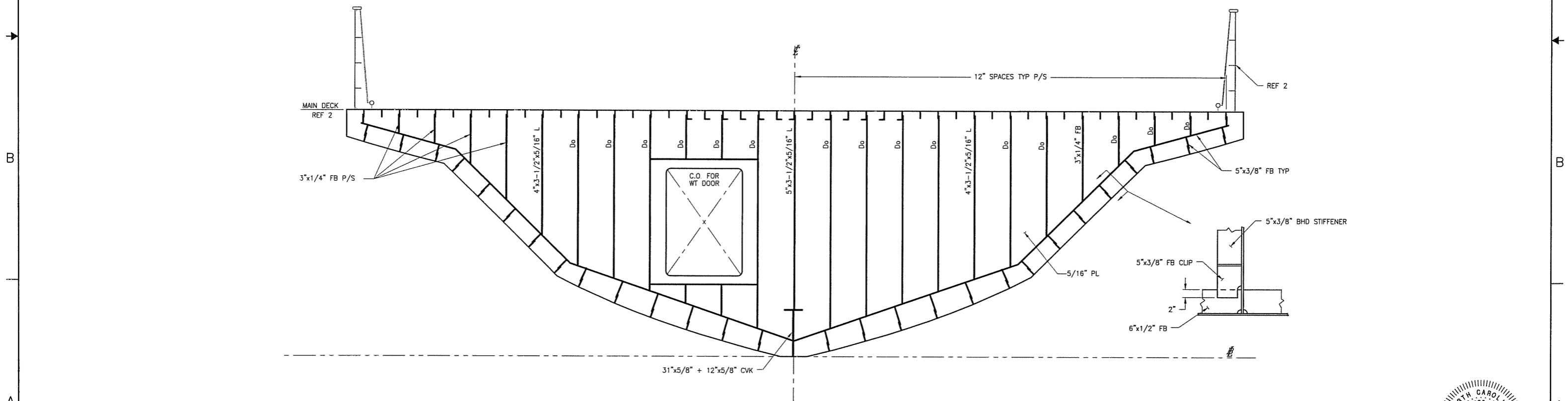
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APVD	DMW	DATE	01/09/08						

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SECTION 2-4C
 NT WEB FRAME 8
 LOOKING AFT



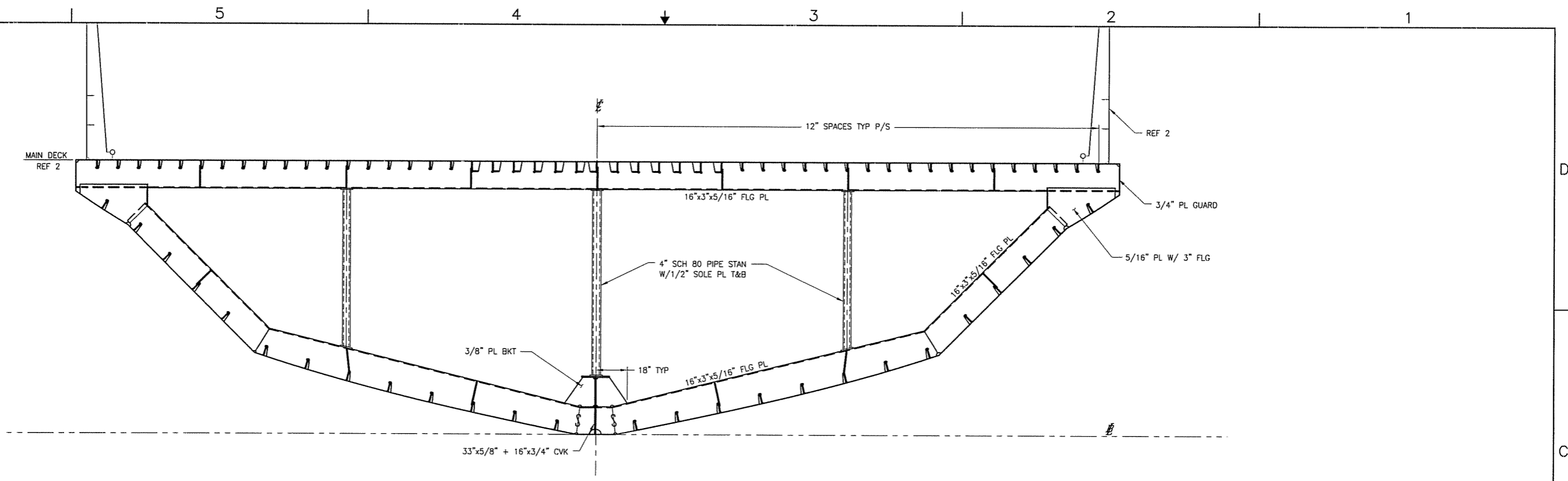
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 WT BULKHEAD FRAME 16
 LOOKING AFT



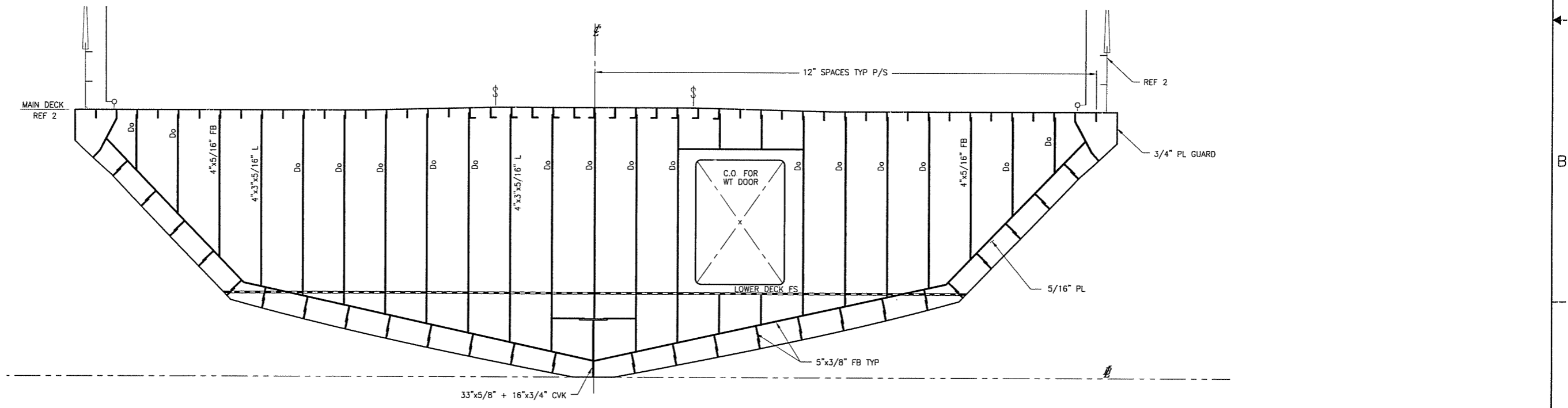
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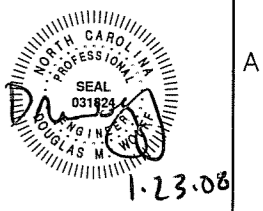
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SECTION 3-4C
 NT WEB FRAME 24
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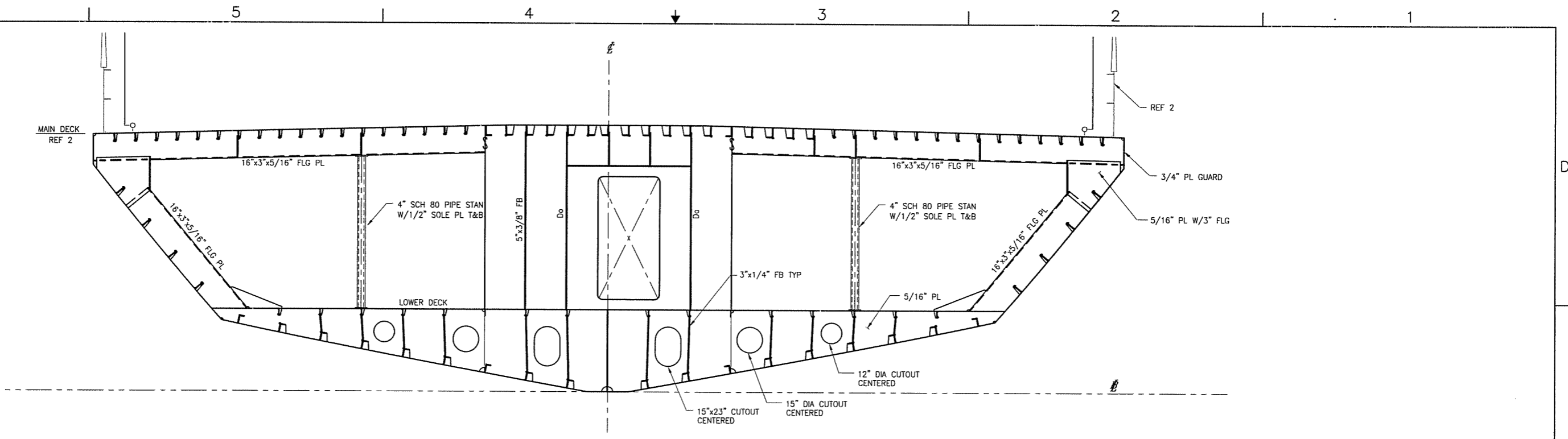


SECTION 3-4A
 WT BULKHEAD FRAME 28
 LOOKING AFT

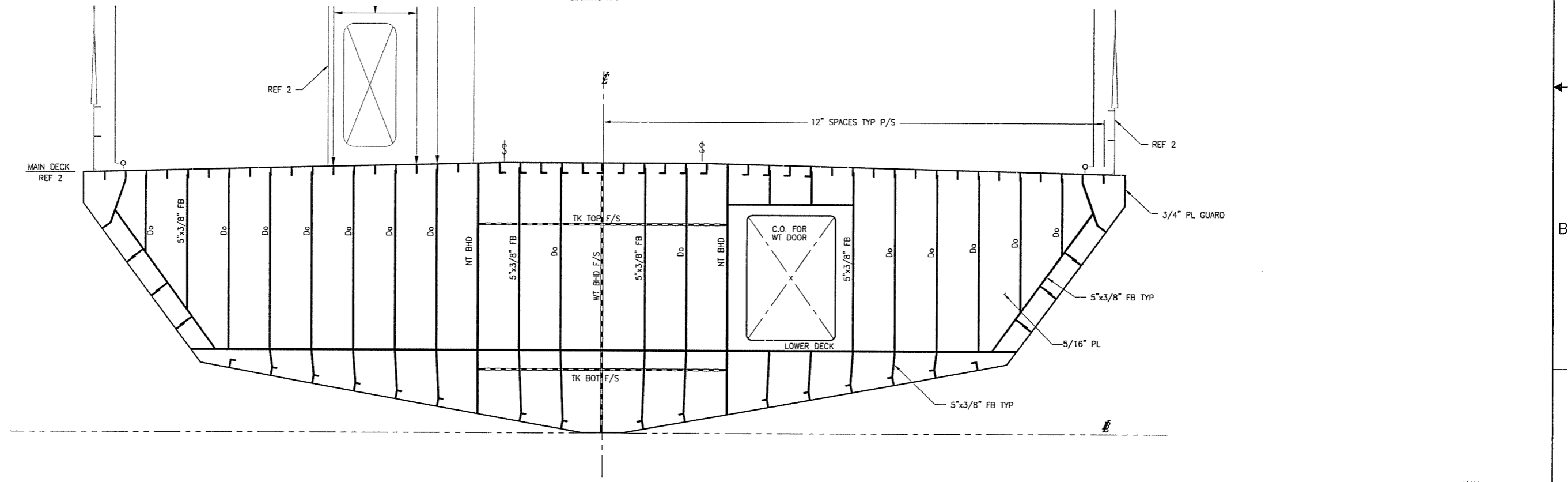


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SECTION 4-4C
 NT WEB FRAME 36
 LOOKING AFT



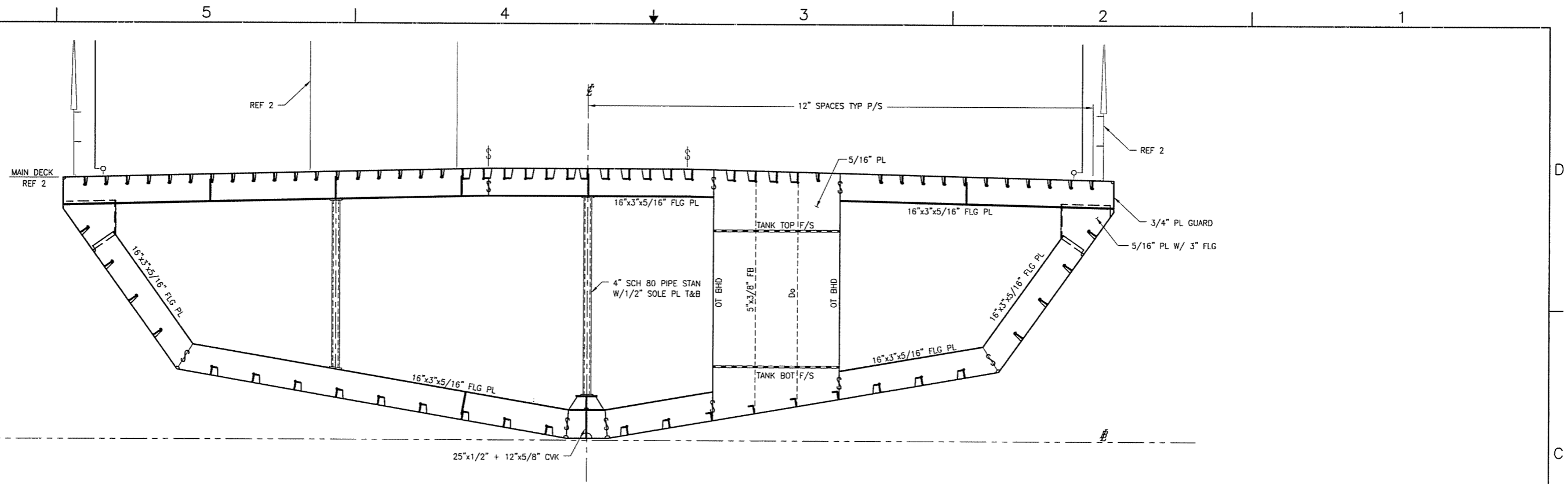
SECTION 4-4A
 WT BULKHEAD FRAME 44
 LOOKING AFT



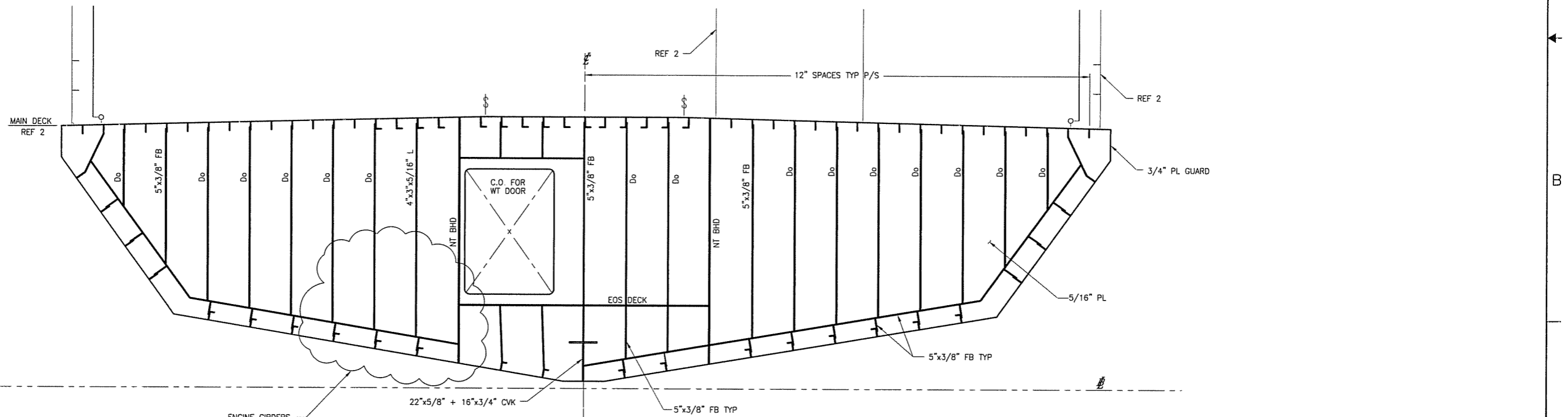
1-23-08

SIZE	D	DWG NO.	07069-001-120-1	REV	A
SCALE	3/8"=1'-0"	FILE NAME	07069-001-1201-A	SHEET	4 OF 7

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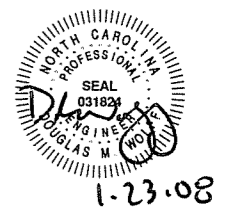


SECTION 5-4C
 NT WEB FRAME 52
 LOOKING AFT



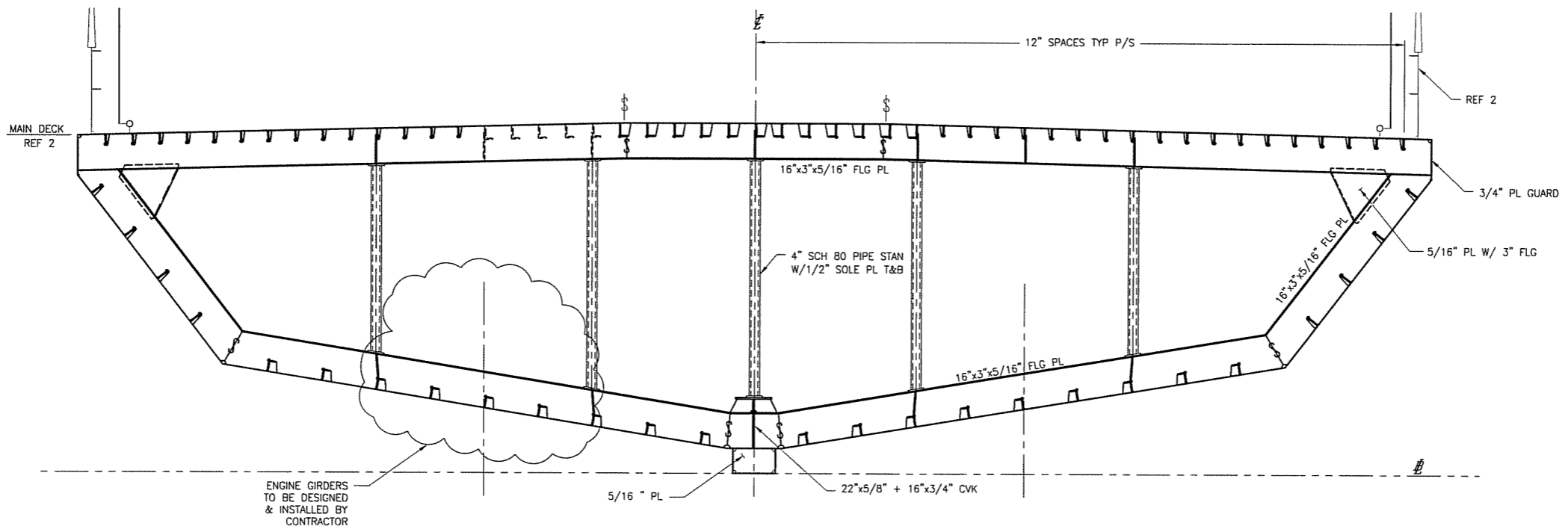
SECTION 5-4A
 WT BULKHEAD FRAME 64
 LOOKING FWD

ENGINE GIRDERS
 TO BE DESIGNED
 & INSTALLED BY
 CONTRACTOR

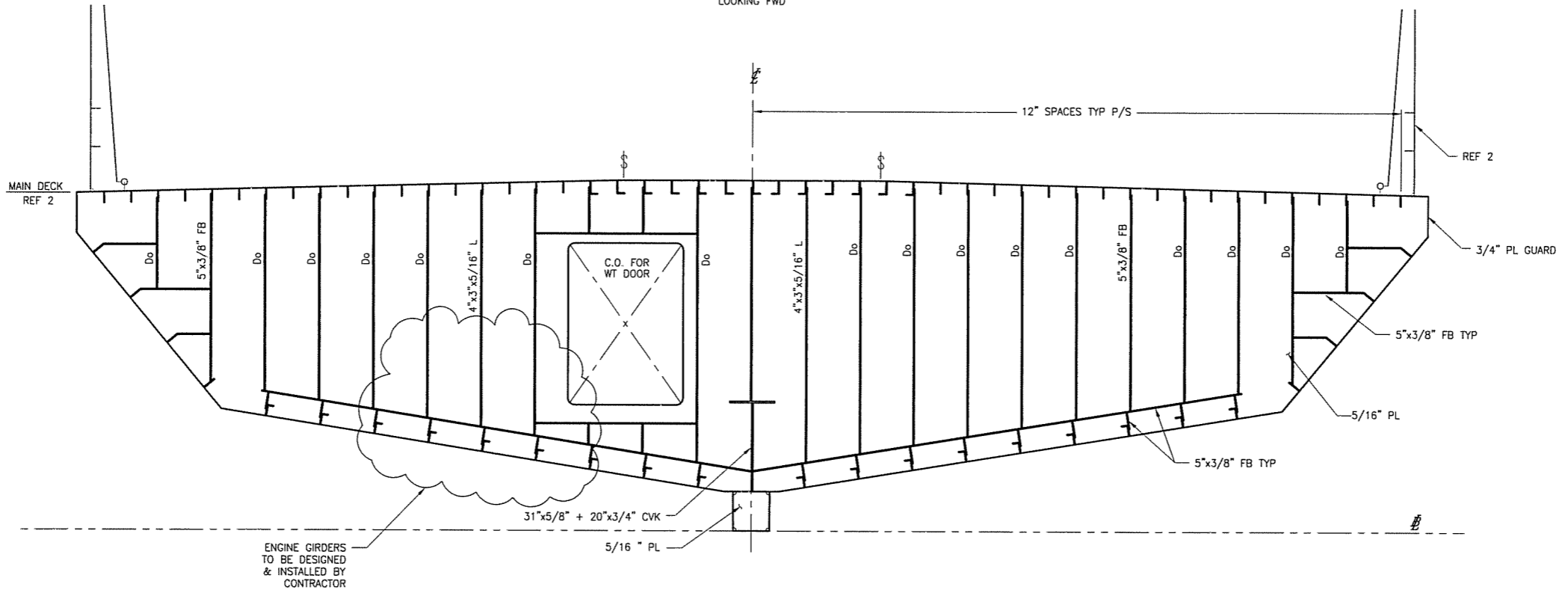


SIZE	D	DWG. NO.	07069-001-120-1	REV	A
SCALE	3/8"=1'-0"	FILE NAME	07069-001-1201-A	SHEET	5 OF 7

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SECTION 6-4C
 NT WEB FRAME 76
 LOOKING FWD



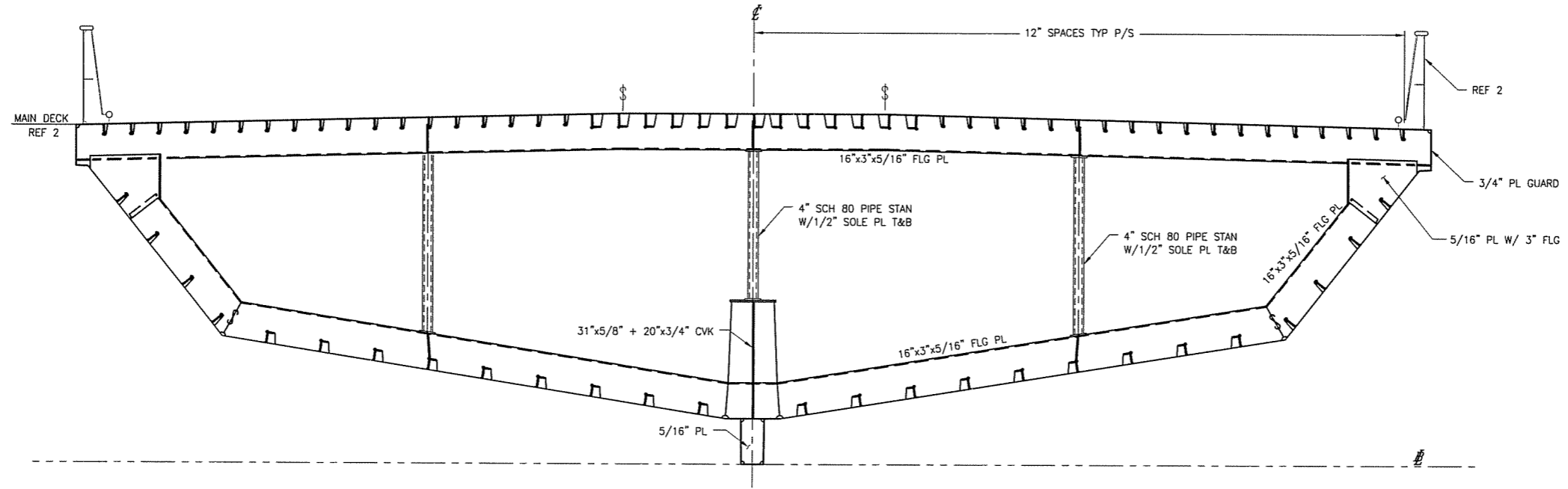
SECTION 6-4A
 WT BULKHEAD FRAME 82
 LOOKING FWD



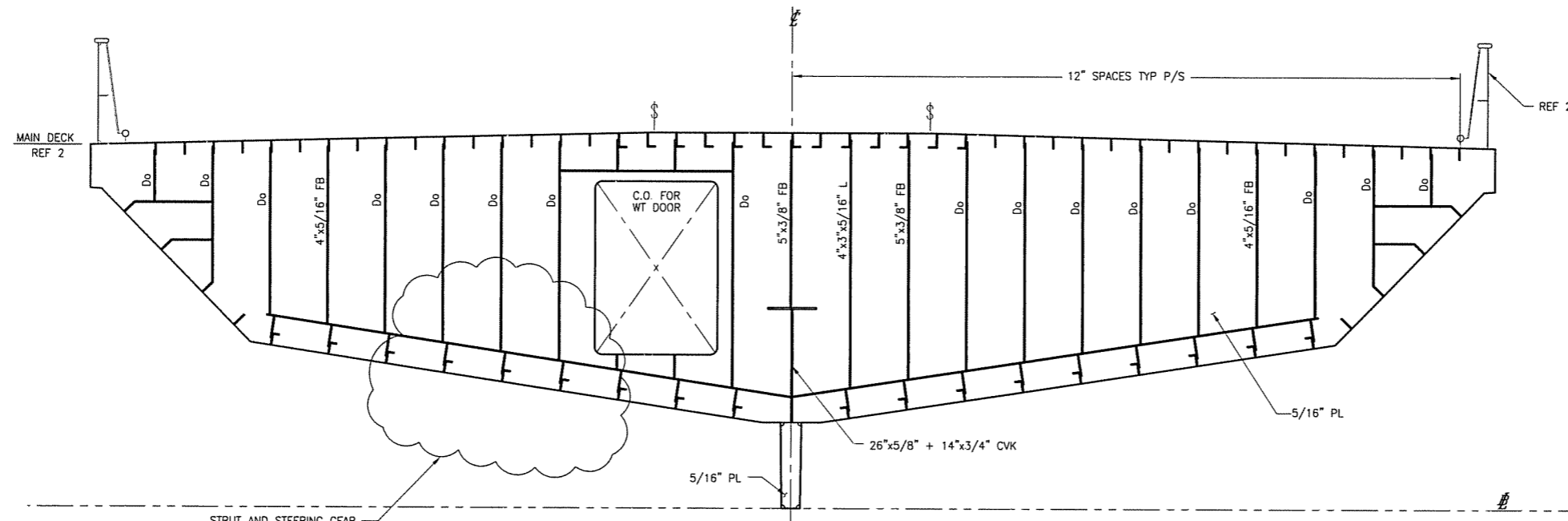
1-23-08

SIZE	D	DWG NO.	07069-001-120-1	REV	A
SCALE	3/8"=1'-0"	FILE NAME	07069-001-1201-A	SHEET	6 OF 7

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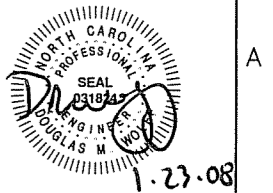


SECTION 7-4C
 NT WEB FRAME 88
 LOOKING FWD



STRUT AND STEERING GEAR
 SUPPORT STRUCTURE
 TO BE DESIGNED & INSTALLED
 BY CONTRACTOR

SECTION 7-4A
 WT BULKHEAD FRAME 92
 LOOKING FWD



1.23.08

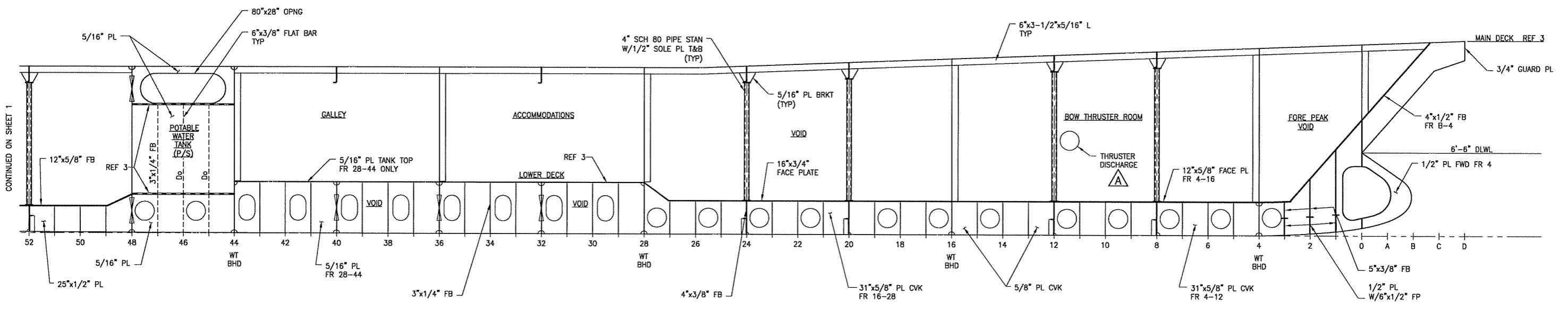
SIZE	DWG NO.	REV
D	07069-001-120-1	A
SCALE	FILE NAME	SHEET
3/8"=1'-0"	07069-001-1201-A	7 OF 7

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	2-2B	ADDED THRUSTER DISCHARGE	JL	01/17/08	DMW
B	2-5B	STRUCTURAL MOD. TO STEERING GEAR RM	JL	02/4/08	DMW

GENERAL NOTES



REFERENCES

- 07069-001-110-1 SHELL PLATING AND FRAMES
- 07069-001-120-1 SCANTLING SECTIONS
- 07069-001-130-1 MAIN & LOWER DECK PLATING & FRAMING
- 07069-001-120-5 LONGITUDINAL BULKHEADS
- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT



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 Seattle • New Orleans

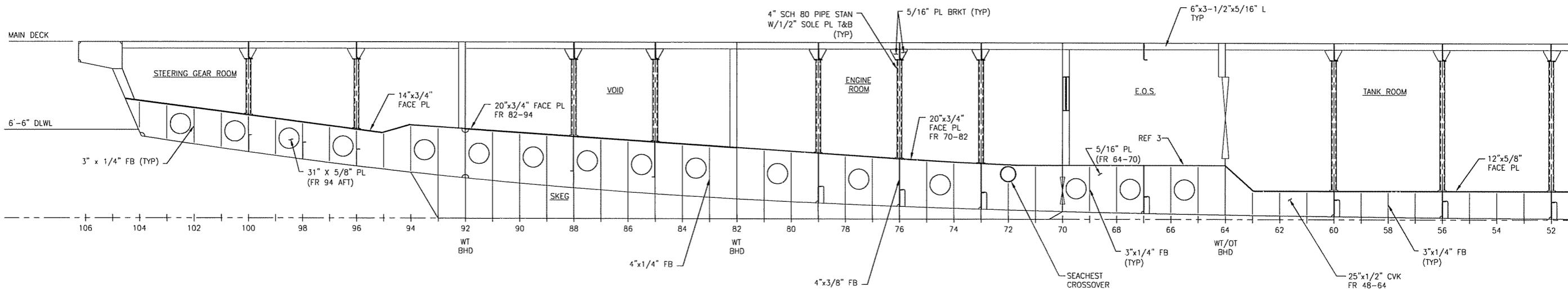
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

INBOARD STRUCTURAL PROFILE

DWN	JOD	DATE	12/05/07	SIZE	D	ENG. NO.	07069-001-120-2	REV	B
CRD	DMW	DATE	01/09/08	SCALE	1/4"=1'-0"	FILE NAME	07069-001-1202-B	SHEET	1 OF 2
APVD	DMW	DATE	01/09/08						

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CONTINUED ON SHEET 1



2.5.08

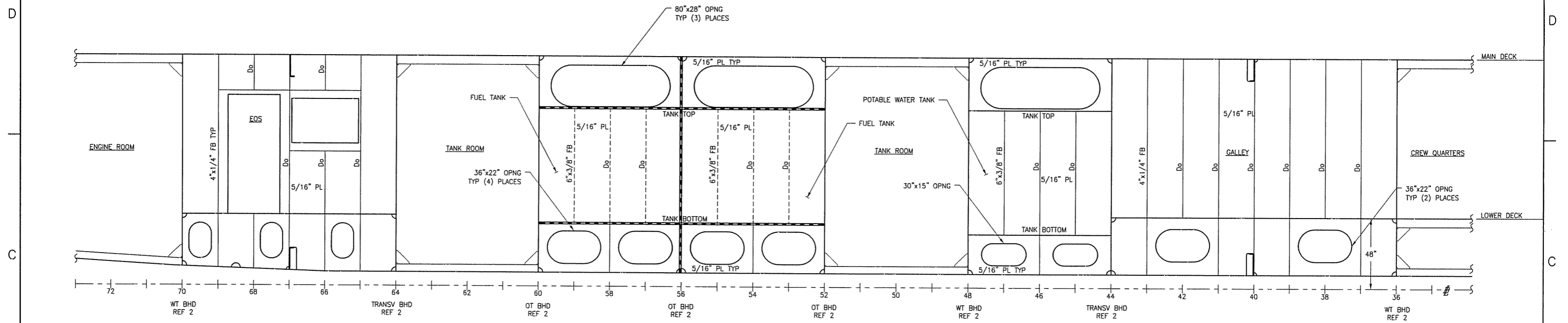
SIZE	D	DWG NO.	07069-001-120-2	REV	B
SCALE	1/4"=1'-0"	FILE NAME	07069-001-1202-B	SHEET	2 OF 2

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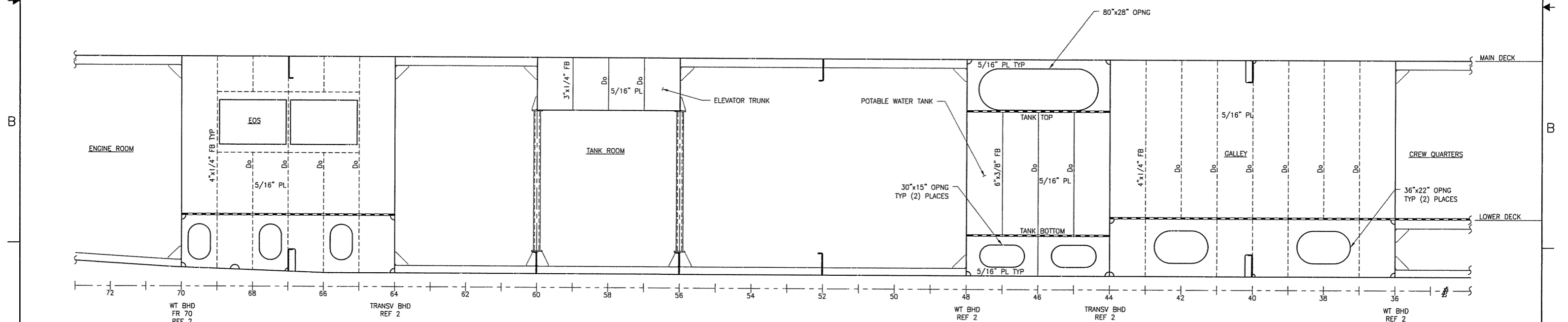
REFERENCES	
1.	07069-001-110-1 SHELL PLATING AND FRAMES
2.	07069-001-120-1 SCANTLING SECTIONS
3.	07069-001-130-1 MAIN AND LOWER DECK PLATING AND FRAMING

GENERAL NOTES	

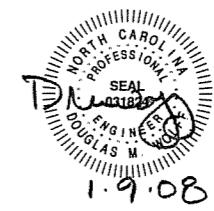
REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD



ELEVATION 4-C
 LONG'L BULKHEAD 6'-0" OCL
 PORT SIDE LOOKING OUTBOARD



ELEVATION 4-A
 LONG'L BULKHEAD 6'-0" OCL
 STBD SIDE LOOKING INBOARD



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 Seattle - New Orleans

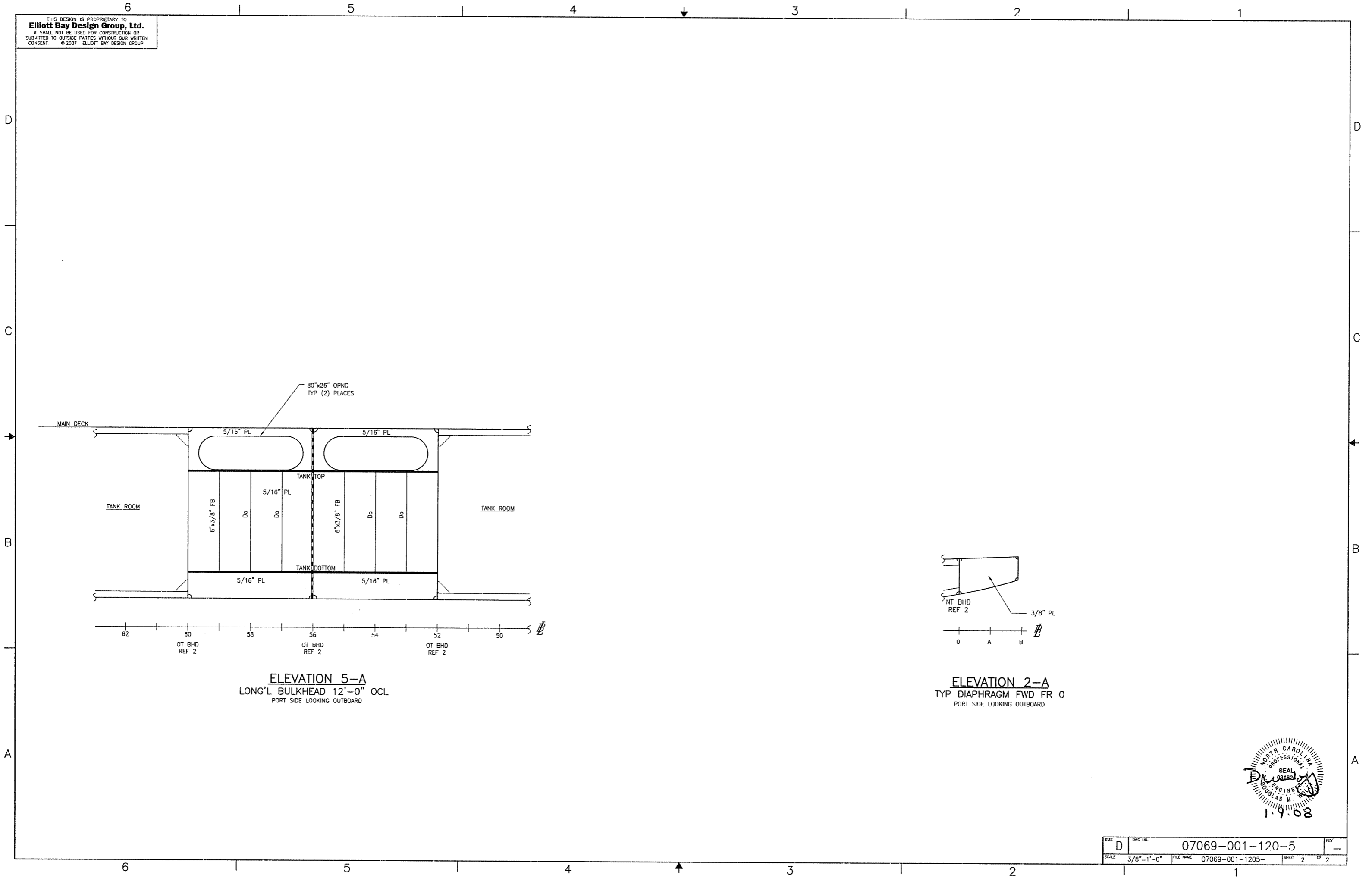
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

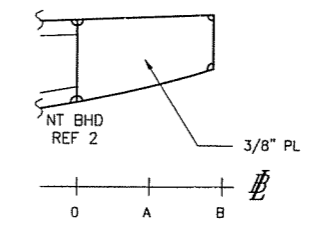
TITLE: LONG'L BULKHEADS

DWN	JOD	DATE	11/05/07	SIZE	D	DWG NO.	07069-001-120-5	REV	---
CHKD	DMW	DATE	01/09/08	SCALE	3/8"=1'-0"	FILE NAME	07069-001-1205-	SHEET	1 OF 2
APVD	DMW	DATE	01/09/08						

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ELEVATION 5-A
 LONG'L BULKHEAD 12'-0" OCL
 PORT SIDE LOOKING OUTBOARD



ELEVATION 2-A
 TYP DIAPHRAGM FWD FR 0
 PORT SIDE LOOKING OUTBOARD

SEAL
 NORTH CAROLINA
 PROFESSIONAL
 ENGINEER
 DOUGLAS M. [Signature]
 1.9.08

SIZE	DWG NO.	REV
D	07069-001-120-5	-
SCALE	FILE NAME	SHEET
3/8"=1'-0"	07069-001-1205-	2 OF 2

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REFERENCES

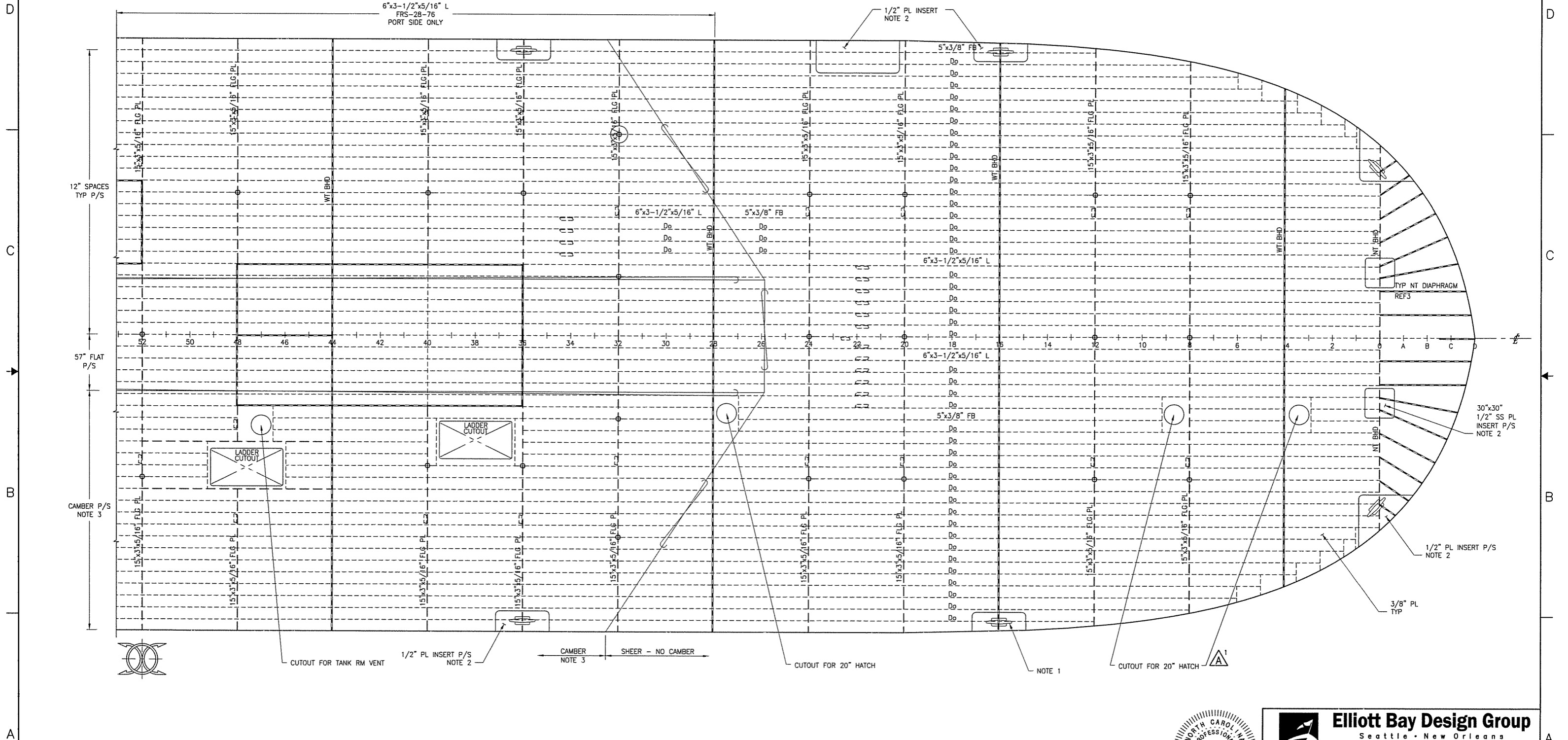
- 07069-001-110-1 SHELL PLATING AND FRAMING
- 07069-001-120-1 SCANTLING SECTIONS
- 07069-001-120-5 LONG'L BULKHEADS
- 07069-001-100-1 LINES PLAN

GENERAL NOTES

- KEVELS ARE NABRICO DF-482
- INSERT PLATES SHALL BE INSTALLED WITH TOPS FLUSH WITH THE TOP OF THE DECK PLATING. EXACT LOCATION TO BE FURNISHED BY NC DOT.
- MAIN DECK CAMBER AFT OF FR 26 SHALL BE 6" STRAIGHT LINE.
- STANCHIONS SHOWN ARE BELOW DECK.

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A1	1-2A	ADD HATCH AT FR. 3	JL	1/17/08	DMW
A2	2-3B	REV SIZE OF VENT CUTOUT	JL	1/17/08	DMW



PLAN 1-4A
 MAIN DECK PLATING AND FRAMING
 FORWARD END



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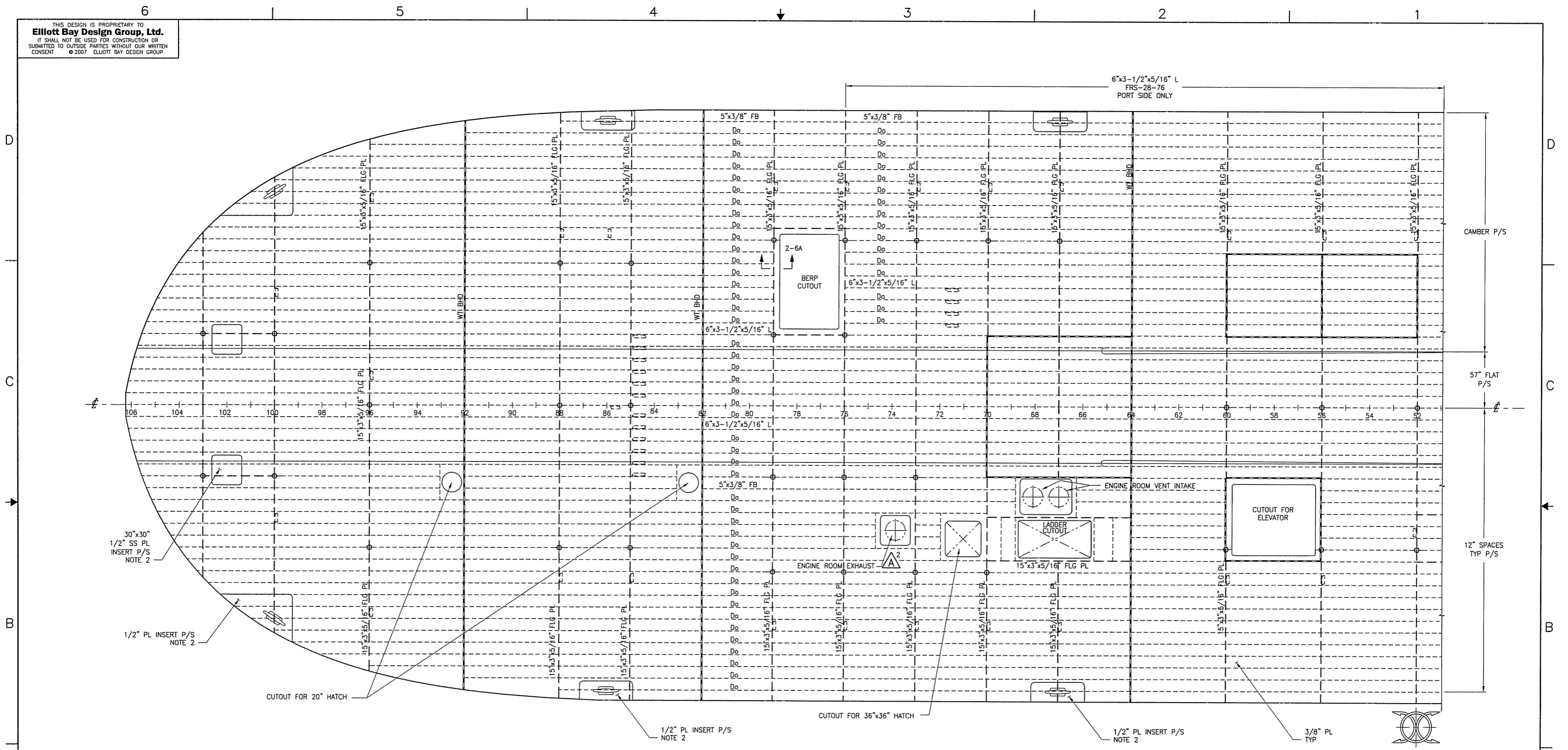
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

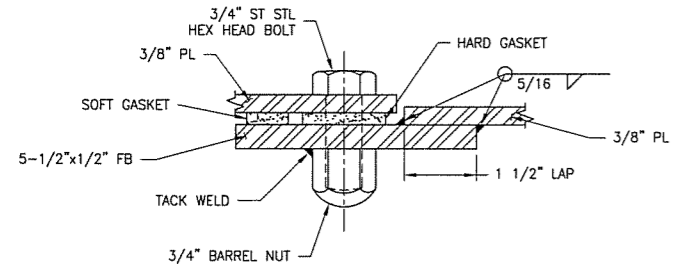
TITLE: MAIN AND LOWER DECK PLATING AND FRAMING

DWN	JOD	DATE	12/12/07	SIZE	D	DWG NO.	07069-001-130-1	REV	A
CRD	DMW	DATE	01/09/08	SCALE	1/4"=1'-0"	FILE NAME	07069-001-1301-A	SHEET	1 OF 3

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PLAN 2-4A
 MAIN DECK PLATING AND FRAMING
 AFT END



DETAIL 2-6A
 BERP GASKET
 SCALE: 6"=1'-0"

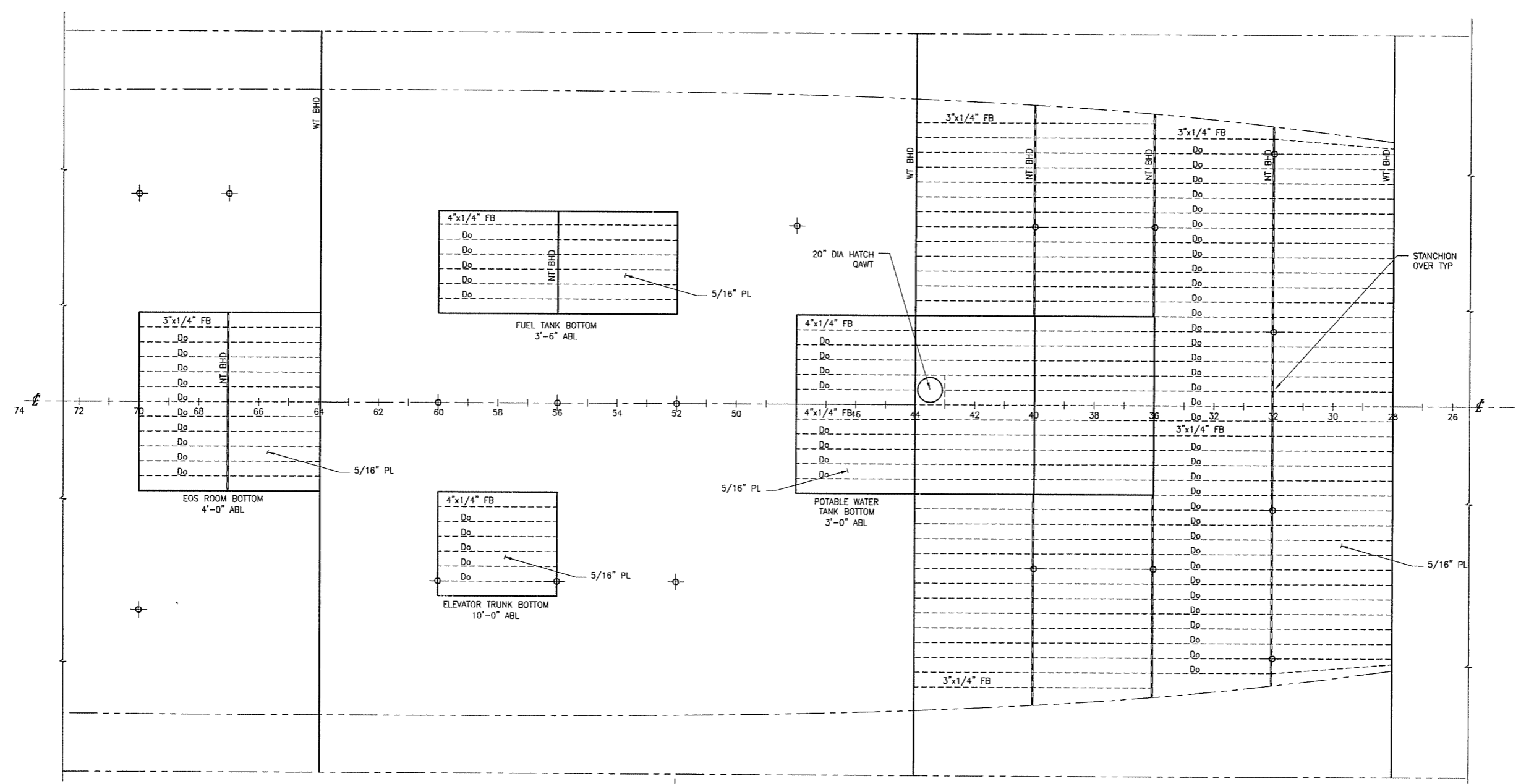


1.23.08

SIZE	D	DWG NO.	07069-001-130-1	REV	A
SCALE	1/4"=1'-0"	FILE NAME	07069-001-1301-A	SHEET	2 OF 3

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6 5 4 3 2 1



PLAN 3-4A
 LOWER DECK PLATING AND FRAMING
 4'-0" ABL EXCEPT AS NOTED

PROFESSIONAL ENGINEER
 NORTH CAROLINA
 SEAL
 081824
 DOUGLAS M. WOLFE
 1.23.08

SIZE	DWG NO.	REV
D	07069-001-130-1	A
SCALE	FILE NAME	SHEET
1/4"=1'-0"	07069-001-1301-A	3 OF 3

6 5 4 3 2 1

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REVISION HISTORY				
REV	ZONE	DESCRIPTION	DWN	DATE
A	-	1. ADDED VENT LOUVERS, SHT. 1 2. MODIFIED CURTAIN PLATE STRUCTURE, SHT. 5 3. ADDED CUTOUT FOR WEAT DOOR, SHT. 7	CCE	1/22/08

GENERAL NOTES

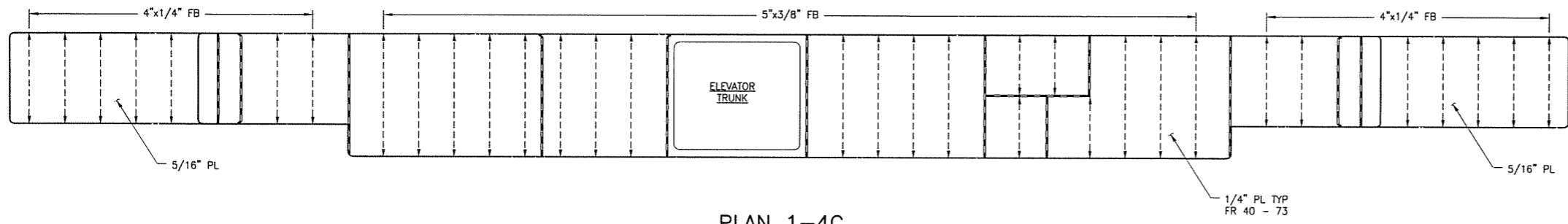
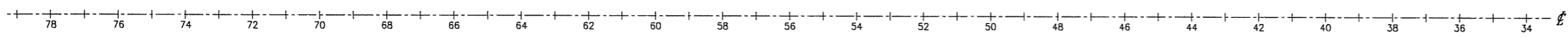
- VERTICAL CORNERS OF EXPOSED STRUCTURE SHALL HAVE A MINIMUM BEND RADIUS OF 1".

REFERENCES

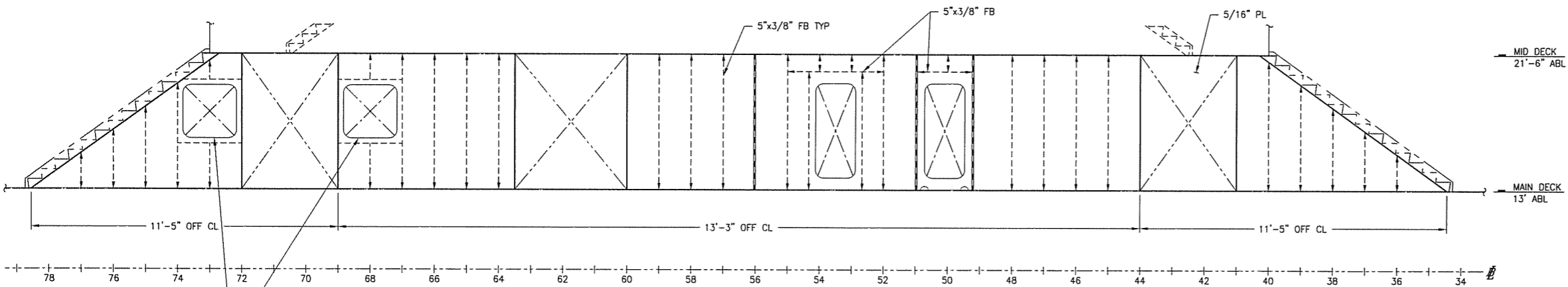
- 07069-001-130-1 MAIN AND LOWER DECK PLATING AND FRAMING

INDEX

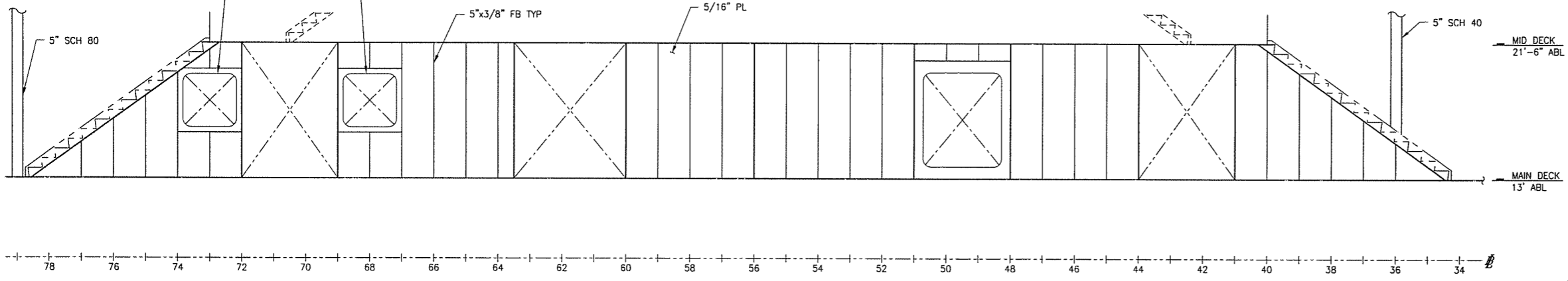
SHEET NO.	SHEET CONTENT
1	MID DECK PLAN & ELEVATIONS
2	PASSENGER DECK PLAN & ELEVATION
3	DECK HOUSE TOP PLAN & ELEVATION
4	PILOTHOUSE & TOP HOUSE PLANS & ELEVATION
5	SIDE STRUCTURE & FRAMING
6	PASSENGER DECK BHD'S
7	DECK HOUSE TOP BHD'S



PLAN 1-4C
MID DECK PLATING AND FRAMING



ELEVATION 1-4B
MID DECK STBD SIDE



ELEVATION 1-4A
MID DECK PORT SIDE
6'-3" OFF CL



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 Seattle • New Orleans

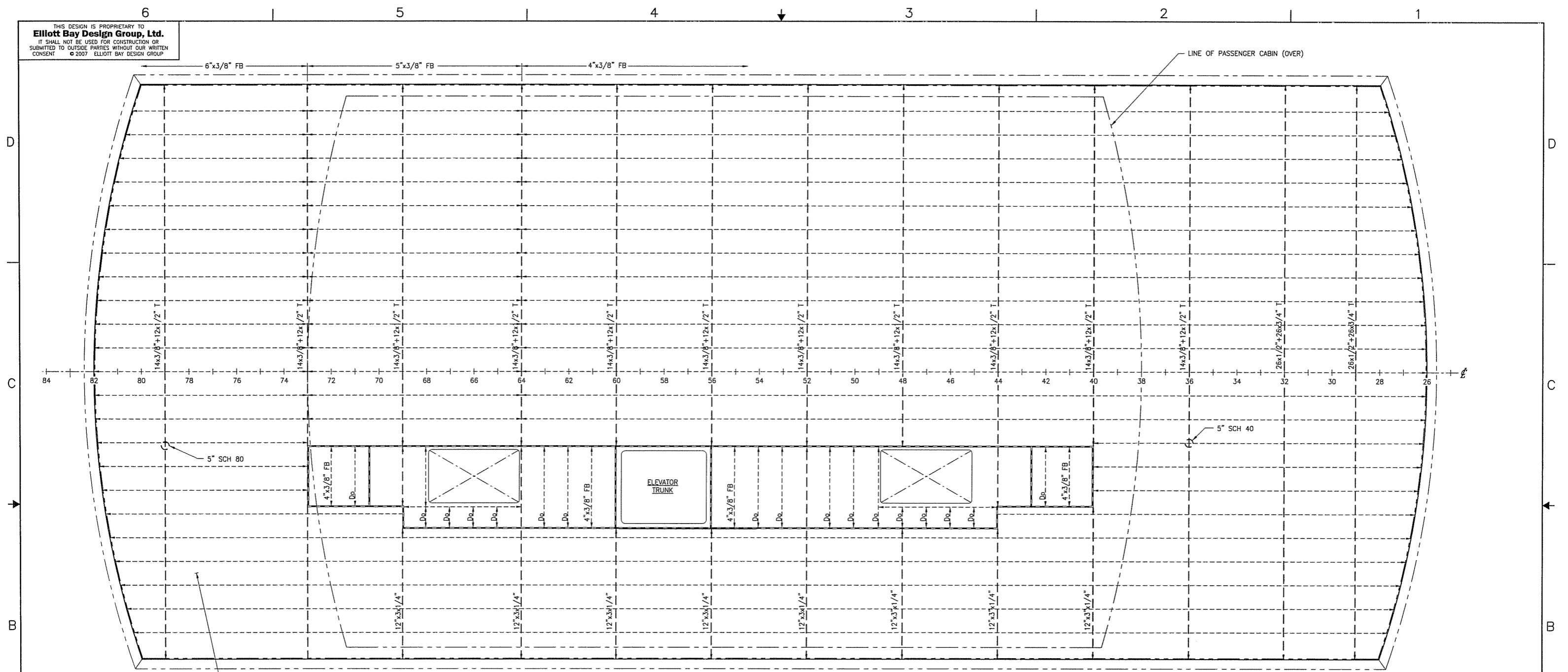
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

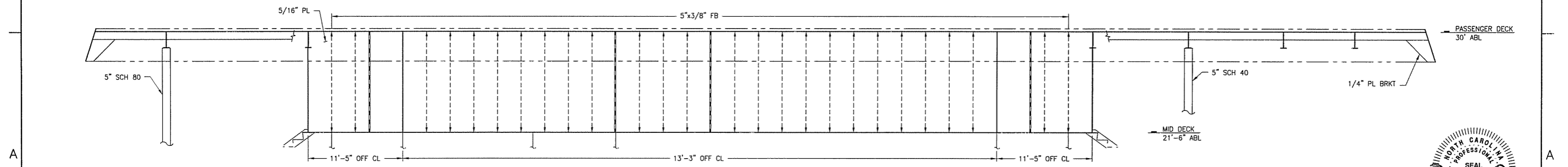
SUPERSTRUCTURE AND PILOTHOUSE STRUCTURE

DWN ZDL	DATE	SCALE	DWG NO.	REV
CHKD DMW	DATE 01/09/08	1/4"=1'-0"	07069-001-150-1	A
APVD DMW	DATE 01/09/08	FILE NAME	07069-001-1501A	SHEET 1 OF 7

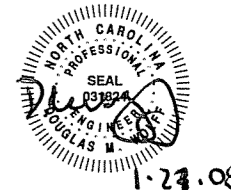
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PLAN 2-4B
 PASSENGER DECK PLATING AND FRAMING



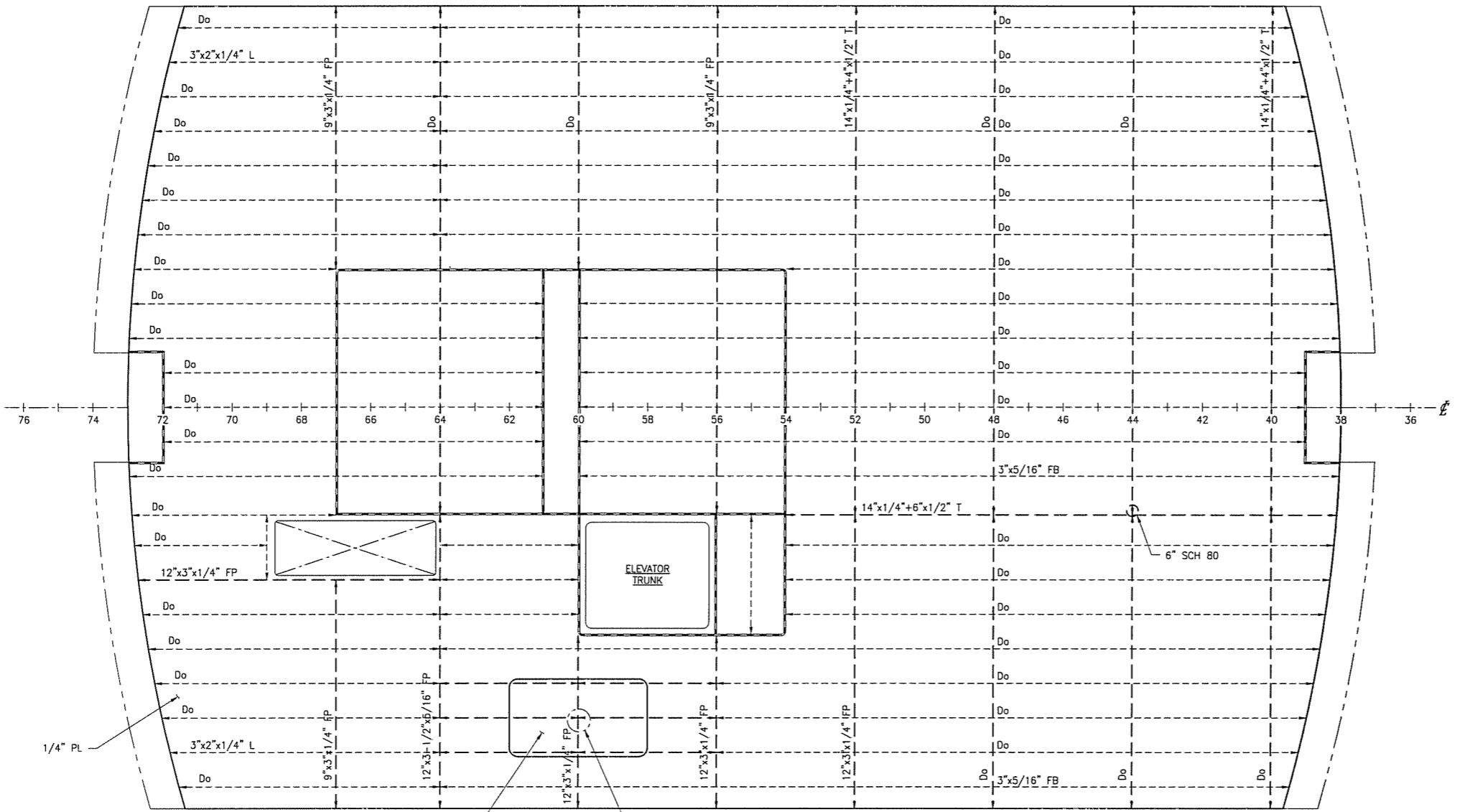
ELEVATION 2-4A
 OUTBD BHD SHOWN, INBD BHD SIM., OPP.



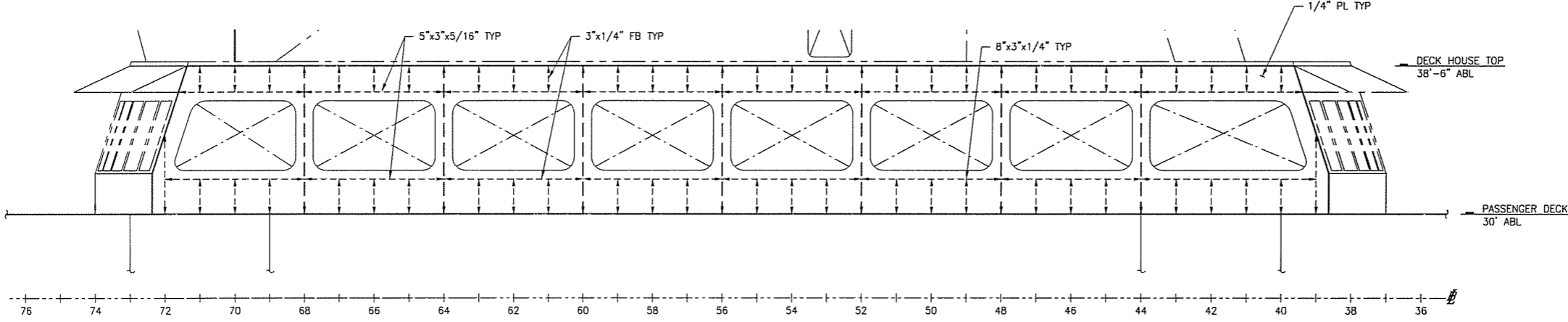
1.23.08

SIZE	D	DWG NO.	07069-001-150-1	REV	A
SCALE	1/4"=1'-0"	FILE NAME	07069-001-1501A	SHEET	2 OF 7

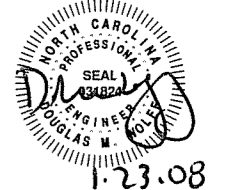
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PLAN 3-4B
 DECK HOUSE TOP PLATING AND FRAMING

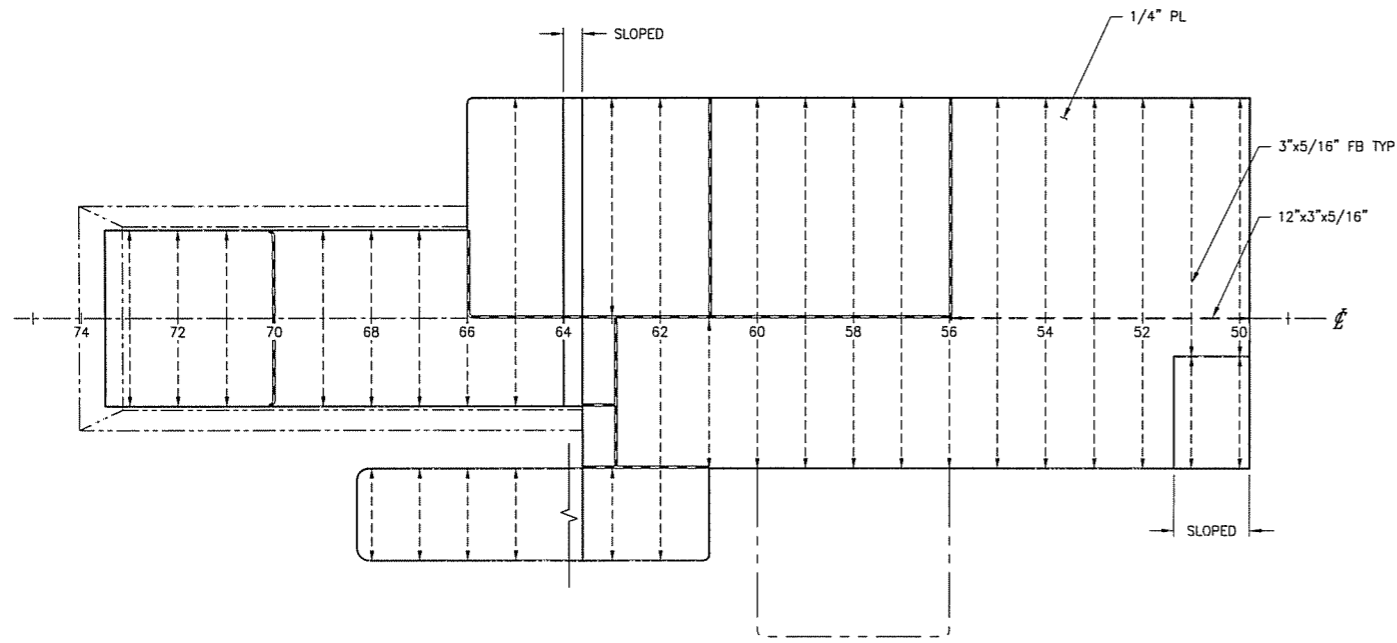


ELEVATION 3-4A
 STBD SHOWN, PORT OPP.
 23'-3" OFF CL

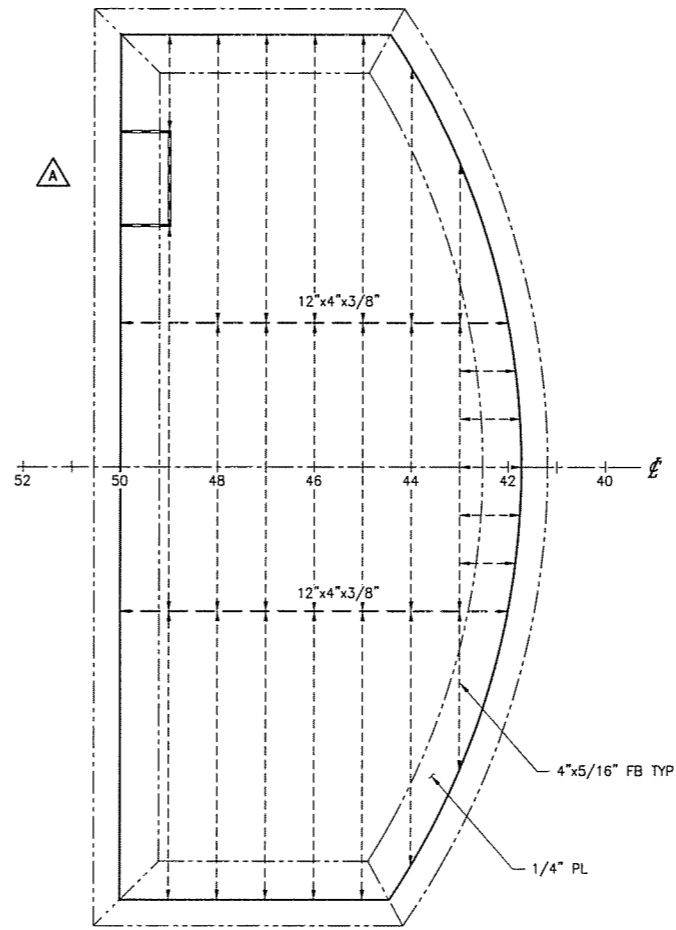


SIZE	DWG NO.	07069-001-150-1	REV	A
SCALE	FILE NAME	07069-001-1501A	SHEET	3 OF 7

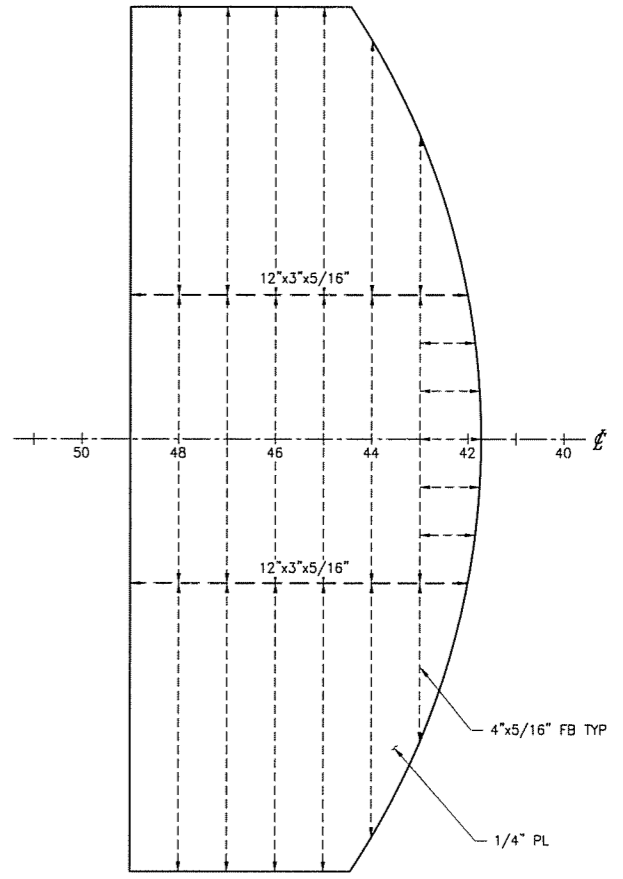
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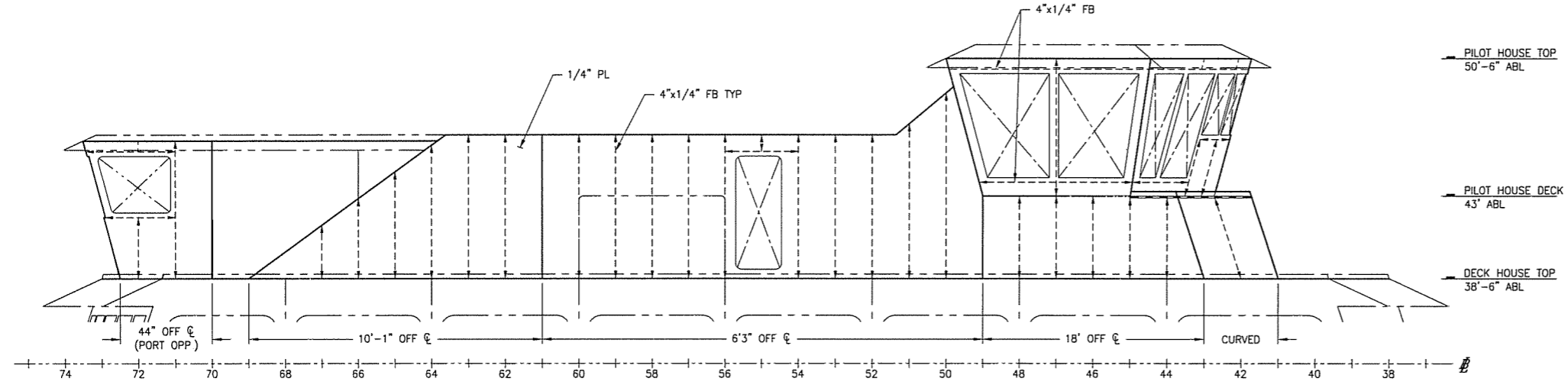
PLAN 4-5C
 TOP HOUSE TOP



PLAN 4-3C
 PILOT HOUSE TOP



PLAN 4-2C
 PILOT HOUSE DECK



ELEVATION 4-5A
 TOP HOUSE AND PILOT HOUSE
 STBD SHOWN

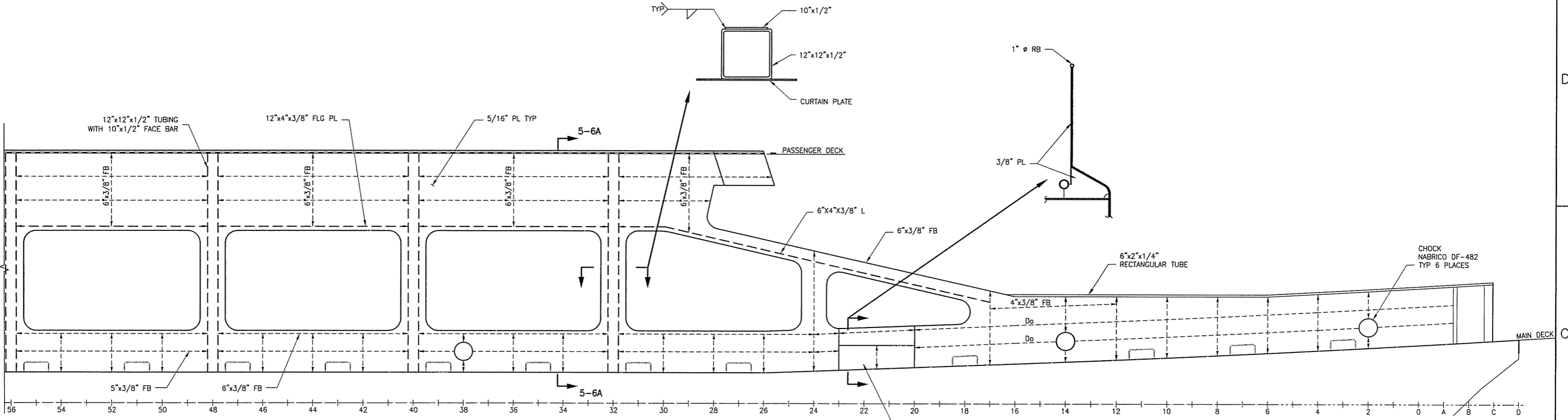
- PILOT HOUSE TOP
50'-6" ABL
- PILOT HOUSE DECK
43' ABL
- DECK HOUSE TOP
38'-6" ABL



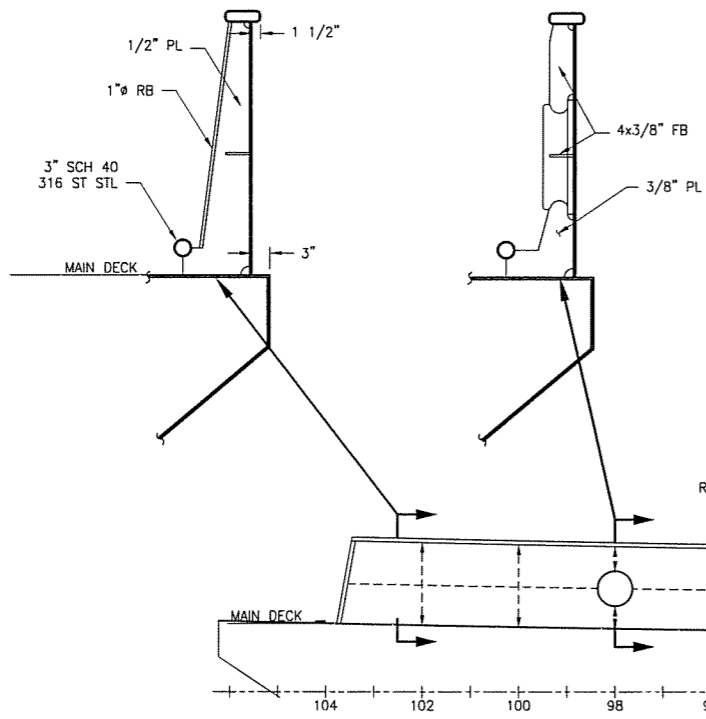
1.23.08

SIZE	D	DWG NO.	07069-001-150-1	REV	A
SCALE	1/4"=1'-0"	FILE NAME	07069-001-1501A	SHEET	4 OF 7

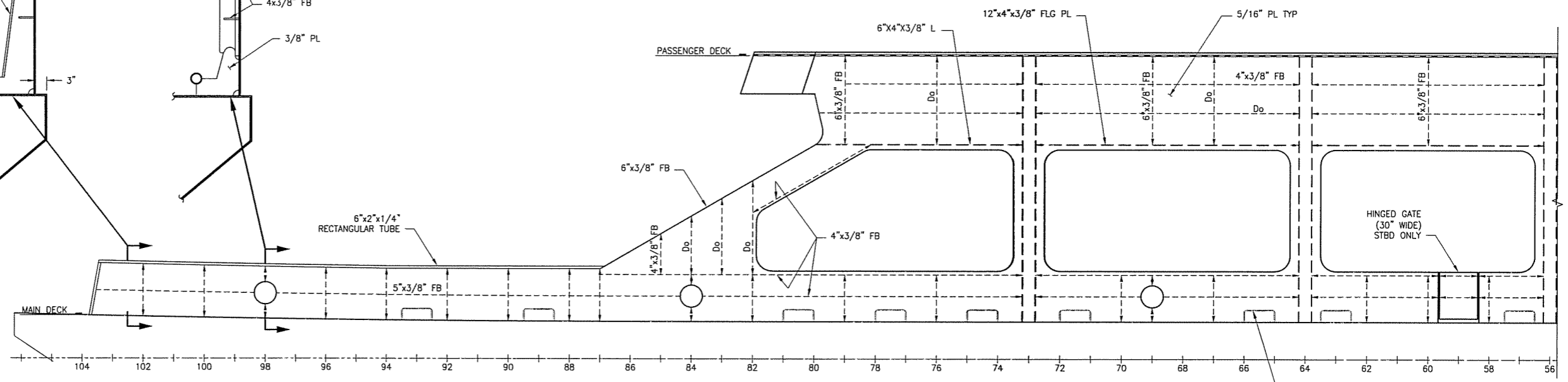
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PLAN 5-4C
 BULWARKS AND CURTAIN PLATES
 STBD SHOWN, PORT OPPOSITE
 EXCEPT AS NOTED



DETAIL 5-6A
 CURTAIN PLATE AT WINDOW



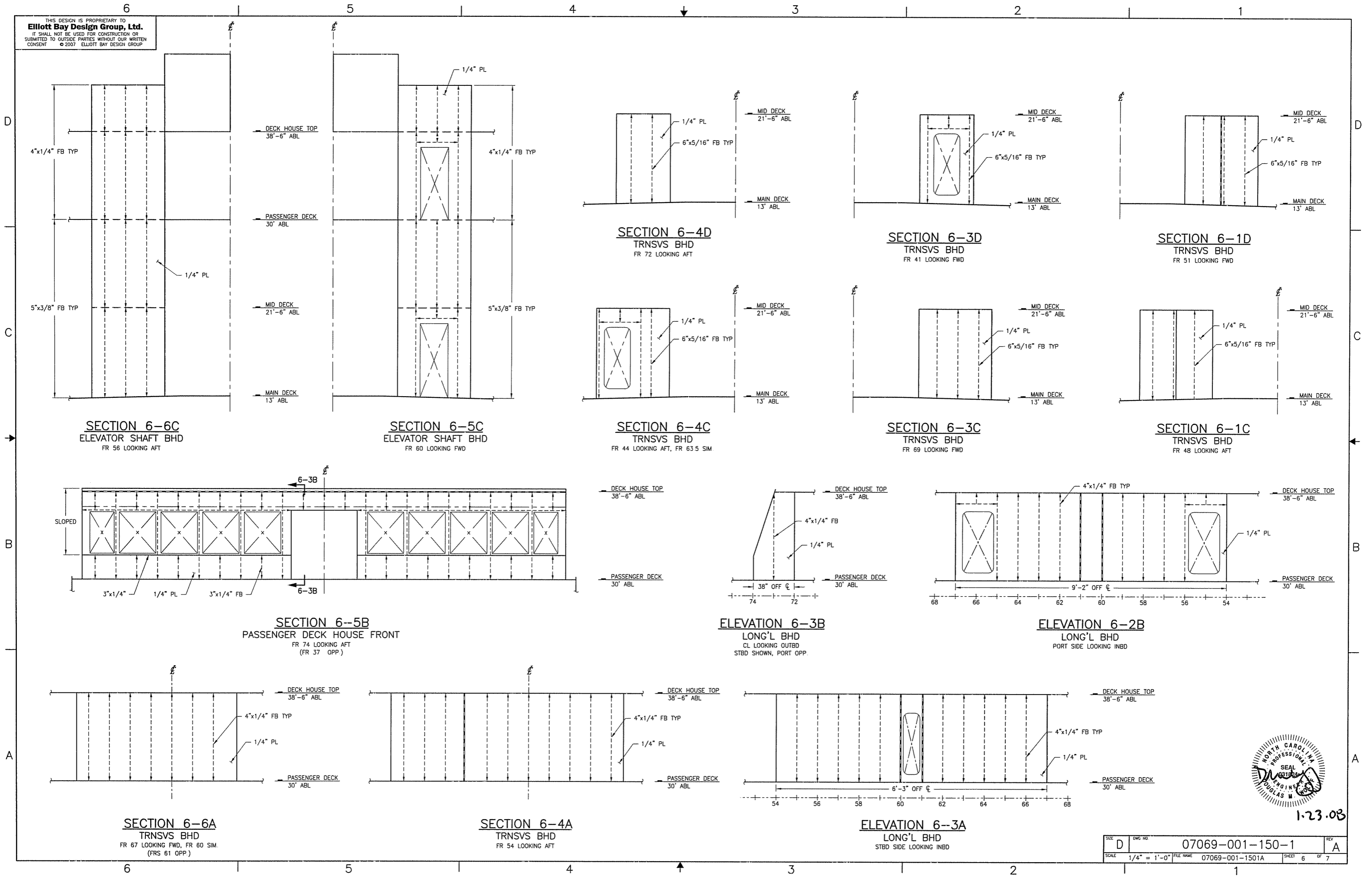
PLAN 5-4A
 BULWARKS AND CURTAIN PLATES
 STBD SHOWN, PORT OPPOSITE



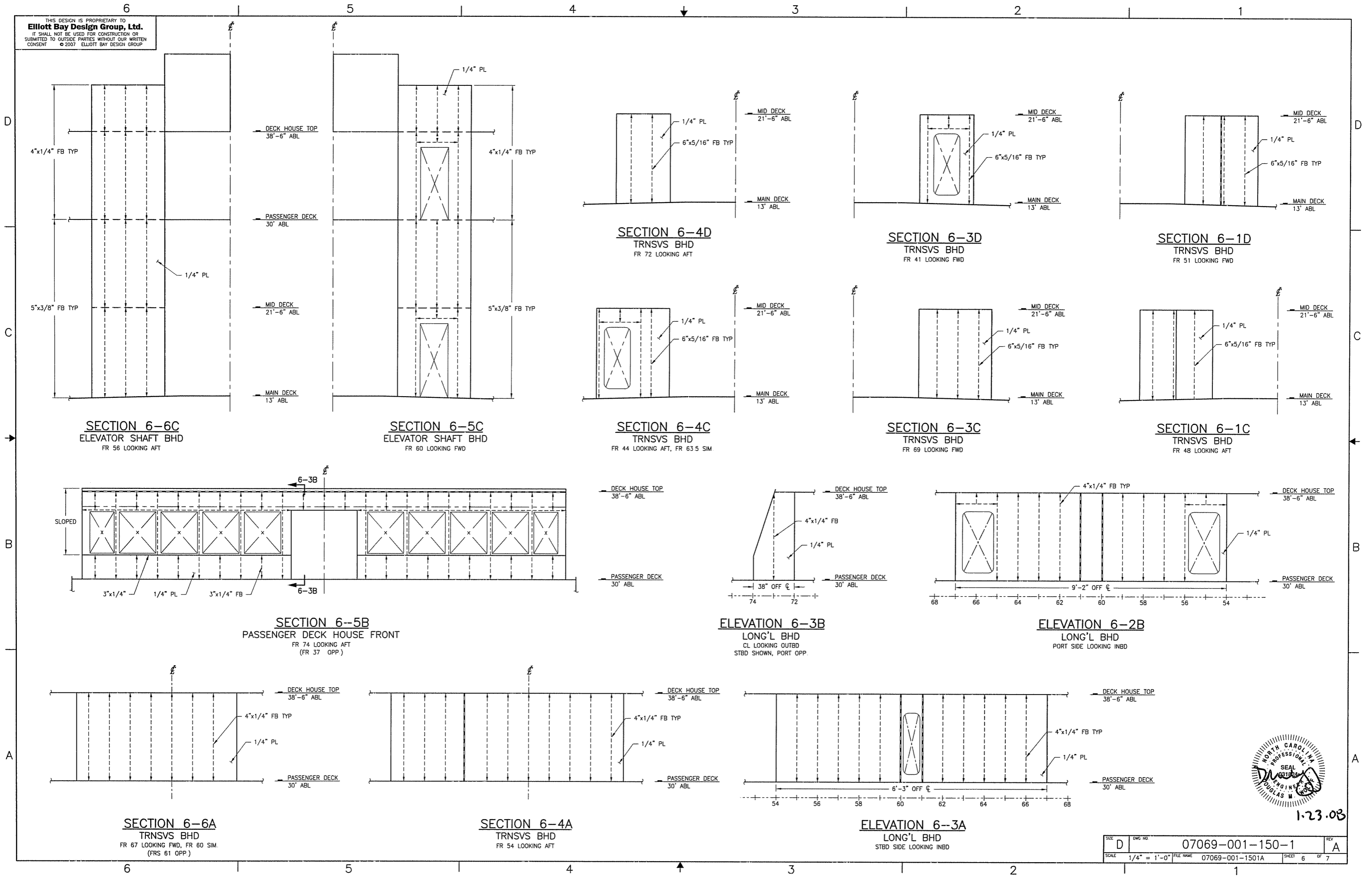
1-23-08

SIZE	DWG. NO.	07069-001-150-1	REV.	A
SCALE	1/4"=1'-0"	FILE NAME	07069-001-1501A	SHEET 5 OF 7

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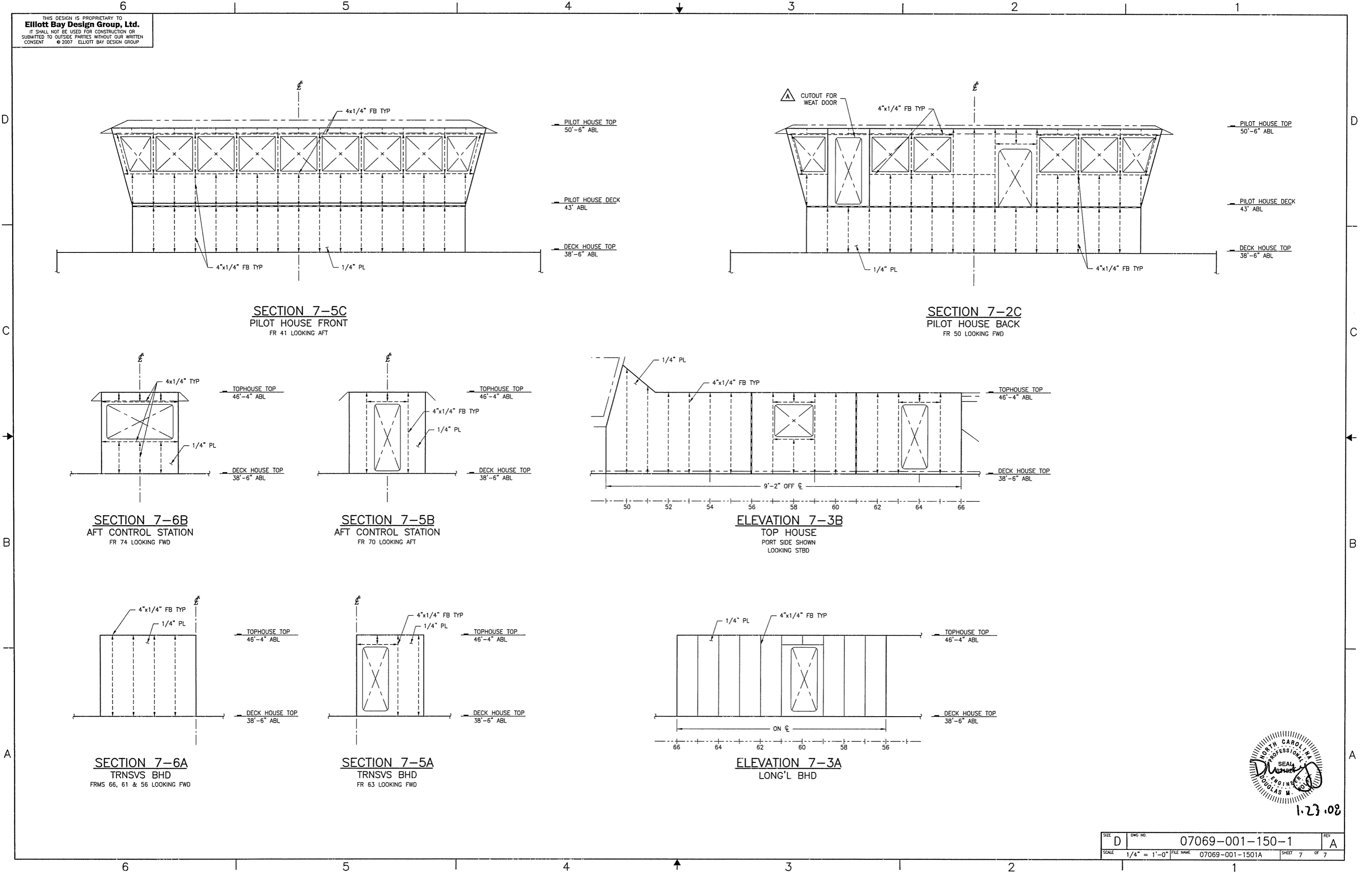
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SIZE	DWG NO	07069-001-150-1	REV	A
SCALE	1/4" = 1'-0"	FILE NAME	07069-001-1501A	SHEET 6 OF 7

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SECTION 7-5C
 PILOT HOUSE FRONT
 FR 41 LOOKING AFT

SECTION 7-2C
 PILOT HOUSE BACK
 FR 50 LOOKING FWD

SECTION 7-6B
 AFT CONTROL STATION
 FR 74 LOOKING FWD

SECTION 7-5B
 AFT CONTROL STATION
 FR 70 LOOKING AFT

ELEVATION 7-3B
 TOP HOUSE
 PORT SIDE SHOWN
 LOOKING STBD

SECTION 7-6A
 TRNSVS BHD
 FRMS 66, 61 & 56 LOOKING FWD

SECTION 7-5A
 TRNSVS BHD
 FR 63 LOOKING FWD

ELEVATION 7-3A
 LONG'L BHD



1.23.08

SIZE	D	DWG NO.	07069-001-150-1	REV	A
SCALE	1/4" = 1'-0"	FILE NAME	07069-001-1501A	SHEET	7 OF 7

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LIST OF EQUIPMENT

PIECE No.	QTY	DESCRIPTION	REMARKS	OWNER FURNISHED
1	2	MAIN ENGINES	1000 HP @ 1600 RPM, AIR START	X
2	2	GENERATORS, SHIP'S SERVICE	24 VDC ELEC START, 175 kW	X
3	2	MAIN ENGINE SILENCERS, COWL TR/TL SERIES	MODEL TS80TR	
4	2	GENERATOR SILENCERS, COWL TR/TL SERIES	MODEL TS40TR	
5	2	EMERGENCY GENERATOR FUEL PUMP	-	
6	2	EMERGENCY GENERATOR FUEL STRAINER	-	
7	1	LUBE OIL TRANSFER PUMP	-	
8	1	GEAR OIL TRANSFER PUMP	-	
9	1	DIRTY OIL TRANSFER PUMP	-	
10	1	DIRTY OIL DISCHARGE PUMP	-	
11	2	STARTING BATTERIES	GENERATOR SETS	
12	4	BATTERY BOX	-	
13	1	MAIN SWITCHBOARD	INDUSTRIAL POWER SYSTEMS	
14	2	MAIN ENGINE FUEL STRAINER	TRIPLEX	
15	2	GENERATOR ENGINE FUEL STRAINER	DUPLEX	
16	1	SANITARY PRESSURE TANK	-	
17	2	FIRE PUMP	GOULDS MOD 3796 2x2x10 OR EQ	
18	2	FIRE PUMP STRAINER	-	
19	1	SPRINKLER PUMP	GOULDS MOD 3796 3x3x13 OR EQ	
20	1	SPRINKLER PUMP STRAINER	-	
21	1	SANITARY PRESSURE PUMP	-	
22	2	BILGE PUMP	GOULDS MOD 3796 3x3x13 OR EQ	
23	2	BILGE PUMP STRAINER	-	
24	1	OILY WATER SEPARATOR	-	
25	2	FRESH WATER PUMP	-	
26	1	FRESH WATER PRESSURE TANK	-	
27	1	WATER HEATER	-	
28	2	AIR COMPRESSOR	QUINCY QR-25	
29	2	AIR RECEIVER 300 GAL	-	
30	1	MSD	OWENS KLEEN TANK, STAINLESS STEEL	
31	1	SEWAGE DISCHARGE PUMP	-	
32	1	EOS CONSOLE	-	
33	2	REDUCTION GEAR	REINTJES	X
34	1	WORK BENCH	3 DRAWERS	
35	1	FILE CABINET	4-DRAWER, LEGAL-SIZE	
36	2	COMPRESSOR (AIR CONDITIONER)	-	
37	1	REFRIGERATOR, UNDER-COUNTER	-	
38	4	LOCKER, STORAGE, EXTRA HEAVY DUTY, 12-GA. STEEL	24"Dx 36"Wx84" HIGH, W/ADJ SHELVES	
39	6	SHELVING UNIT FOR PARTS, STEEL, EXTRA HEAVY DUTY	3-TIER, 6-FT LG	
40	1	OILY WATER SEPARATOR	NELSON BILGE BOY 96504A	
41	1	OILY WATER PUMP	MEGATOR L75	

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-6C 2-3D	REVISE SIZE OF AIR RECEIVERS AND COMPRESSOR MODEL	JSB	02/29/08	DMW

GENERAL NOTES

- IT IS NOT THE INTENT OF THIS DRAWING TO DETAIL ALL EQUIPMENT, GRATINGS, HANDRAILS, AND LADDERS BUT TO LOCATE THE SIGNIFICANT ITEMS. LESS SIGNIFICANT ITEMS ARE GENERALLY NOT SHOWN. THE LOCATIONS OF THESE ITEMS SHALL BE DETERMINED BY THE CONTRACTOR AND PROPOSED TO THE OWNER FOR APPROVAL PRIOR TO INSTALLATION.
- EQUIPMENT LOCATIONS ARE APPROXIMATE, AND WITH PRIOR APPROVAL BY THE OWNER, THE CONTRACTOR MAY RELOCATE EQUIPMENT TO ALIGN EQUIPMENT FOUNDATIONS WITH PRIMARY STRUCTURAL MEMBERS FOR PROPER SUPPORT.
- EQUIPMENT INSTALLATION SHALL PERMIT FREE PASSAGE ALONG WALKWAYS AND LADDERWAYS, FREE ACCESS TO ALL DOORS, HATCHES, AND MANHOLE OPENINGS, AND SHALL BE FREE OF INTERFERENCES FOR THE DISASSEMBLY OF EQUIPMENT TO PERFORM INSPECTIONS AND REPAIRS.

REFERENCES

- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-120-1 SCANTLING SECTIONS
- 07069-001-120-2 INBOARD STRUCTURAL PROFILE
- 07069-001-120-5 LONG'L BULKHEADS AND GIRDERS



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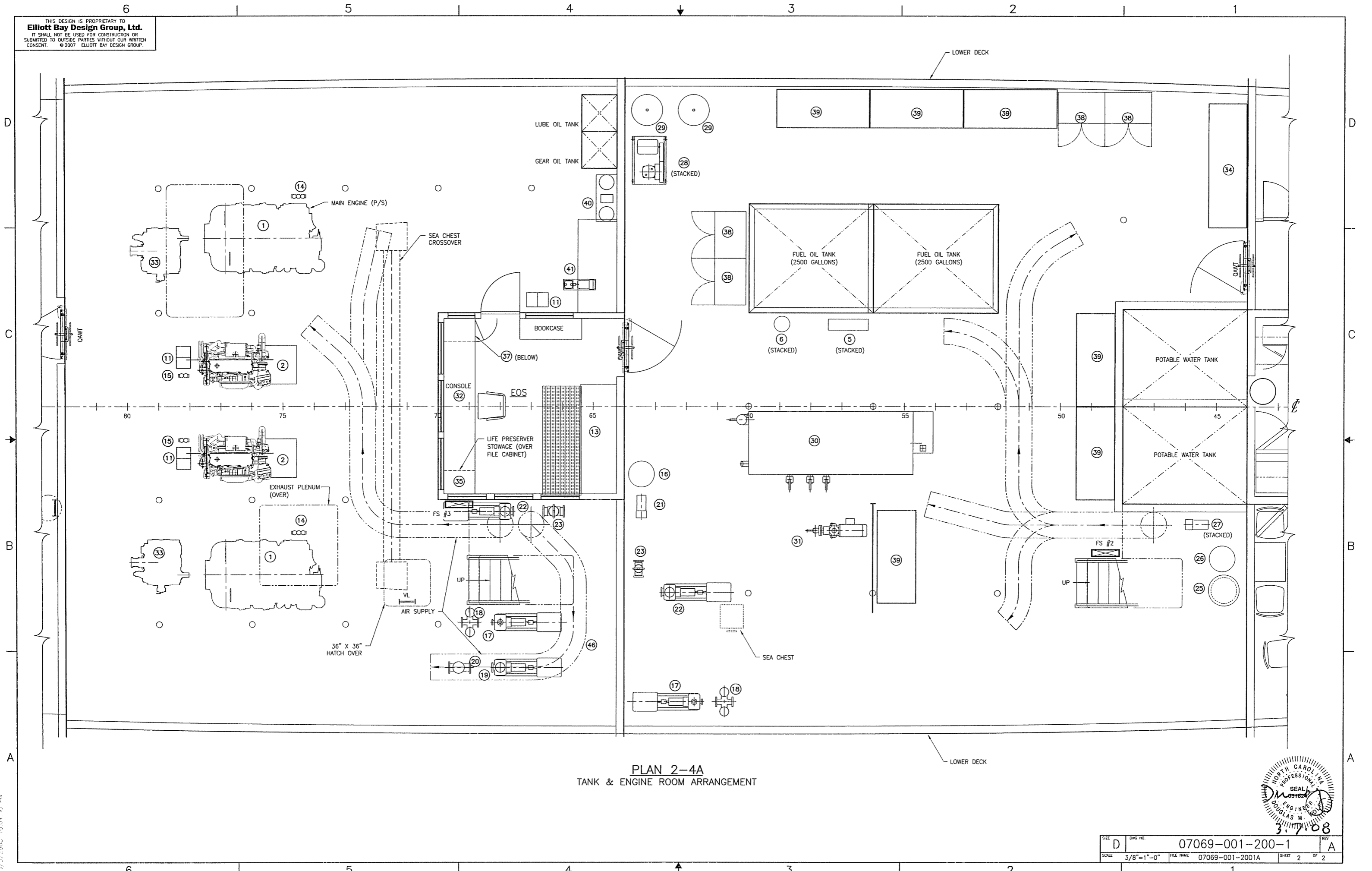
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

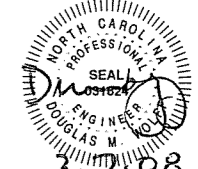
TITLE: ENGINE ROOM & TANK ROOM ARRANGEMENT

DWN: JKE	DATE: 9/20/07	SIZE: D	DWG NO.: 07069-001-200-1	REV: A
CHKD: DMW	DATE: 1/9/08	SCALE: NONE	FILE NAME: 07069-001-2001A	SHEET: 1 OF 2
APPVD: DMW	DATE: 1/9/08			

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PLAN 2-4A
 TANK & ENGINE ROOM ARRANGEMENT



SIZE	D	DWG. NO.	07069-001-200-1	REV.	A
SCALE	3/8"=1'-0"	FILE NAME	07069-001-2001A	SHEET	2 OF 2

5/27/2008 10:08:40 AM

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LIST OF MATERIALS

PIECE NO	QUANTITY	DESC	MATL OR MANUFACTURER	SPEC, GRADE, OR MODEL	REMARKS
1	2	TAIL SHAFT, 6" DIA, 291"	STAINLESS STEEL	AQUAMET 22	NOTE 4 & 7
2	2	PROPELLER, 5 BLADE	ROLLS ROYCE	CF-3	NOTE 7, REF 1
3	2	PROPELLER NUT	BRONZE		MINIMUM YIELD 30000 PSI
4	2	SHAFT STRUT BEARING	JOHNSON DURAMAX	861782100	'GAVEL' MODEL
5	4	SHAFT LINER	BRONZE	6" X 7" OD	NOTE 2, 3 & 4
-	-	-	-	-	-
7	6	COMPANION COUPLING KEY	STEEL	ASTM A668 CL F	MINIMUM YIELD 48000 PSI
8	2	TAILSHAFT KEY	STEEL	SAE GRADE 5	MINIMUM YIELD 30000 PSI
9	2	SHAFT SEAL	JOHNSON DURAMAX	'DXU-6000'	-
10	2	FLANGE ADAPTER	JOHNSON DURAMAX	'FXU-6000-BOLT'	-
11	2	FWD STERN TUBE FLANGE	STEEL	ABS GRADE A	-
12	2	FORWARD SHAFT BEARING	JOHNSON DURAMAX	861782100	'GAVEL' MODEL
13	2	FLEX COUPLING	MORSE	MORFLEX 200	NOTE 11
14	2	REDUCTION GEAR	REINTJES	-	REF 1
15	2	PROPELLER JAM NUT	BRONZE	-	MINIMUM YIELD 30000 PSI
16	2	STERN TUBE, 211"	STEEL	11" X 1.5" MECH TUBE	NOTE 5
17	2	PILLOW BLOCK ROLLER BEARING	CRAFT	5" INNER DIAMETER	-
18	8	1"-BUNC	STAINLESS 316	-	-
19	16	1/2"-13UNC X 1 1/4"	STAINLESS 316	-	-
20	16	1/2"-13UNC X 1 3/4"	STAINLESS 316	-	-
21	8	JACKING SCREW 1/2"UNC	STAINLESS 316	-	-
22	2	BULKHEAD STUFFING BOX	JOHNSON DURAMAX	MODEL 1790M-0500	-
23	2	STUFFING BOX MOUNTING FLANGE	STEEL	7.25" X 3/8" MECH TUBE	-
24	2	LINE SHAFT, 5" DIA, 148"	MILD STEEL	-	NOTE 4 & 7
25	16	3/4" -BUNC	STAINLESS 316	-	-

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	ALL	STERN TUBE LENGTHENED, ADDED FLANGED COUPLING BETWEEN TAIL/LINE SHAFT, BULKHEAD STUFFING BOX, PILLOW BLOCK BEARING	KTS	2/28/08	DMW

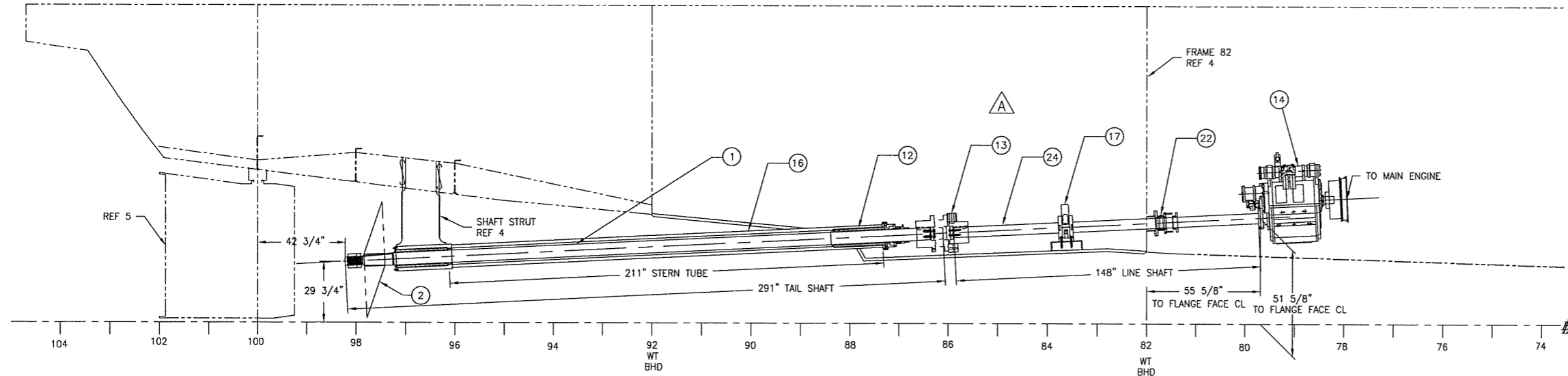
GENERAL NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ABS RULES FOR BUILDING AND CLASSING STEEL VESSELS UNDER 90 METERS IN LENGTH AND USCG REGULATIONS FOR VESSELS INSPECTED UNDER SUBCHAPTER H.
- LINERS SHALL BE OF BRONZE CASTINGS FROM ASTM SPEC B-584, COPPER ALLOY UNS NO. C93200, C93700, C93600, OR C93800, ALL OF WHICH HAVE PROPERTIES BETTER THAN:
 - MINIMUM TENSILE STRENGTH: 30000 PSI
 - MINIMUM ELONGATION IN 2 INCHES: 15%
 CERTIFICATES SHALL BE PROVIDED FOR ALL MATERIALS.
- LINER OUTSIDE DIAMETERS SHALL BE MACHINED AFTER THE LINERS ARE INSTALLED ON THE SHAFTS.
- OUTSIDE DIAMETERS OF SHAFTS SHALL BE VERIFIED PRIOR TO MACHINING INSIDE DIAMETERS OF LINERS FOR INTERFERENCE FITS.
- SHOTBLAST INTERIORS OF STERN SHAFT TUBES TO SSPC-SP-10. APPLY TWO COATS OF COAL TAR EPOXY AT 8 MILS DFT EACH. APPLY TWO COATS OF ANTIFOULING COATING AT 2 MILS DFT EACH. FIRST COAT SHALL BE APPLIED WHILE THE SECOND COAT OF COAL TAR EPOXY IS STILL TACKY.
- ALL WORK SHALL BE TEMPLATED FROM VESSEL.
- SHAFT TAPER AND PROPELLER SHAFT HUB SHALL COMPLY WITH SAE J755 STANDARDS.
- FLEX-RADIAL COUPLING SUPPLIED WITH REDUCTION GEAR.
- FLEX COUPLING AND THE ENDS OF THE FITTED SHAFTS SHALL BE MACHINED SO THAT EACH HAS A TAPER OF 3/4" PER FOOT.
- FORWARD END OF STERN TUBE AND STRUT BARREL SHALL BE LINE-BORED TO MATCH THE DIAMETER AND ANGLE OF THE BEARINGS.
- SHAFT COUPLING MATERIALS AND WORKMANSHIP SHALL COMPLY WITH SAE J756 STANDARDS.

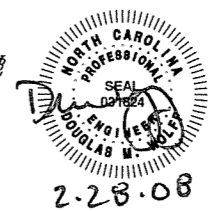
REFERENCES

- 07069-001-832-1 TECHNICAL SPECIFICATIONS
- 07069-001-101-0 PROFILES AND DECK ARRANGEMENTS
- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-110-1 SHELL PLATING AND FRAMES
- 07069-001-562-1 RUDDER ARRANGEMENT AND DETAILS
- 07069-001-256-1 ENGINE COOLING PIPING SCHEMATIC

D
C
B
A



VIEW 1-4A
 SHAFTING ARRANGEMENT
 STBD SIDE SHOWN, PORT SIMILAR



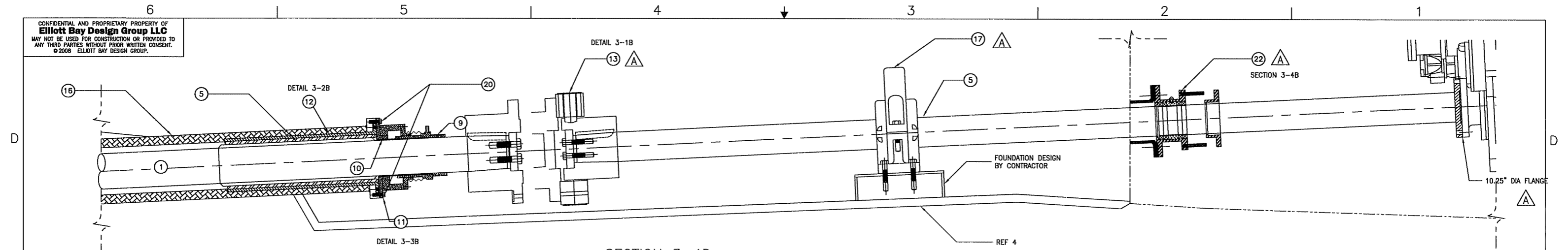
Elliott Bay Design Group
 Seattle • New Orleans
 CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 PROJECT: NEW SOUND CLASS FERRY

PROPULSION SHAFTING
 ARRANGEMENT AND DETAIL

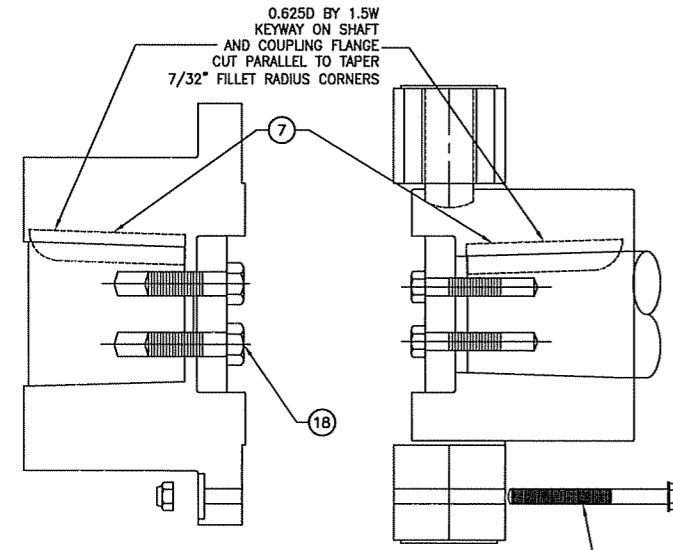
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CKD: RCB	DATE: 2/5/08	SCALE: 3/8" = 1'-0"	FILE NAME: 07069-001-2431A	SHEET 1 OF 3
APVD: DMW	DATE: 2/5/08			

2/28/2008 8:31:48 AM

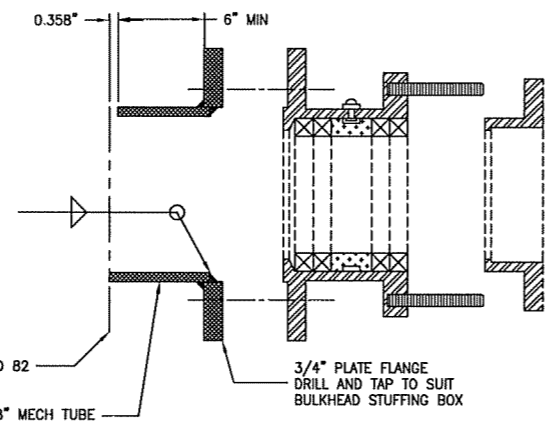
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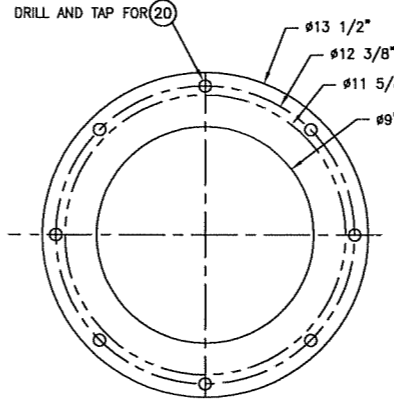
SECTION 3-4D
 SHAFT DETAIL
 STBD LKG PORT
 SCALE: 1 1/2" = 1'-0"



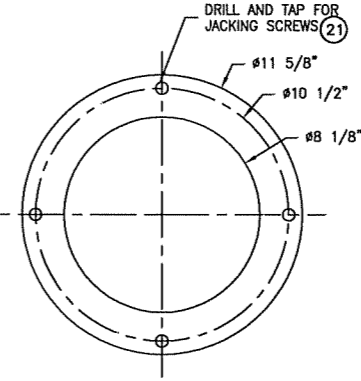
SECTION 3-5B
 FLEX COUPLING DETAIL
 STBD SIDE PORT SIDE OPPOSITE
 SCALE: 3"=1'-0"



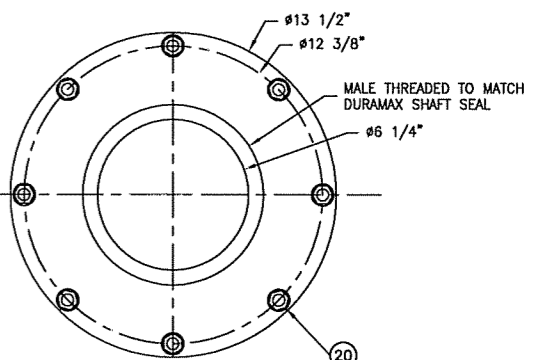
SECTION 3-4B
 BULKHEAD STUFFING BOX DETAIL
 STBD SIDE PORT SIDE OPPOSITE
 SCALE: 3"=1'-0"



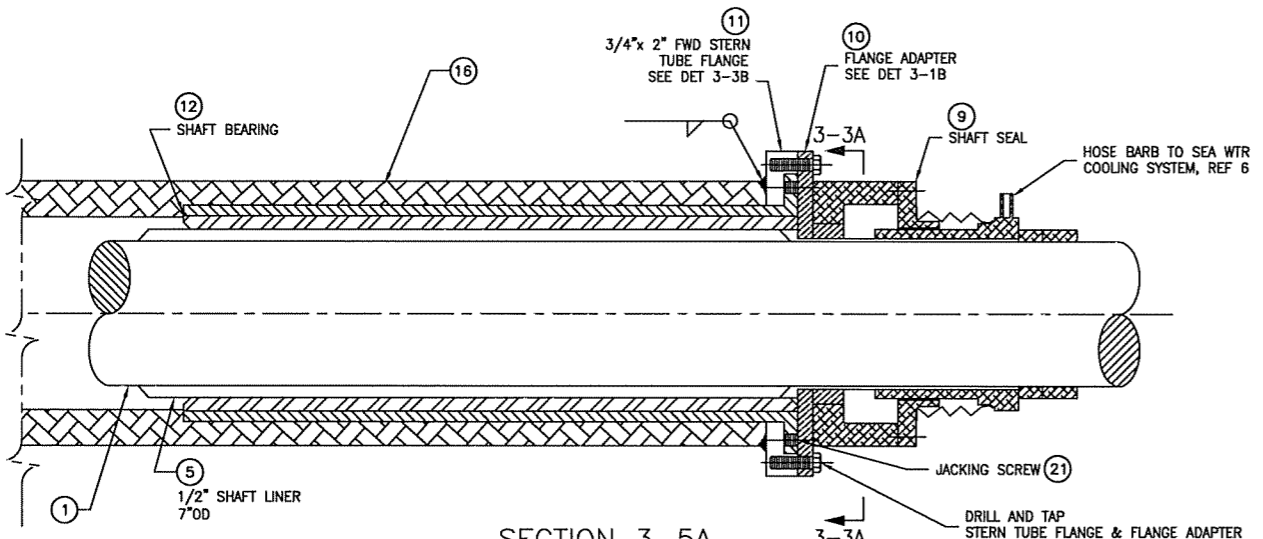
DETAIL 3-3B
 FWD STERN TUBE FLANGE
 STBD SIDE PORT SIDE OPPOSITE
 SCALE: 3"=1'-0"



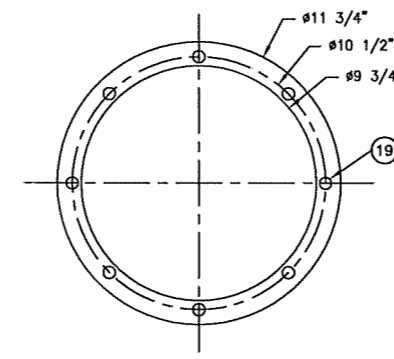
DETAIL 3-2B
 FWD SHAFT BEARING FLANGE
 STBD SIDE PORT SIDE OPPOSITE
 SCALE: 3"=1'-0"



DETAIL 3-1B
 FXU FLANGE ADAPTER
 STBD SIDE PORT SIDE OPPOSITE
 SCALE: 3"=1'-0"



SECTION 3-5A
 STERN TUBE FORWARD END
 STBD SIDE PORT SIDE OPPOSITE
 SCALE: 3"=1'-0"



SECTION 3-3A
 STRUT BEARING FLANGE
 STBD SIDE PORT SIDE OPPOSITE
 SCALE: 3"=1'-0"



2-28-08

SIZE	D	DWG NO.	07069-001-243-1	REV	A
SCALE	AS NOTED	FILE NAME	07069-001-2431A	SHEET	3 OF 3

2/28/2008 8:34:43 AM

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS.
- EQUIPMENT LAYOUT WITHIN A GIVEN AREA IS ONLY APPROXIMATE. PROVISION OF EQUIPMENT SHALL BE AS SHOWN ON THIS DRAWING AND AS DESCRIBED IN REFERENCE 1.
- ALL VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL CLOSURE STATUS.
- EXPANSION TANKS SHALL BE INSTALLED AT LEAST TWO FEET ABOVE THE TOP OF THE HIGH POINT WITHIN A SYSTEM. EACH EXPANSION TANK SHALL BE PROVIDED WITH A LOW LEVEL ALARM @ 50%. CONTRACTOR SHALL VERIFY EXPANSION TANK SIZE.
- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS AND WITH SUFFICIENT JOINTS TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING AND REPLACEMENT OF PIPING, VALVES, FITTINGS AND EQUIPMENT.
- PROVIDE GAUGE PIPING ASSEMBLIES AND MATERIALS FOR GAUGES AND INSTRUMENTS CONFIGURED IN ACCORDANCE WITH ASTM F721. TUBING AND FITTINGS ARE TO BE MADE FROM 316 STAINLESS STEEL. TUBING WALL THICKNESS SHALL BE 0.035 INCHES.
- AVOID POCKETS IN THE PIPE LINES AND PROVIDE WITH FITTINGS, VALVES, OR TRAPS TO ENABLE COMPLETE DRAINING OF PIPES WHERE POCKETS DO OCCUR. BOSSES AND VALVES OR SCREWED PLUGS SHALL BE FITTED FOR DRAINING.
- THE PIPING SYSTEM SHALL BE CLEANED, FLUSHED, FILLED AND HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH USCG AND ABS REQUIREMENTS.
- PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS AND SHALL BE IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO THE BASIC SHIP STRUCTURE. CARE SHALL BE EXERCISED TO PLACE PIPE HANGERS SO THAT STRAIN IS AVOIDED WHERE PIPING IS CONNECTED TO MACHINERY. HANGERS SHALL NOT BE ATTACHED BY WELDING DIRECTLY TO PIPES.
- VENT LINES TO THE EXPANSION TANK SHALL BE INSTALLED AT ALL PIPING SYSTEM HIGH POINTS TO ALLOW COMPLETE AIR REMOVAL.
- PIPE BENDS IN ACCORDANCE WITH 46 CFR 56.80-5 MAY BE SUBSTITUTED FOR ELBOWS WHERE FEASIBLE.
- INSULATE JACKET WATER PIPING AS NEEDED FOR PERSONNEL PROTECTION IN ACCORDANCE WITH ASTM F683 USING REMOVABLE BLANKET TYPE INSULATION.
- ELECTRICALLY ISOLATE KEEL COOLERS FROM HULL AT ALL ATTACHMENT POINTS AND AT EACH NOZZLE.
- FLEXIBLE CONNECTIONS FOR PIPING 2" AND ABOVE SHALL BE GARLOCK "EZ-FLOW" STYLE 206 SPOOL TYPE EXPANSION JOINTS, OR EQUIVALENT, WITH STEEL FLANGE, RETAINING RINGS RATED HEAVYWEIGHT, CHLOROBUTYL CARCASS, AND HYPLOX LINER, NEOPRENE COVER. ASSEMBLIES WITH THE STANDARD FACTORY APPLIED HYPLOX PAINT ON THE EXTERIOR ARE PROHIBITED. FLEXIBLE CONNECTIONS UNDER 2" SHALL BE AEROQUIP 2651, OR EQUIVALENT, WITH REUSABLE APPROVED SAE 37° SWIVEL END FITTINGS. HOSE LENGTH SHALL NOT EXCEED 24".

MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			FITTINGS	VALVES		REMARKS
			MATERIAL	GASKETS	BOLTING		BODY	TRIM	
FRESH WATER COOLING	2" & ABV	CARBON STEEL SCH 40 ASTM A106 GRADE B SMLS ANSI B36.10 SCH 80 SHALL BE USED AT PENETRATIONS TO KEEL COOLERS	FLANGED, SLIP-ON CARBON STEEL 150# ASTM A105 ANSI B16.5			CARBON STEEL BUTT WELD 150#, SCH 80 ASTM A234 ANSI B16.9	DUCTILE IRON FLANGED, 125# ASTM A-395 ANSI B16	BRZ TRIM RENEWABLE DISC & SEAT	
	1 1/2" & BELOW		UNION, GROUND JOINT MAL IRON SCREWED, 150# ASTM A197 ANSI B16.3			MAL IRON SCREWED, 150# ASTM A197 ANSI B16.3	BRONZE SCREWED ASTM B62		

PUMP LIST

QTY.	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
2	ME JACKET WATER PUMP	CENTRIFUGAL SELF PRIMING	X X	X X	ENGINE DRIVEN
2	ME AFTERCOOLING PUMP	CENTRIFUGAL SELF PRIMING	X X	X X	ENGINE DRIVEN
2	GENERATOR ENGINE JW PUMP	CENTRIFUGAL SELF PRIMING	X X	X X	ENGINE DRIVEN
2	GENERATOR ENGINE AFTERCOOLING PUMP	CENTRIFUGAL SELF PRIMING	X X	X X	ENGINE DRIVEN
2	REDUCTION GEAR COOLING PUMP	CENTRIFUGAL	X X	X X	ELECTRIC 120V 1 PH

PIPING SYMBOLS

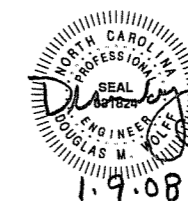
	PIPE
	DIRECTION OF FLOW
	REDUCER
	PIPE UP
	PIPE DOWN
	CAMLOCK
	THERMOMETER IN THERMAL WELL
	BALL VALVE
	BUTTERFLY VALVE
	THERMOSTATIC VALVE
	FLEXIBLE CONNECTION
	VENT
	FILL
	LOW LEVEL SWITCH
	JACKET WATER PREHEATER
	CENTRIFUGAL PUMP

KEEL COOLER LIST

QTY.	SERVICE	MODEL	BOX DIM.
4	MAIN ENGINE KEEL COOLER	FERNSTRUM D241B4W-ZE1	192x27x6
2	REDUCTION GEAR KEEL COOLER	FERNSTRUM CN1099U-ZE1	104x12x5
2	GENERATOR JW KEEL COOLER	FERNSTRUM BN1293U-ZE1	153x13x5
1	BOW THRUSTER AFTERCOOLER KEEL COOLER	FERNSTRUM D12105U-ZE1	190x27x6
1	BOW THRUSTER JW KEEL COOLER	FERNSTRUM D241B4U-ZE1	113x19x6

REFERENCES

- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS



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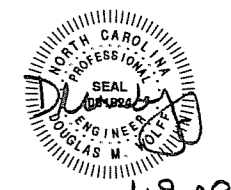
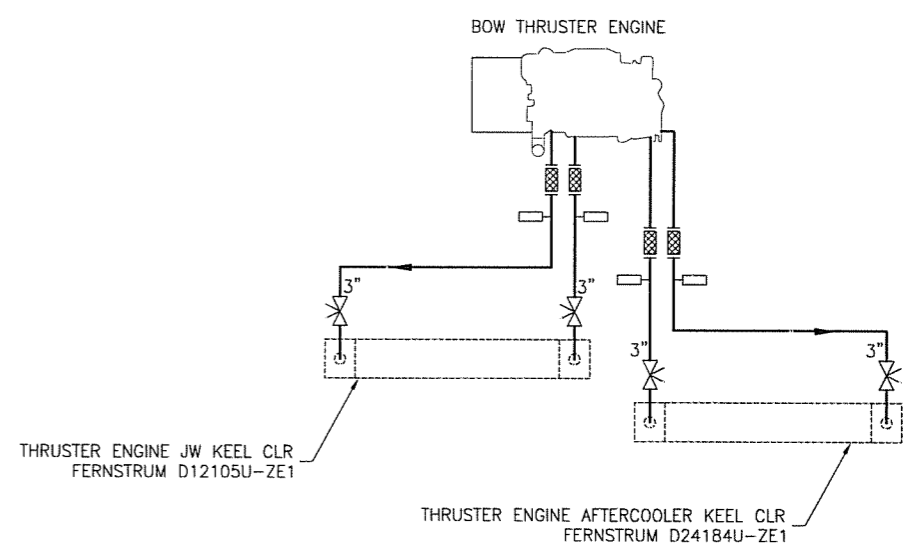
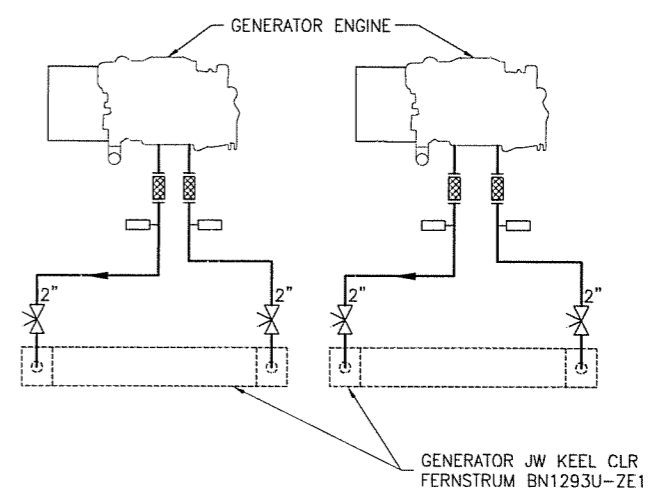
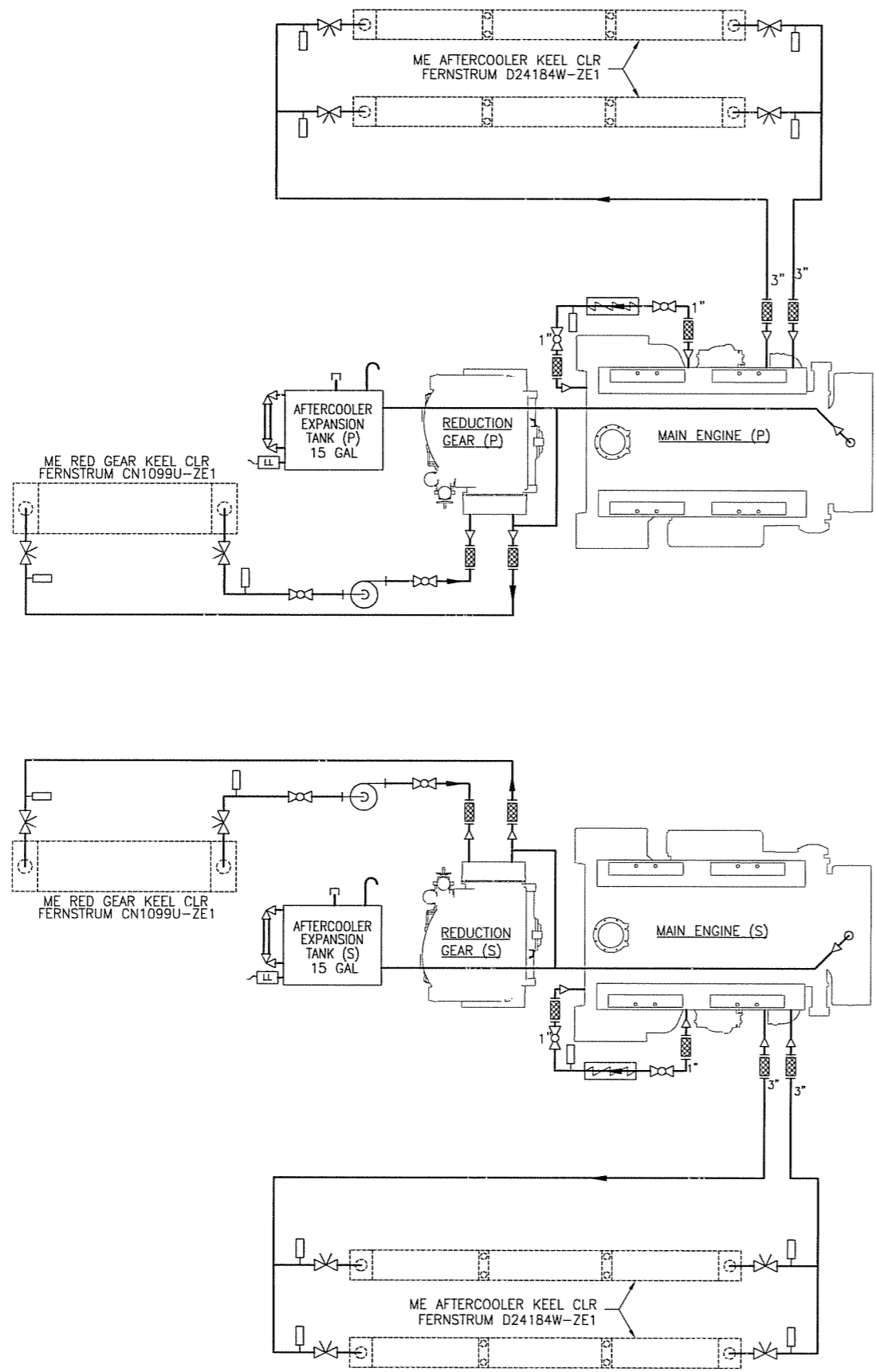
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

ENGINE COOLING PIPING SCHEMATIC

DWN: JXB	DATE: 10/19/07	SIZE: D	DWG NO: 07069-001-256-1	REV: -
CD: JSB	DATE: 1/9/08	SCALE: NONE	FILE NAME: 07069-001-2561-	SHEET: 1 OF 2
APVD: DMW	DATE: 1/9/08			

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SIZE D	DWG NO. 07069-001-256-1	REV -
SCALE NONE	FILE NAME 07069-001-2561-	SHEET 2 OF 2

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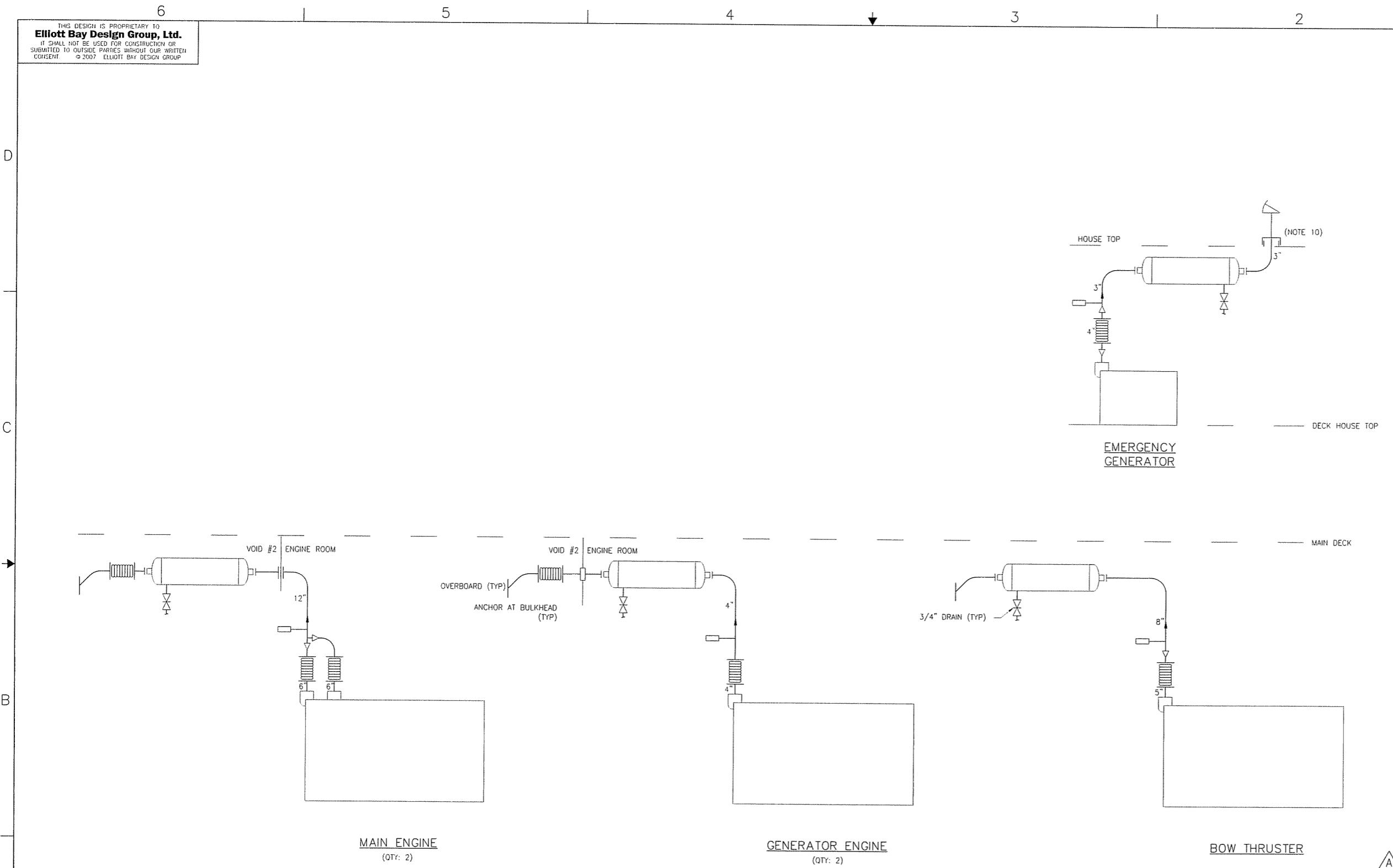
REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-1A	1 ADDED REF 3	RPV	2/27/08	DMW
	1-6A	2 REVISED PIPE MATERIAL. WAS STAINLESS STEEL			
	1-5A	3 REVISED STUD & NUT MATERIAL. WAS CARB STL.			

GENERAL NOTES

- MATERIAL AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS
- PIPING SHALL BE RUN AS DIRECTLY AS POSSIBLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS WITH SUFFICIENT JOINTS TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT. PIPING SHALL BE RUN TO MINIMIZE CUTTING OF THE SHIP'S STRUCTURE
- EXHAUST PIPING AND SILENCERS SHALL BE RESILIENTLY SUPPORTED TO REDUCE NOISE TRANSMISSION. WEIGHT TRANSMITTED TO THE ENGINE CONNECTION IS NOT TO EXCEED THE MANUFACTURERS' RECOMMENDATIONS IN HOT AND COLD CONDITIONS
- PIPE HANGERS SHALL MEET THE REQUIREMENTS OF ASTM VOLUME 01.07 "SHIPBUILDING" STANDARD F708. THE CONTRACTOR SHALL ADJUST THE DESIGN, SPACING AND INSTALLATION OF PIPE HANGERS AS NECESSARY TO PROVIDE AN INSTALLATION SUITABLE FOR CARRYING THE WEIGHT OF THE PIPE INCLUDING DYNAMIC LOADING IMPOSED BY THE OPERATING CONDITIONS OF THE VESSEL AND TO PREVENT DAMAGE FROM VIBRATION AND THERMAL EXPANSION. THERMAL INSULATION GASKETS SHALL BE INSTALLED BETWEEN THE EXHAUST PIPE AND THE HANGER ATTACHMENT TO THE SHIP
- HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS. HANGERS SHALL NOT BE ATTACHED BY WELDING DIRECTLY TO THE PIPES
- EXPANSION JOINTS ARE TO BE STAINLESS STEEL MULTI-PLY LAMINATE TYPE. EXPANSION JOINTS SHALL BE FURNISHED WITH FULL LENGTH LINERS. EACH EXPANSION JOINT SHALL HAVE ONE END FIXED FLANGE AND THE OTHER END WITH A FLOATING FLANGE. A FLOW DIRECTION ARROW SHALL BE PERMANENTLY MARKED ON EACH EXPANSION JOINT
- INSULATION FOR ENGINE EXHAUST PIPING AND SILENCERS SHALL BE PERFORMED CALCIUM SILICATE BLOCK OF 3" MINIMUM THICKNESS (4" ON SILENCERS), LAGGED WITH SHEET ALUMINUM OF 0.030" WITH 1/2" STAINLESS STEEL "BAND-IT" STRAPS. REMOVABLE BLANKETS SHALL BE FITTED ON FLANGES AND FLEXIBLE CONNECTIONS. BLANKETS SHALL BE 2" THICK AND FASTENED WITH STAINLESS STEEL HOOKS AND LACING. ALL INSULATION MATERIALS AND INSTALLATION DETAILS SHALL BE IN ACCORDANCE WITH ASTM F-683
- THE EXHAUST SILENCERS SHALL BE MOUNTED SO THAT MOVEMENT IS POSSIBLE TO COMPENSATE THE THERMAL GROWTH OF THE EXHAUST PIPELINE
- 1/4" PIPE TAPS SHALL BE INSTALLED ON ENGINE EXHAUST OUTLET PIPING IN ORDER TO ALLOW BACK PRESSURE MEASUREMENTS TO BE TAKEN
- TAIL PIPE AND TOP HAT AT EMERGENCY GENERATOR ROOF AND ABOVE SHALL BE 316 STAINLESS STEEL

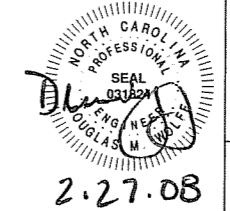
REFERENCES

- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS
- 07069-001-259-2 MAIN & GENERATOR ENGINE EXHAUST ARR & DET



MATERIAL SCHEDULE									
SYSTEM	SIZE	PIPE	JOINTS	VALVES		FITTINGS	NUTS	BOLTS	GASKETS
				BODY	TRIM				
EXHAUST SYSTEM	ALL	CARBON STL ASTM A102 GR B SCH 10 ANSI B36 10 A²	FLGD STEEL SW OR WN ASTM A105 GR. 1 OR 2 ANSI B16 5 125#	N/A	N/A	BW STEEL ASTM A234 GR. WPB ANSI B16 9	HEX HD SEMI-FINISHED ASM A-194 304 S-STL A³	STUDS, FULL THREAD ASTM A-193 304 S-STL A³	1/16" THK FULL-FACE NON- ASBESTOS W/NITRILE BINDER
EXHAUST DRAIN PIPING	1" & BELOW	CARBON STL ASTM A53 GR B OR EQUIVALENT SCH 40 ANSI B36 10	3000# FS SCRD UNION ASTM A105 GR. 1 OR 2	GATE CARBON STEEL ASTM 234 GR WPB OR A105 THREADED ANSI B16 34	CRES	SCRD STL ASTM A105 GR WPC ANSI B16 9	N/A	N/A	N/A

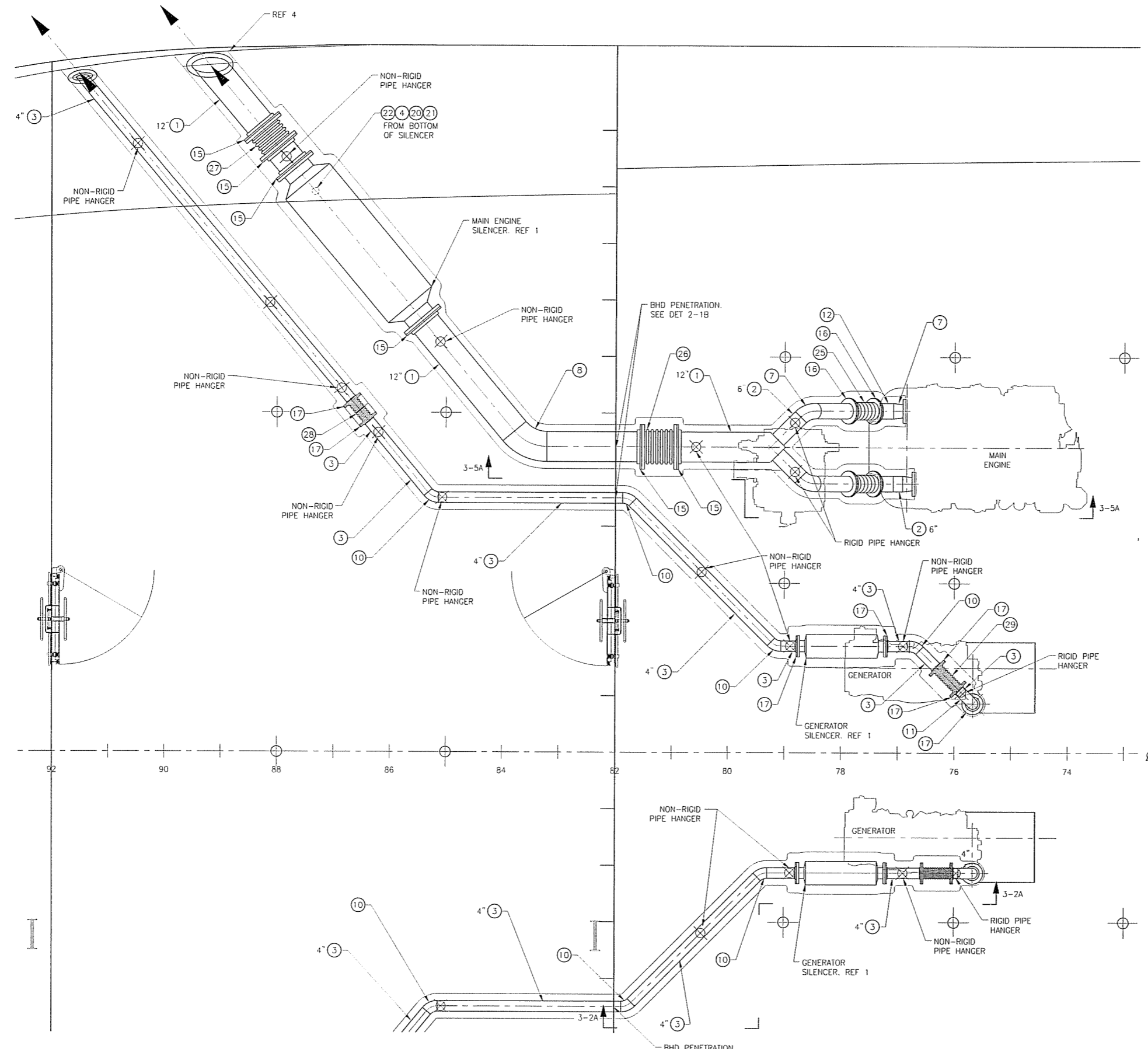
SILENCER LIST			SYMBOLS LIST	
QTY	SERVICE	SPECIFICATION	Symbol	Description
1	BOW THRUSTER	8" SILENCER, (HAPCO VRS SERIES, MOD #1844VRS8), DOUBLE WALLED, 125# ASA FLANGE CONNECTION		BELLOWS TYPE EXPANSION JOINT
1	EMERGENCY GENERATOR	3" SILENCER, (HAPCO VRS SERIES, MOD #824VRS3), DOUBLE WALLED, 125# ASA FLANGE CONNECTION		GATE VALVE
2	GENERATOR ENGINE	4" SILENCER, (HAPCO VRS SERIES, MOD #1030VRS4), DOUBLE WALLED, 125# ASA FLANGE CONNECTION		RAIN CAP
2	MAIN ENGINE	12" SILENCER, (HAPCO VRS SERIES, MOD #2468VRS12), DOUBLE WALLED, 125# ASA FLANGE CONNECTION		THERMOMETER IN THERMOWELL



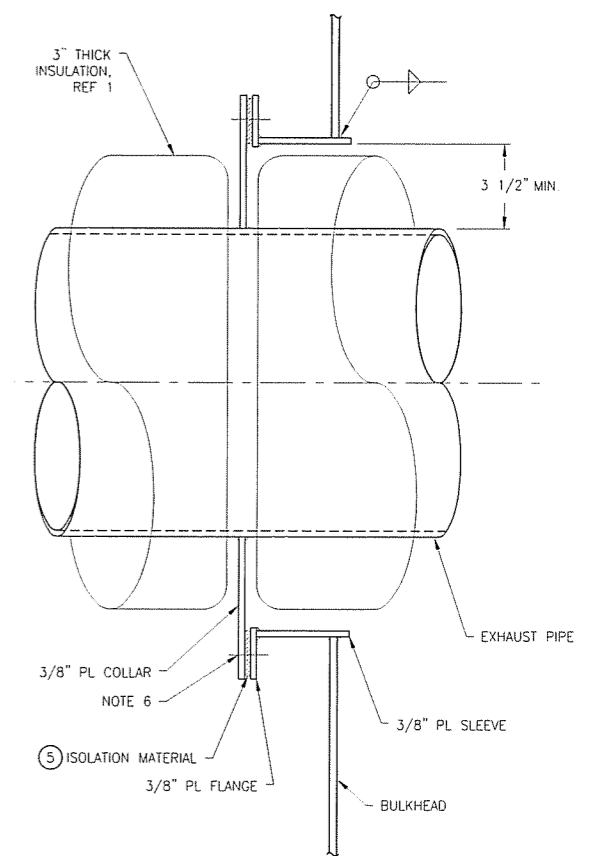
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 Raleigh, North Carolina
 PROJECT: NEW SOUND CLASS FERRY

DATE: 12/21/07		SIZE: D	FILE NO: 07069-001-259-1	REV: A
CDR: TMH	DATE: 1/9/08	SCALE: AS NOTED	FILE NAME: 07069-001-2591-A	SHEET: 1 OF 1
APVD: DMW	DATE: 1/9/08			

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PLAN 2-4A
 MAIN ENGINE & PRIMARY GENERATOR EXHAUST
 STBD SIM EXCEPT AS NOTED
 SCALE: 1/2" = 1'-0"



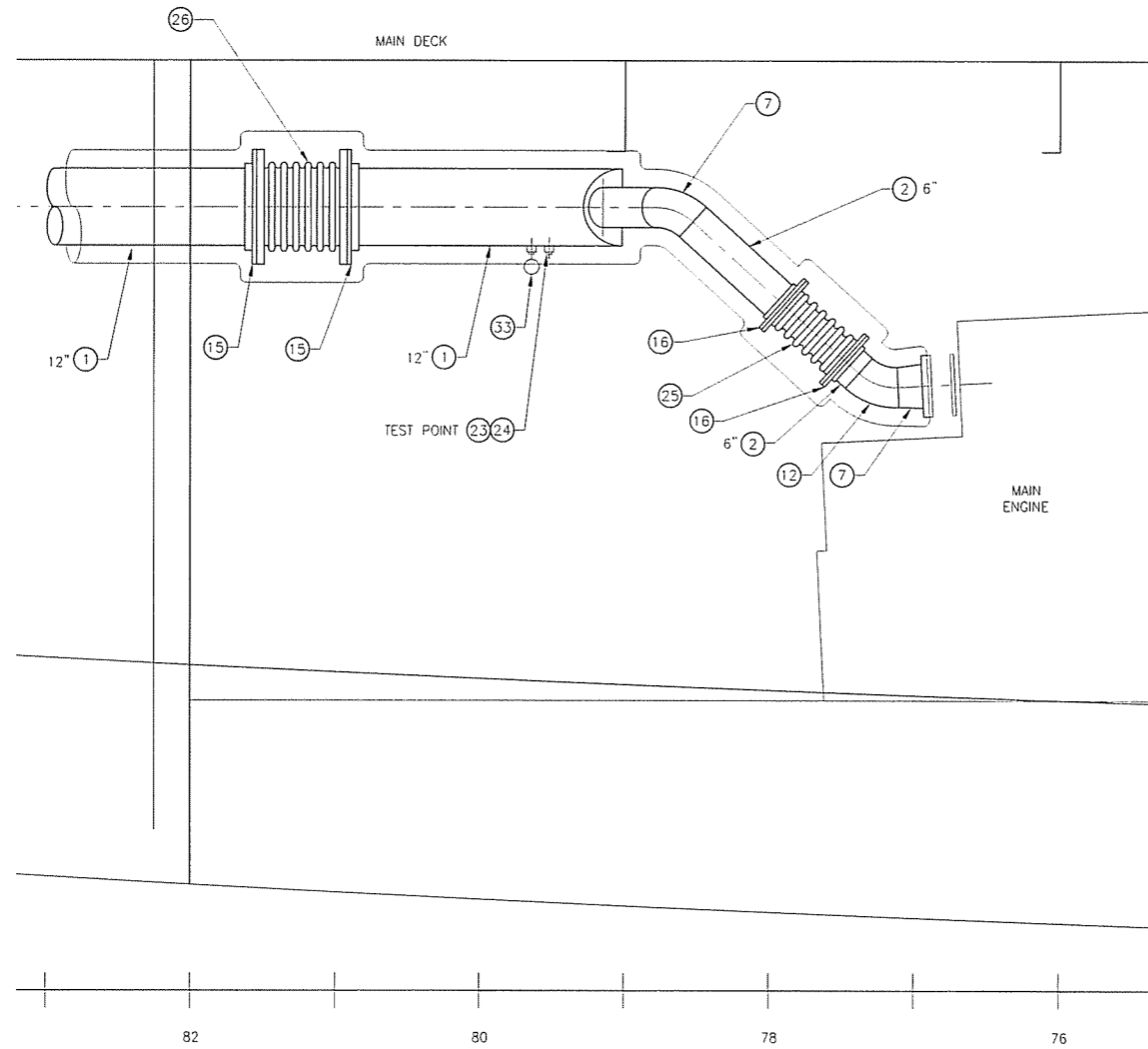
DET 2-1B
 PENETRATION THROUGH BHD 82
 SCALE: NONE



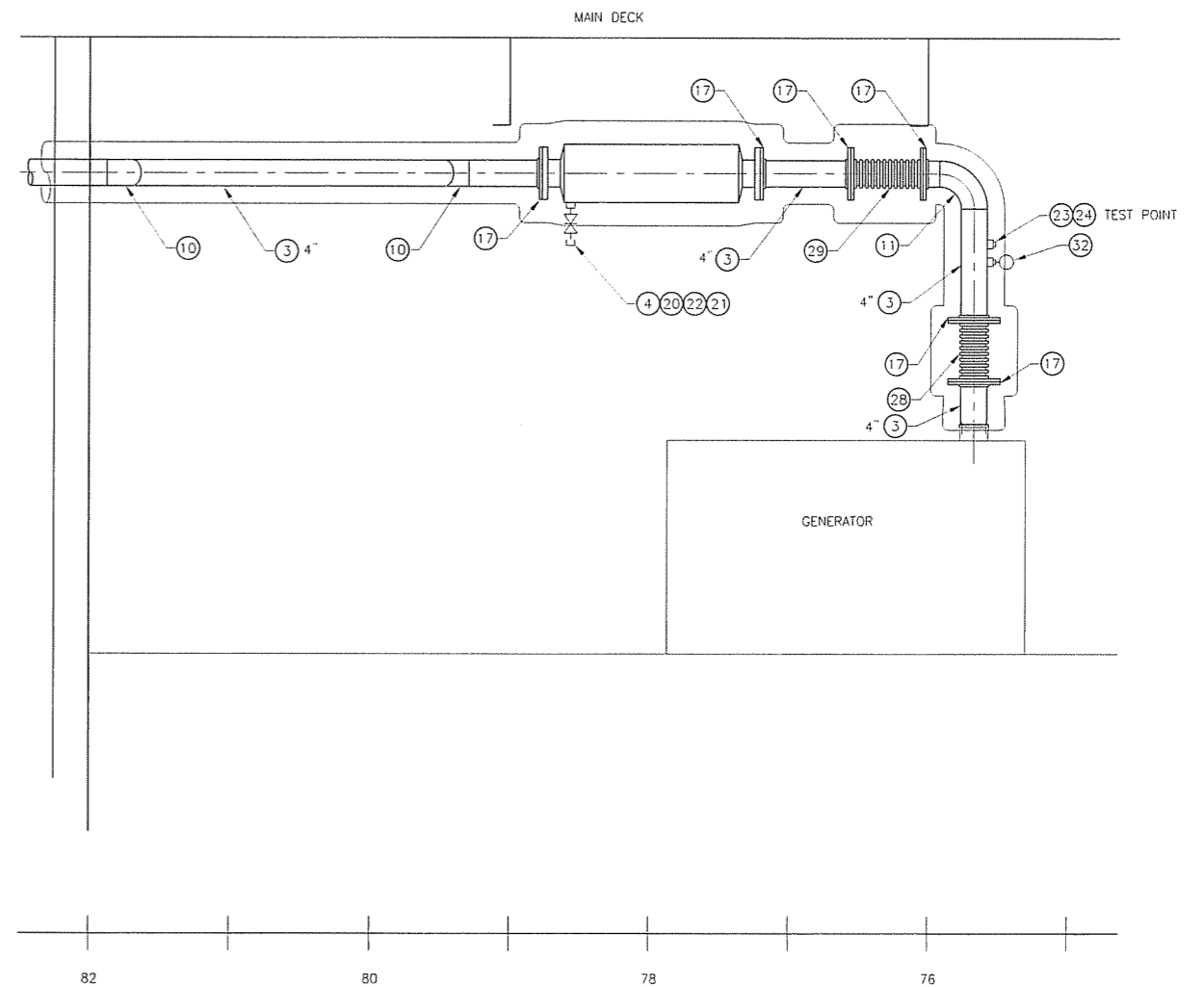
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SIZE	DWG NO	07069-001-259-2	REV	-
SCALE	AS NOTED	FILE NAME	07069-001-2592-	SHEET 2 OF 3

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ELEV 3-5A
 MAIN ENGINE EXHAUST
 PORT ENGINE SHOWN, STBD SIM EXCEPT AS NOTED IN PLAN VIEW
 SCALE: 3/4"=1'-0"



ELEV 3-2A
 PRIMARY GENERATOR EXHAUST
 STBD GENERATOR SHOWN, PORT SIM EXCEPT AS NOTED IN PLAN VIEW
 SCALE: 3/4"=1'-0"



2-28-08

SIZE	D	ENG TUD	07069-001-259-2	REV	-
SCALE	AS NOTED	FILE NAME	07069-001-2592-	SHEET	3 OF 3

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MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			FITTINGS	VALVES		REMARKS
			MATERIAL	GASKETS	BOLTING		BODY	TRIM	
FUEL OIL SERVICE & TRANSFER	2" & ABV	CARBON STEEL SCH 40 SEAMLESS GR B ASTM A53 OR A106 ANSI B36.10 BLACK	FLANGE FORGED STEEL 150# SLIP-ON RAISED FACE ASTM A105 ANSI B16.5 BLACK	GARLOCK STYLE 3300	BOLTS: STL GALV ASTM A307 GRADE B ANSI B18.2.1 NUTS: ASTM A563 GRADE A ANSI B18.2.2 GALV	FORGED STEEL SCH 40 ASTM A105 OR ASTM A234 GRADE WPB ANSI B16.9 OR ANSI B16.28 BUTT WELD	DUCT IRON BALL VALVE 150# ASTM A571 FLANGED	BRONZE RENEWABLE DISC & SEAT	
	1-1/2" & BLW		FORGED STEEL 3000# SCRUD UNION, GROUND JOINT ASTM A105 MSS-SP-83 ANSI B16.11 FLANGE STEEL 150# SOCKET WELD OR SLIP-ON ASTM A105 ANSI B16.5 BLACK			CARBON STEEL 3000# ASTM A105 OR ASTM A234 GRADE WPB ANSI B16.11 SOCKET WELD	BRONZE ASTM B61 OR B62 150# STD SCRUD UNION	STAINLESS STEEL RENEWABLE DISC & PTFE SEAT	
EXTERIOR		STAINLESS STEEL ASTM A312 TYPE 316 ANSI B36.19 SCH 80	STAINLESS STEEL FLANGES ASTM A182 GRADE 316L WELDED ANSI B16.5 150#		BOLTS: 316 STAINLESS STL GRADE 316 ASTM F593 NUTS: 316 STAINLESS STEEL GRADE 316 ASTM F594	316 STAINLESS STL ASTM A182, GRADE 316L, BUTT OR SOCKET WELDED ANSI B16.9	316 STAINLESS STL FLANGED BALL VALVE ASTM B62 MSS-SP-80	BRZ TRIM RENEWABLE DISC & SEAT	ALL COMPONENTS EXPOSED TO WEATHER

PUMP LIST

QTY.	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
1	EMERGENCY GENERATOR FUEL TANK FILL (NOTE 14)	INTERNAL GEAR DISPLACEMENT PUMP	JOHNSON PUMP TG 2-25/2-32 WITH RELIEF VALVE	5 GPM @ 150 PSIG	120 VAC 60 Hz 1 PHASE 1/4 HP, 1200 RPM TEFC

LIST OF EQUIPMENT

PIECE No.	QTY	DESCRIPTION	REMARKS
1	2	MAIN ENGINE FUEL OIL FILTER	RACOR 75100MAX
2	2	GENERATOR ENGINE FUEL OIL FILTER	RACOR 75500MAX
3	1	BOW THRUSTER ENGINE FUEL OIL FILTER	RACOR 75900MAX
4	1	EMERGENCY GENERATOR ENGINE FUEL OIL FILTER	RACOR 75500MAX

SYMBOLS LIST

	SPILL DRIP PAN (NOTE 8)
	FLEXIBLE HOSE ASSEMBLY (NOTE 3)
	REDUCER/ENLARGER
	FLOW DIRECTION
	SWING CHECK VALVE
	BHD/DECK PENETRATION
	DIFFERENTIAL PRESSURE GAUGE (NOTE 12)
	DUPLEX FUEL FILTER
	BALL VALVE
	GATE VALVE W/ SPINDLE
	POSITIVE DISPLACEMENT PUMP W/ RELIEF VALVE
	SIMPLEX STRAINER

REVISION HISTORY

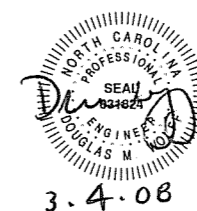
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	ALL	1. CHANGE TANK SUCTION FROM 3" TO 2" 2. REMOVE BACK UP EMERGENCY GEN FUEL TANK FILL PUMP. 3. REMOVE EMERGENCY GEN FUEL TANK LINE DRAIN.	DCW	02/05/08	DMW
B	ALL	1. CHANGE MN ENG FILTERS TO DUPLEX. 2. ADD BHD @ FR 16. 3. ADD 1" TO 3/4" REDUCER. 4. MOVE BALL VALVE TO UPSTREAM SIDE OF THRUSTER FILTER.	DCW	02/19/08	DMW
C	4C	1. PUMP MOTOR WAS 208/3/60 2. ADDED NOTE 14. 3. ADDED REFERENCE 5.	JXB	03/3/08	DMW

GENERAL NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS AND BE IN COMPLIANCE WITH U.S. COAST GUARD REGULATIONS FOR SUBCHAPTER "H" VESSELS
- LOCATE T-WRENCH FOR REMOTE FUEL OIL SUPPLY SHUT-OFF DECK BOX ON BULKHEAD ADJACENT TO DECK BOX
- FLEXIBLE HOSE ASSEMBLIES SHALL BE USCG APPROVED FOR FUEL OIL SERVICE. END FITTINGS SHALL USE 37° SWIVEL FLARE ON BOTH ENDS. HOSE ASSEMBLIES SHALL BE PRESSURE RATED FOR AT LEAST 5 TIMES THE WORKING PRESSURE OF THE PUMP
- PIPE TO TANK SHUT OFF VALVE SHALL BE SCH 80
- DO NOT ROUTE PIPING CONTAINING FUEL OIL NEAR ANY ELECTRICAL DEVICES OR EQUIPMENT. DO NOT LOCATE TAKEDOWN JOINTS AROUND, NEAR, OR OVER ELECTRICAL EQUIPMENT. ROUTE ALL FUEL OIL PIPING AT LEAST 18 INCHES AWAY FROM ANY SURFACE THAT NORMALLY HAS AN OPERATING TEMPERATURE OF 450 DEGREES OR GREATER.
- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS AND WITH SUFFICIENT JOINTS TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT. PIPING SHALL BE RUN TO MINIMIZE CUTTING OF THE SHIP'S STRUCTURE
- EACH FUEL OIL TANK SHALL BE FITTED WITH HIGH AND LOW LEVEL ALARMS, INTEGRATED WITH THE SHIP'S ALARM SYSTEM. THE HIGH LEVEL ALARM IN THE EMERGENCY GENERATOR FUEL OIL TANK SHALL STOP THE FUEL OIL PUMP.
- DRIP PANS SHALL BE PROVIDED BENEATH ALL FILTERS AND STRAINERS. EACH DRIP PAN SHALL BE FITTED WITH LOW POINT DRAIN VALVE.
- ALL VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL CLOSURE INDICATION.
- PIPE THREAD SEALING TAPE AND GALVANIZED PIPE SHALL NOT BE USED
- PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS APPROPRIATE FOR THE SERVICE AND PIPE MATERIAL AND FABRICATED AND INSTALLED IN ACCORDANCE WITH ASTM F708. FLEXIBLE PIPING CONNECTIONS SHALL MEET THE REQUIREMENTS OF 46 CFR PART 56, PARAGRAPH 56.60-25.
- GAUGE PIPING ASSEMBLIES SHALL BE IN ACCORDANCE WITH ASTM F721. TUBING AND FITTINGS SHALL BE 316 STAINLESS STEEL. ROOT VALVES SHALL BE BALL TYPE, BUILT OF 316 STAINLESS STEEL.
- PROVIDE INTERLOCK SO THAT ONE RETURN VALVE IS ALWAYS OPEN
- PUMP SHALL BE CONTROLLED BY RUN/STOP PUSHBUTTONS LOCATED NEAR THE EMERGENCY GENERATOR FUEL TANK.

REFERENCES

- 07069-003-506-1 FILLS, VENTS & SOUND PIPING SCHEMATIC
- 07069-001-264-1 LUBE & DIRTY OIL SCHEMATIC
- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-261-2 FUEL OIL PIPING ARRANGEMENT & DETAILS



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PROJECT: NEW SOUND CLASS FERRY

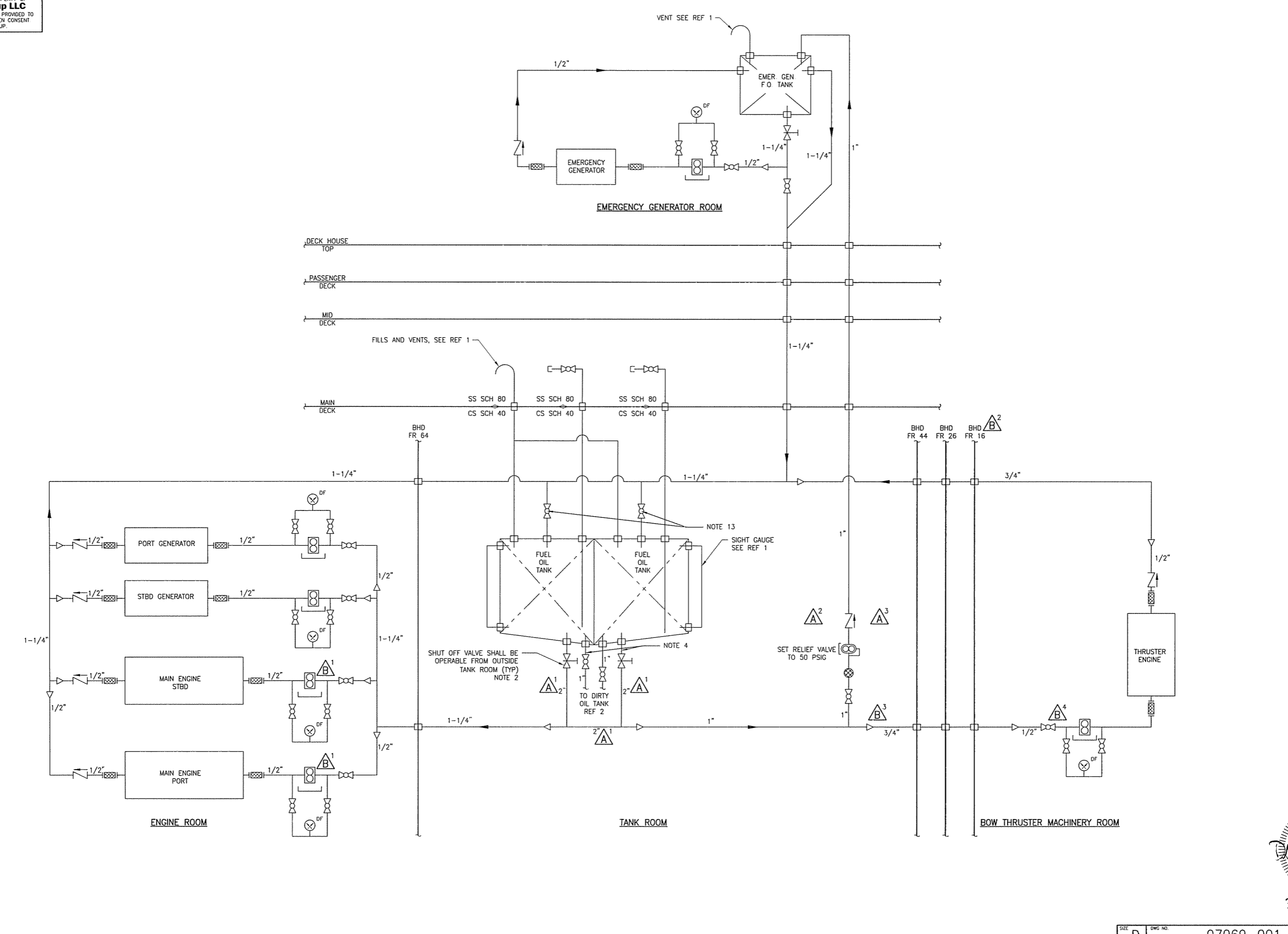
FUEL OIL PIPING SCHEMATIC

DWN	ZDL	DATE	10/23/07	SIZE	D	DWG NO.	07069-001-261-1	REV	C
CKD	TMH	DATE	1/9/08	SCALE	NTS	FILE NAME	07069-001-2611C	SHEET	1 OF 2
APVD	SLW	DATE	1/9/08						

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6 5 4 3 2 1

D
C
B
A



FILLS AND VENTS, SEE REF 1

VENT SEE REF 1

SHUT OFF VALVE SHALL BE OPERABLE FROM OUTSIDE TANK ROOM (TYP) NOTE 2

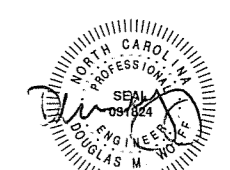
SET RELIEF VALVE TO 50 PSIG

NOTE 13

NOTE 4

TO DIRTY OIL TANK REF 2

SIGHT GAUGE SEE REF 1



3.4.08

SIZE	D	DWG NO.	07069-001-261-1	REV	C
SCALE	NTS	FILE NAME	07069-001-2611C	SHEET	2 OF 2

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LIST OF MATERIALS

PIECE No.	QUANTITY	DESCRIPTION	MATERIAL OR MANUFACTURER	SPEC. GRADE OR MODEL	REMARKS
1	8'	PIPE, 2", SCH 40, SEAMLESS, BLACK	CARBON STEEL	ASTM A-106, GR B	ANSI B36.10
2	180'	PIPE, 1-1/4", SCH 40, SEAMLESS, BLACK	CARBON STEEL	ASTM A-106, GR B	ANSI B36.10
3	20'	PIPE, 1-1/4", SCH 80, SEAMLESS, TYPE 316	STAINLESS STEEL	ASTM A-312	ANSI B36.19
4	54'	PIPE, 1", SCH 40, SEAMLESS, BLACK	CARBON STEEL	ASTM A-106, GR B	ANSI B36.10
5	20'	PIPE, 1", SCH 80, SEAMLESS, TYPE 316	STAINLESS STEEL	ASTM A-312	ANSI B36.19
6	206'	PIPE, 3/4", SCH 40, SEAMLESS, BLACK	CARBON STEEL	ASTM A-106, GR B	ANSI B36.10
7	50'	PIPE, 1/2", SCH 40, SEAMLESS, BLACK	CARBON STEEL	ASTM A-106, GR B	ANSI B36.10
8					
9	2	ELBOW, 90°, 2", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
10	20	ELBOW, 90°, 1-1/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
11	2	ELBOW, 90°, 1-1/4", SW, 316L S/S, 3000#	STAINLESS STEEL	ASTM F593	ANSI B16.9
12	13	ELBOW, 90°, 1", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
13	2	ELBOW, 90°, 1", SW, 316L S/S, 3000#	STAINLESS STEEL	ASTM F593	ANSI B16.9
14	17	ELBOW, 90°, 3/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
15	24	ELBOW, 90°, 1/2", THD, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
16					
17	2	TEE, 2", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
18	12	TEE, 1-1/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
19	1	TEE, 1", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
20	12	TEE, 1/2", THD, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
21					
22	2	COUPLING, 2", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
23	10	COUPLING, 1-1/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
24	8	COUPLING, 1", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
25	6	COUPLING, 3/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
26					
27	11	UNION, 1-1/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
28	6	UNION, 1", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
29	6	UNION, 3/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
30	8	UNION, 1/2", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	ANSI B16.11
31					
32	1	REDUCER INSERT, 2" x 1-1/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	MSS SP-79
33	1	REDUCER INSERT, 2" x 1", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	MSS SP-79
34	1	REDUCER INSERT, 1-1/4" x 3/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	MSS SP-79
35	9	REDUCER INSERT, 1-1/4" x 1/2", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	MSS SP-79
36	1	REDUCER INSERT, 1" x 3/4", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	MSS SP-79
37	2	REDUCER INSERT, 3/4" x 1/2", SW, FORGED STEEL, 3000#	CARBON STEEL	ASTM A-105	MSS SP-79
38					
39	4	FLANGE, 2", 150#, SLIP-ON, RAISED FACE	CARBON STEEL	ASTM A-105	ANSI B16.5
40	2	FLANGE, 1", 150#, SLIP-ON, RAISED FACE	CARBON STEEL	ASTM A-105	ANSI B16.5
41					
42	1	VALVE, SWING CHECK, 1", NPT, CLASS 150	BRONZE	ASTM B-62	ANSI B16.34
43	6	VALVE, SWING CHECK, 1/2", NPT, CLASS 150	BRONZE	ASTM B-62	ANSI B16.34
44					
45	2	VALVE, BALL, 1-1/4", 3-PIECE, NPT, CLASS 150	BRONZE	ASTM B-62	MSS SP-110
46	3	VALVE, BALL, 1", 3-PIECE, NPT, CLASS 150	BRONZE	ASTM B-62	MSS SP-110
47	18	VALVE, BALL, 1/2", 3-PIECE, NPT, CLASS 150	BRONZE	ASTM B-62	MSS SP-110
48					
49	2	VALVE, GATE, 2", 150#, FLG'D, W/REMOTE QUICK SHUT-OFF SPINDLE	DUCTILE IRON	ASTM A-571	ANSI B16.10
50	1	VALVE, GATE, 1-1/4", 150#, FLG'D, W/REMOTE QUICK SHUT-OFF SPINDLE	DUCTILE IRON	ASTM A-571	ANSI B16.10
51					
52	1	STRAINER, SIMPLEX, 1", THD	EATON	MODEL 72	BASKET MESH-40
53	2	FUEL FILTER, DUPLEX, MAIN ENGINE			REF 5
54	1	FUEL FILTER, DUPLEX, THRUSTER ENGINE			REF 5
55	3	FUEL FILTER, DUPLEX, GENERATORS			REF 5
56					
57	6	DIFFERENTIAL PRESSURE GAUGE	ASHCROFT	1127, 4 1/2", 1/2" NPT	RANGE 0-30
58	-	FUEL TRANSFER PUMP			REF 5
59	-				

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

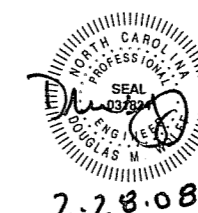
- CONNECTIONS TO ENGINES ARE TO BE SHIPPED TO SUIT VENDOR RECOMMENDATIONS
- CONTRACTOR SHALL VERIFY ALL QUANTITIES AND LOCATIONS BASED ON DETAIL DESIGN

REFERENCES

- 07069-001-832-1 TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-120-1 SCANTLING SECTIONS
- 07069-001-200-1 ENGINE ROOM AND TANK ROOM ARRANGEMENT
- 07069-001-261-1 FUEL OIL PIPING SCHEMATIC
- 07069-001-264-2 LUBE OIL & DIRTY OIL SCHEMATIC
- 07069-001-506-1 FILLS, VENTS & SOUNDS PIPING SCHEMATIC
- 07069-001-506-2 FILLS, VENTS & SOUNDS PIPING ARR & DET
- 07069-001-521-2 FIRE MAIN PIPING ARR & DET
- 07069-001-529-2 BILGE SYSTEM ARR & DET

INDEX

SHEET NO.	SHEET CONTENT
1	LIST OF MATERIALS
2	LOWER DECK
3	MAIN DECK & ABOVE
4	STBD ELEVATIONS & TANK DETAIL
5	FR 52 LKG AFT
6	ENG RM & TANK DETAIL



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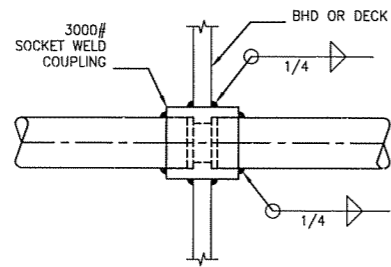
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
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PROJECT: NEW SOUND CLASS FERRY

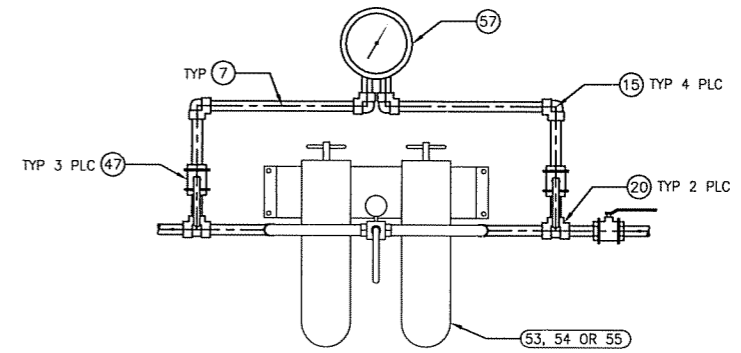
FUEL OIL PIPING
 ARRANGEMENT & DETAILS

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APVD		DATE		SCALE	NONE	FILE NAME	07069-001-2612	SHEET	1 OF 6

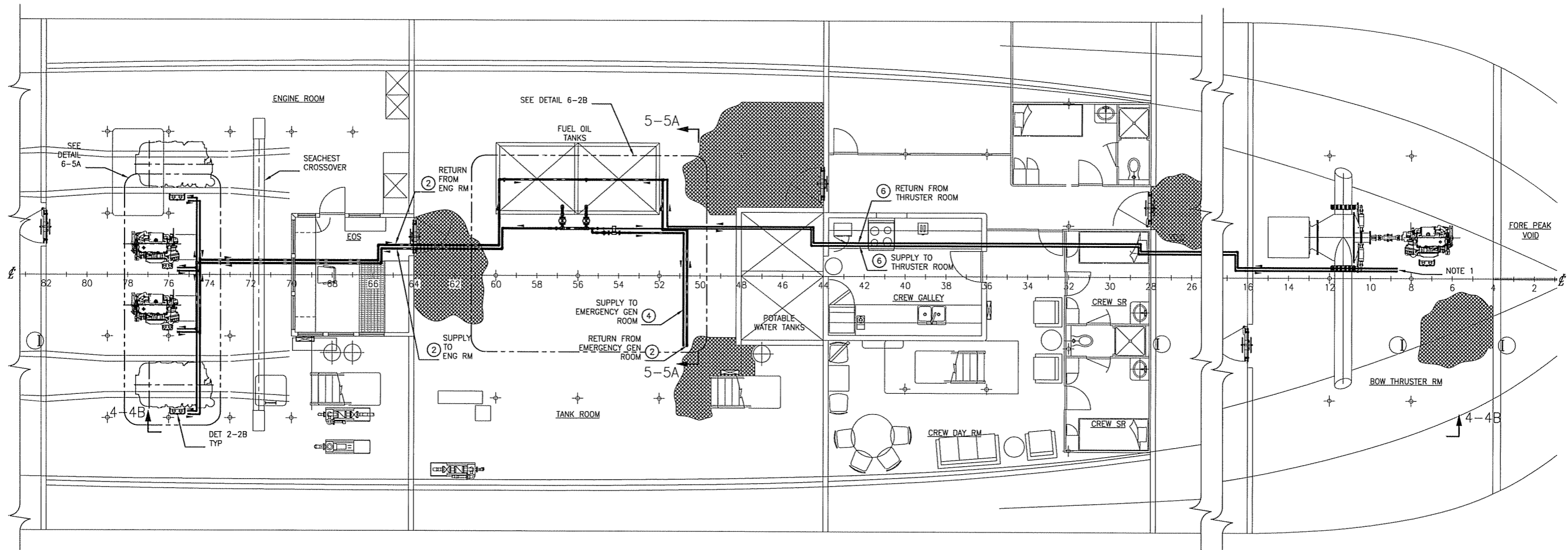
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DETAIL 2-5D
 TYPICAL DECK/WT BHD PENETRATION
 SCALE: NONE



DETAIL 2-2D
 TYPICAL FUEL FILTER ARRANGEMENT
 SCALE: NONE



NOTE: PIPING ARRANGEMENT SHOWN IS SUGGESTED ROUTING ONLY.
 ENGINE ROOM AND THRUSTER ROOM SUPPLY AND RETURN PIPING
 SHOWN ARE UNDER FLOOR PLATE AND SEA CHEST CROSSOVER.

PLAN 2-3A
 LOWER DECK
 SCALE: 3/16" = 1'-0"

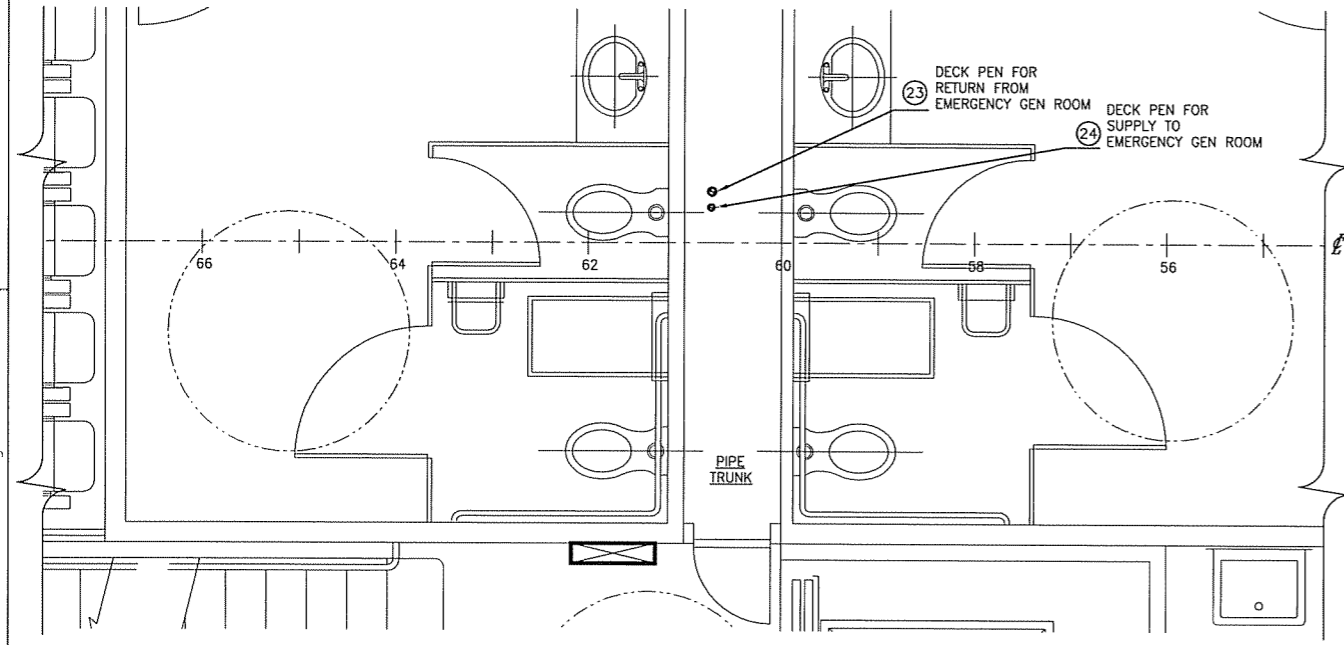


2.28.08

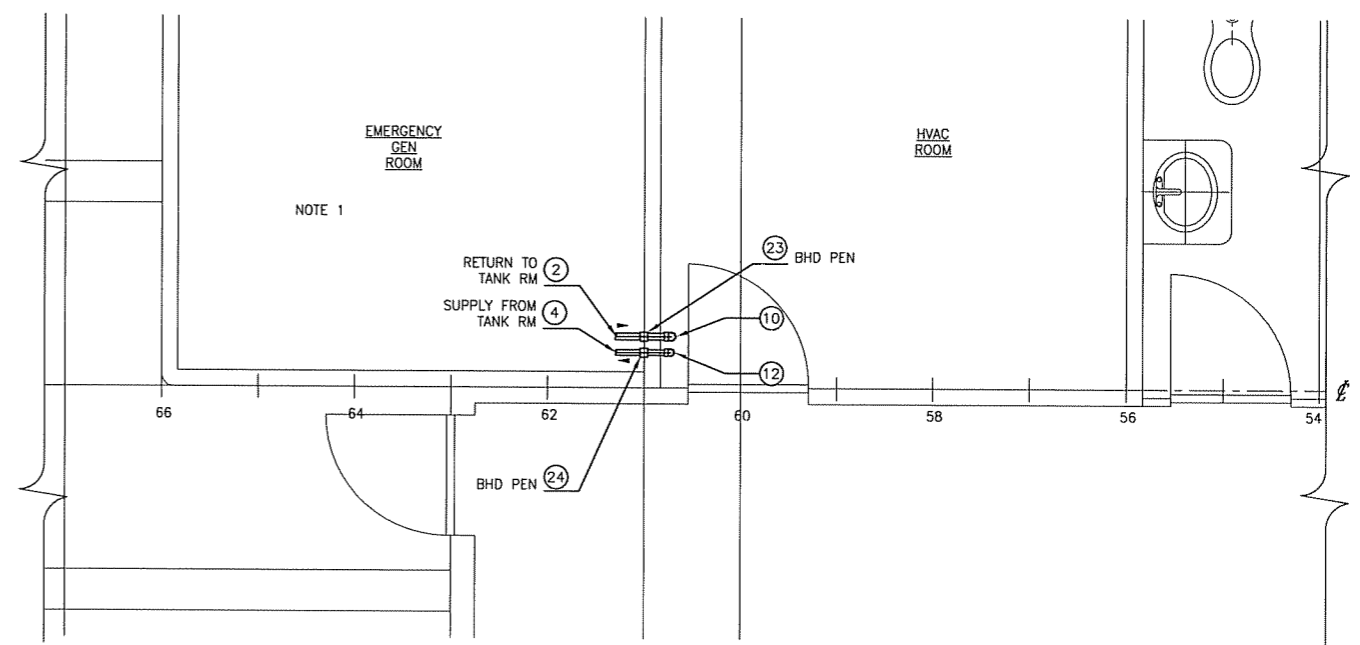
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SCALE	AS SHOWN	FILE NAME	07069-001-2612-	SHEET	2 OF 6

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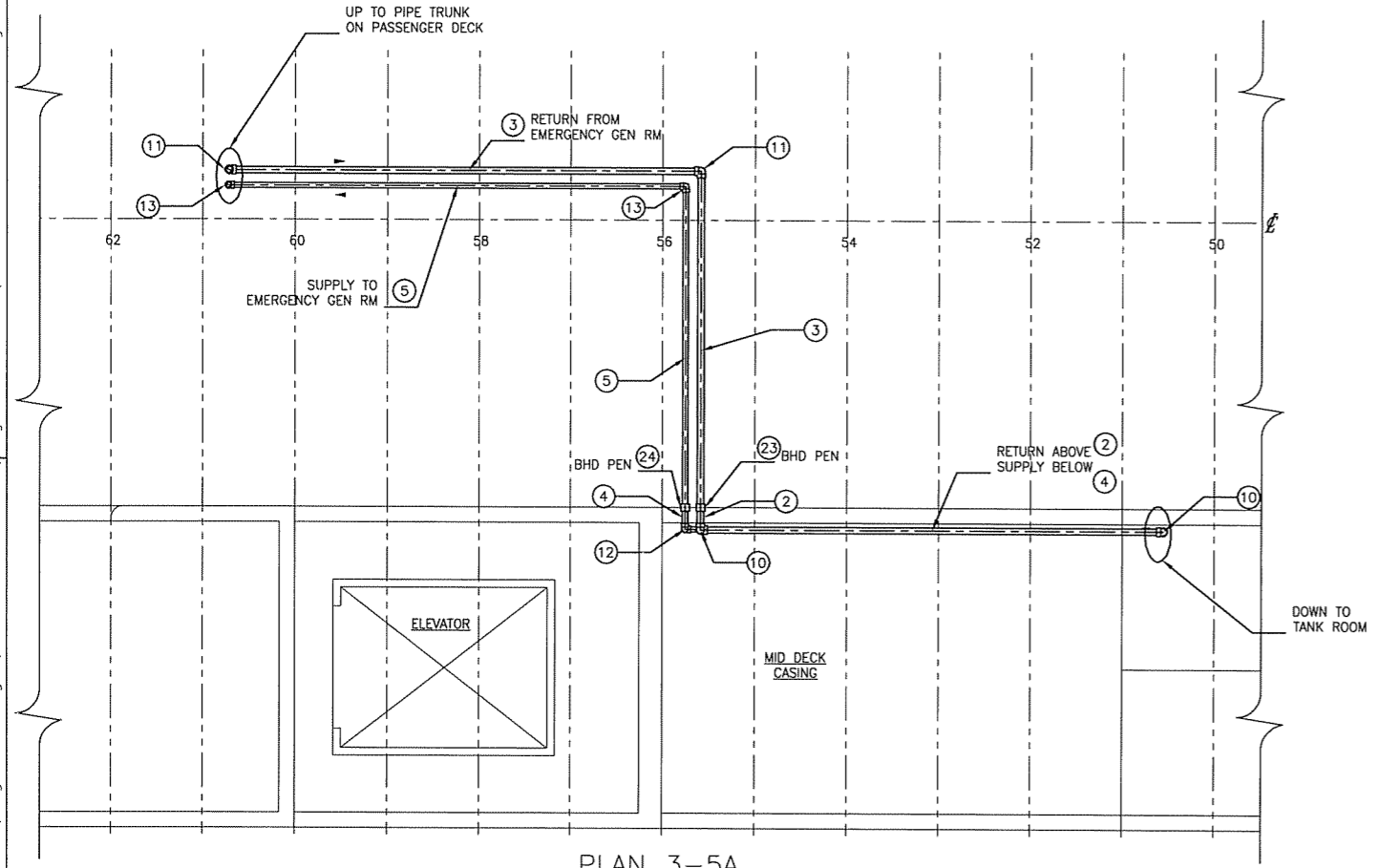
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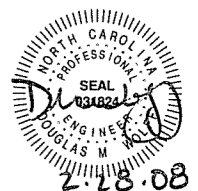
PLAN 3-5C
 PASSENGER DECK



PLAN 3-5C
 NAV DECK



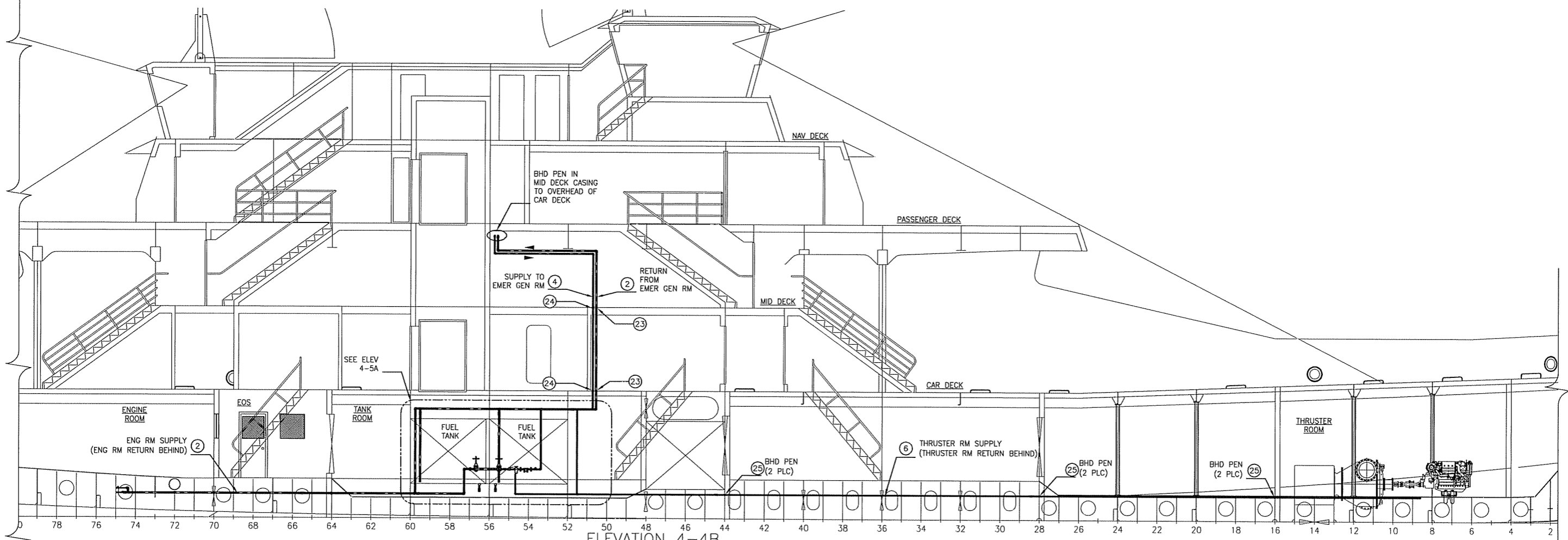
PLAN 3-5A
 MAIN DECK OVERHEAD @ MID DECK CASING



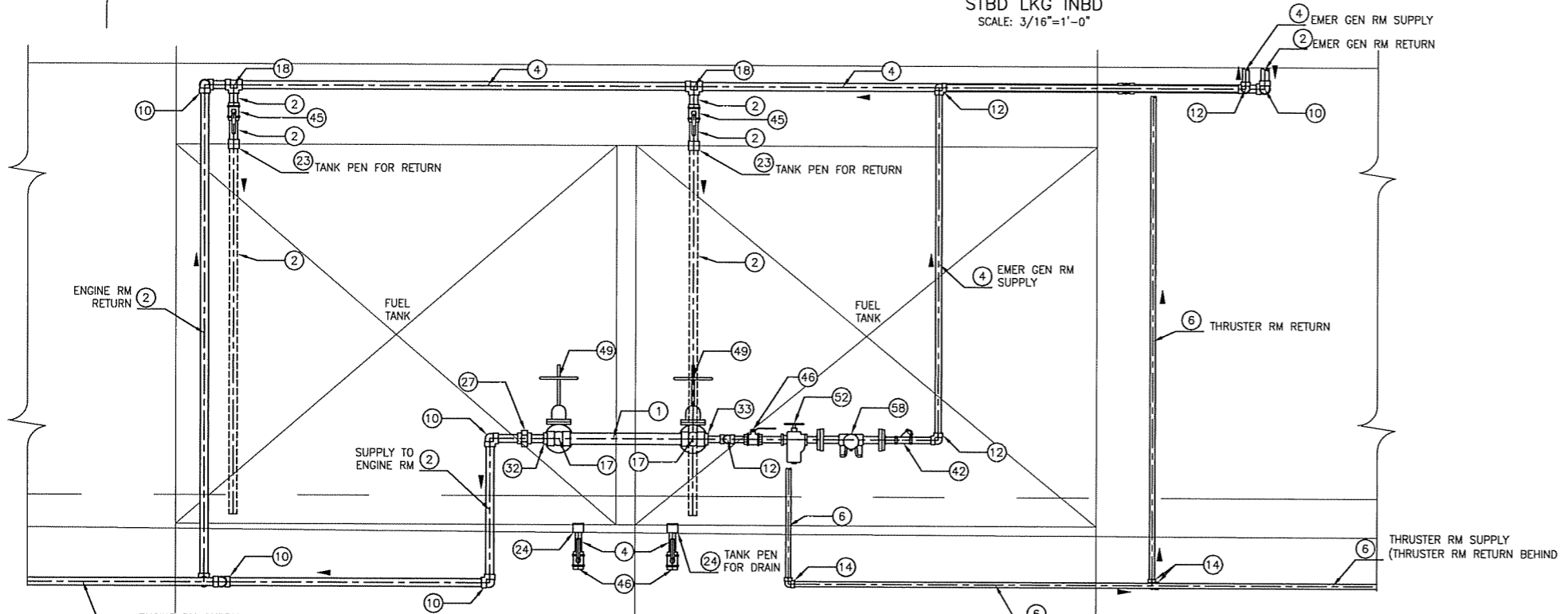
SIZE	DWG NO.	REV
D	07069-001-261-2	-
SCALE	FILE NAME	SHEET
1/2"=1'-0"	07069-001-261-2	3 OF 6

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ELEVATION 4-4B
 STBD LKG INBD
 SCALE: 3/16"=1'-0"



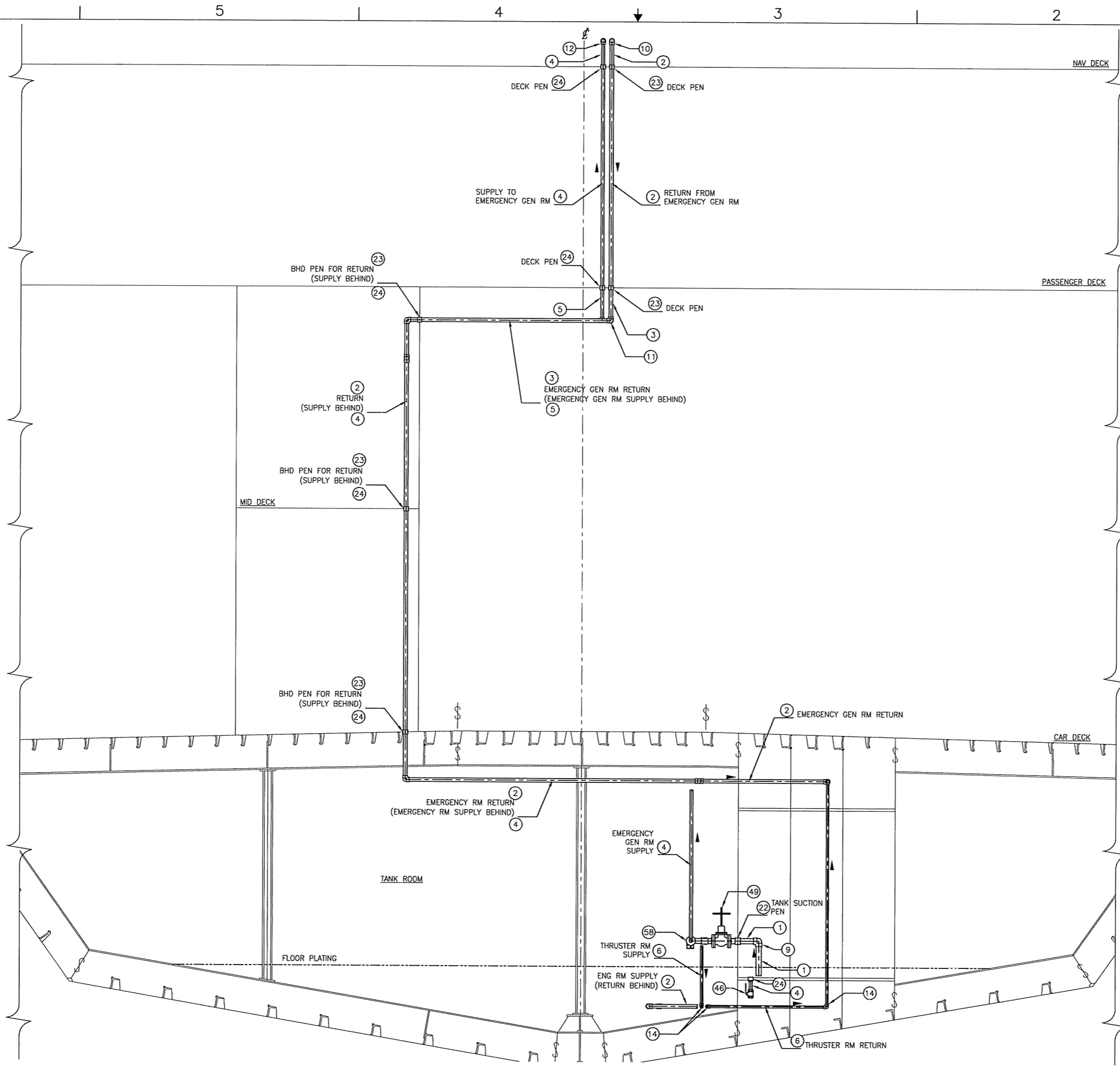
ELEVATION 4-5A
 FUEL TANK CONNECTION DETAIL
 SCALE: 3/4"=1'-0"



2.28.08

SIZE	DWG NO.	REV
D	07069-001-261-2	
SCALE	FILE NAME	SHEET
AS SHOWN	07069-001-261-2	4 OF 6

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SECTION 5-6A
 FR 52 LOOKING AFT
 SCALE: 1/2"=1'-0"



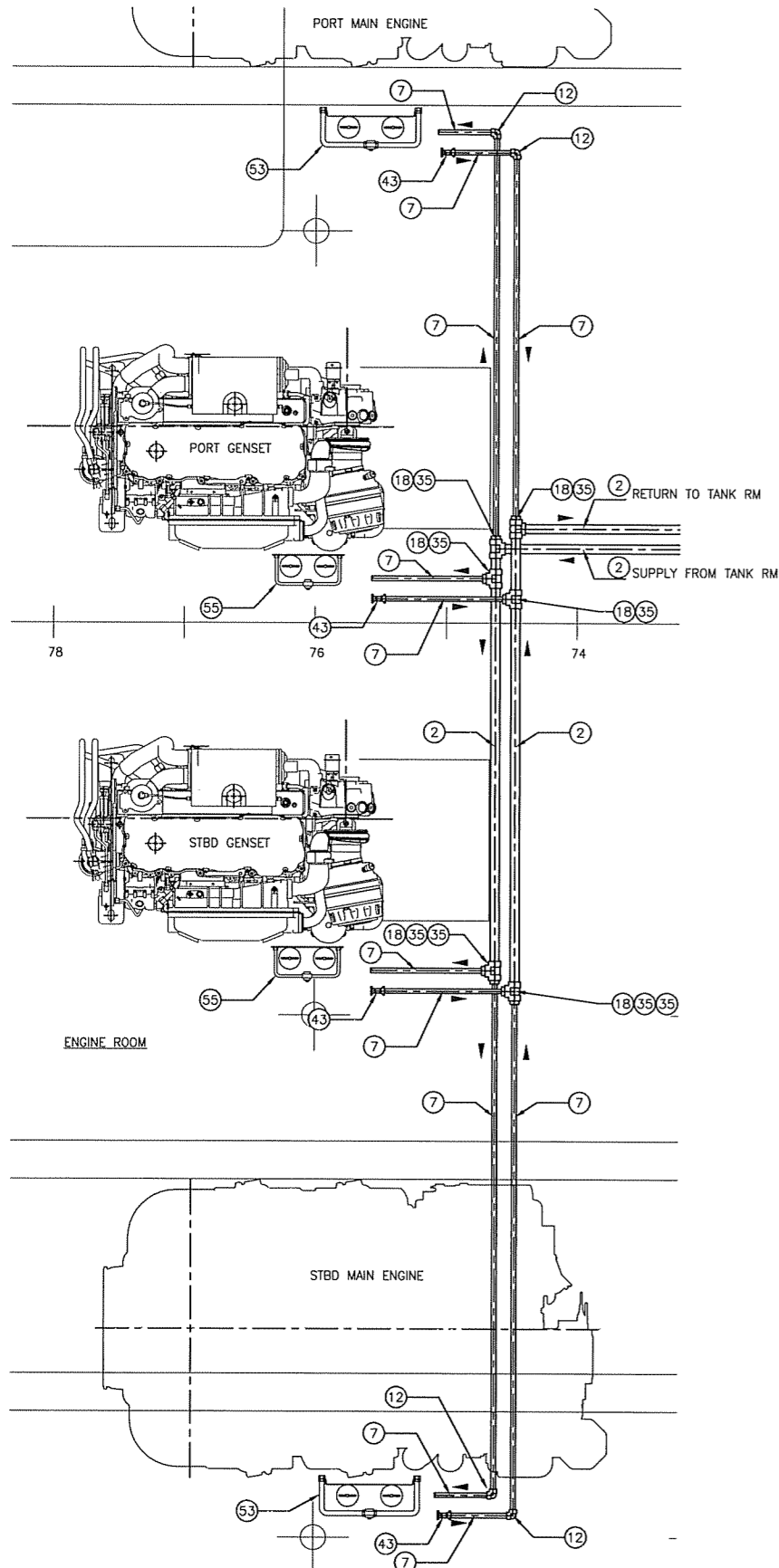
2.23.08

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SCALE	1/2"=1'-0"	FILE NAME	07069-001-261-	SHEET	5 OF 6

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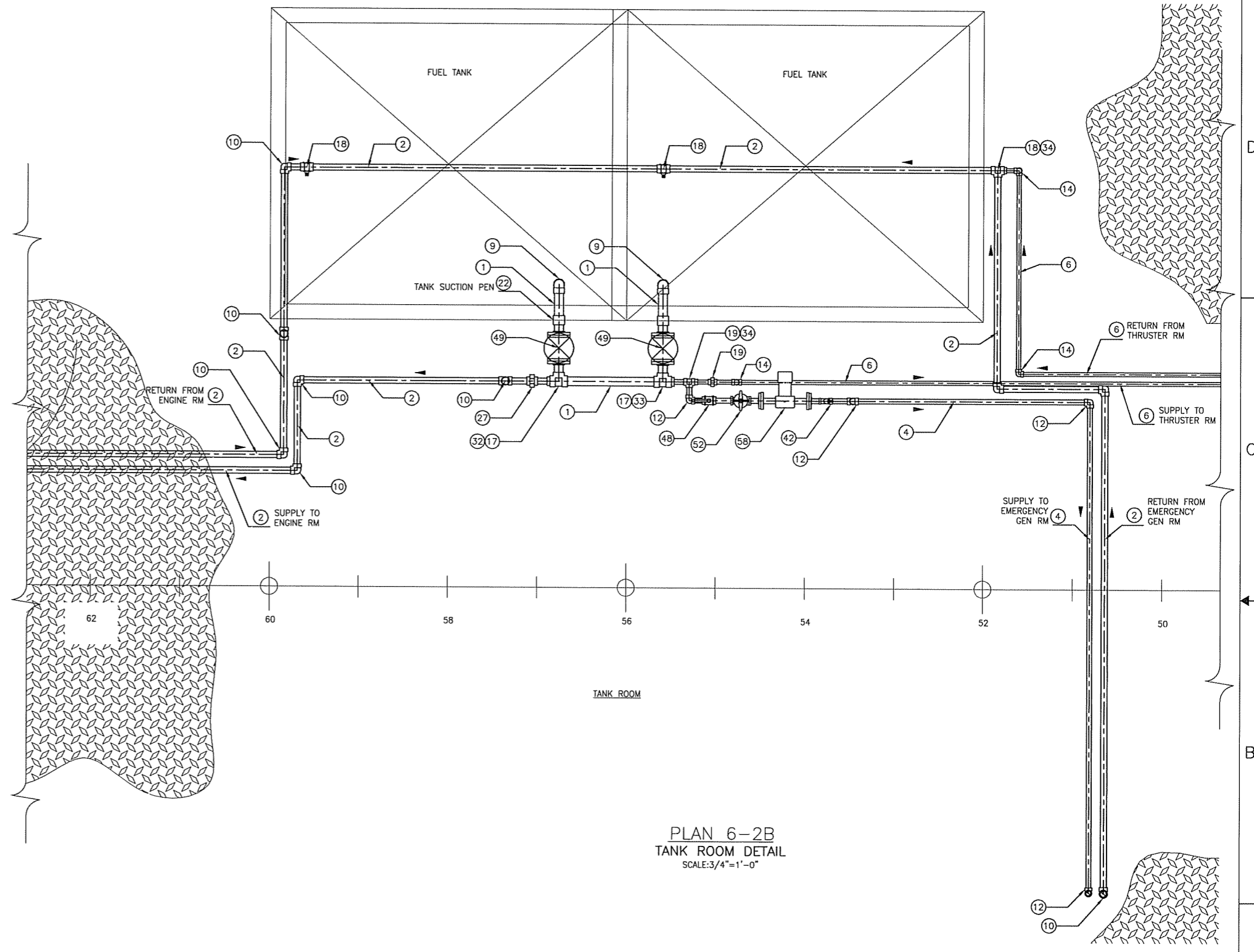
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S:\07069\Fng & Design\261-2 Fuel Oil Piping Arr & Det\07069-001-261-2.dwg, 2/25/2008 10:59:25 AM, dwright

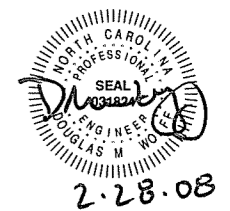


PLAN 6-5A
 ENGINE ROOM DETAIL
 SCALE: 1/2"=1'-0"

NOTE: SHIPFIT CONNECTIONS TO ENGINES
 TO SUIT VENDOR SPECIFICATIONS.



PLAN 6-2B
 TANK ROOM DETAIL
 SCALE: 3/4"=1'-0"



SIZE	DWG NO.	REV
D	07069-001-261-2	-
SCALE	FILE NAME	SHEET
AS SHOWN	07069-001-261-2	6 OF 6

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

SERVICE	SIZE	PIPE	MATERIAL SCHEDULE			
			TAKEDOWN JOINTS	FITTINGS	BODY	VALVES TRIM
LUBE OIL, GEAR OIL & DIRTY OIL INTERIOR	2" & OVER	SEAMLESS STEEL SCH 40 ASTM A106, GR B ANSI B36.10	FLANGED, SLIP-ON STEEL, 150# ASTM A105 ANSI B16.5	STL BUTTWELD SCH 40 ASTM A234 ANSI B16.9	CAST STEEL FLANGED, 150# ASTM A216 ANSI B16.34	STEEL RENEWABLE DISC & SEAT
	1-1/2" & BELOW		UNION, GROUND JOINT FORGED STEEL SOC WELD, 3000# ASTM A105 MSS-SP-83	FORGED STEEL SOC WELD, 3000# ASTM A105 ANSI B16.11	STEEL SOC WELD ENDS 600# ASTM A216 ANSI B16.34	
DIRTY OIL EXTERIOR	2"	SEAMLESS STEEL SCH 40 ASTM A106, GR B ANSI B36.10	FLANGED, SLIP-ON STEEL, 150# ASTM A105 ANSI B16.5	STL BUTTWELD SCH 40 ASTM A234 ANSI B16.9	STAINLESS STEEL FLANGED, 150# ASTM A182/GR 316L ANSI B16.34	CRES OR SS STEM & BALL ASTM A182, GR F6A VITON SEALS & SEATS

PIPING SYMBOLS	
	NEW PIPE
	DIRECTION OF FLOW ARROW
	REDUCER
	DECK OR BHD PENETRATION
	SPIGOT
	GATE VALVE
	SWING CHECK VALVE
	SIMPLEX STRAINER
	POSITIVE DISPLACEMENT PUMP
	CAMLOCK
	FLEXIBLE HOSE ASSEMBLY
	VENT
	SPILL CONTAINMENT/DRIP PAN
	QUICK ACTING SELF CLOSING GATE VALVE
	BALL VALVE

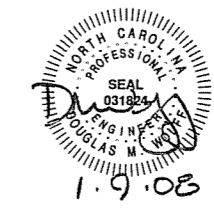
PUMP LIST					
QTY.	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
1	DIRTY OIL TRANSFER	POSITIVE DISPLACEMENT DIAPHRAGM TYPE	WILDEN W-4 (1 1/2")		PNEUMATIC
2	PORTABLE LUBE/GEAR OIL	POSITIVE DISPLACEMENT DIAPHRAGM TYPE	WILDEN P-2 (1")		PNEUMATIC

GENERAL NOTES

- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS.
- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS AND WITH SUFFICIENT JOINTS TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT. PIPING SHALL BE RUN TO MINIMIZE CUTTING OF THE SHIP'S STRUCTURE.
- GEAR OIL AND LUBE OIL TANK SPIGOT VALVES SHALL BE PLACED HIGH ENOUGH ABOVE THE CONTAINMENTS TO ACCOMMODATE A 5 GALLON BUCKET.
- EQUIPMENT LAYOUT WITHIN A GIVEN AREA IS ONLY APPROXIMATE. PROVISION OF EQUIPMENT SHALL BE AS SHOWN ON THIS DRAWING AND AS DESCRIBED BY REF (1).
- PIPING SHALL BE RIGIDLY SUPPORTED BY HANGERS APPROPRIATE FOR THE SERVICE AND PIPE MATERIAL AND FABRICATED AND INSTALLED IN ACCORDANCE WITH ASTM F708. FLEXIBLE PIPING CONNECTIONS SHALL NOT BE LONGER THAN 30 INCHES AND SHALL MEET THE REQUIREMENTS OF THE USCG, 46 CFR PART 56, PARAGRAPH 56.60-25.
- PROVIDE GAUGE PIPING ASSEMBLIES AND MATERIALS FOR NEW GAUGES AND INSTRUMENTS CONFIGURED IN ACCORDANCE WITH ASTM F721. TUBING AND FITTINGS SHALL BE 316 STAINLESS STEEL. ROOT VALVES SHALL BE BALL TYPE. ROOT AND GAUGE VALVES SHALL BE MANUFACTURED FROM 316 STAINLESS STEEL.
- DRIP PANS WITH UPTURNED, SEALED, FLANGED EDGES SHALL BE PROVIDED BENEATH ALL STRAINERS, FILTERS, VALVES, PUMPS, AND ASSOCIATED EQUIPMENT THAT WILL NORMALLY EXPERIENCE LEAKAGE DURING ROUTINE MAINTENANCE. EACH DRIP PAN SHALL BE EQUIPPED WITH A LOW POINT DRAIN VALVE.
- DO NOT ROUTE PIPING CONTAINING LUBE OIL NEAR ANY ELECTRICAL DEVICES OR EQUIPMENT. DO NOT LOCATE TAKEDOWN JOINTS AROUND, NEAR, OR OVER ELECTRICAL EQUIPMENT. ROUTE ALL LUBE OIL PIPING AT LEAST 18 INCHES AWAY FROM ANY SURFACE THAT NORMALLY HAS AN OPERATING TEMPERATURE OF 450° OR GREATER.
- THE USE OF GALVANIZED PIPE, FITTINGS, COMPONENTS, ETC SHALL NOT BE PERMITTED.
- FLEXIBLE HOSE SECTIONS BETWEEN THE ENGINE ATTACHED CONNECTIONS AND VESSEL PIPING SHALL BE 37 SAE FLARE SWIVEL ON BOTH ENDS. FLEXIBLE HOSE SHALL BE FLAME RESISTANT IN ACCORDANCE WITH 46 CFR 56.60-25. HOSE ASSEMBLIES SHALL NOT BE LESS THAN 9" IN LENGTH NOR MORE THAN 24" IN LENGTH. FLEXIBLE HOSE SHALL BE AERQUIP FC 234.

REFERENCES

- 07069-001-832-1 TECHNICAL SPECIFICATIONS
- 07069-001-200-1 ENGINE ROOM AND TANK ROOM ARRANGEMENT
- 07069-001-506-1 FILLS, VENTS, AND SOUNDS PIPING SCHEMATIC



Elliott Bay Design Group
 Seattle • New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 PROJECT: NEW SOUND CLASS FERRY

LUBE & DIRTY OIL SCHEMATIC

DWN	JKE	DATE	10/19/07	SIZE	D	DWG NO.	07069-001-264-1	REV	---
CKD	DMW	DATE	1/9/08	SCALE	NONE	FILE NAME	07069-001-2641-	SHEET	1 OF 2

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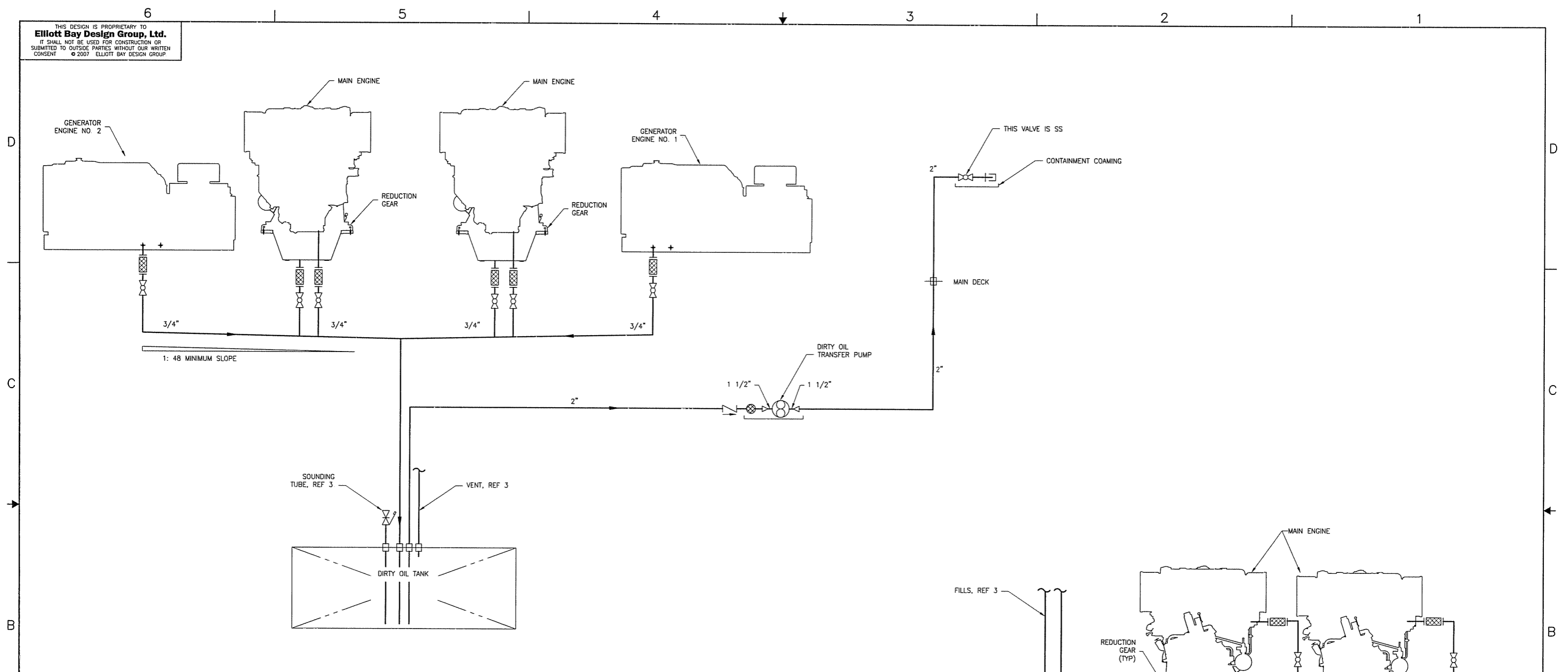


DIAGRAM 2-5B
 DIRTY OIL TRANSFER SYSTEM

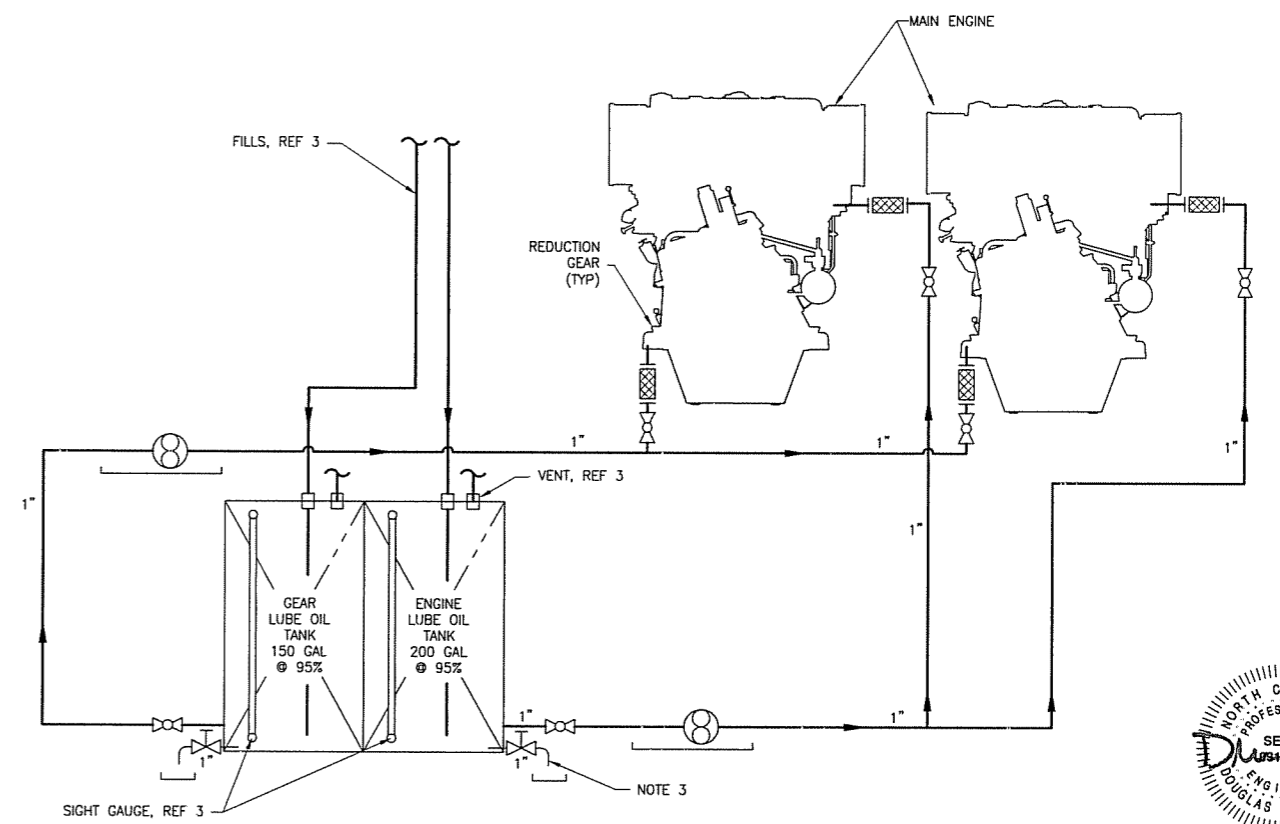


DIAGRAM 2-2A
 CLEAN OIL SERVICE SYSTEM

NORTH CAROLINA
 PROFESSIONAL
 SEA ENGINEER
 DOUGLAS M. WOLF
 1-9-08

SIZE	D	DWG NO.	07069-001-264-1	REV	-
SCALE	NONE	FILE NAME	07069-001-2641-	SHEET	2 OF 2

1/8/2006 2:45:52 PM

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	3-1C	1. ADDED SEARCHLIGHT #3 AT ACS	JL	1/18/08	DMW
	4-2C	2. ME JW HTRS CHANGED TO 3 KW.			

GENERAL NOTES

- MATERIAL AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER H VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS.
- MAIN SWITCHBOARD IS 3 PHASE 4 WIRE SYSTEM, 208/120V, 60 Hz, WITH GROUNDED NEUTRAL.
- ALL PERMANENTLY INSTALLED ELECTRICAL EQUIPMENT SHALL HAVE METAL ENCLOSURES PROPERLY GROUNDED IN ACCORDANCE WITH SECTION 250-95 OF THE NATIONAL ELECTRICAL CODE.
- THE SHIP'S SERVICE GENERATORS WILL NOT BE OPERATED IN PARALLEL. THE SHORE POWER CIRCUIT BREAKER SHALL BE MECHANICALLY INTERLOCKED SUCH THAT IT CANNOT BE CLOSED WHILE EITHER OF THE GENERATOR CIRCUIT BREAKERS ARE CLOSED.
- THE SHORE POWER RECEPTACLES ON THE VESSEL SHALL BE MOTOR PLUG TYPE (MALE) WITH THE FEMALE PLUG INSTALLED ON THE FLEXIBLE CORD. THE SHORE POWER RECEPTACLE ON THE SHORE SHALL HAVE A DISCONNECT SWITCH WITH MECHANICAL INTERLOCK TO ALLOW THE SHORE POWER PLUG TO BE CONNECTED/DISCONNECTED ONLY WHEN THE CIRCUIT IS OPEN. THE SHORE POWER RECEPTACLES ON THE VESSEL SHALL BE PERMANENTLY CONNECTED WITH THE SHORE POWER EXTENSION CORD. SHORE POWER SHALL BE CONNECTED OR DISCONNECTED ONLY ON SHORE USING AN INTERLOCKED SHORE POWER RECEPTACLE. A WARNING PLATE SHALL BE INSTALLED AT EACH VESSEL SHORE POWER RECEPTACLE AS FOLLOWS:
 DANGER: DO NOT DISCONNECT. FOR SHORE POWER CONNECTION OR DISCONNECTION, USE POWER RECEPTACLE ON SHORE.
- CIRCUIT BREAKERS FOR STEERING GEAR HYD. PUMPS REQUIRE INSTANTANEOUS TRIP ONLY AND SHALL BE SIZED IN ACCORDANCE WITH 46 CFR USCG 111.93-11.
- UPON LOSS OF POWER TO THE EMERGENCY SWITCHBOARD, THE EMERGENCY GENERATOR SHALL START & COME ON-LINE AUTOMATICALLY WITHIN 45 SECONDS. THE EMERG SWBD BUS SHALL AUTOMATICALLY DISCONNECT FROM THE MAIN SS SWITCHBOARD DURING THIS PROCESS.
- HOUSING OF THE SHORE POWER RECEPTACLES MOUNTED ON THE VESSEL SHALL BE FIRMLY GROUNDED TO THE VESSEL HULL.
- ALL CABLES SHALL BE IEEE-45 LOW SMOKE OR MIL-C-24643. CABLE AMPACITIES SHALL BE BASED ON A 75°C CONDUCTOR TEMPERATURE.
- NYLON OR BRASS STUFFING TUBES SHALL BE USED WHEN PENETRATING ELECTRICAL ENCLOSURES OR JUNCTION BOXES. STEEL KICKPIPES WITH BRASS STUFFING TUBES OR MULTI-CABLE TRANSITS SHALL BE USED WHEN PENETRATING WATERTIGHT DECKS AND BULKHEADS. KICKPIPES SHALL EXTEND A MINIMUM OF 9 INCHES ABOVE THE DECK.
- IN THE EVENT OF A GENERATOR OVERLOAD, THE CREW QTRS AND HVAC PANELS ARE TRIPPED OFF-LINE. ONLY NON-VITAL LOADS ARE TO BE POWERED FROM THESE PANELS.

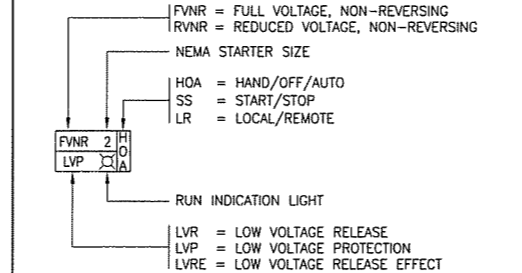
REFERENCES

- 07069-001-832-1 TECHNICAL SPECIFICATIONS
- 07069-001-522-1 SPRINKLER PIPING SCHEMATIC
- 07069-001-529-1 BILGE & OILY WATER SYSTEM PIPING SCHEMATIC
- 07069-001-533-1 POTABLE WATER PIPING SCHEMATIC
- 07069-001-261-1 FUEL OIL PIPING SCHEMATIC
- 07069-001-521-1 FIRE MAIN PIPING SCHEMATIC
- 07069-001-514-1 HVAC CALCULATIONS
- 07069-001-330-1 LIGHTING PLAN

SYMBOLS LIST

	TRANSFORMER
	GENERATOR
	GROUND FAULT DETECTOR
	CIRCUIT BREAKER
	MOTOR
	VENDOR SUPPLIED MOTOR/CONTROLLER
	MANUAL TRANSFER SWITCH (BREAK BEFORE MAKE)
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	JUNCTION BOX
	SHUNT TRIP CIRCUIT BREAKER
	EQUIPMENT
	LEVEL SWITCH
	PRESSURE SWITCH
	LIGHTS
	SWITCHBOARD INSTRUMENTS

MOTOR CONTROLLER



1-23-08

Elliott Bay Design Group
 Seattle - New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

ELECTRICAL ONE-LINE DIAGRAM

DWN	ZDL	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
			01/04/08							
			01/07/08							
			01/09/08							

REV	DWG NO.	SCALE	FILE NAME	SHEET	OF
A	07069-001-320-1	NTS	07069-001-3201-A	1	5

D

C

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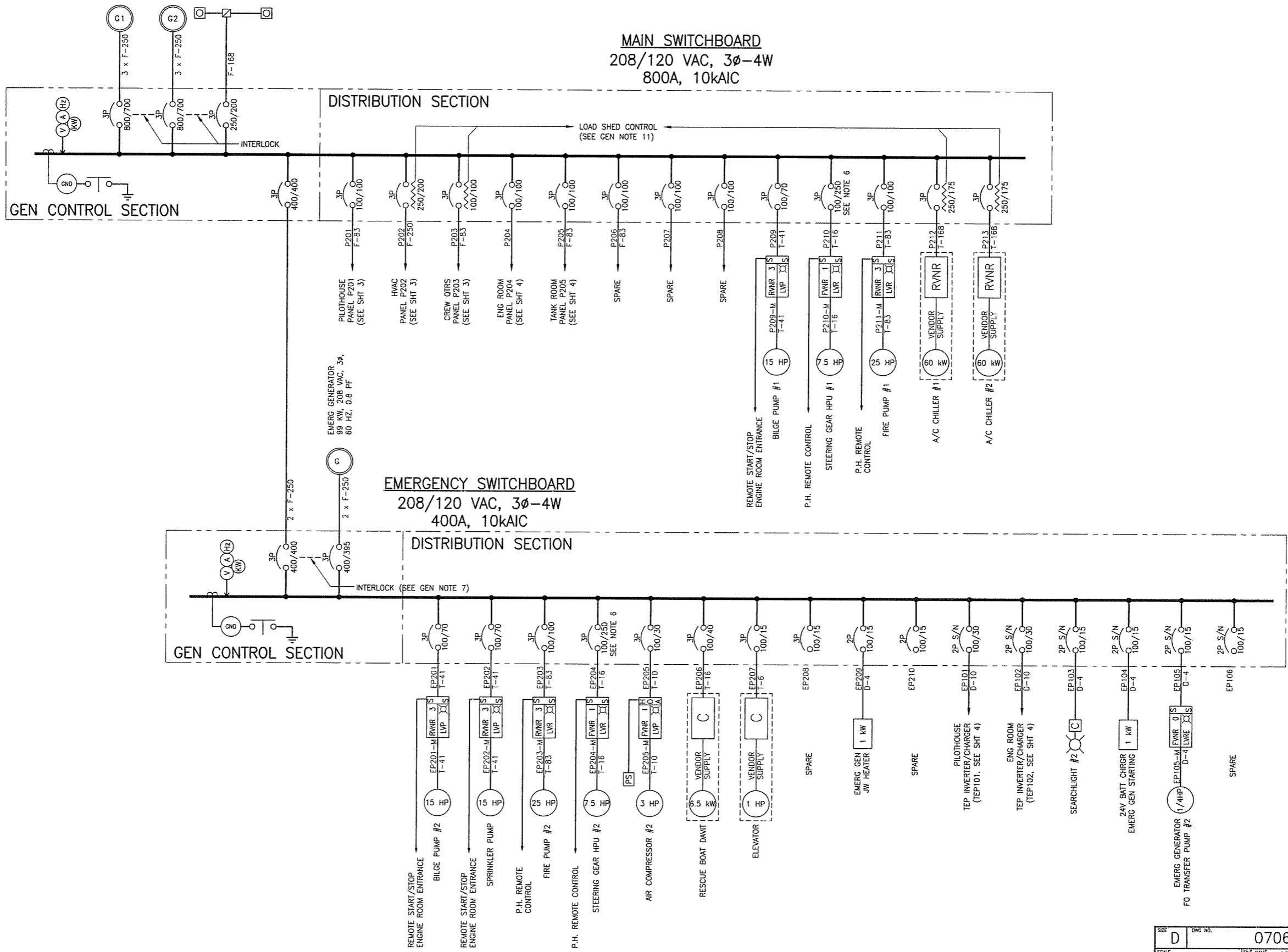
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4

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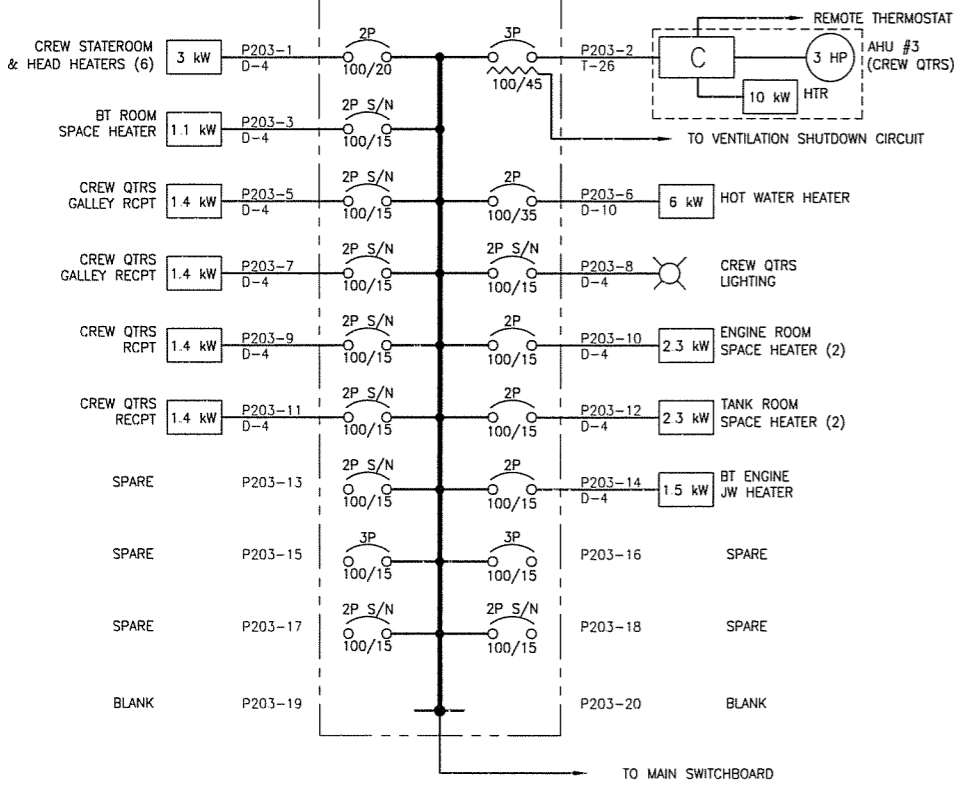
1.23.08

SIZE	D	DWG NO.	07069-001-320-1	REV	A
SCALE	NTS	FILE NAME	07069-001-3201-A	SHEET	2 OF 5

CREW QUARTERS PANEL - P203

208/120 VAC, 3Ø-4W

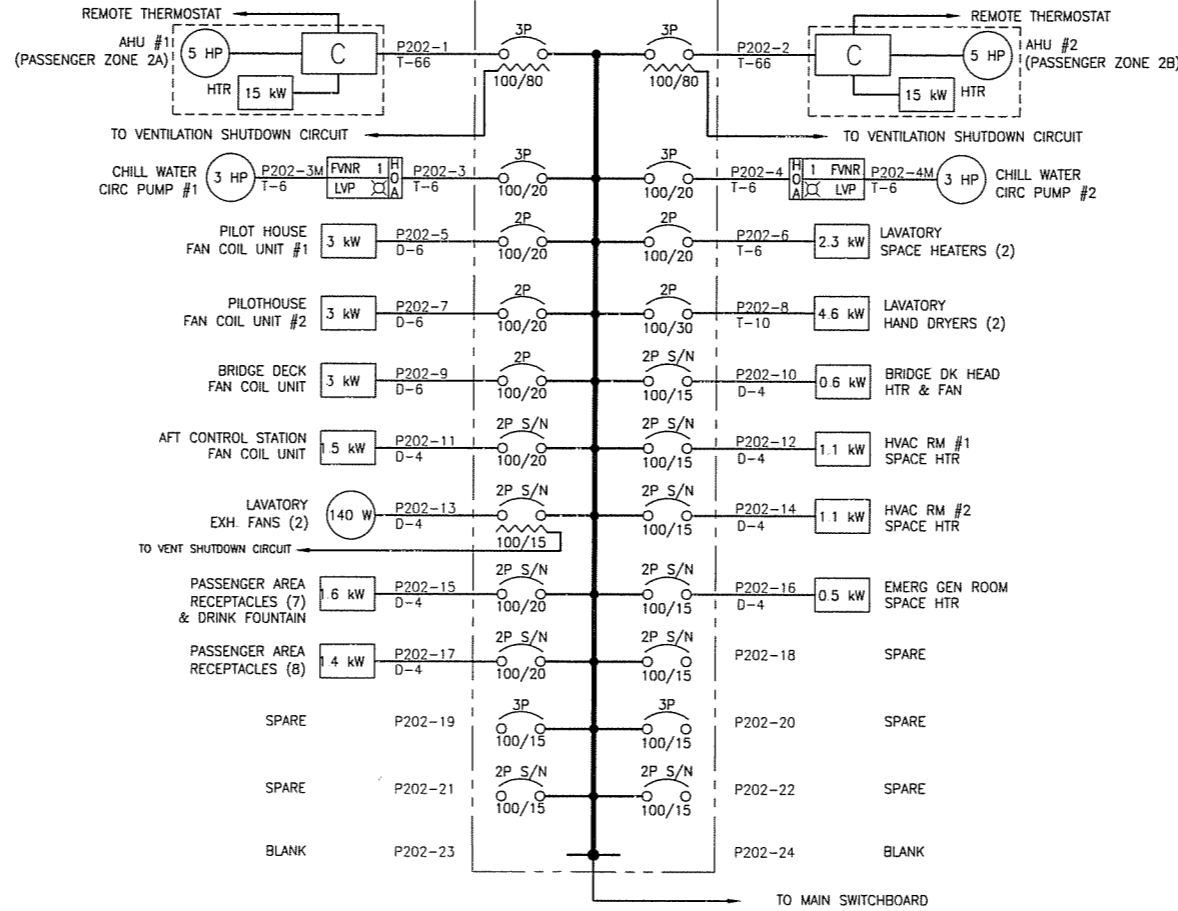
(NON-VITAL LOADS ONLY - SEE GEN NOTE 11)



HVAC PANEL - P202

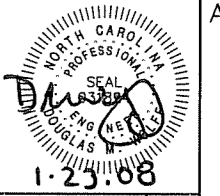
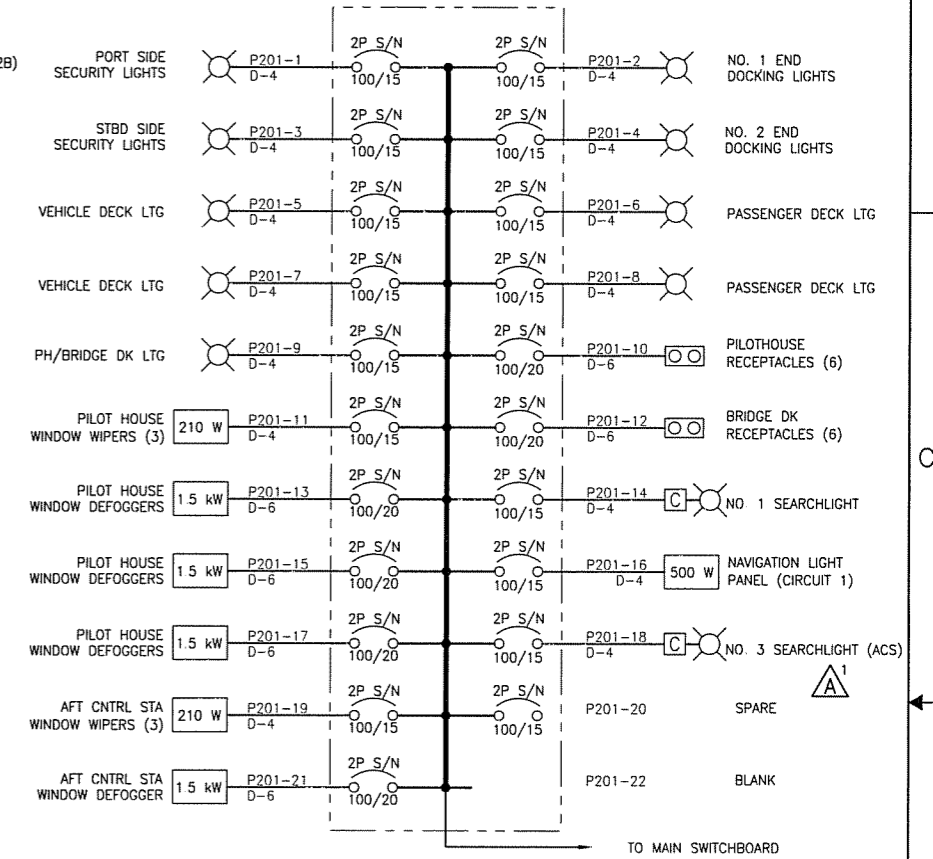
208/120 VAC, 3Ø-4W

(NON-VITAL LOADS ONLY - SEE GEN NOTE 11)



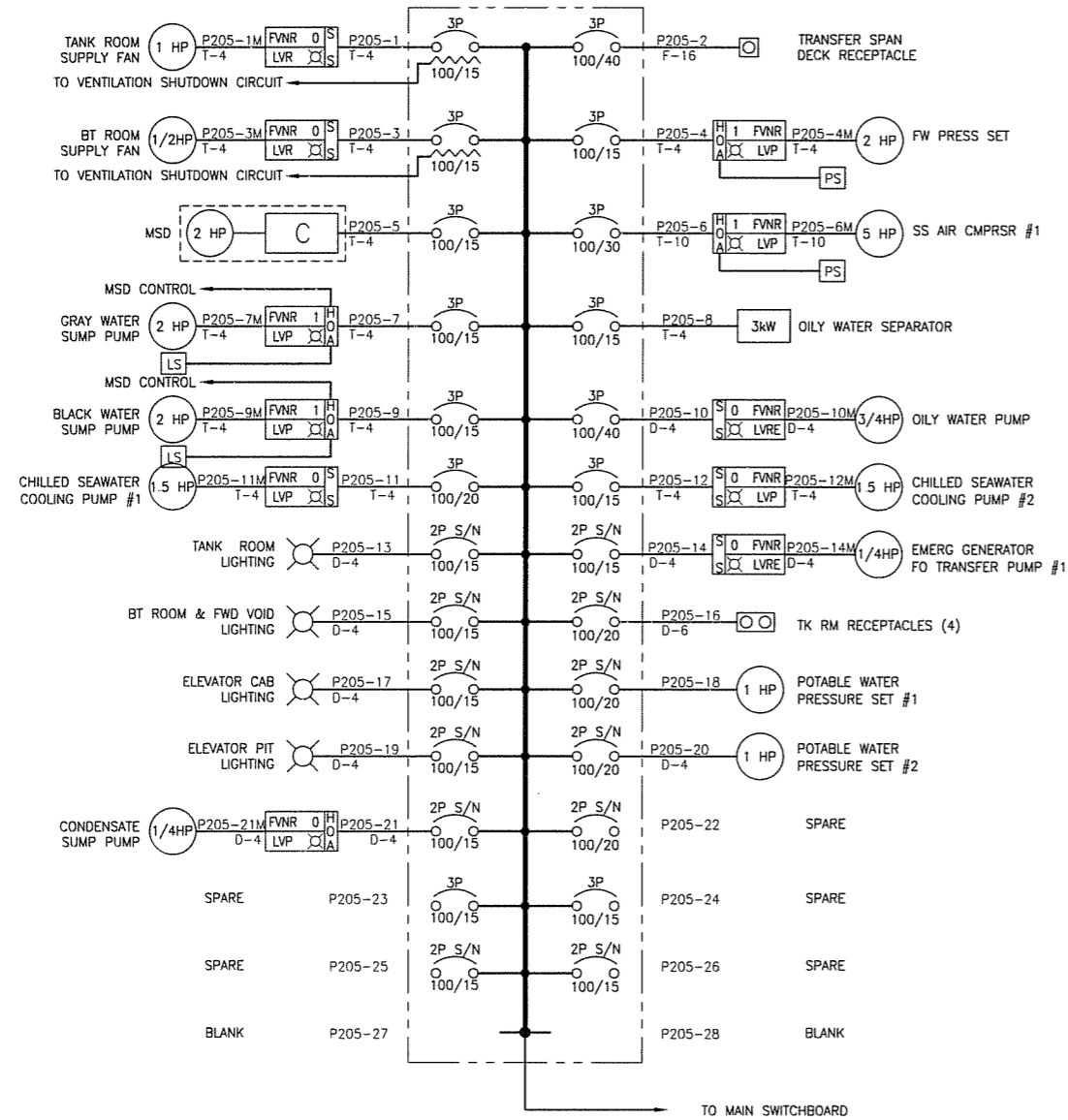
PILOTHOUSE PANEL - P201

208/120 VAC, 3Ø-4W

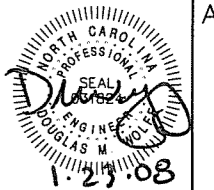
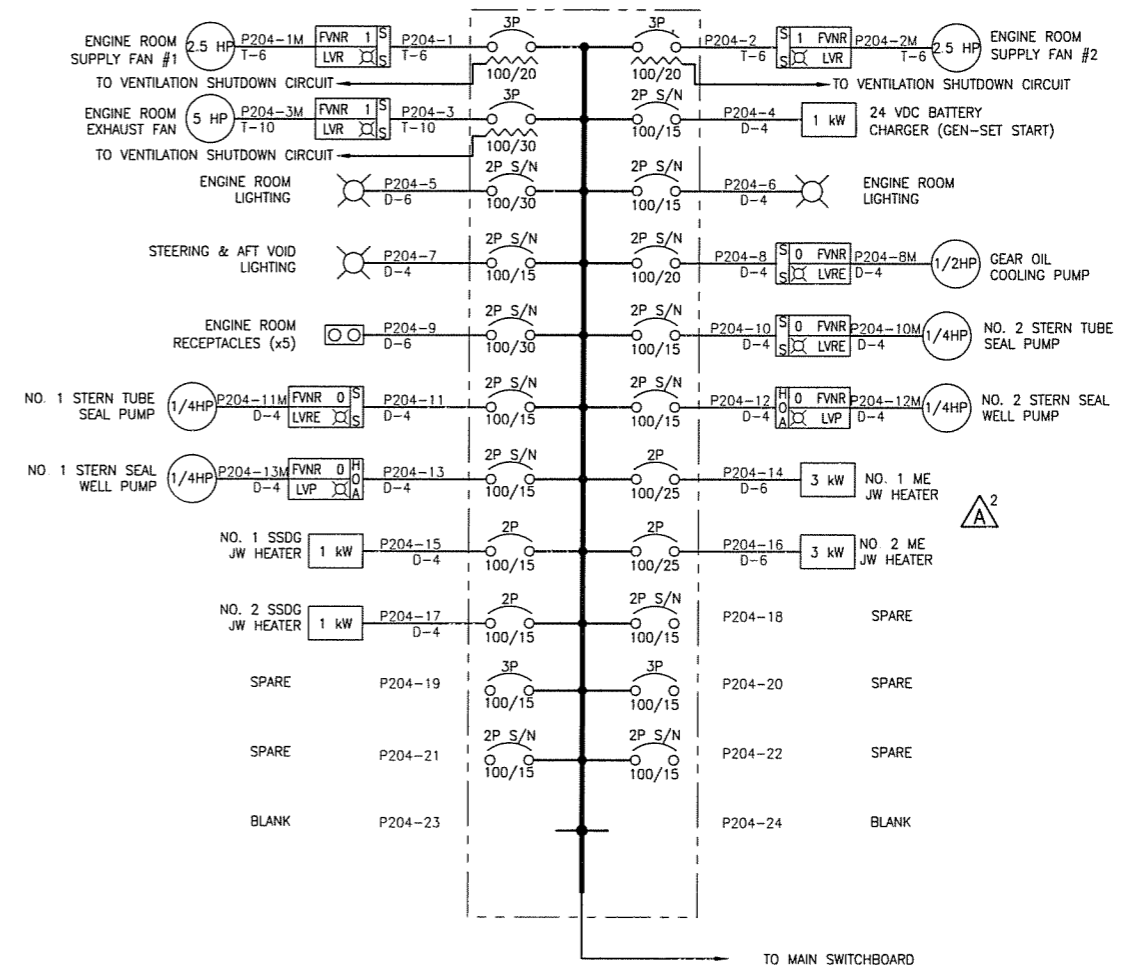


1-23-08

TANK ROOM PANEL - P205
 208/120 VAC, 3 ϕ -4W

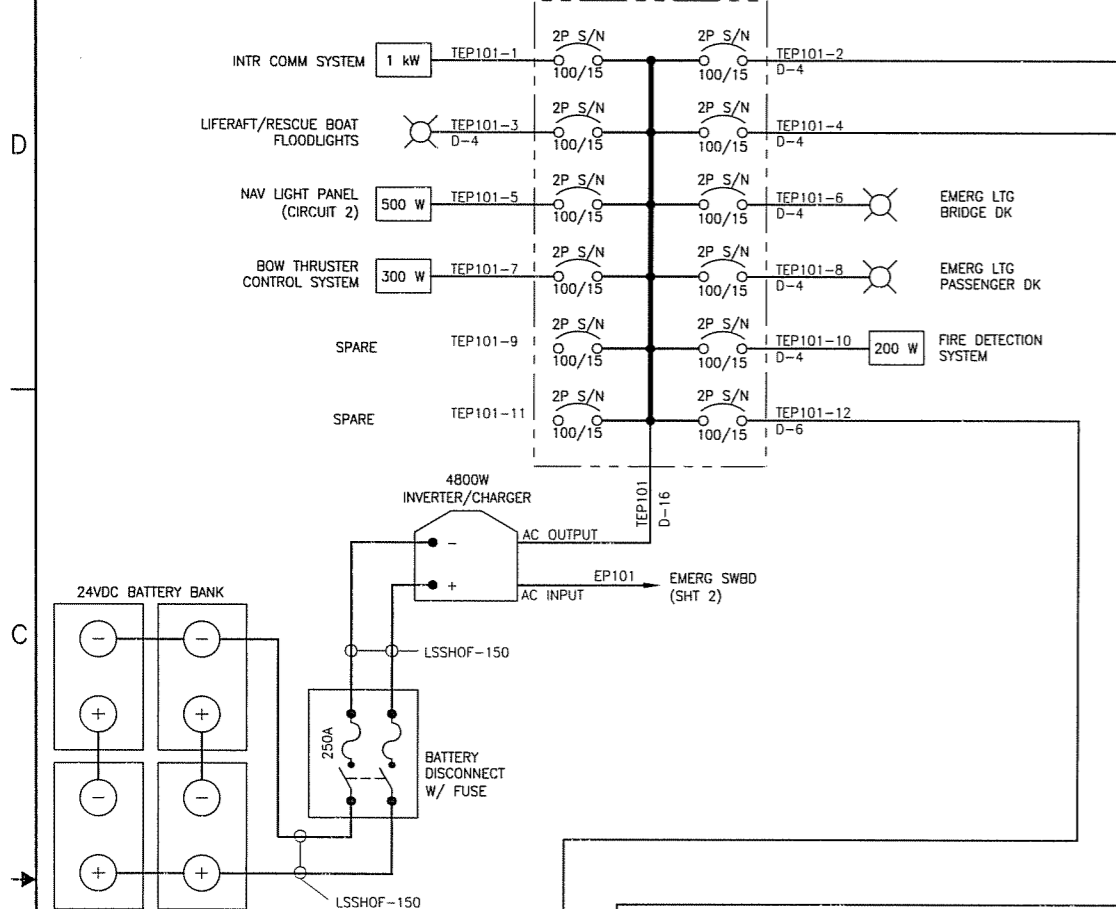


ENGINE ROOM PANEL - P204
 208/120 VAC, 3 ϕ -4W

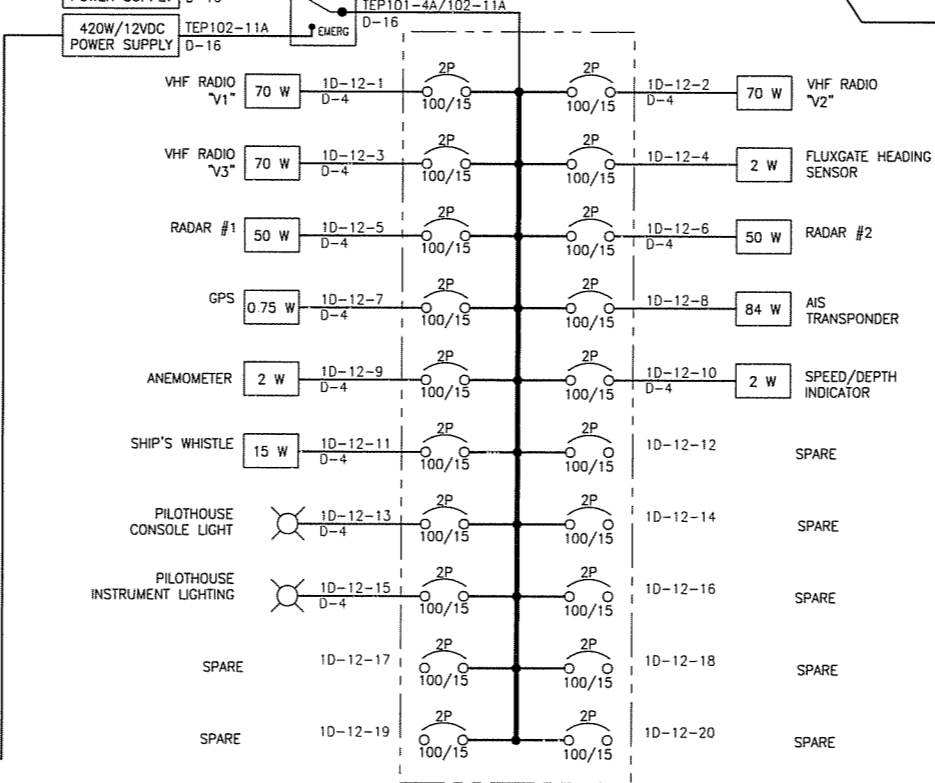


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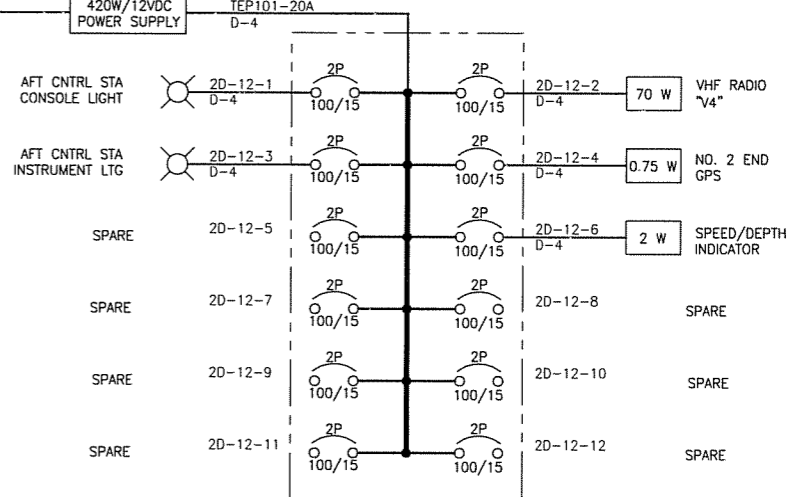
PILOTHOUSE TEP PANEL – TEP101
 120 VAC, 1Ø, 60A



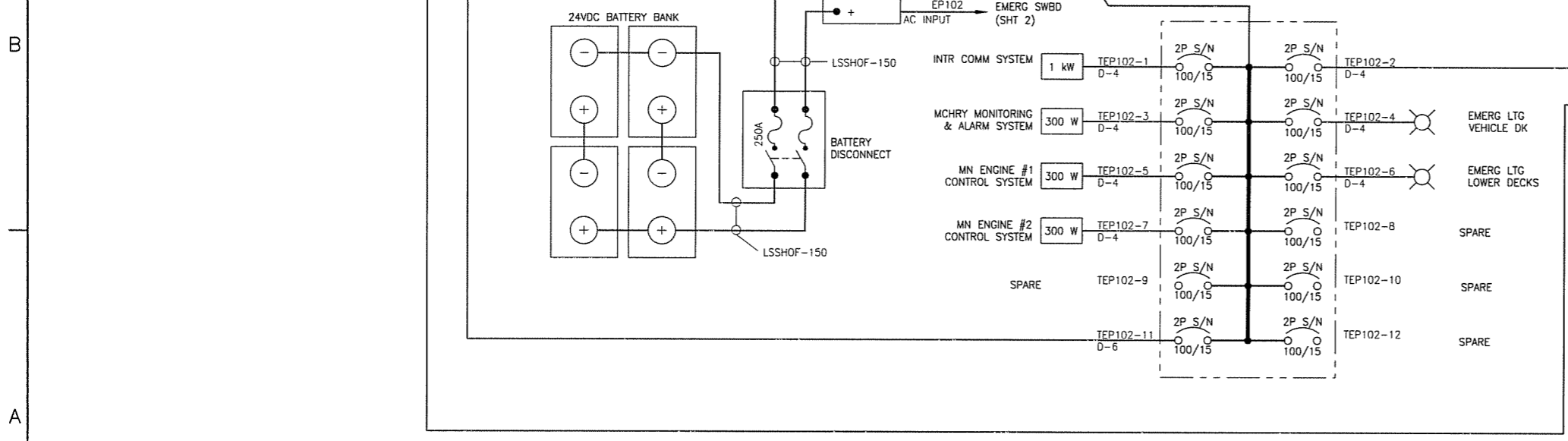
PH DC PANEL – 1D
 12 VDC, 50A



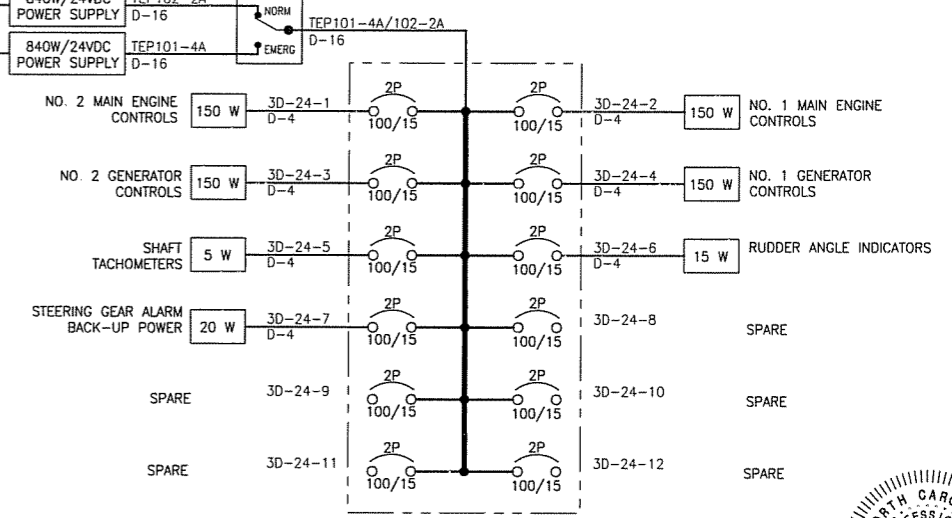
AFT CNTRL STA DC PANEL – 2D
 12 VDC, 30A



ER TEP PANEL – TEP102
 120 VAC, 1Ø, 60A



ER DC PANEL – 3D
 24 VDC, 50A



NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL
 DOUGLAS W. [Signature]
 1.23.08

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LIST OF MATERIALS

PIECE No.	QTY	SYM	DESCRIPTION	MANUFACTURER	MODEL/SPECIFICATION	REMARKS
1	119	☒	FLOURESCENT LIGHT, 2x17W T-8	PAULUHN	FSS 217	OR EQUAL
2	33	☒	FLOURESCENT LIGHT, 3x17W T-8	PAULUHN	FSS 317	OR EQUAL, SEE NOTE 4
3	17	⊗	GLOBE LIGHT, 32W CF	PAULUHN	F729B7-32YEL	OR EQUAL
4	6	☉	FLOODLIGHT, 500W, MEDIUM BEAM	PAULUHN	749B	OR EQUAL, SEE REF 1
5	AS REQD	☑	JUNCTION BOX, 4x4	PAULUHN	546A	OR EQUAL
6	AS REQD	Ⓢ	SWITCH, 20A, SPST	PAULUHN	2722A	OR EQUAL
7	2		SWITCH, 20A, DPCO	TBD		PILOTHOUSE & AFT CONTROL STA LIGHTING
8	AS REQD		RELAY, 20A, 120V	TBD		EMERGENCY LIGHTING RELAY
9	AS REQD	T-4	CABLE, 14 AWG, 2-COND	TBD		SEE NOTE 7
10	AS REQD	T-6	CABLE, 12 AWG, 2-COND	TBD		SEE NOTE 7

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	3-C	ADDED SEARCHLIGHT	JL	01/17/08	DMW

GENERAL NOTES

- MATERIAL AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER H VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS
- MAIN SWITCHBOARD IS 3 PHASE 4 WIRE SYSTEM, 208/120V, 60 Hz, WITH GROUNDED NEUTRAL
- ALL PERMANENTLY INSTALLED ELECTRICAL EQUIPMENT SHALL HAVE METAL ENCLOSURES PROPERLY GROUNDED IN ACCORDANCE WITH SECTION 250-95 OF THE NATIONAL ELECTRICAL CODE
- CENTER LAMP/BALLAST OF 3-LAMP FIXTURES ARE WIRED TO THE EMERGENCY LIGHTING CIRCUIT (SEE DETAIL 1-5A).
- THE PILOTHOUSE AND AFT CONTROL STATION LIGHTING SHALL BE WIRED PER DETAIL 1-3A. ALL CENTER LAMPS SHALL BE RED TINTED OR COVERED WITH A RED TINTED COVER.
- ALL SPACES SHALL HAVE INDIVIDUALLY SWITCHED LIGHTING AT THE ENTRANCE TO THE SPACE. THE OWNER'S REPRESENTATIVE WILL APPROVE LOCATIONS OF ALL SWITCHES AND IDENTIFY THOSE FIXTURES THAT ARE NOT TO BE SWITCHED (FOR SECURITY OR OPERATIONAL CONCERNS).
- ALL CABLE SHALL BE IEEE-45 LOW SMOKE OR MIL-C-24643

REFERENCES

- 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-320-1 ELECTRICAL ONE-LINE DIAGRAM

Elliott Bay Design Group
 Seattle • New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

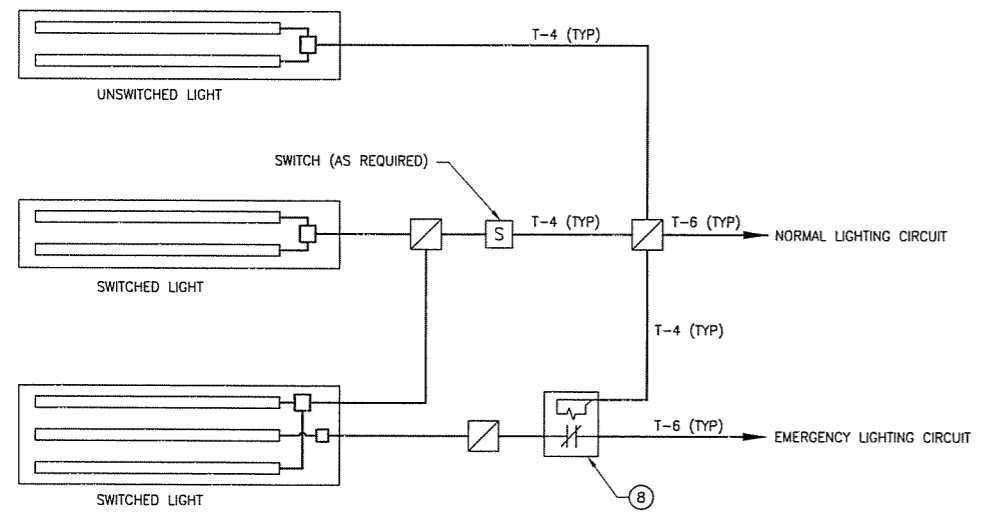
PROJECT: NEW SOUND CLASS FERRY



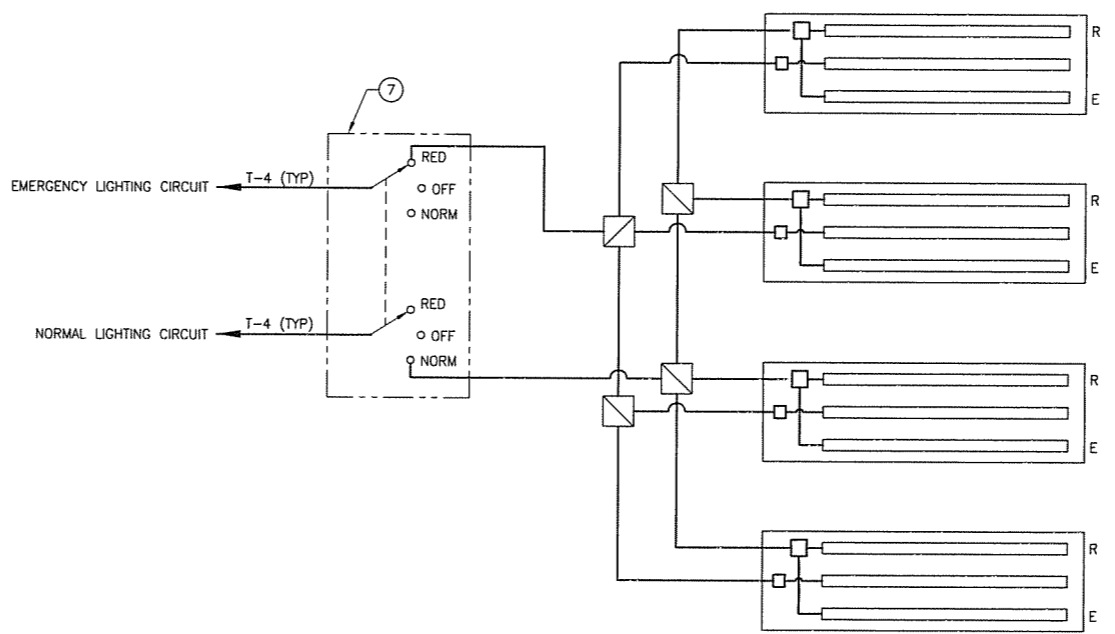
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CHKD	JEP	DATE	1/9/08	SCALE	NONE	FILE NAME	07069-001-3301-A	SHEET	1 OF 4
APVD	DMW	DATE	1/9/08						

D
C
B
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D
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A



DETAIL 1-5A
EMERGENCY LIGHTING CONTROL

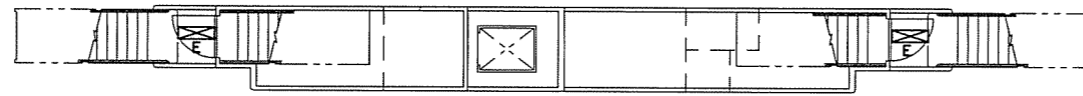


DETAIL 1-3A
PILOTHOUSE & ACS LIGHTING CONTROL

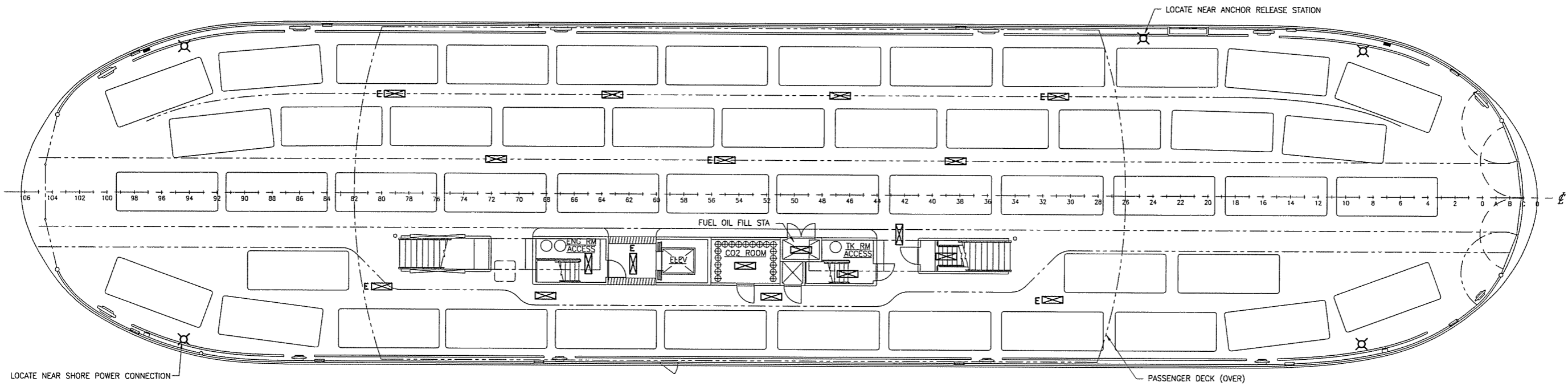
LIGHTING PLAN

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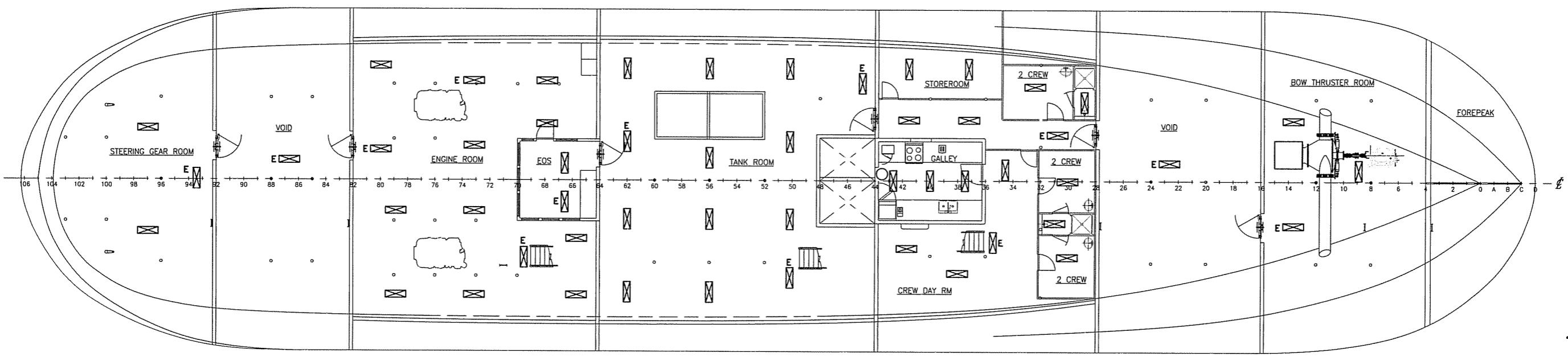
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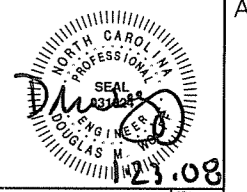
PLAN 2-4D
MID DECK



PLAN 2-4C
MAIN DECK

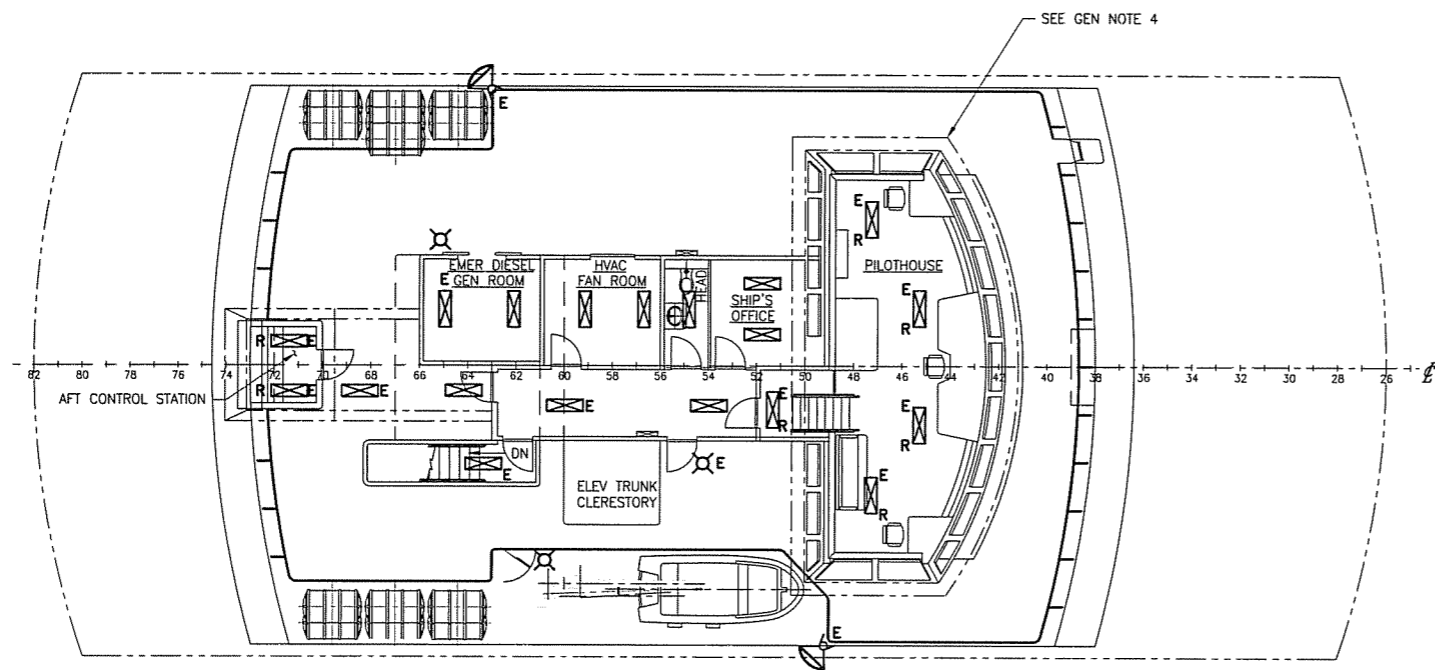


PLAN 2-4A
LOWER DECK

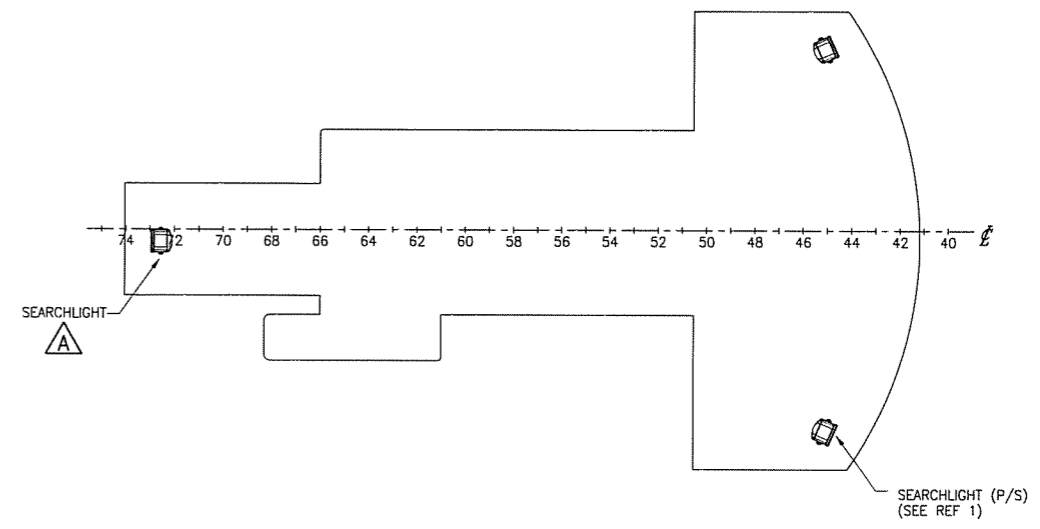


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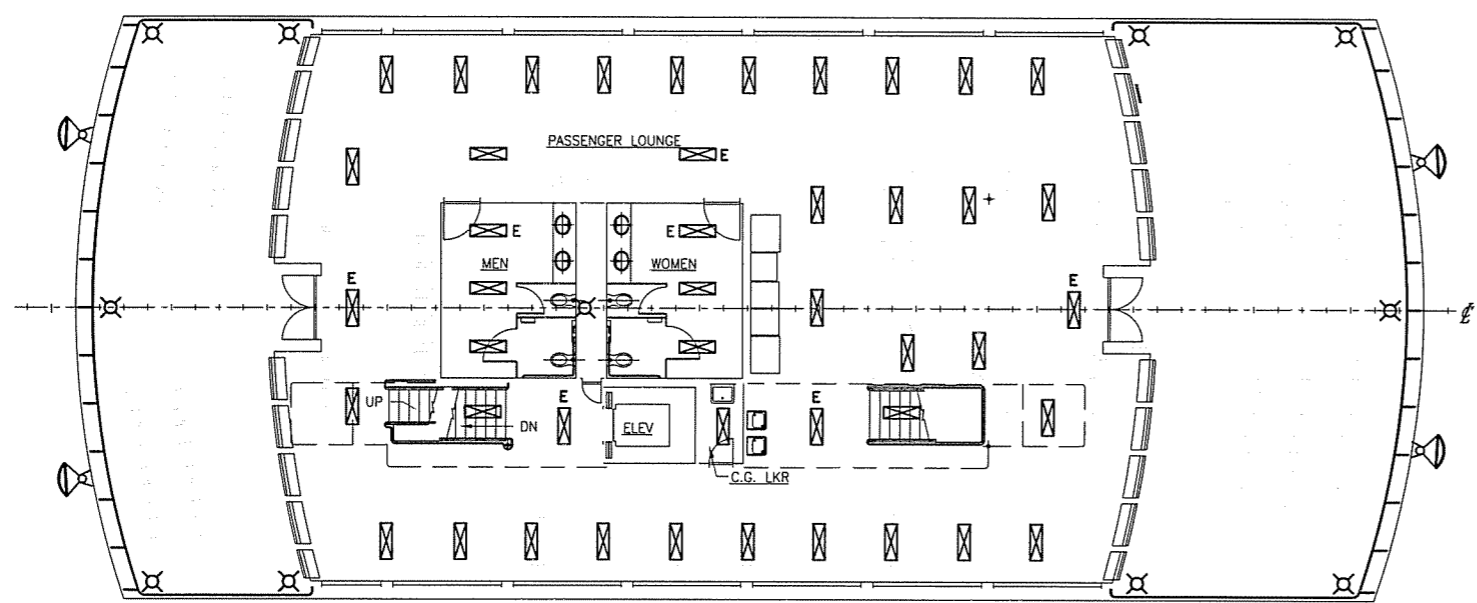
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PLAN 3-4C
 NAVIGATION/BRIDGE DECK



PLAN 3-2C
 HOUSE TOP

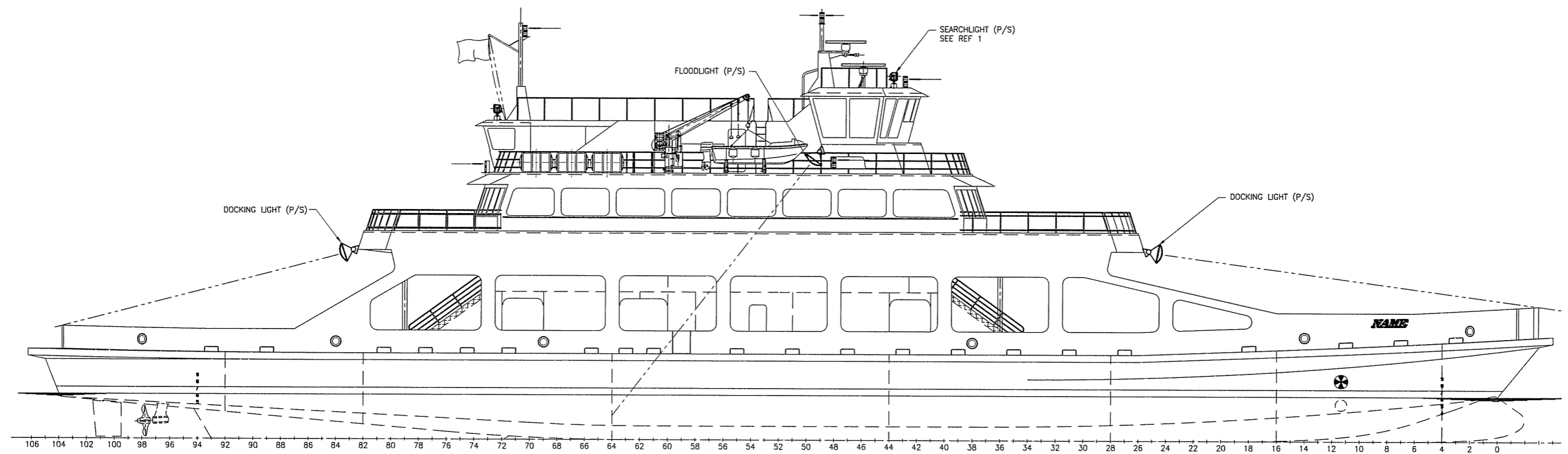


PLAN 3-4A
 PASSENGER DECK



SIZE	DWG NO.	REV
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SCALE	1/8" = 1'-0"	FILE NAME 07069-001-3301-A SHEET 3 OF 4

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ELEVATION 4-3B
 OUTBOARD PROFILE

SEAL
 NORTH CAROLINA
 PROFESSIONAL
 ENGINEER
 DOUGLAS M. [Signature]
 1.23.08

SIZE D	DWG NO. 07069-001-330-1	REV A
SCALE 1/8" = 1'-0"	FILE NAME 07069-001-3301-A	SHEET 4 OF 4

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	3-3A	1. ADDED VENT DETAIL	JL	1/08/08	DMW

MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			FITTINGS	VALVES		REMARKS
			MATERIAL	GASKETS	BOLTING		BODY	TRIM	
LUBE OIL, GEAR OIL & FUEL OIL VENTS SOUNDING TUBES & OVERFLOWS NOT LOCATED IN WEATHER	2 1/2" & ABV	CARBON STEEL SCH 40 ASTM A53 GRADE B SMLS ANSI B36.10	FLANGED, SLIP-ON CARBON STEEL 150# ASTM A105 ANSI B16.5			CARBON STEEL, BUTT WELD, SCH 40 ASTM A234 ANSI B16.9	GATE: CARBON STEEL FLANGED, 150# ASTM A105 ANSI B16.5 & B16.34	STAINLESS STEEL RENEWABLE DISC & SEAT	
	2" & BELOW		UNION, GROUND JOINT CARB STEEL SOCKET WELD, 3000# ASTM A182 ANSI B16.11			CARB STEEL, SOCKET WELD, 3000# ASTM A105 ANSI B16.11			
VENTS SOUNDING TUBES & OVERFLOWS LOCATED IN WEATHER	2 1/2" & ABV	STAINLESS STEEL SCH 40 ASTM A316 SMLS ANSI B36.19	FLANGED, SLIP-ON STAINLESS STEEL 150# ASTM A182 ANSI B16.5			STAINLESS STEEL, BUTT WELD, SCH 40 ASTM A403 ANSI B16.9	GATE: RISING STEM, STAINLESS STEEL FLANGED, 150# ASTM A182 ANSI B16.5 & B16.34	RENEWABLE DISC & SEAT	
	2" & BELOW					STAINLESS STEEL, SOCKET WELD, 3000# ASTM A403 ANSI B16.11			
POTABLE WATER VENTS SOUNDING TUBES & OVERFLOWS NOT LOCATED IN WEATHER	2 1/2" & ABV	CARBON STEEL GALV SCH 40 ASTM A53 GRADE B SMLS ANSI B36.10	FLANGED, SLIP-ON CARBON STEEL 150# GALV ASTM A105 ANSI B16.5			CARBON STEEL, GALV, BUTT WELD, SCH 40 ASTM A234 ANSI B16.9	GATE: STAINLESS STEEL FLANGED, 150# ASTM A182 ANSI B16.5 & B16.34	STAINLESS STEEL RENEWABLE DISC & SEAT	
	2" & BELOW		UNION, GROUND JOINT CARBON STEEL GALV SOCKET WELD, 3000# ASTM A182 ANSI B16.11			CARBON STEEL, GALV SOCKET WELD, 3000# ASTM A105 ANSI B16.11			
SEA CHEST VENTS	1" & ABV	STAINLESS STEEL SCH 40 ASTM A316 SMLS ANSI B36.19	FLANGED, SLIP-ON STAINLESS STEEL 150# ASTM A182 ANSI B16.5			STAINLESS STEEL BUTT WELD SCH 40 ASTM A403 ANSI B16.9	BALL: FULL PORT STAINLESS STEEL FLANGED, 150# ASTM A351 MSS-SP 72	RENEWABLE DISC & SEAT	
	3/4" & BELOW		UNION, GROUND JOINT STAINLESS STEEL SOCKET WELD, 3000# ASTM A182 ANSI B16.11			STAINLESS STEEL SOCKET WELD, 3000# ASTM A403 ANSI B16.11	BALL: FULL PORT STAINLESS STEEL THREADED ASTM A351 MSS-SP 72		

GENERAL NOTES

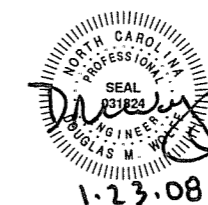
- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS.
- EQUIPMENT LAYOUT WITHIN A GIVEN AREA IS ONLY APPROXIMATE. PROVISION OF EQUIPMENT SHALL BE AS SHOWN ON THIS DRAWING AND AS DESCRIBED BY REF. (1)
- FOR SOUNDING TUBES, PIPE BENDS WITH A RADIUS OF 10 FT SHALL BE USED IN LIEU OF ELBOWS
- 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 PIPES SHALL SLOPE NO MORE THAN 30 DEG FROM VERTICAL.
- THE FUEL OIL, GEAR OIL, LUBE OIL AND POTABLE WATER TANKS SHALL EACH BE FITTED WITH GEMS SURESITE GAUGES INDICATING THE FULL RANGE OF THE TANKS AS FEASIBLE
- THE POTABLE WATER, LUBE OIL, GEAR OIL AND FUEL OIL FILLS SHALL EACH BE FITTED WITH STAINLESS STEEL CAMLOCK FITTINGS WITH LOCKABLE DUST CAPS IN THE FOLLOWING SIZES:
 2" POTABLE WATER TANKS, 2 PLACES
 3" FUEL OIL TANKS, 2 PLACES
 2" L.O. TANK
 2" GEAR OIL TANK
- FILL PIPING SHALL BE LABELED AND COLOR CODED AS FOLLOWS:
 LT BLUE: POTABLE WATER
 BLACK: FUEL OIL
 YELLOW: LUBE OIL
 YELLOW/BLACK: GEAR OIL
- ALL PIPES, FITTINGS & VALVES EXPOSED TO THE WEATHER SHALL BE STAINLESS STEEL. ALL OTHER PIPES FITTING & VALVES TO BE STEEL
- FILL & VENT STATIONS SHALL BE FITTED WITH A REMOVABLE SS WELDED WIRE DOOR WITH LOCKING HASP FASTENERS AND HARDWARE SHALL BE STAINLESS STEEL.
- HORIZONTAL PIPE RUNS GREATER THAN 3 FT SHALL BE SLOPED TO ALLOW DRAINAGE LONGITUDINAL RUNS SHALL HAVE A SLOPE OF 1/8 IN FOR EVERY 1 FT TRANSVERSE PIPE RUNS SHALL HAVE A SLOPE OF 1/4 IN FOR EVERY 1 FT.
- MAXIMUM FUEL OIL TANK FILL LINE SHALL BE BELOW FUEL OIL FILL AND FUEL OIL VENT PIPES

PIPING SYMBOLS

	PIPE
	DIRECTION OF FLOW
	PIPE UP
	PIPE DOWN
	QUICK ACTING SELF CLOSING GATE VALVE
	DECK OR BHD PENETRATION
	GATE VALVE
	BALL VALVE - FULL PORT ONLY
	SOUNDING TUBE TERMINAL
	SIGHT GAUGE, SEE NOTE 6
	CAMLOCK QUICK CONNECT W/DUST CAP SEE NOTE 7
	BALLCHECK VENT W/ SS FLAME SCREEN
	VENT W/ SS FLAME SCREEN

REFERENCES

- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-533-1 POTABLE WATER PIPING SCHEMATIC
- 07069-001-200-1 ENGINE RM & TANK RM ARRANGEMENT
- 07069-001-261-1 FUEL OIL PIPING SCHEMATIC
- 07069-001-506-2 FILLS, VENTS & SOUND PIPING ARR & DETS



Elliott Bay Design Group
 Seattle - New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

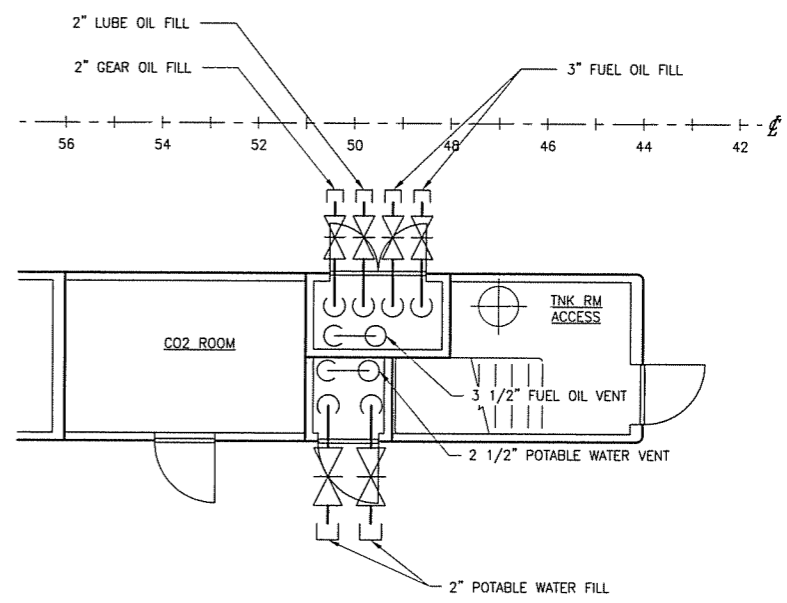
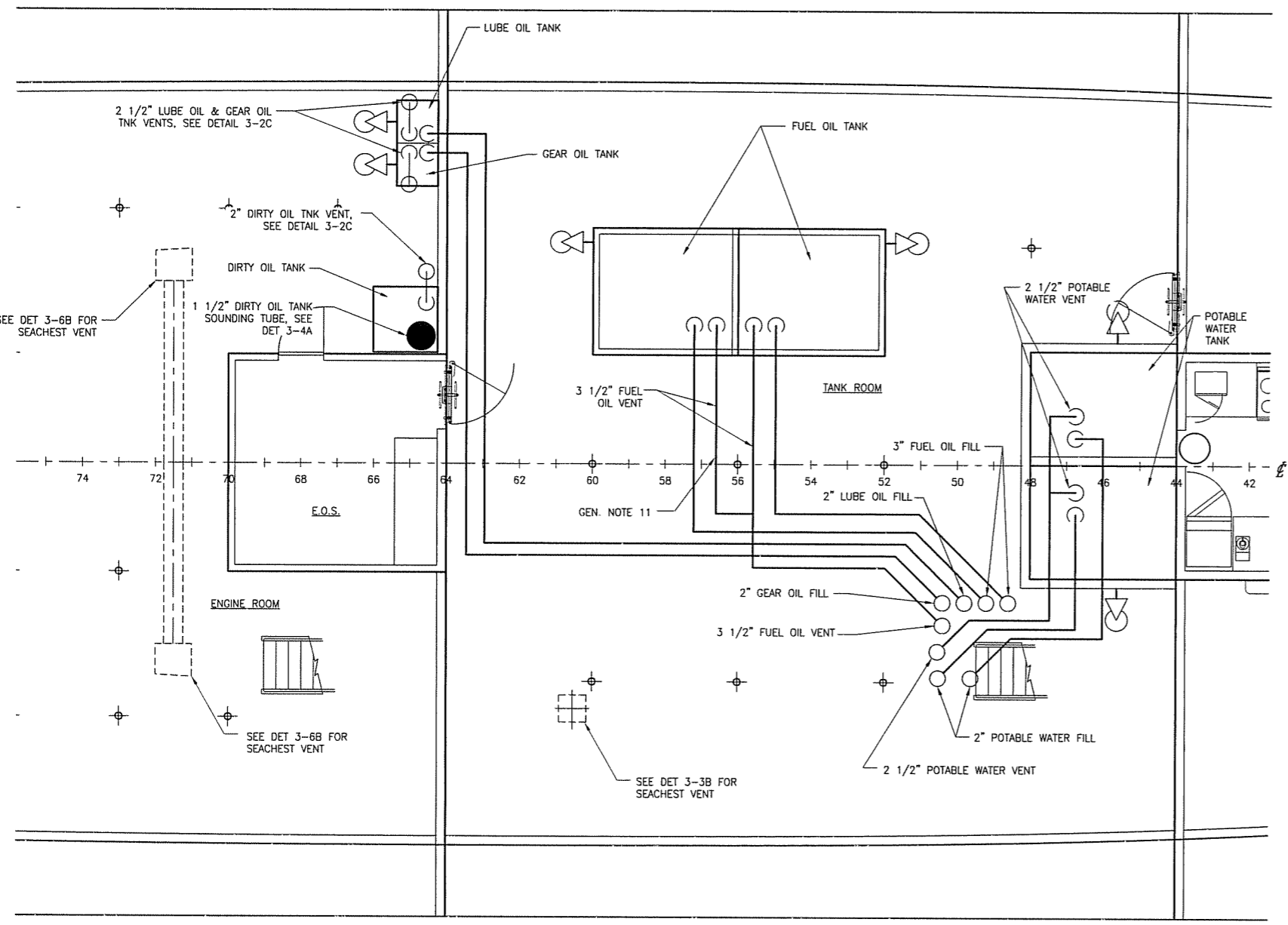
PROJECT: NEW SOUND CLASS FERRY

FILLS, VENTS AND SOUNDS PIPING SCHEMATIC

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APVD	DMW	DATE	1/09/08	SCALE	AS NOTED	FILE NAME	07069-001-5061-A	SHEET	1 OF 3

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C
B
A



SIE	D	DWG NO.	07069-001-506-1	REV	A
SCALE	1/4" = 1' 0"	FILE NAME	07069-001-5061-A	SHEET	2 OF 3

6

5

4

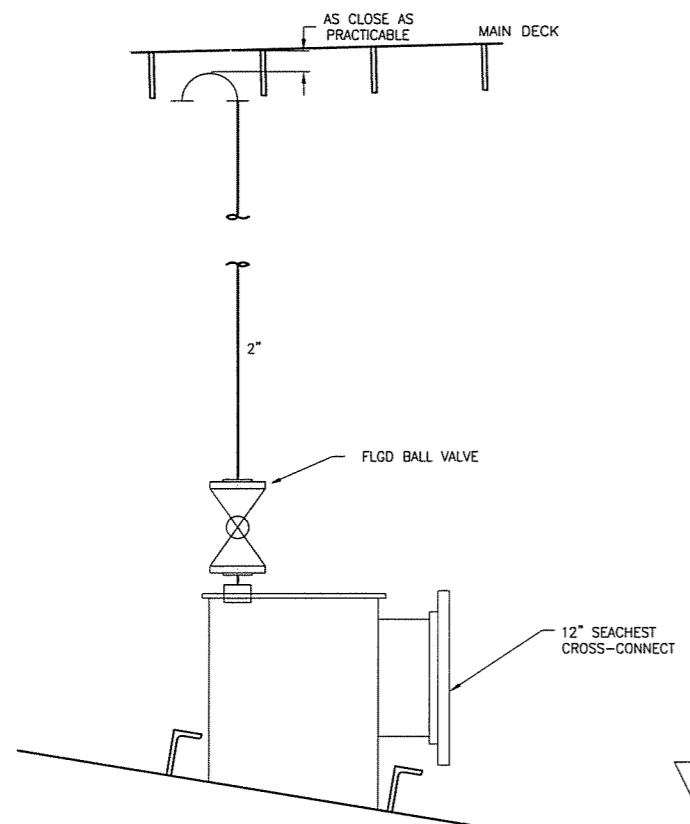
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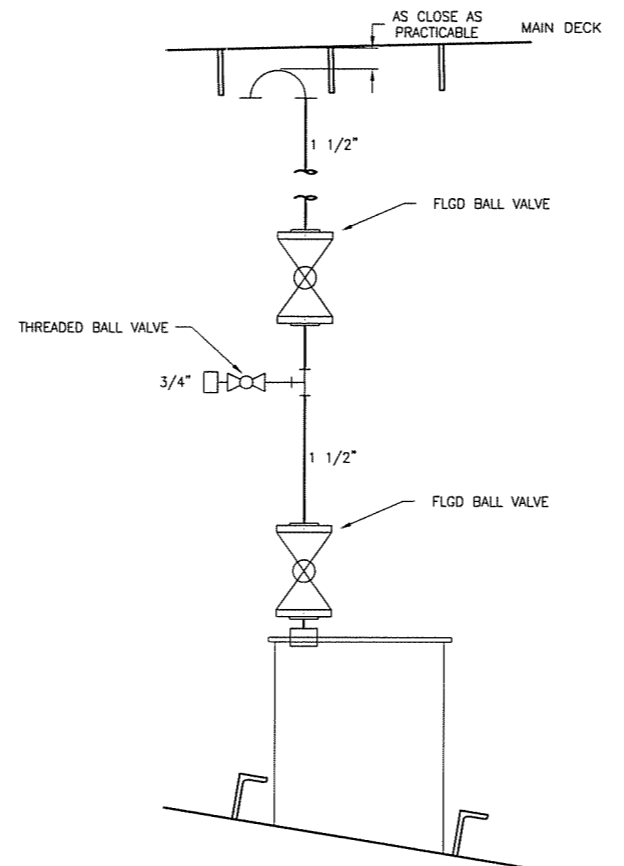
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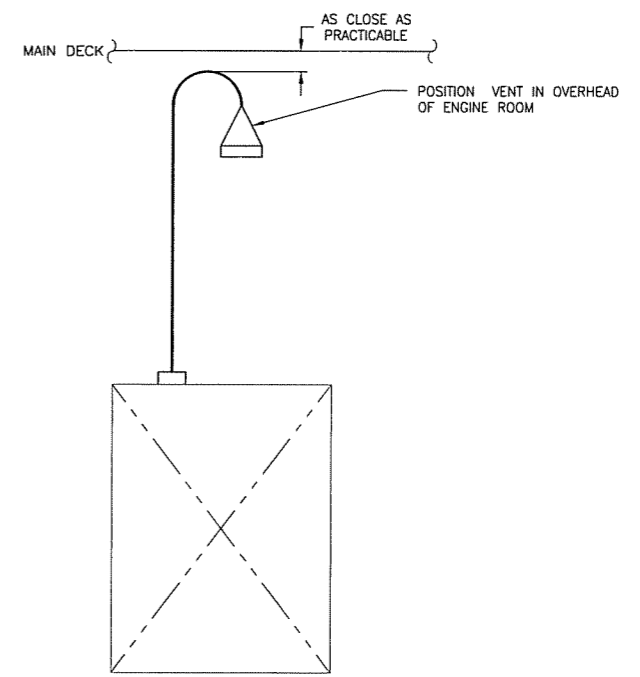
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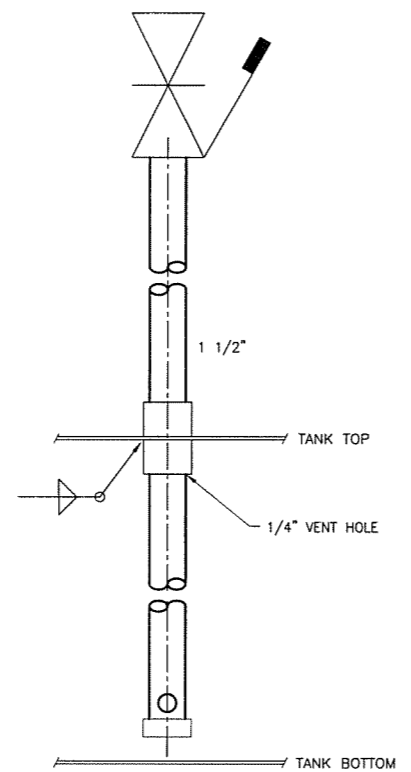
DETAIL 3-6B
 ENGINE ROOM
 SEACHEST VENT PORT & STBD



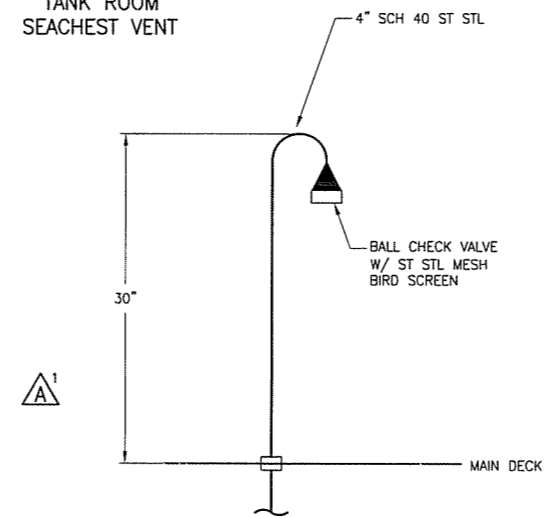
DETAIL 3-3B
 TANK ROOM
 SEACHEST VENT



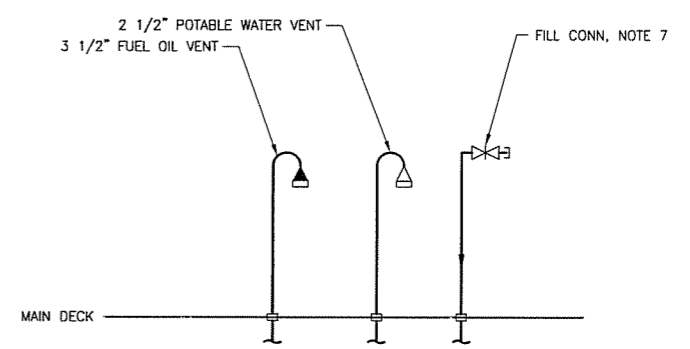
DETAIL 3-2C
 LUBE OIL, GEAR OIL & DIRTY OIL
 TANK VENTS & OVFLS



DETAIL 3-4A
 DIRTY OIL TANK
 SOUNDING TUBE



DETAIL 3-3A
 VOID BELOW CREW QUARTERS,
 FWD & AFT VOIDS, AND FOREPEAK VENTS
 (2 VENTS EACH COMPARTMENT)



DETAIL 3-2A
 MAIN DECK FILLS & VENTS



1.23.08

6 5 4 3 2 1

SIZE	D	DWG NO.	07069-001-506-1	REV	A
SCALE	NONE	FILE NAME	07069-001-5061-A	SHEET	3 OF 3

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INDEX

SHEET NO.	SHEET CONTENT
1	LIST OF MATERIAL, GEN NOTES, REFERENCES
2	LOWER DECK PLAN & DETAILS
3	PLAN MAIN DK, LUBE OIL & GEAR OIL TNK PIPING
4	POTABLE WATER TANKS & FUEL OIL TNKS PIPING
5	SEACHEST VENT PIPING, LIST OF MATERIAL (CONTD)
6	MAIN DECK PLAN AND COMPARTMENT VENTS

LIST OF MATERIALS

PIECE No.	QUANTITY	DESCRIPTION	MATERIAL OR MANUFACTURER	SPEC, GRADE OR MODEL	REMARKS
1	32 FT	2" PIPE, SCH 40, SEAMLESS	STAINLESS STL 316	ASTM A-312, TYPE 316	ANSI B36.19
2	140 FT	2" PIPE, SCH 40, SEAMLESS	CARB STL	ASTM A-106, GR B	ANSI B36.10
3	5 FT	2 1/2" PIPE, SCH 40, SEAMLESS	STAINLESS STL 316	ASTM A-312, TYPE 316	ANSI B36.19
4	8 FT	2 1/2" PIPE, SCH 40, SEAMLESS	CARB STL	ASTM A-106, GR B	ANSI B36.10
5	8 FT	3" PIPE, SCH 40, SEAMLESS	STAINLESS STL 316	ASTM A-312, TYPE 316	ANSI B36.19
6	75 FT	3" PIPE, SCH 40, SEAMLESS	CARB STL	ASTM A-106, GR B	ANSI B36.10
7	4	3 1/2" PIPE, SCH 40, SEAMLESS	STAINLESS STL 316	ASTM A-312, TYPE 316	ANSI B36.19
8	38 FT	3 1/2" PIPE, SCH 40, SEAMLESS	CARB STL	ASTM A-106, GR B	ANSI B36.10
9	7 FT	1 1/2" PIPE, SCH 40, SEAMLESS	CARB STL	ASTM A-106, GR B	ANSI B36.10
10	50 FT	2" PIPE, SCH 40, SEAMLESS, GALV	CARB STL	ASTM A-106, GR B	ANSI B36.10
11	21 FT	2 1/2" PIPE, SCH 40, SEAMLESS, GALV	CARB STL	ASTM A-106, GR B	ANSI B36.10
12	4	2" 90° ELBOW, SOCKET-WELD, 3000 LB	STAINLESS STL	ASTM A-403	ANSI B16.11
13	6	2" 90° ELBOW, SOCKET-WELD, 3000 LB	CARB STL	ASTM A-105	ANSI B16.11
14	2	2" 45° ELBOW, SOCKET-WELD, 3000 LB	CARB STL	ASTM A-105	ANSI B16.11
15	1	2" 180° RETURN, B-WELD, SCH 40	CARB STL	ASTM A-234	ANSI B16.9
16	4	2 1/2" 90° ELBOW, B-WELD, SCH 40, GALV	CARB STL	ASTM A-234	ANSI B16.9
17	1	2 1/2" 45° ELBOW, B-WELD, SCH 40, GALV	CARB STL	ASTM A-234	ANSI B16.9
18	1	2 1/2" 180° RETURN, B-WELD, SCH 40	STAINLESS STL	ASTM A-403	ANSI B16.9
19	4	3" 90° ELBOW, B-WELD, SCH 40	STAINLESS STL	ASTM A-403	ANSI B16.9
20	6	3" 90° ELBOW, B-WELD, SCH 40	CARB STL	ASTM A-234	ANSI B16.9
21	2	3" 45° ELBOW, B-WELD, SCH 40	CARB STL	ASTM A-234	ANSI B16.9
22	3	3 1/2" 90° ELBOW, B-WELD, SCH 40	CARB STL	ASTM A-234	ANSI B16.9
23	1	3 1/2" 45° ELBOW, B-WELD, SCH 40	CARB STL	ASTM A-234	ANSI B16.9
24	1	3 1/2" 180° RETURN, B-WELD, SCH 40	STAINLESS STL	ASTM A-403	ANSI B16.9
25	1	2 1/2" TEE, B-WELD, SCH 40, GALV	CARB STL	ASTM A-234	ANSI B16.9
26	1	3 1/2" TEE, B-WELD, SCH 40	CARB STL	ASTM A-234	ANSI B16.9
27	12	2" FLANGE, 150#, SLIP-ON, RF	STAINLESS STL	ASTM A-182	ANSI B16.5
28	4	2" FLANGE, 150#, SLIP-ON RF	CARB STL	ASTM A-105	ANSI B16.5
29	4	3" FLANGE, 150#, SLIP-ON, RF	STAINLESS STL	ASTM A-182	ANSI B16.5
30	AS REQD	3" FLANGE, 150#, SLIP-ON, RF	CARB STL	ASTM A-105	ANSI B16.5
31	AS REQD	3 1/2" FLANGE, 150#, SLIP-ON, RF	CARB STL	ASTM A-105	ANSI B16.5
32	AS REQD	2 1/2" FLANGE, 150#, SLIP-ON, RF	CARB STL	ASTM A-105	ANSI B16.5
33	4	2" GATE VALVE, 150# FLANGED, RF	STAINLESS STL	ASTM A-182	ANSI B-16.34
34	2	3" GATE VALVE, 150# FLANGED, RF, RISING STEM	STAINLESS STL	ASTM A-182	ANSI B-16.34
35	1	1 1/2" QUICK-OPENING SELF-CLOSING GATE VALVE,	BRONZE	-	-
36	1	1" HALF COUPLING, THREADED 3000 LB	STAINLESS STL	ASTM A-403	ANSI B16.11
37	1	1" PIPE PLUG	BRONZE	ASTM B-62	ANSI B16.15
38	1	1 1/2" PIPE PLUG	BRONZE	ASTM B-62	ANSI B16.15
39	AS REQD	2" UNION, 3000 LB,	CARB STL	ASTM A-105	-
40	1	1 1/2" DECK AND BHD SLEEVE	CARB STL	ASTM A-53	-
41	6	2" DECK AND BHD SLEEVE	CARB STL	ASTM A-53	-
42	-	-	-	-	-
43	2	3" DECK AND BHD SLEEVE	CARB STL	ASTM A-53	-
44	2	3 1/2" DECK AND BHD SLEEVE	CARB STL	ASTM A-53	-
45	1	4" TANK VENT, W/FULL FLOAT, THREADED	STAINLESS STL 316	1700 SERIES	ROBERT H WAGER CO.
46	1	2 1/2" TANK VENT, W/FULL FLOAT, THREADED	STAINLESS STL 316	1700 SERIES	ROBERT H WAGER CO.
47	2	2 1/2" TANK VENT, W/SCREEN, THREADED	BRONZE	1600 SERIES	ROBERT H WAGER CO.
48	1	2" TANK VENT, W/SCREEN, THREADED	BRONZE	1600 SERIES	ROBERT H WAGER CO.
49	-	-	-	-	-
50	2	3" CAMLOCK CAP	STAINLESS STL	316	-
51	4	2" CAMLOCK CAP	STAINLESS STL	316	-
52	2	3" CAMLOCK FTG, M. ADAPTER x FPT	STAINLESS STL	316	-
53	4	2" CAMLOCK FTG, M. ADAPTER x FPT	STAINLESS STL	316	-
54	6	LEVEL INDICATING GAUGE, 3/4" M-NPT CONN	STAINLESS STL	MOD M5	GEMS SURESITE
55	26 FT	4" PIPE, SCH 40, SEAMLESS	STAINLESS STL	ASTM A-106, GR B	ANSI B36.19
56	-	-	-	-	-
57	6	2" 90° ELBOW, SOCKET-WELD, 3000 LB, GALV	CARB STL	ASTM A-105	ANSI B16.11
58	4	2" 45° ELBOW, SOCKET-WELD, 3000 LB, GALV	CARB STL	ASTM A-105	ANSI B16.11
59	1	CONCENTRIC REDUCER 4"x 3 1/2", B-WELD, SCH 40	STAINLESS STL	ASTM A-403, TY 316	ANSI B16.11
60	-	-	-	-	-
61	6	2" DECK AND BHD SLEEVE	STAINLESS STL	ASTM A-312, TYPE 316	-
62	3	2 1/2" DECK AND BHD SLEEVE	STAINLESS STL	ASTM A-312, TYPE 316	-
63	2	3" DECK AND BHD SLEEVE	STAINLESS STL	ASTM A-312, TYPE 316	-

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	6-3B	1. ADDED MAIN DECK COMPARTMENT VENT DETAIL	JL	1/18/08	DMW
	5-4D	2. ADDED TO LIST OF MATERIALS			
	1-5A	3. UPDATED MATERIAL QUANTITIES			

GENERAL NOTES

- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS.
- HORIZONTAL PIPE RUNS GREATER THAN 3 FT SHALL BE SLOPED TO ALLOW DRAINAGE. LONGITUDINAL RUNS SHALL HAVE A SLOPE OF 1/8 IN FOR EVERY 1 FT. TRANSVERSE PIPE RUNS SHALL HAVE A SLOPE OF 1/4 IN FOR EVERY 1 FT.

REFERENCES

- 07069-001-832-1 TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-533-1 POTABLE WATER PIPING SCHEMATIC
- 07069-001-200-1 ENGINE RM & TANK RM ARRANGEMENT
- 07069-001-261-1 FUEL OIL PIPING SCHEMATIC
- 07069-001-506-1 FILLS, VENTS & SOUNDS PIPING SCHEMATIC



1.23.08

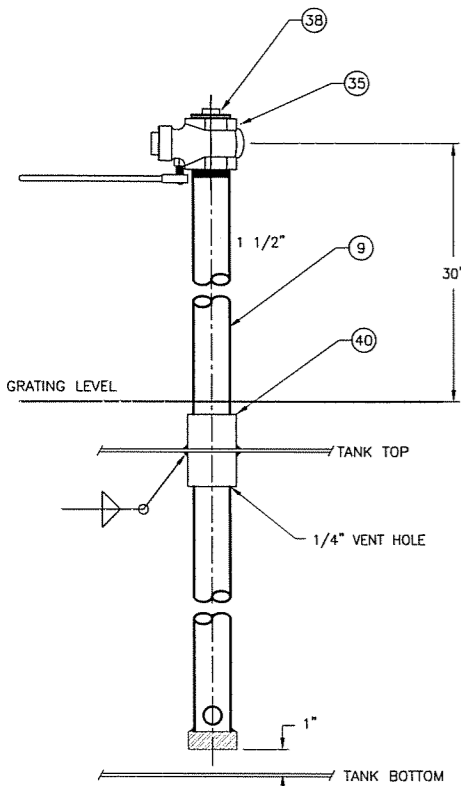
Elliott Bay Design Group
 Seattle · New Orleans
 NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina
 PROJECT: NEW SOUND CLASS FERRY

FILLS, VENTS AND SOUNDS PIPING ARR & DETAILS

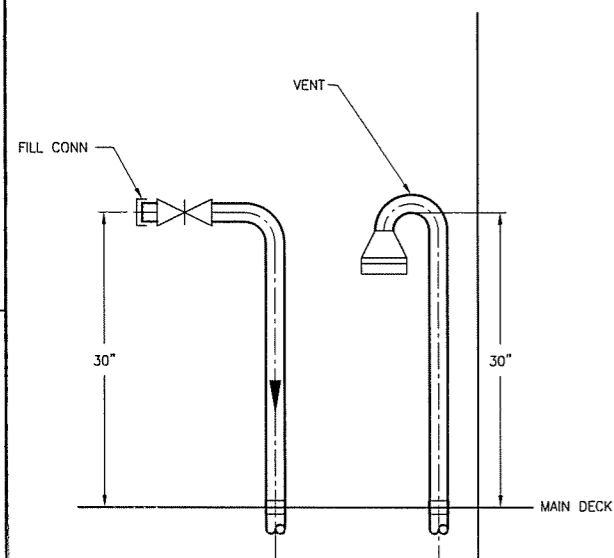
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APVD DMW	DATE 1/09/08	SCALE AS NOTED	FILE NAME 07069-001-5062-A	SHEET 1 OF 6

CONTINUED ZONE 5-4D

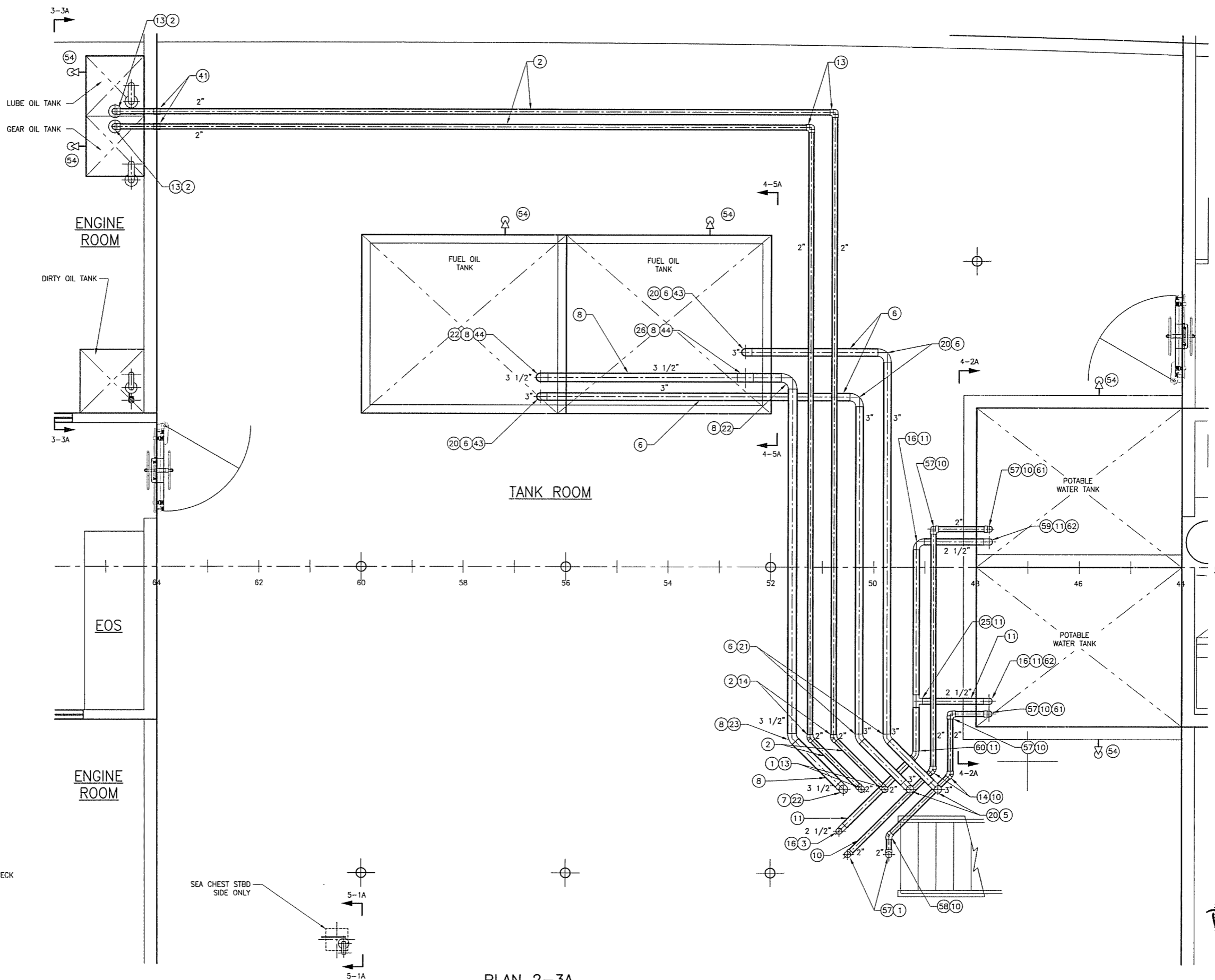
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DETAIL 2-6C
 ENGINE RM DIRTY OIL TNK
 SOUNDING TUBE
 NO SCALE



DETAIL 2-6A
 TYP FILLS AND VENTS
 NO SCALE



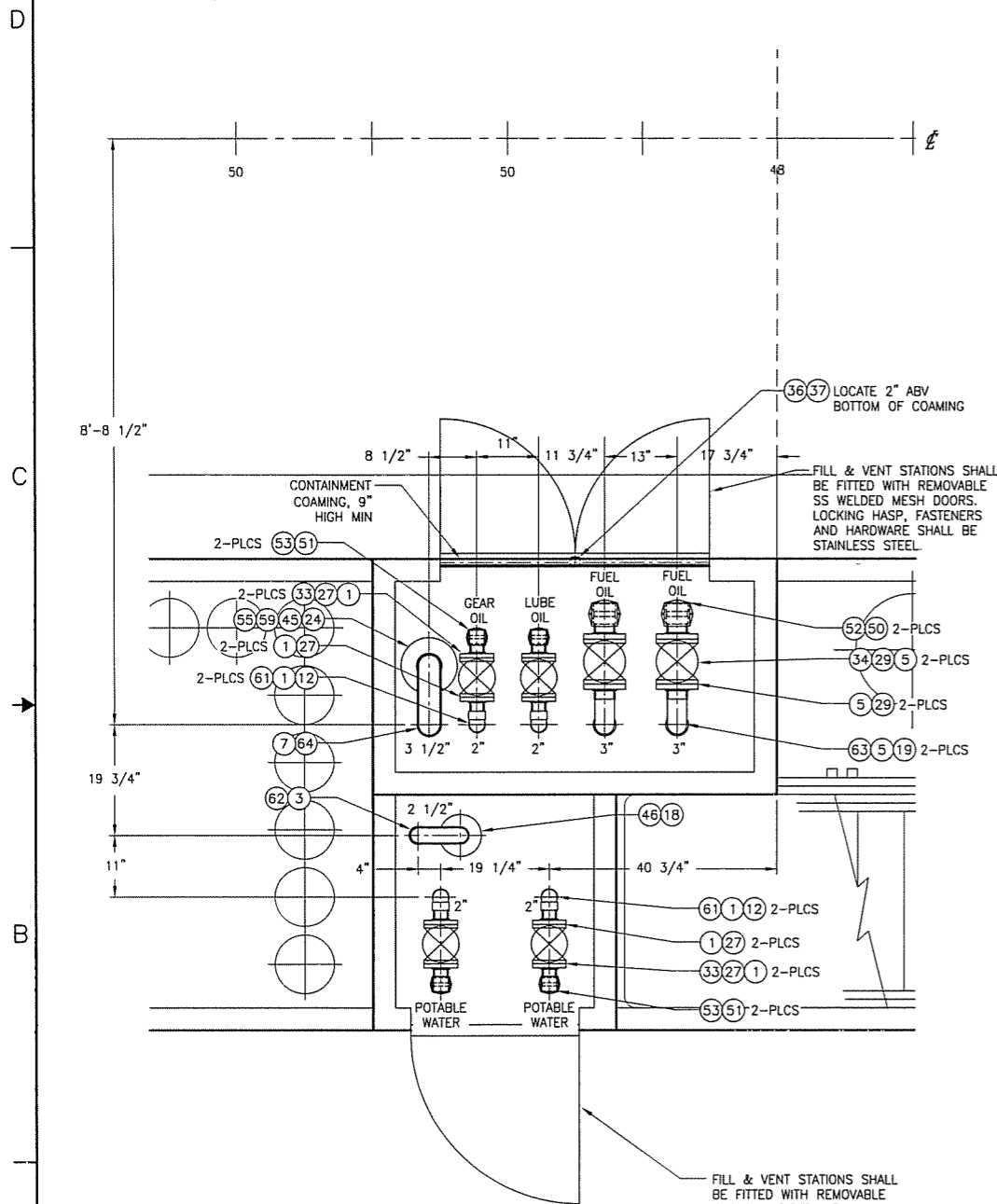
PLAN 2-3A
 LOWER DECK
 FRAME 44 TO 66
 SCALE: 1/2"=1'-0"

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 ENGINEER
 DOUGLAS M. [Signature]

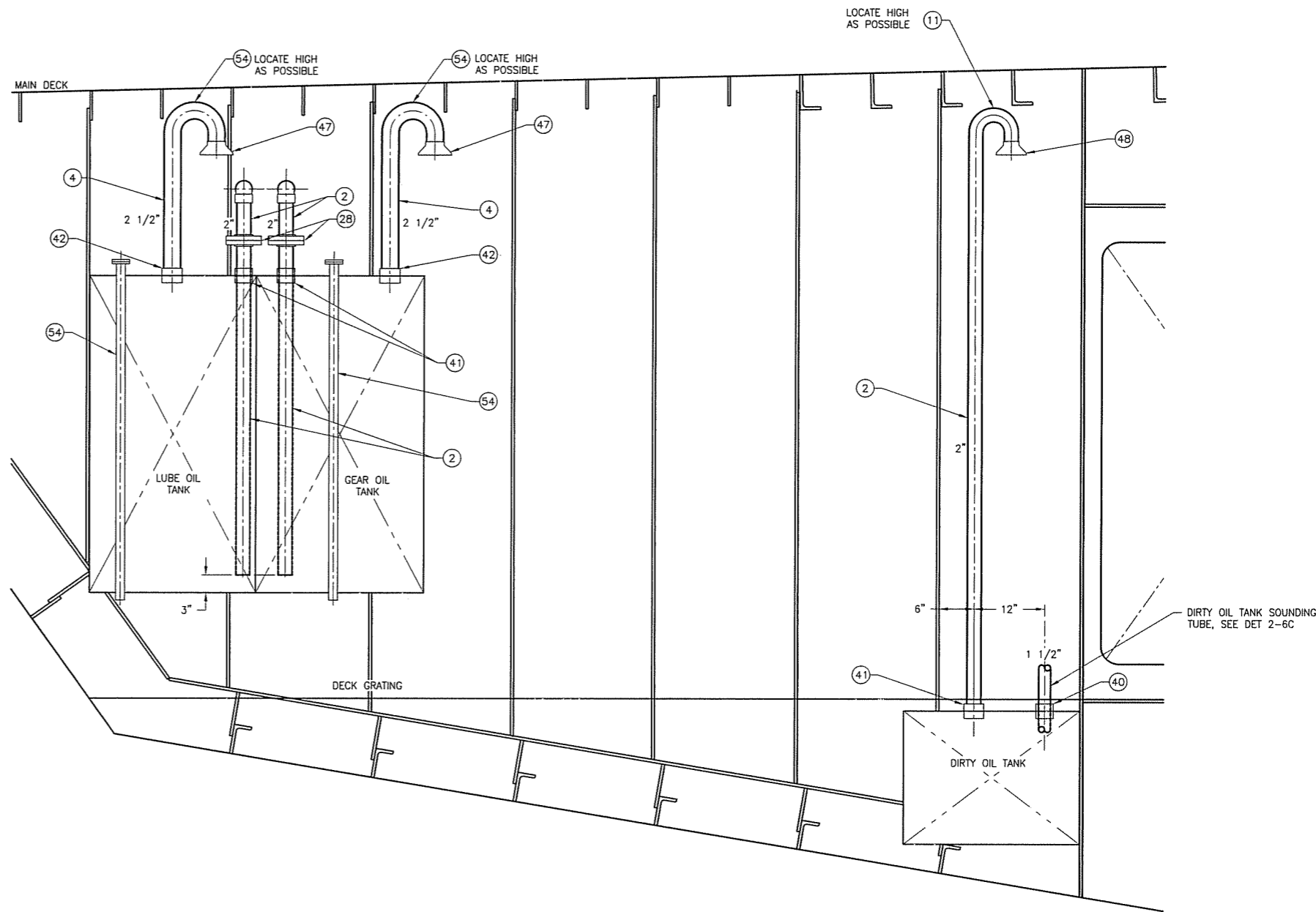
1.23.08

SIZE	D	DWG NO.	07069-001-506-2	REV	A
SCALE	AS NOTED	FILE NAME	07069-001-5062-A	SHEET	2 OF 6

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PLAN 3-5A
 MAIN DECK
 FR 46 TO 51
 SCALE: 1"=1'-0"



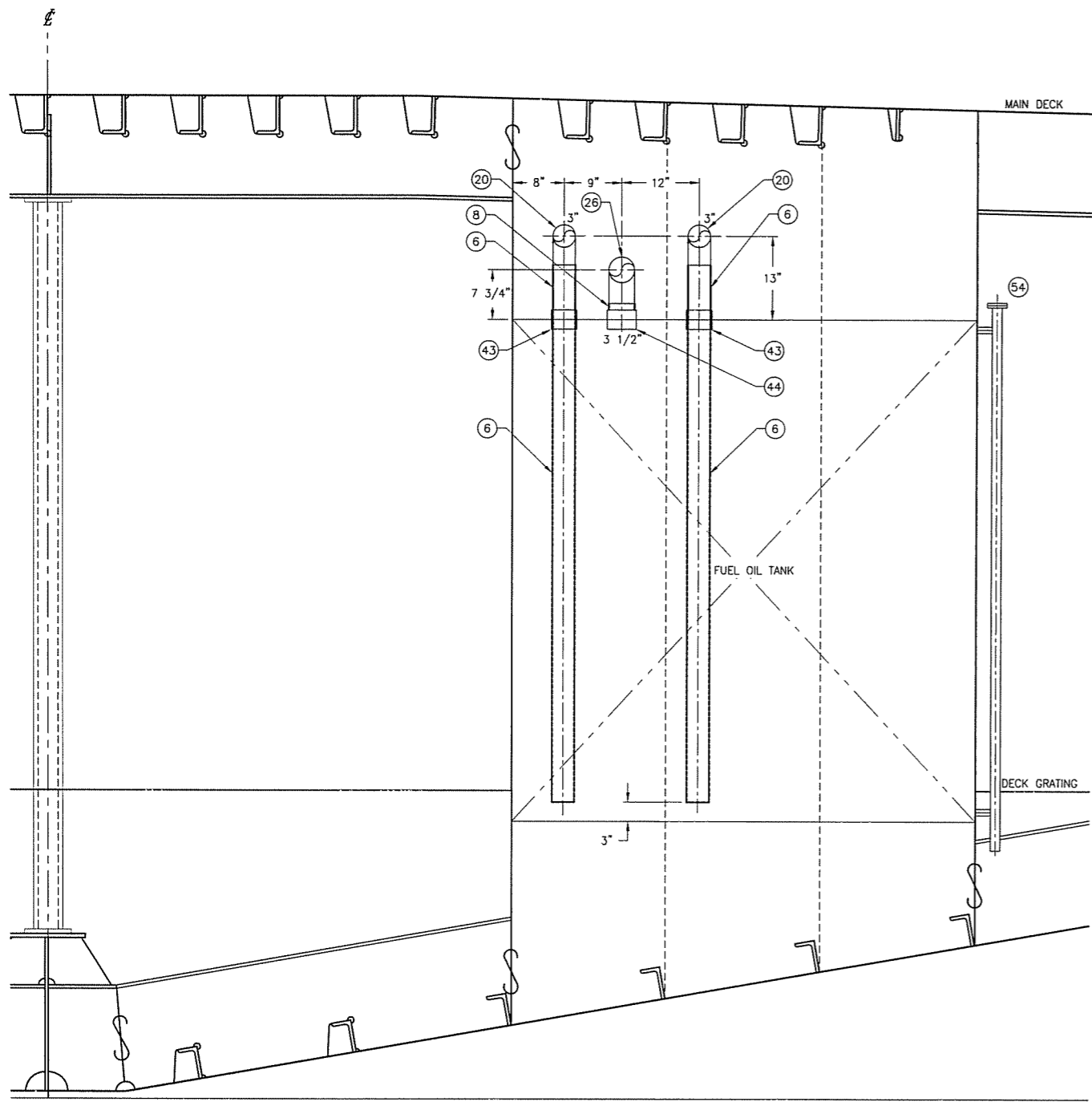
SECTION 3-3A
 ENGINE ROOM
 FR 66 LKG FWD TO FR 64
 SCALE: 1"=1'-0"



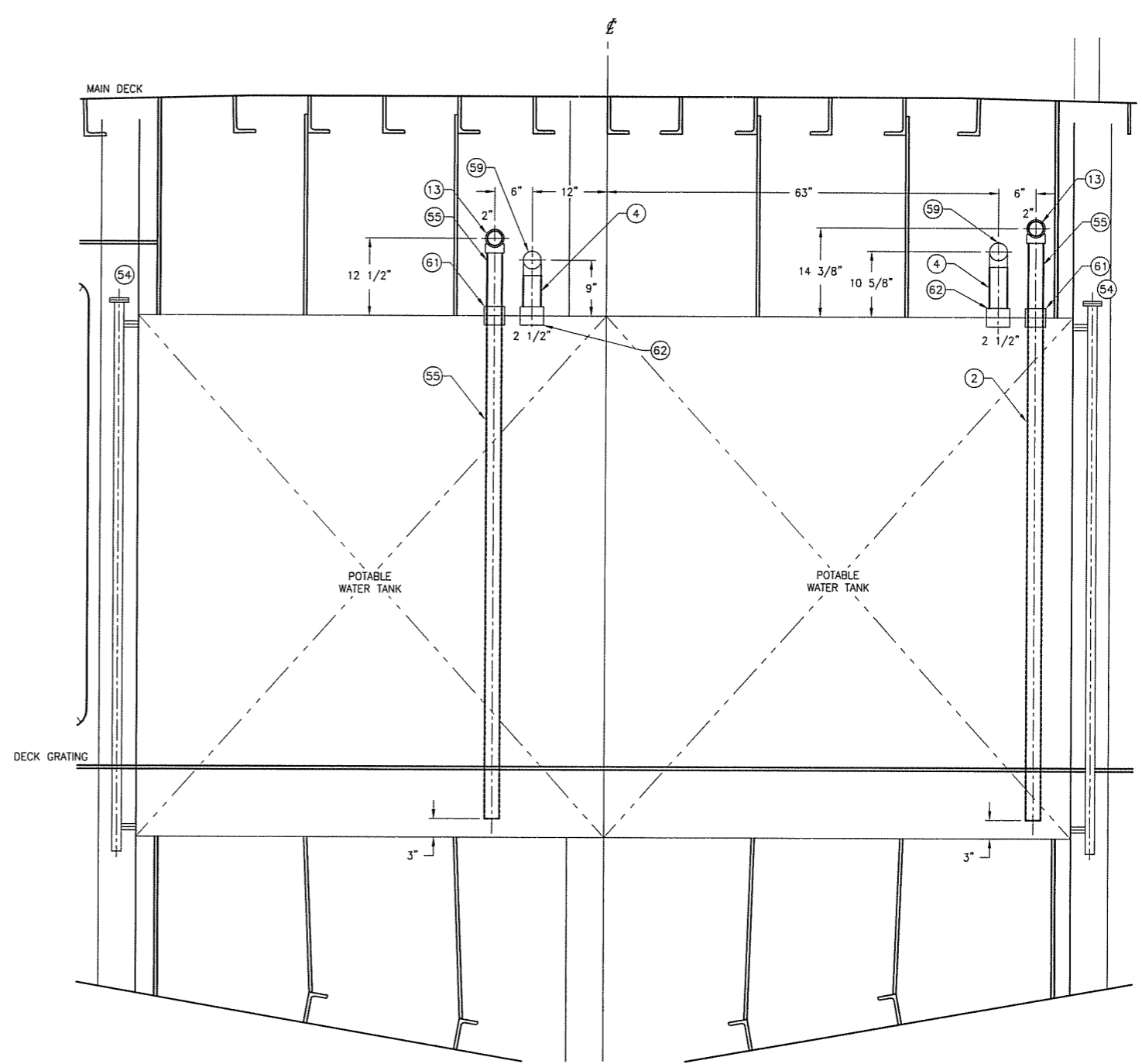
1.23.08

SIZE	D	DWG NO.	07069-001-506-2	REV	A
SCALE	AS NOTED	FILE NAME	07069-001-5062-A	SHEET	3 OF 6

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SECTION 4-5A
 TANK ROOM
 FR 51 1/2 LKG AFT TO FR 64
 SCALE: 1"=1'-0"



SECTION 4-2A
 TANK ROOM
 FR 46 1/2 LKG FWD TO FR 42
 SCALE: 1"=1'-0"



1.23.08

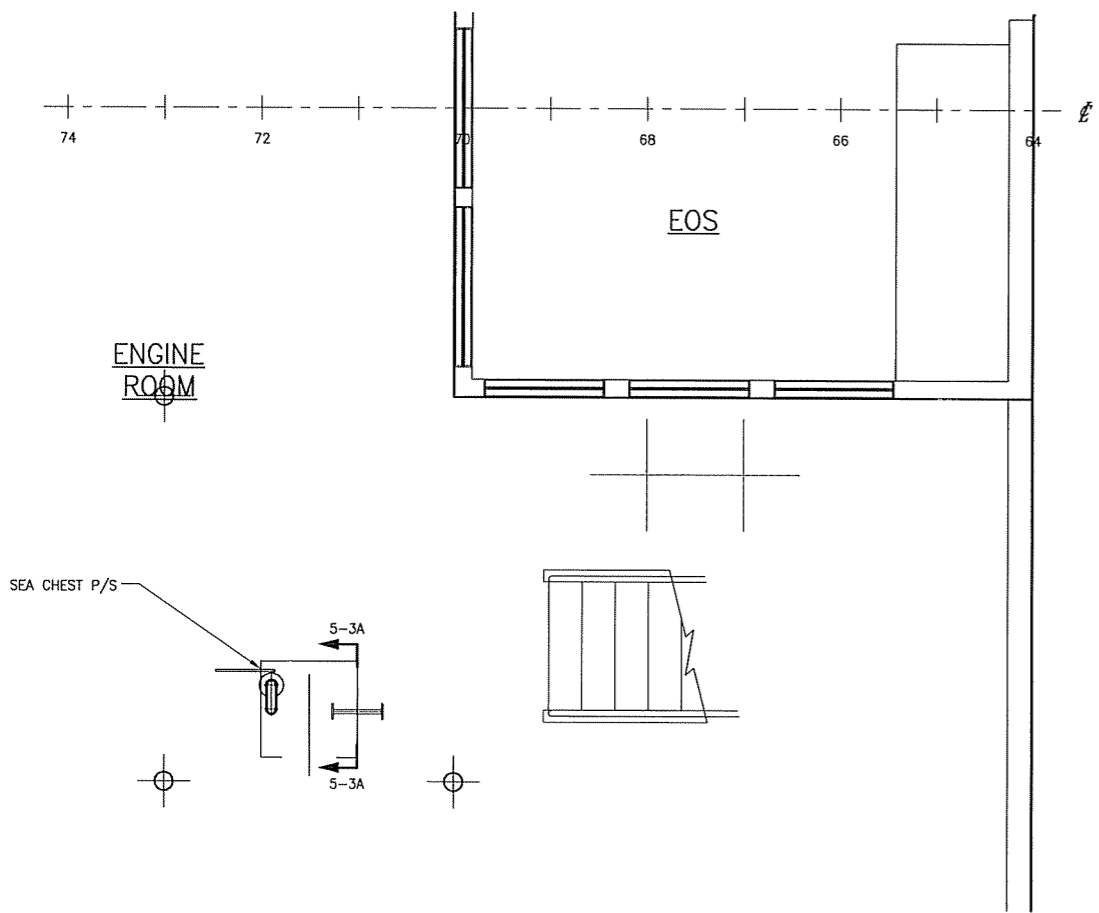
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SCALE	AS NOTED	FILE NAME	07069-001-5062-A	SHEET	4 OF 6

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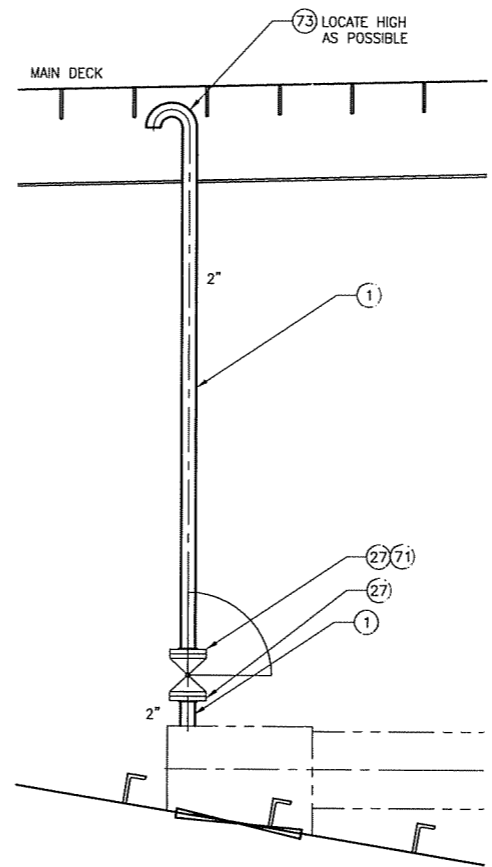
LIST OF MATERIALS, CONTD FROM ZONE 1 - 3 A

PIECE No.	QUANTITY	DESCRIPTION	MATERIAL OR MANUFACTURER	SPEC, GRADE OR MODEL	
64	1	3 1/2" DECK AND BHD SLEEVE	STAINLESS STL 316	ASTM A-312, TYPE 316	-
65	10 FT	1 1/2" PIPE, SCH 40, SEAMLESS	STAINLESS STL 316	ASTM A-312, TYPE 316	ANSI B36.19
66	1 FT	3/4" PIPE, SCH 40, SEAMLESS	STAINLESS STL 316	ASTM A-312, TYPE 316	ANSI B36.19
67	4	1 1/2" FLANGE, 150#, SLIP-ON, RF	STAINLESS STL 316	ASTM A-182	ANSI B16.5
68	-	-	-	-	-
69	1	3/4" BALL VALVE, THREADED	STAINLESS STL 316	ASTM A-351	FULL PORT
70	2	1 1/2" BALL VALVE, FLANGED, 150#, RF	STAINLESS STL 316	ASTM A-351	FULL PORT
71	4	2" BALL VALVE, FLANGED, 150#, RF	STAINLESS STL 316	ASTM A-351	FULL PORT
72	1	1 1/2" 180° RETURN, B-WELD, SCH 40	STAINLESS STL 316	ASTM A-403	ANSI B16.9
73	2	2" 180° RETURN, B-WELD, SCH 40	STAINLESS STL 316	ASTM A-403	ANSI B16.9
74	1	1 1/2" TEE, SOCKET WELD, 3000#	STAINLESS STL 316	ASTM A-403	ANSI B16.11
75	1	BUSHING 1 1/2" x 3/4," SOCKET-WELD 3000#	STAINLESS STL 316	ASTM A-403	ANSI B16.11
76	1	3/4" PIPE CAP, THREADED	STAINLESS STL 316	ASTM A-182	ANSI B16.11
77	10	4" 180° RETURN, B-WELD, SCH 40	STAINLESS STL 316	ASTM A-182	ANSI B16.11
78	10	4" BALL CHECK VALVE, FLANGED, 150# RF	STAINLESS STL 316	ASTM A-182	ANSI B16.11
79	10	4" FLANGE, 150# SLIP-ON, RF	STAINLESS STL 316	ASTM A-182	ANSI B16.11

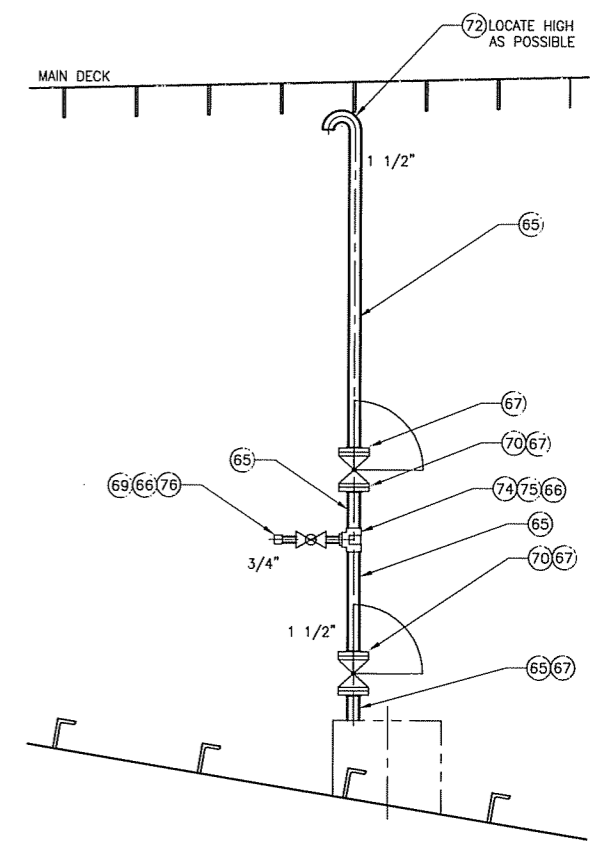
△²



PLAN 5-3A
 LOWER DECK
 FRAME 64 TO 74
 SCALE: 1/2"=1'-0"



SECTION 5-3A
 ENGINE ROOM STBD SEA CHEST
 STBD SHOWN, PORT SIMILAR
 FR 71 LKG AFT TO FR 72
 SCALE: 3/4"=1'-0"



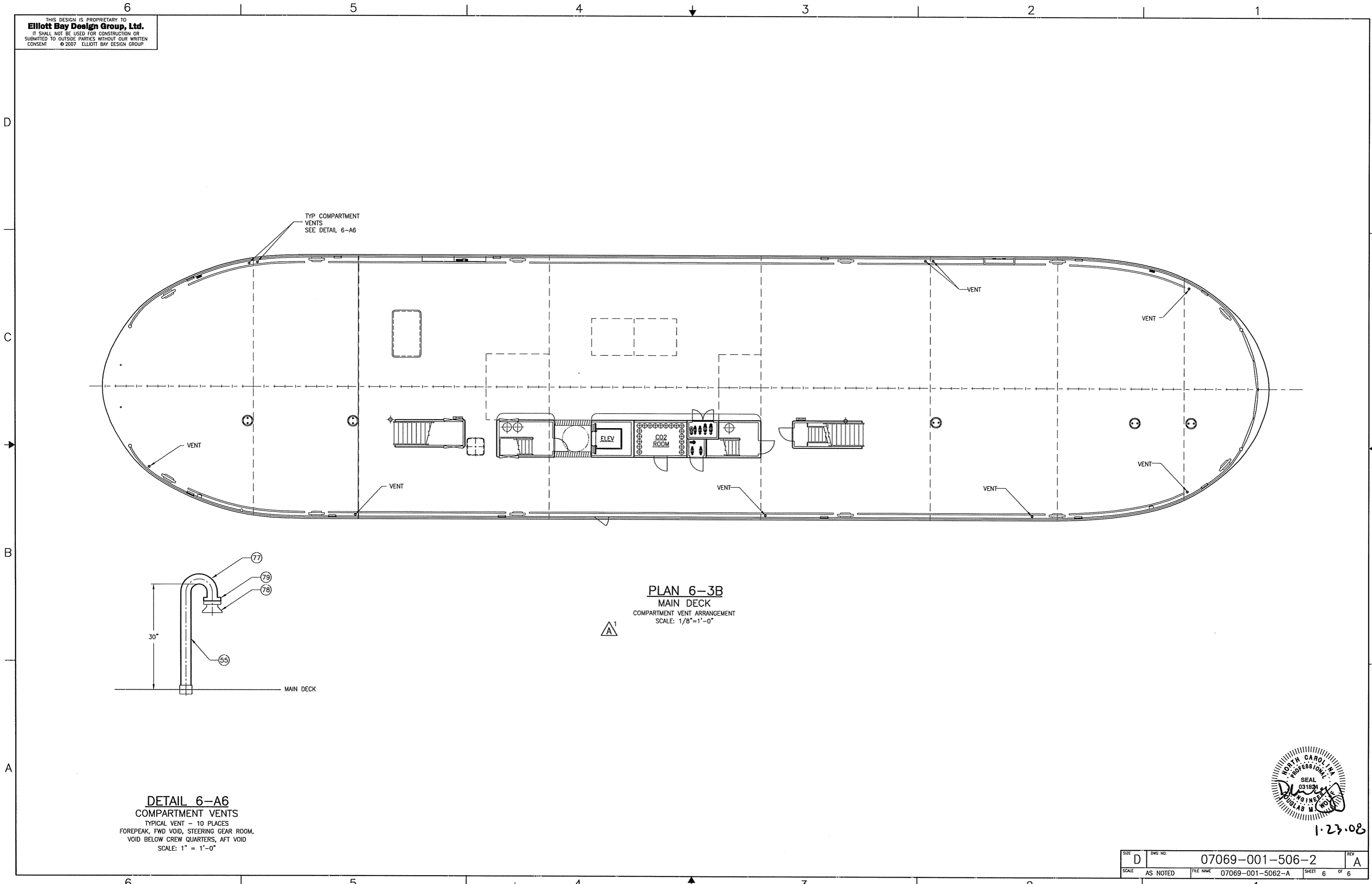
SECTION 5-1A
 TANK ROOM
 FR 60 LKG AFT TO FR 62
 SCALE: 3/4"=1'-0"



1-23-08

SIZE	DWG NO.	REV
D	07069-001-506-2	A
SCALE	FILE NAME	SHEET
AS NOTED	07069-001-5062-A	5 OF 6

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DETAIL 6-A6
 COMPARTMENT VENTS
 TYPICAL VENT - 10 PLACES
 FOREPEAK, FWD VOID, STEERING GEAR ROOM,
 VOID BELOW CREW QUARTERS, AFT VOID
 SCALE: 1" = 1'-0"

PLAN 6-3B
 MAIN DECK
 COMPARTMENT VENT ARRANGEMENT
 SCALE: 1/8" = 1'-0"



1-23-08

SIZE	D	DWG. NO.	07069-001-506-2	REV	A
SCALE	AS NOTED	FILE NAME	07069-001-5062-A	SHEET	6 OF 6

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MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			FITTINGS	VALVES		REMARKS
			MATERIAL	GASKETS	BOLTING		BODY	TRIM	
FIREMAIN	2 1/2" & OVER	STAINLESS STL, 316 SCH 40 ASTM A-312 SMLS	FLANGE, 316 STAINLESS STEEL, SLIP-ON, SCH 40, 3000#, ASTM A-182	GARLOCK STYLE 3000	BOLTS: 316 STAINLESS STL GRADE 316 ASTM F593	316 STAINLESS STEEL SOCKET WELD, 3000#, ASTM A-403	BALL: FLANGED ENDS 150# STAINLESS STEEL, ASTM A351/A744 CF8M	STAINLESS STEEL BALL AND STEM TEFLON SEATS AND SEALS	
	2" & UNDER		UNION, 316 STAINLESS STEEL SOCKET WELD, GROUND JOINT, 3000#, ASTM A-182		NUTS: 316 STAINLESS STEEL GRADE 316 ASTM F594	316 STAINLESS STEEL BUTT WELD, 3000#, ASTM A-403	GATE: STAINLESS STEEL, THREADED, ASTM A351/A744 CF8M	STEM OR DISK CRES, ASTM A182	

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS
- EQUIPMENT LAYOUT WITHIN A GIVEN AREA IS ONLY APPROXIMATE. PROVISION OF EQUIPMENT SHALL BE AS SHOWN ON THIS DRAWING AND AS DESCRIBED BY REFERENCE 5.
- ALL VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL CLOSURE STATUS.
- DISCHARGE CHECK VALVES SHALL BE ORIENTED IN THE FORE AND AFT DIRECTION.
- FIRE STATIONS SHALL BE SIZED 1 1/2" AND FITTED WITH ANGLE GLOBE HOSE VALVE, 50 FEET OF 1 1/2" RUBBER-LINED FIRE HOSE, HOSE WRENCH, AND COMBINATION NOZZLE. FIRE HOSE SHALL BE CONNECTED AND STOWED IN APPROVED HOSE RACKS.
- THE FIRE PUMP SHALL BE CAPABLE OF REMOTE STARTING. SEE REFERENCE 4.
- LOW POINTS IN THE FIREMAIN SHALL BE FITTED WITH DRAINS.
- TDH OF PUMP FOR REQUIRED FLOW ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL PROVIDE PUMPS MEETING THE REQUIRED FLOW WITH THE INSTALLED PIPING SYSTEMS.
- REMOTE PRESSURE DISCHARGE GAUGES FOR THE FIRE PUMP SHALL BE LOCATED IN THE PILOTHOUSE.

PIPING SYMBOLS

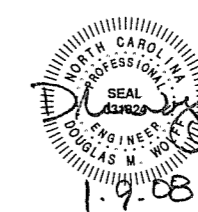
	DIRECTION OF FLOW		RELIEF VALVE
	REDUCER		GLOBE ANGLE HOSE VALVE
	DECK OR BHD PENETRATION		CAP
	PIPE UP		DUPLEX STRAINER
	PIPE DOWN		PRESSURE GAUGE, LOCAL READING 0-150 PSI
	BALL VALVE		VACUUM PRESSURE GAUGE, LOCAL READING 30-0-30 PSI
	GATE VALVE		CENTRIFUGAL PUMP
	SWING CHECK VALVE		FIRE STATION, GEN NOTE 5
	PRESSURE SWITCH		

PUMP LIST

QTY	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
2	FIRE GEN NOTE 6	SELF-PRIMING HORIZONTAL CENTRIFUGAL	GOULDS 3796 MTX 2x2x10	163 GPM @209' TDH (APPROX) GEN NOTE 8	208 VAC, 3ø 25 HP, 3550 RPM IEEE-B41

REFERENCES

- 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-200-1 ENGINE RM & TANK RM ARRANGEMENT
- 07069-001-320-1 ELECTRICAL ONE-LINE DIAGRAM
- 07069-001-521-2 FIRE MAIN PIPING ARRANGEMENT & DETAILS
- 07069-001-522-1 SPRINKLER PIPING SCHEMATIC
- 07069-001-529-1 BILGE & OILY WATER SYSTEM PIPING SCHEMATIC



Elliott Bay Design Group
 Seattle • New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

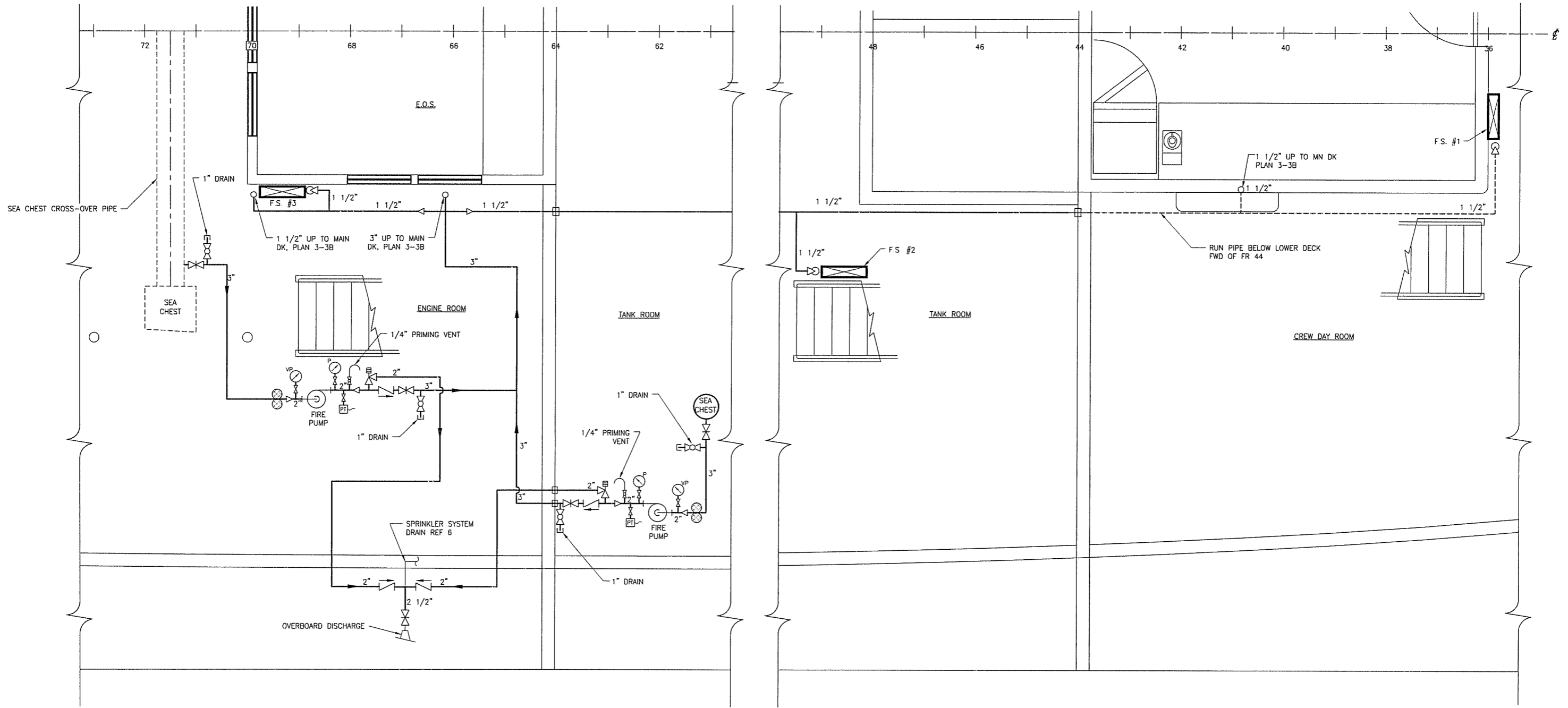
PROJECT: NEW SOUND CLASS FERRY

TITLE: FIRE MAIN PIPING SCHEMATIC

DMR: JWJ	DATE: 11/5/07	SIZE: D	DWG NO.: 07069-001-521-1	REV: --
CRD: JSB	DATE: 11/6/07	SCALE: NONE	FILE NAME: 07069-001-5211-	SHEET 1 OF 4
APVD: DMW	DATE: 1/09/08			

1/8/2008 8:27:16 AM

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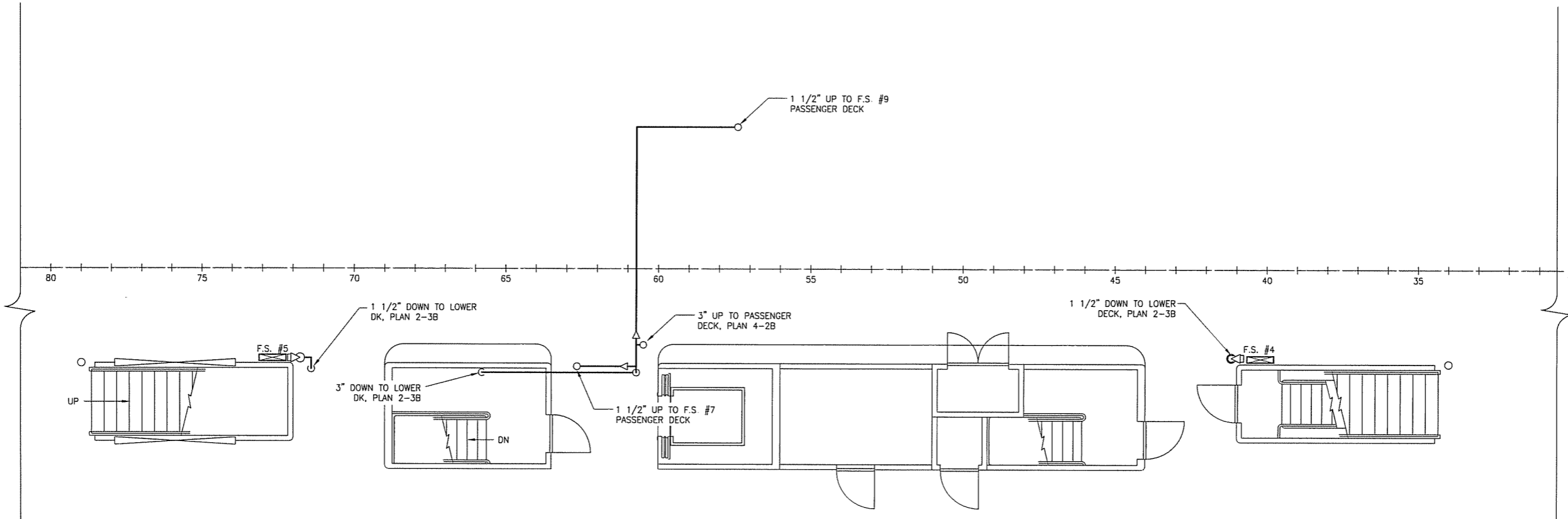
PLAN 2-3B
 LOWER DECK

PROFESSIONAL
 SEAL
 031823
 ENGINEER
 DOUGLAS M. WOLFE
 1-9-08

SIZE	D	DWG NO.	07069-001-521-1	REV	-
SCALE	NONE	FILE NAME	07069-001-5211-	SHEET	2 OF 4

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PLAN 3-3B
 MAIN DK

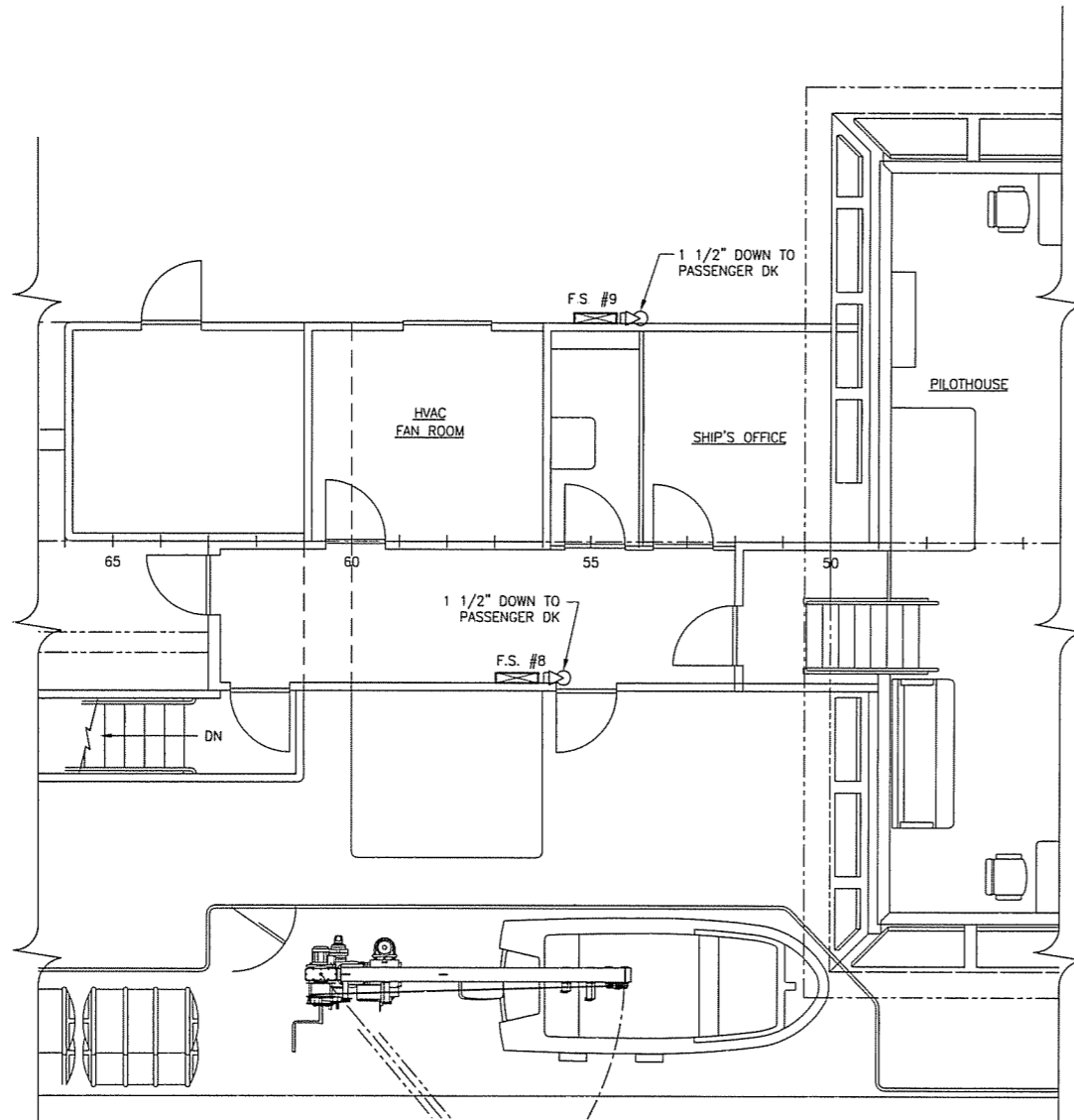
NOTE: VERTICAL CLEARANCE OVER THE VEHICLE
 LANES SHALL NOT BE LESS THAN 16'-0"



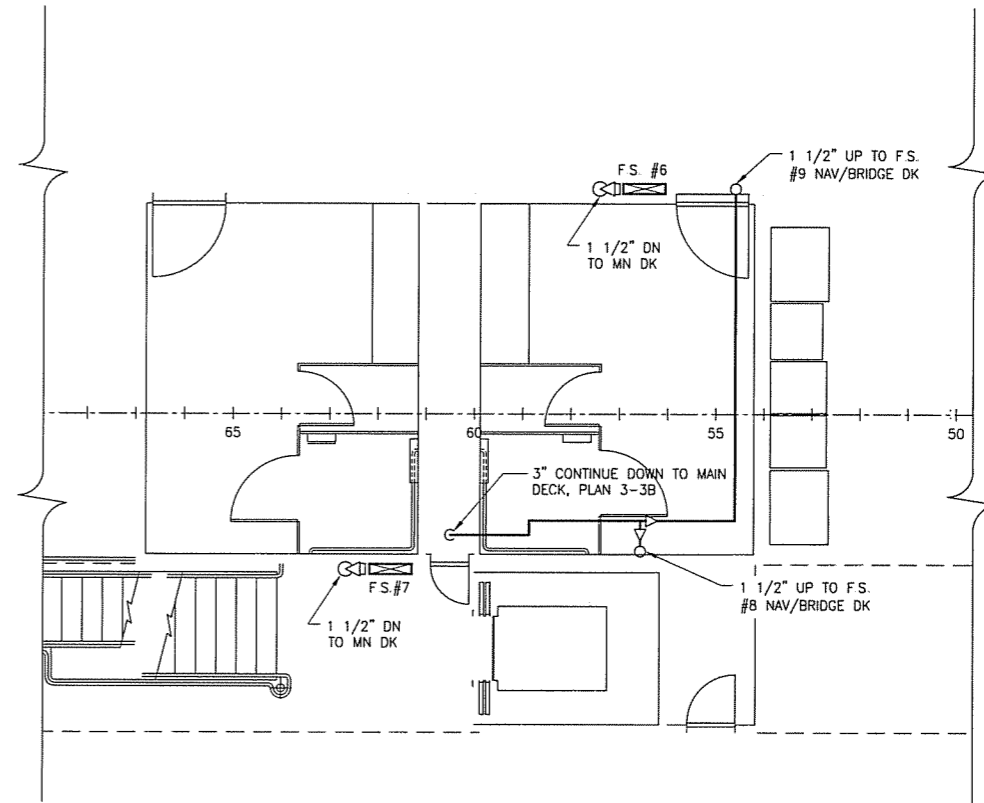
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SCALE	NONE	FILE NAME	07069-001-5211-	SHEET	3 OF 4

1/8/2008 8:27:24 AM

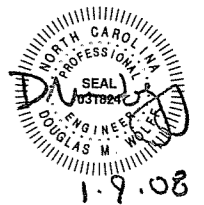
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PLAN 4-5B
 NAVIGATION BRIDGE DECK



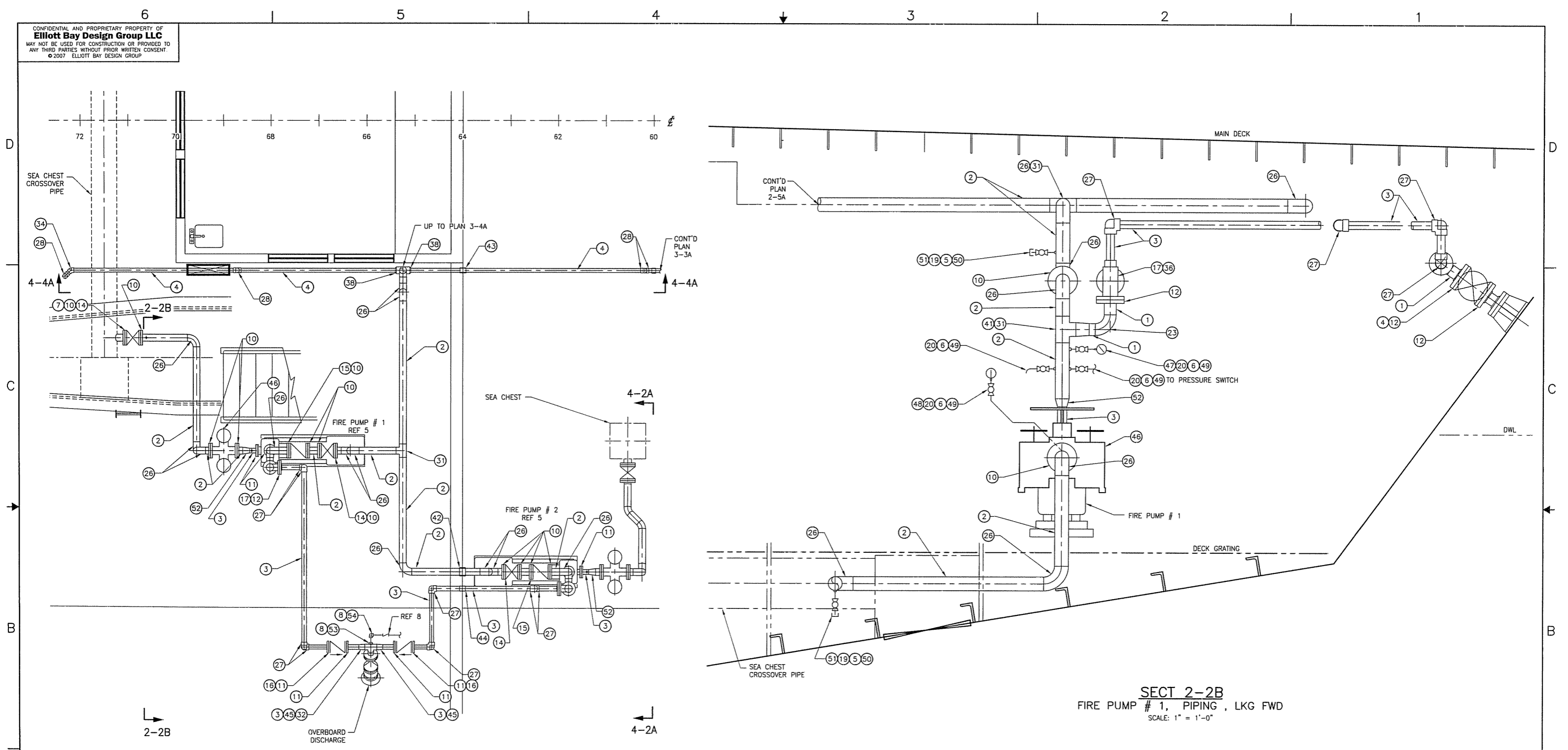
PLAN 4-2B
 PASSENGER DECK



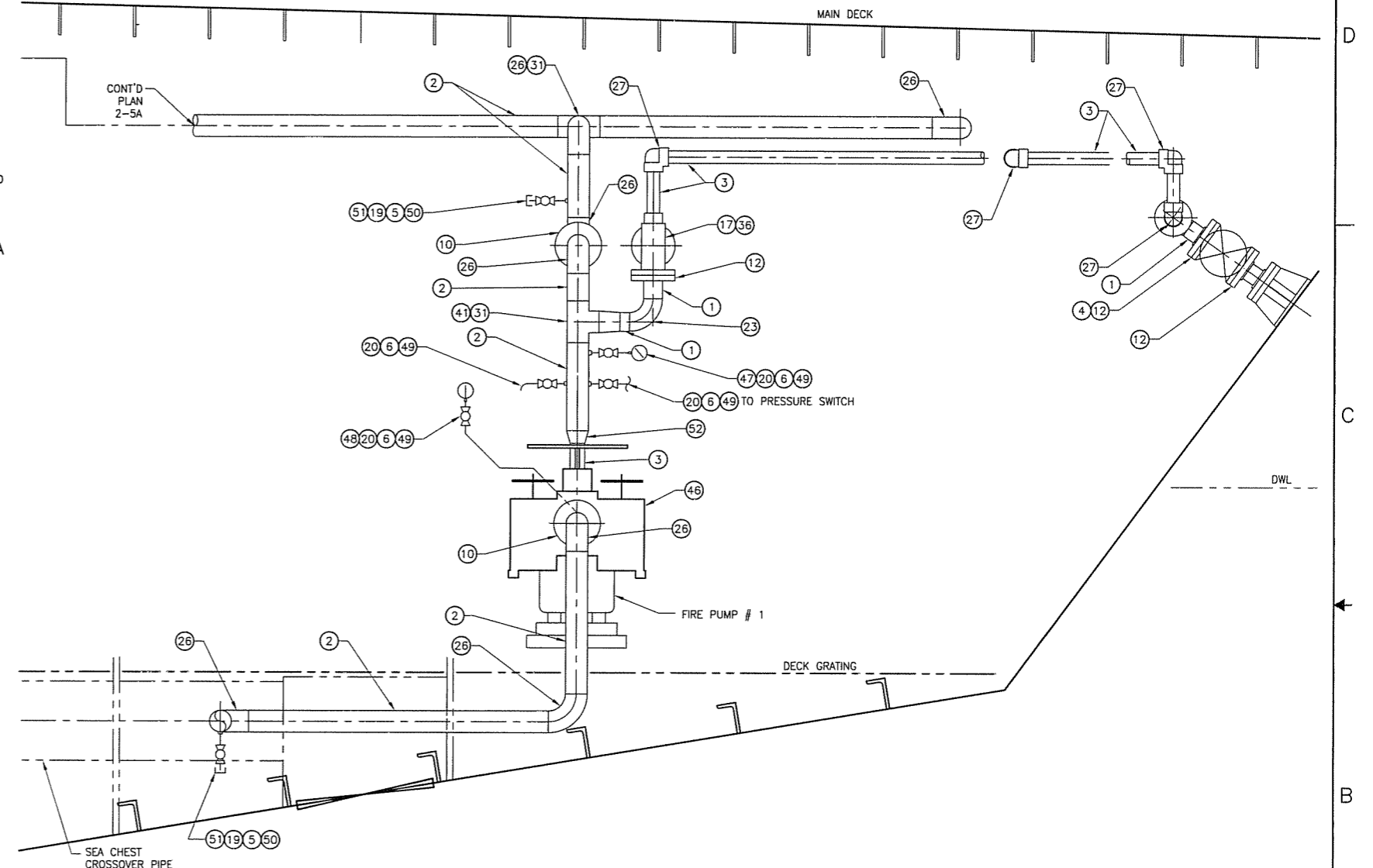
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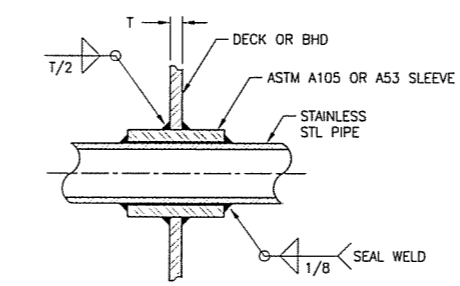
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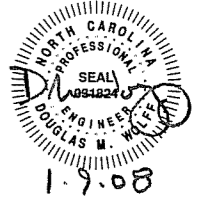
PLAN 2-5A
 FIRE PUMPS ARRANGEMENT, LOWER LEVEL
 SCALE: 1/2" = 1'-0"



SECT 2-2B
 FIRE PUMP # 1, PIPING, LKG FWD
 SCALE: 1" = 1'-0"

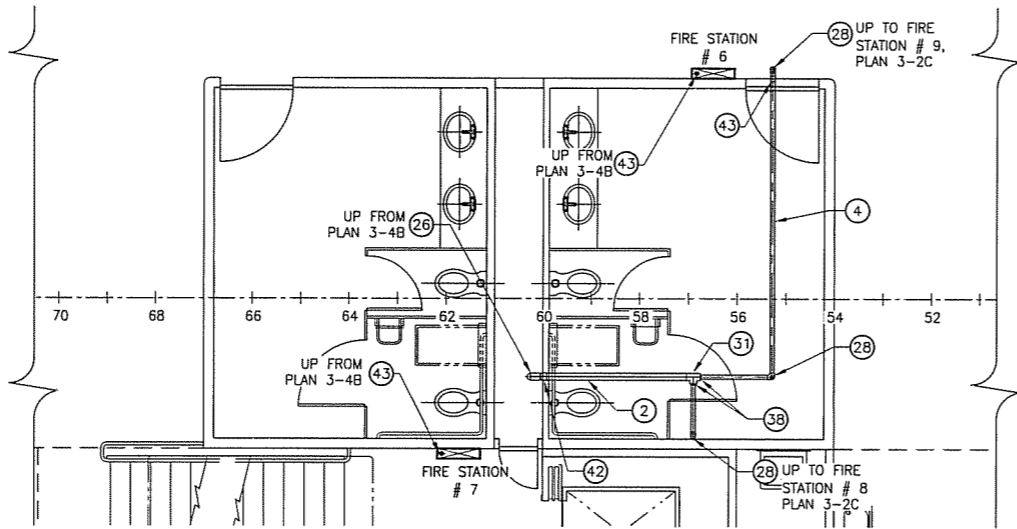


DETAIL 2-3A
 STEEL WATERTIGHT OR "A" BOUNDARY
 PENETRATION (TYP)

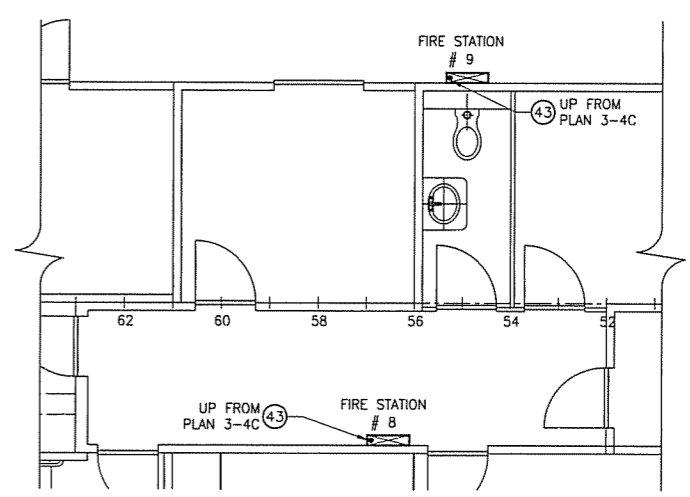


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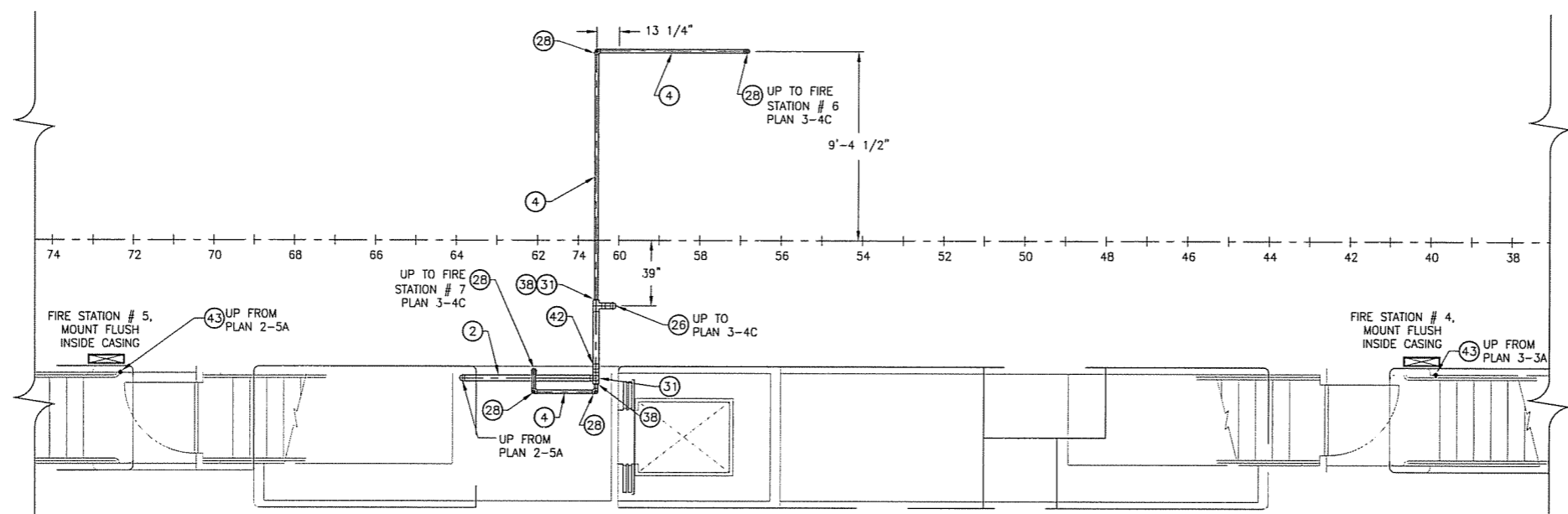
1/9/2008 8:11:20 AM



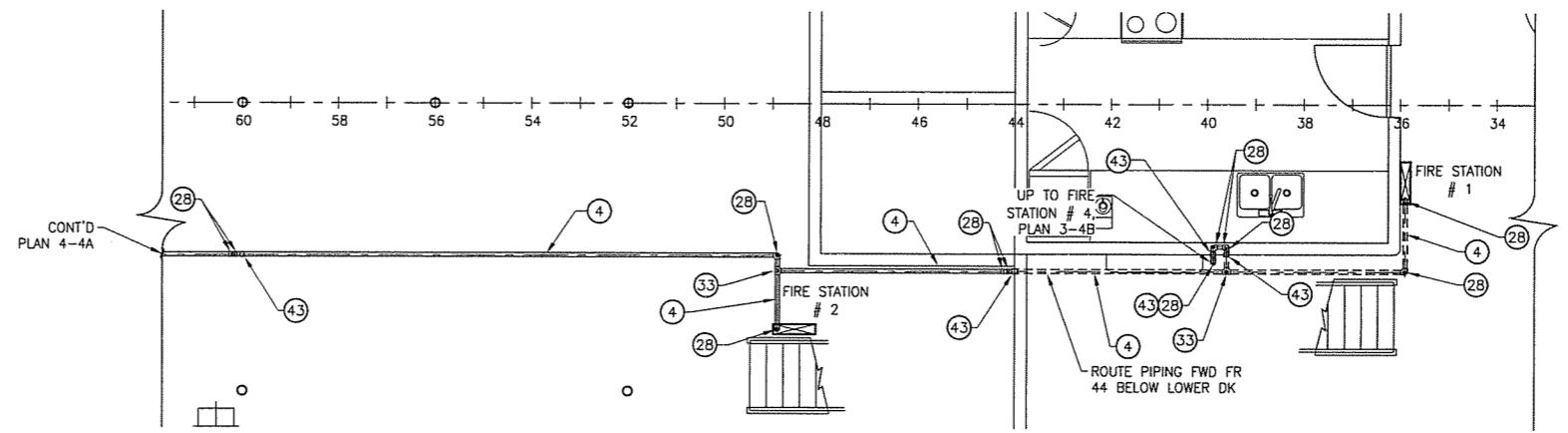
PLAN 3-4C
 FIRE STATION ARRANGEMENT, PASSENGER DK
 SCALE: 1/4" = 1'-0"



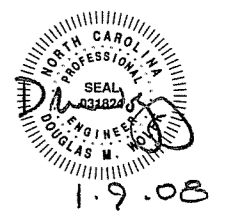
PLAN 3-2C
 FIRE STATION ARRANGEMENT, NAVIGATION/BRIDGE DECK
 SCALE: 1/4" = 1'-0"



PLAN 3-4B
 FIRE STATION ARRANGEMENT, MAIN DK
 SCALE: 1/4" = 1'-0"



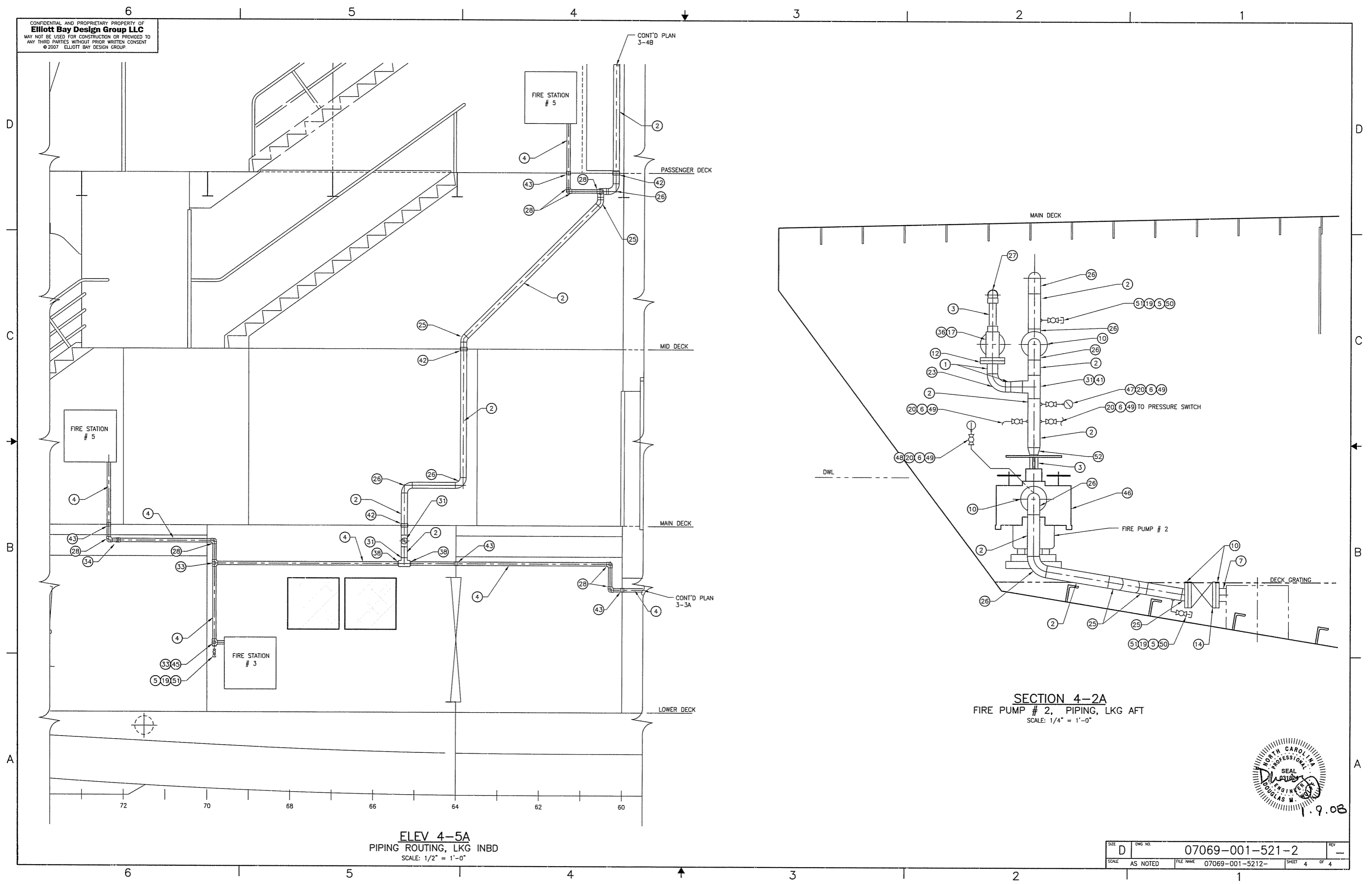
PLAN 3-3A
 FIRE STATION ARRANGEMENT, LOWER DK
 SCALE: 1/4" = 1'-0"



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D	07069-001-521-2	-
SCALE	FILE NAME	SHEET
AS NOTED	07069-001-5212-	3 OF 4

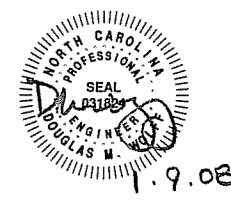
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ELEV 4-5A
 PIPING ROUTING, LKG INBD
 SCALE: 1/2" = 1'-0"

SECTION 4-2A
 FIRE PUMP # 2, PIPING, LKG AFT
 SCALE: 1/4" = 1'-0"



SIZE	D	DWG. NO.	07069-001-521-2	REV	-
SCALE	AS NOTED	FILE NAME	07069-001-5212-	SHEET	4 OF 4

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MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			FITTINGS	VALVES		REMARKS
			MATERIAL	GASKETS	BOLTING		BODY	TRIM	
SPRINKLING	1 1/2" & BELOW	STAINLESS STL, SCH 40, ASTM A-312 TYPE 316, SMLS, ANSI B36.19,	UNION, 316 STAINLESS STEEL SOCKET WELD 3000#, GROUND JOINT, ASTM A-182, ANSI B 16.11			316 STAINLESS STEEL, SOCKET WELD 3000#, ASTM A-403, ANSI B16.11.	BALL: STAINLESS STEEL, THREADED, ASTM A351. SWING CHECK: STAINLESS STEEL, THREADED, ASTM A182	STAINLESS STEEL BALL AND STEM, TEFLON SEATS AND SEALS STAINLESS STEEL W/ RENUABLE SEAT.	
	2" & ABOVE		FLANGE 150#, 316 STAINLESS STEEL, SLIP-ON, ASTM A-182, ANSI B16.5			316 STAINLESS STEEL, BUTT WELD, SCH 40, ASTM A-403, ANSI B16.9	BALL: STAINLESS STEEL, FLANGED 150#, ASTM A-351, FULL PORT, MSS-SP 72. SWING CHECK, GATE: STAINLESS STEEL, FLANGED 150#, ASTM A-182, ANSI B16.34	STAINLESS STEEL BALL AND STEM, TEFLON SEATS AND SEALS	

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

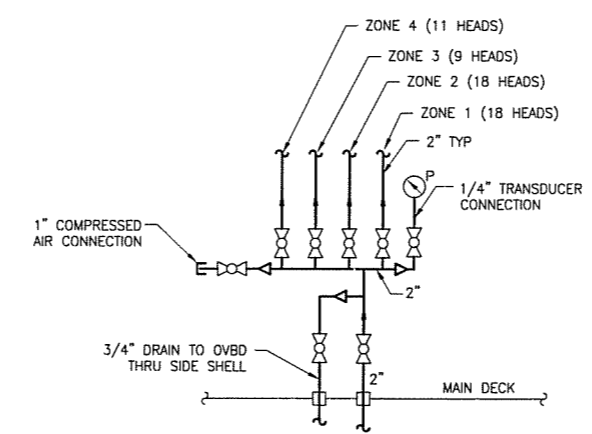
- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS
- EQUIPMENT LAYOUT WITHIN A GIVEN AREA IS ONLY APPROXIMATE. PROVISION OF EQUIPMENT SHALL BE AS SHOWN ON THIS DRAWING AND AS DESCRIBED BY REFERENCE 8.
- ALL VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL CLOSURE STATUS.
- THE SPRINKLER PUMP SHALL BE CAPABLE OF REMOTE STARTING. SEE REFERENCE 4.
- LOW POINTS IN THE SPRINKLING SYSTEM SHALL BE FITTED WITH DRAINS.
- TDH OF PUMP FOR REQUIRED FLOW ARE APPROXIMATE ONLY THE CONTRACTOR SHALL PROVIDE PUMPS MEETING THE REQUIRED FLOW WITH THE INSTALLED PIPING SYSTEM.
- SPRINKLER HEADS SHALL BE OPEN PENDANT TYPE WITH 3/8" ORIFACE AND SPRAY DEFLECTORS. USE ONLY U.S. COAST GUARD APPROVED HEADS.

PIPING SYMBOLS

	DIRECTION OF FLOW		BALL VALVE
	REDUCER		CAP
	DECK OR BHD PENETRATION		PRESSURE GAUGE, LOCAL READING 0-150 PSI
	PIPE UP		VACUUM PRESSURE GAUGE, LOCAL READING 30-0-30 PSI
	PIPE DOWN		SIMPLEX STRAINER
	GATE VALVE		CENTRIFUGAL PUMP
	SWING CHECK VALVE		SPRINKLER HEAD, GEN NOTE 7

PUMP LIST

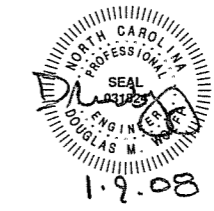
QTY	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
1	SPRINKLER SYSTEM	SELF PRIMING HORIZONTAL CENTRIFUGAL	GOULDS 3796 MTX 3x3x13	200 GPM @107' TDH (APPROX)	TEFC MOTOR 208 VAC, 3Ø 15 HP, 1750 RPM IEEB-B41
				GEN NOTE 6	



DETAIL 1-3A
 SPRINKLER MANIFOLD

REFERENCES

- 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-320-1 ELECTRICAL ONE-LINE DIAGRAM
- 07069-001-520-1 FIRE MAIN PIPING SCHEMATIC
- 07069-001-529-1 BILGE PIPING SCHEMATIC
- 07069-001-533-1 POTABLE WATER PIPING SCHEMATIC
- 07069-001-522-2 SPRINKLER PIPING ARRANGEMENT & DETAILS



Elliott Bay Design Group
 Seattle - New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

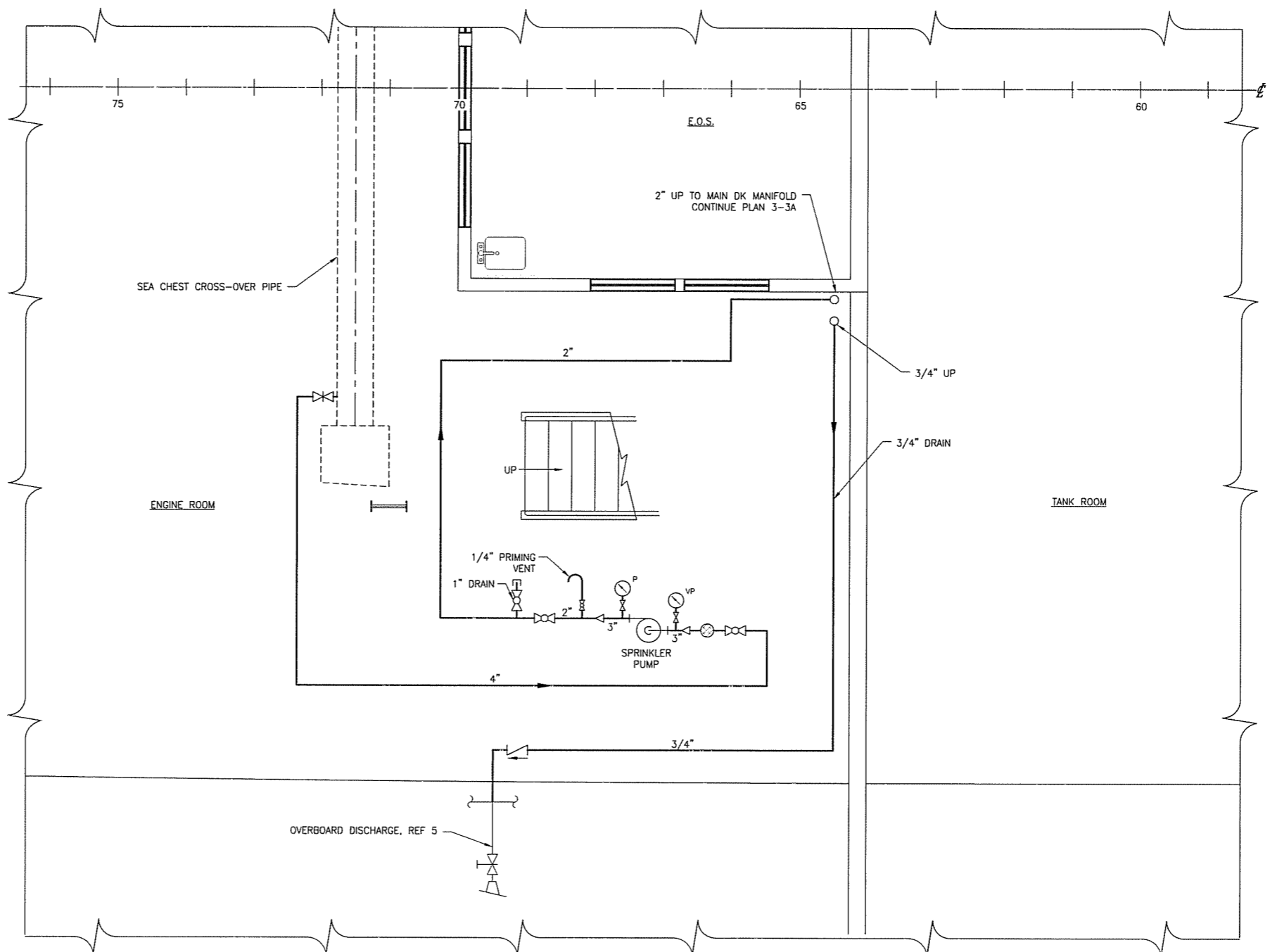
PROJECT: NEW SOUND CLASS FERRY

SPRINKLER PIPING SCHEMATIC

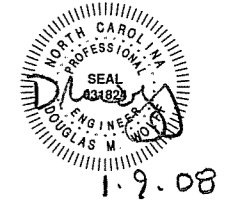
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APVD	DMW	DATE	1/09/08						

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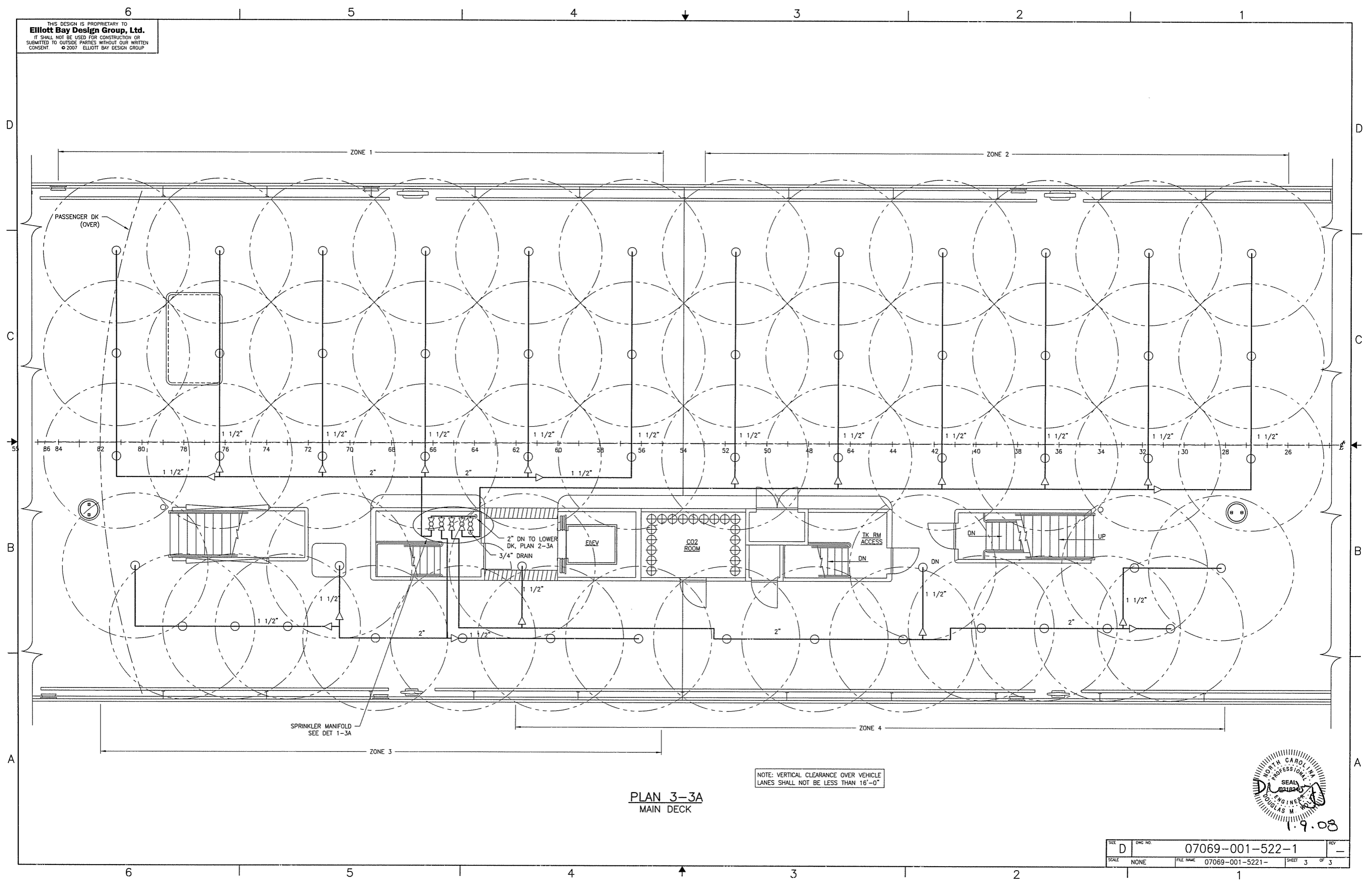
PLAN 2-3A
 SPRINKLER PUMP ARRANGEMENT



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SCALE	NONE	FILE NAME	07069-001-5221-	SHEET	2 OF 3

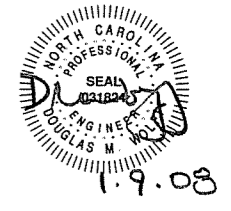
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PLAN 3-3A
 MAIN DECK

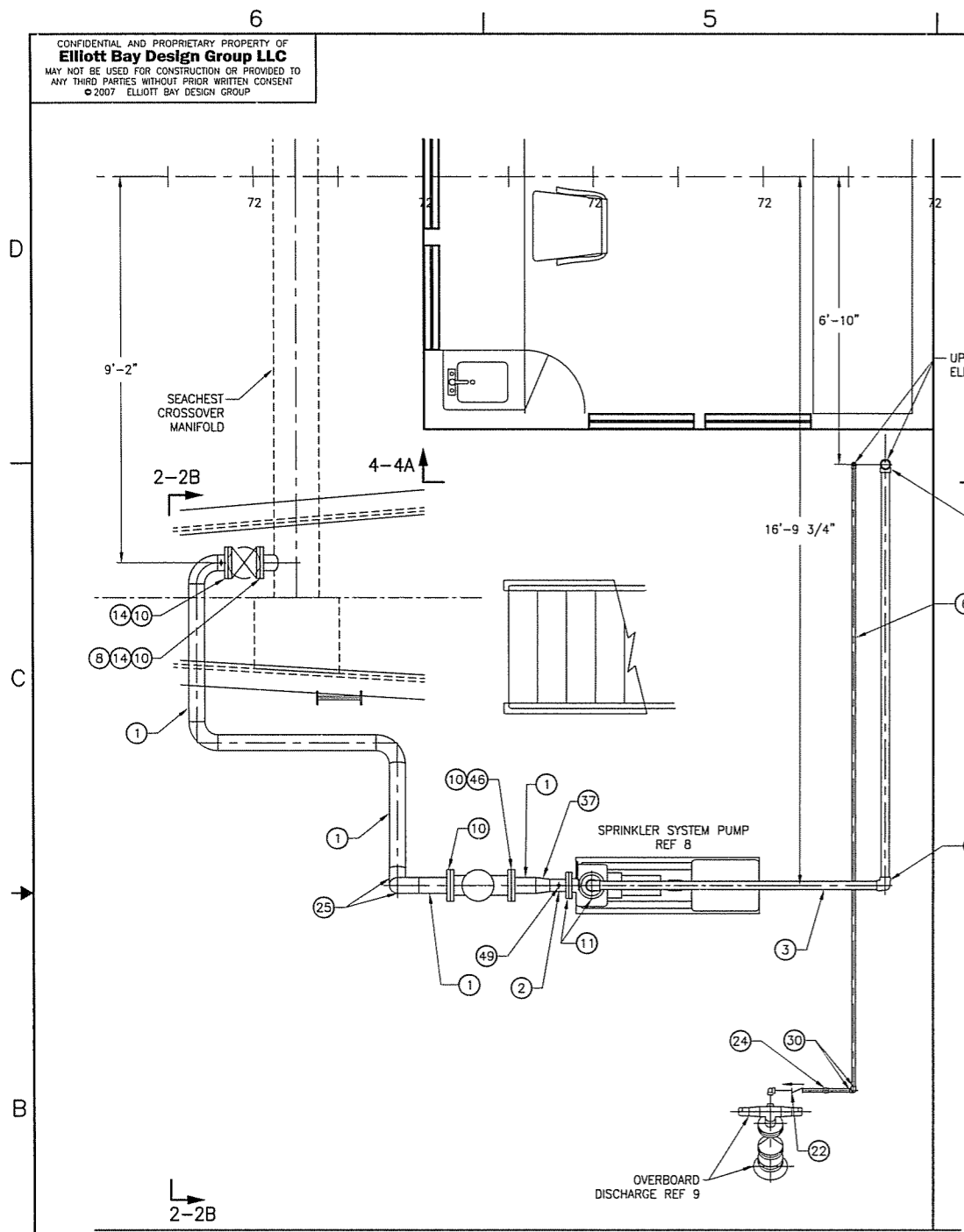
NOTE: VERTICAL CLEARANCE OVER VEHICLE LANES SHALL NOT BE LESS THAN 16'-0"



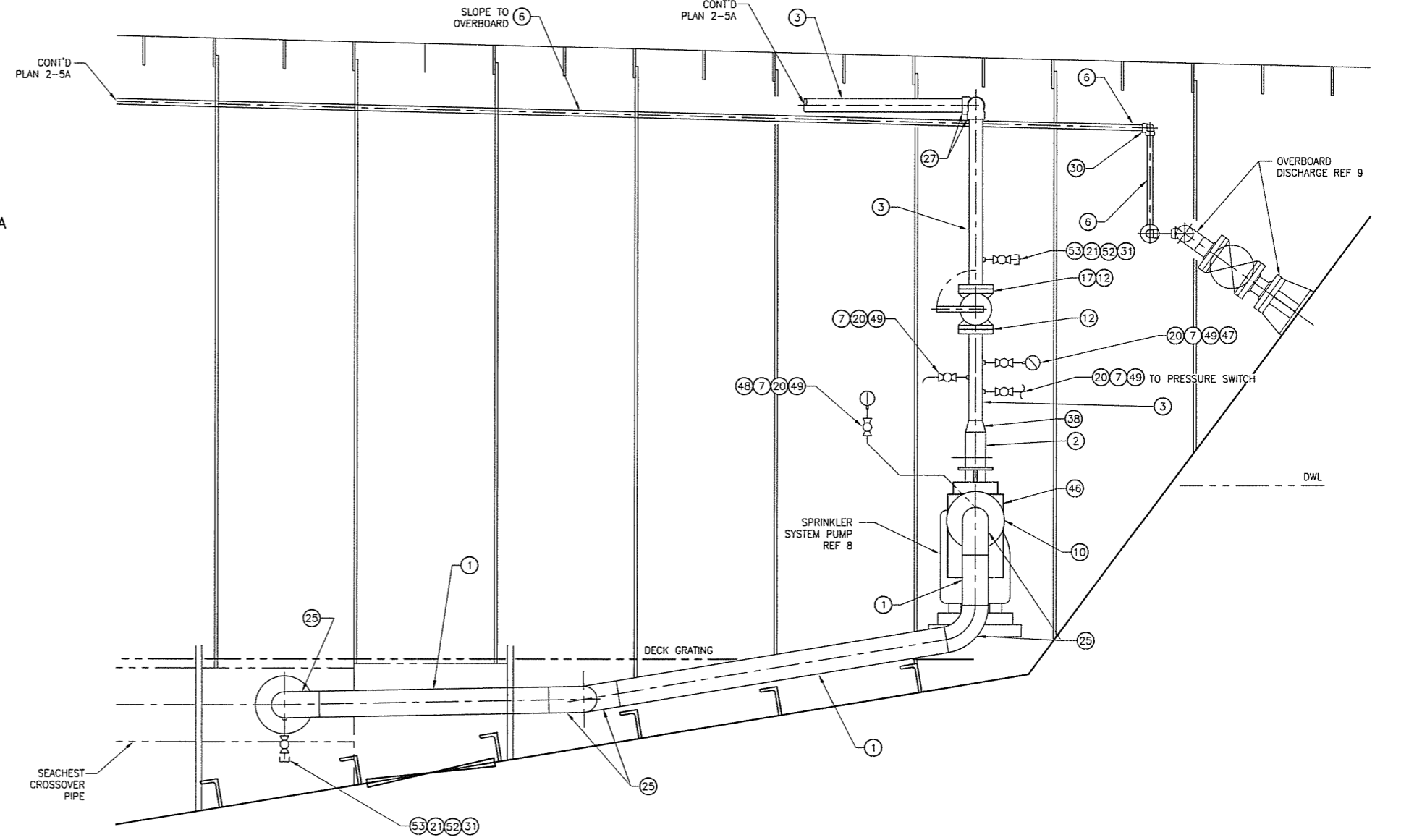
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1/2/2008 8:32:43 AM

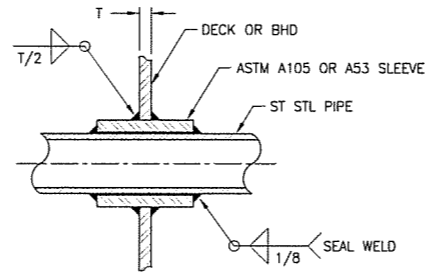
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PLAN 2-5A
 SPRINKLER PUMP ARRANGEMENT
 SCALE: 1/2" = 1'-0"



SECT 2-2B
 SPRINKLER PUMP PIPING
 SCALE: 1" = 1'-0"



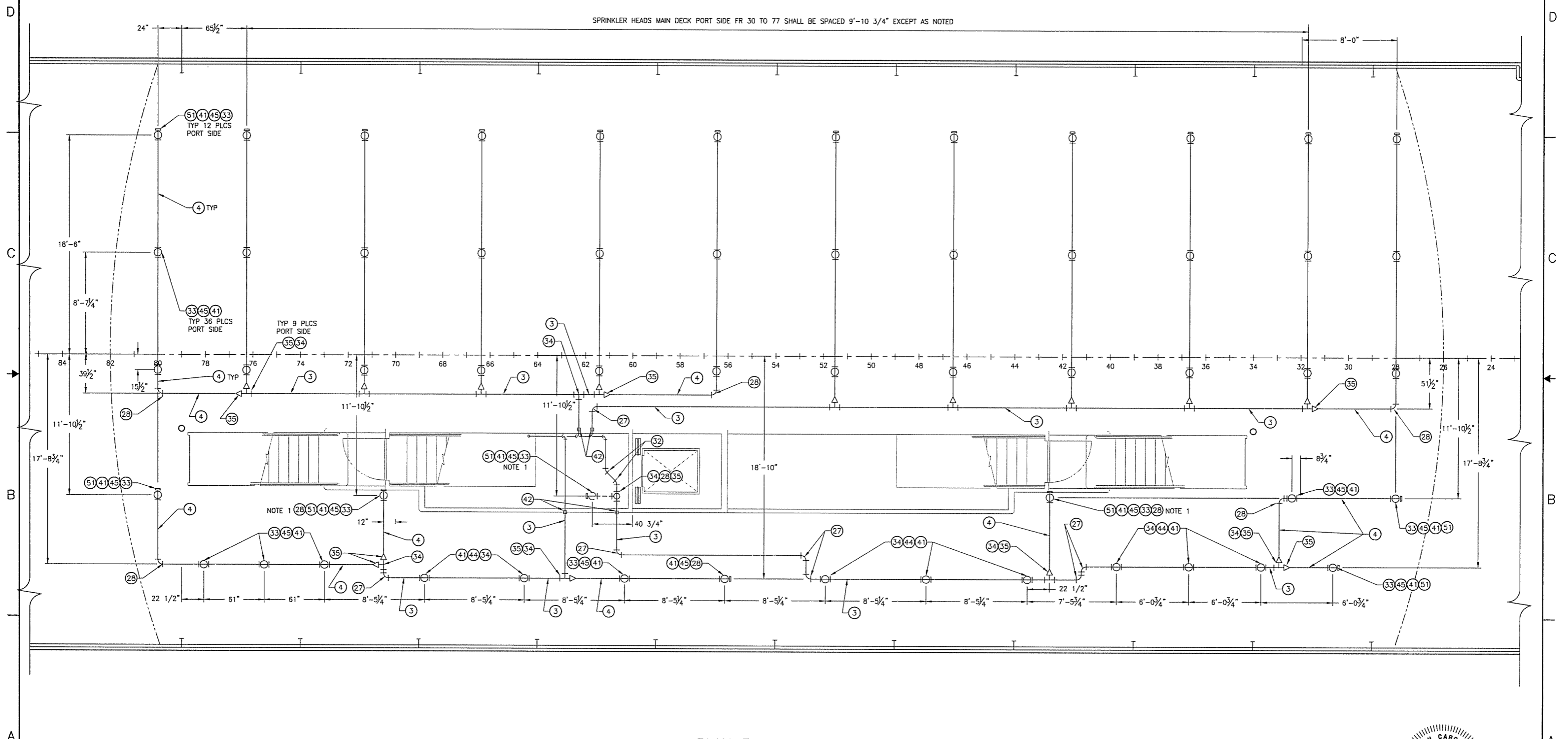
DETAIL 2-4A
 STEEL WATERTIGHT OR "A" BOUNDARY
 PENETRATION (TYP)



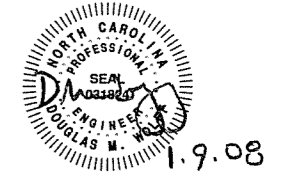
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SCALE	AS NOTED	FILE NAME	07069-001-5222-	SHEET	2 OF 4

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SPRINKLER HEADS MAIN DECK PORT SIDE FR 30 TO 77 SHALL BE SPACED 9'-10 3/4" EXCEPT AS NOTED



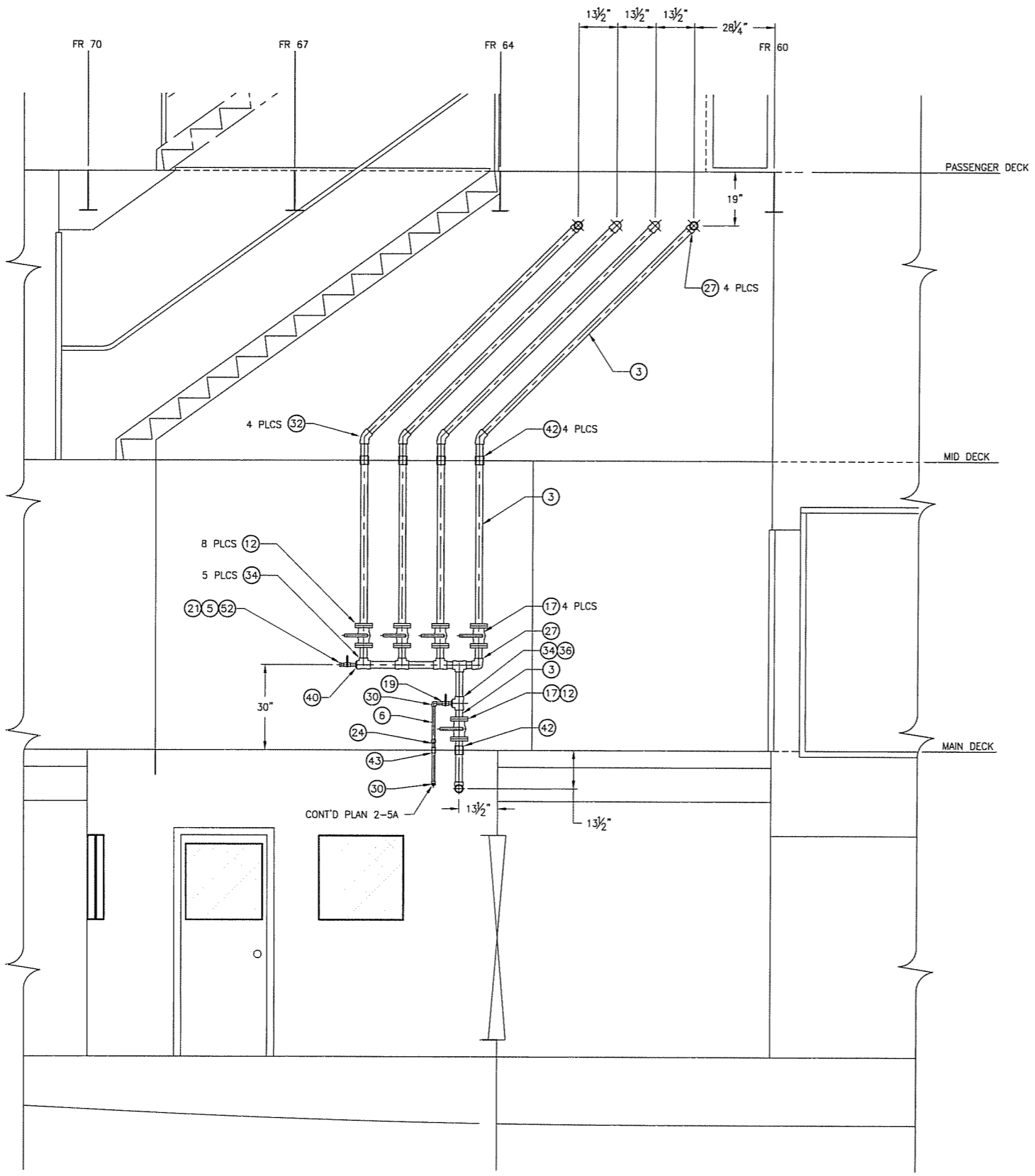
PLAN 3-4A
 SPRINKLER PIPING ARRANGEMENT, MAIN DK OVERHEAD



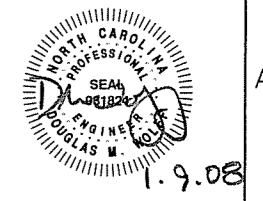
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SCALE	1/4" = 1'-0"	FILE NAME	07069-001-5222-	SHEET	3 OF 4

1/8/2008 8:42:20 AM

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ELEV 4-4A
SPRINKLER MANIFOLD
 SCALE: 1/2" = 1'-0"



SIZE	DWG NO.	REV
D	07069-001-522-2	-
SCALE	FILE NAME	SHEET
AS NOTED	07069-001-5222-	4 OF 4

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MATERIAL SCHEDULE				
SERVICE	SIZE	PIPE	TAKEDOWN JOINTS	FITTINGS
			MATERIAL	
EXTERIOR DECK DRAINS	ALL	BLUCHER-JOSAM SYSTEM 316 STAINLESS STEEL PUSH-FIT, EPDM SEALS, 2" (50 mm)	BLUCHER-JOSAM 316 STAINLESS STEEL	BLUCHER-JOSAM STAINLESS STEEL PUSH-FIT DRAINAGE SYSTEM

SYMBOLS LIST	
●	DRAIN OUTLET
○	DECK DRAIN (PLAN)
∇	DECK DRAIN (PROFILE)
→	DIRECTION OF FLOW ARROW

REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD

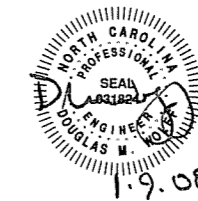
GENERAL NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH ABS RULES FOR BUILDING AND CLASSING STEEL VESSELS UNDER 90 METERS IN LENGTH, AND US COAST GUARD REGULATIONS FOR VESSELS INSPECTED UNDER SUBCHAPTER H.
- 1-1/2" NPS SCH 40 316 STAINLESS STEEL PIPE MAY BE SUBSTITUTED FOR ANY OR ALL OF THE BLUCHER-JOSAM DRAINAGE SYSTEM SEE DETAIL 2-5B IF BLUCHER-JOSAM SYSTEM IS NOT USED.
- INSOFAR AS POSSIBLE, DRAIN PIPES SHALL BE INSTALLED INSIDE THE LINE OF THE STRUCTURE SO AS TO MINIMIZE INTERFERENCE WITH JOINER SYSTEM, PASSAGEWAYS, ETC.
- PIPING SHALL BE RIGIDLY SUPPORTED BY HANGERS APPROPRIATE FOR DRAIN SERVICE, FABRICATED AND INSTALLED IN ACCORDANCE WITH ASTM F708

REFERENCES

- 07069-001-832-1 TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS

ELEVATION 1-4B
 OUTBOARD PROFILE
 STARBOARD SIDE SHOWN, PORT OPPOSITE



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 Seattle • New Orleans

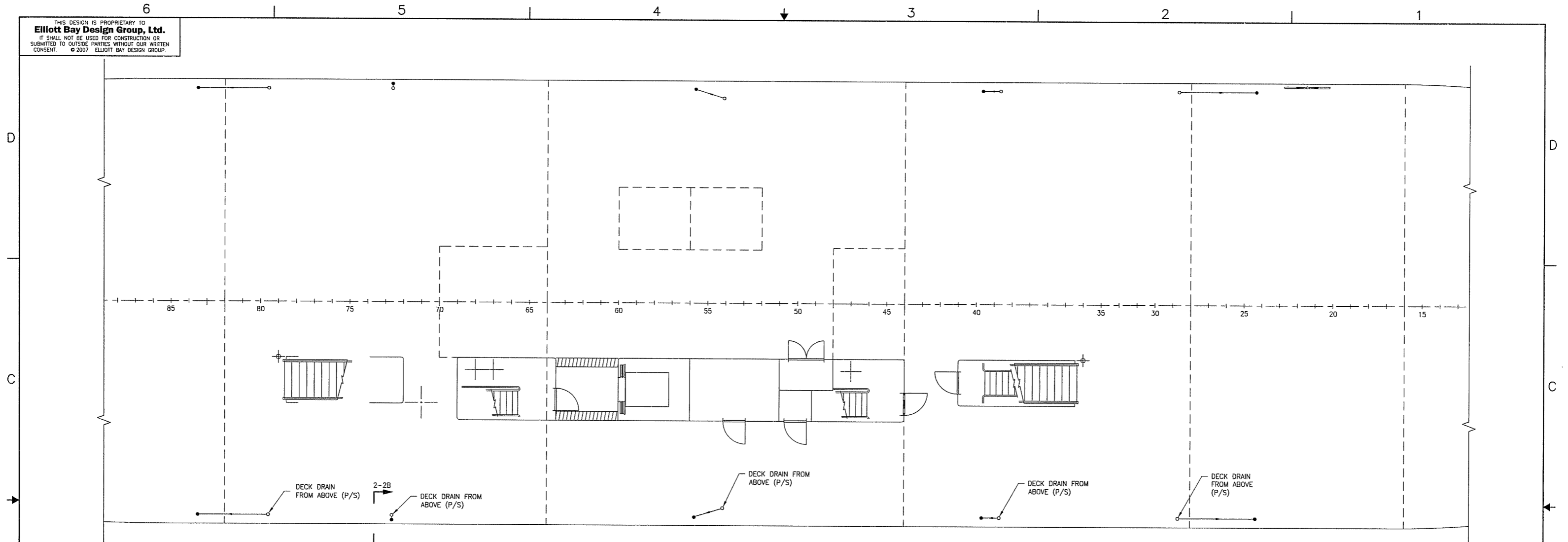
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

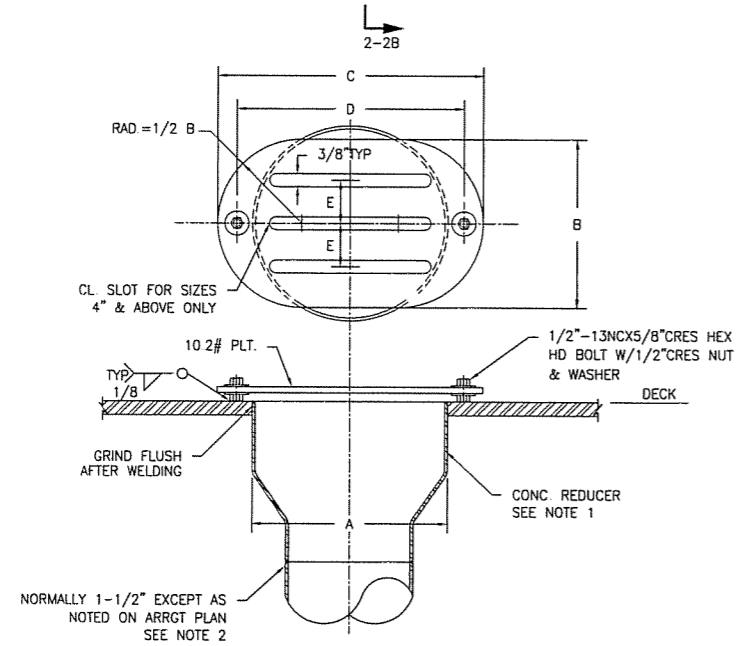
WEATHER DECK DRAINS

DWN	TMH	DATE	11/01/07	SIZE	D	DWG NO.	07069-001-526-1	REV	-
EXD	SDW	DATE	11/05/07	SCALE	NTS	FILE NAME	07069-001-5261-	SHEET	1 OF 3
APVD	DMW	DATE	1/9/08						

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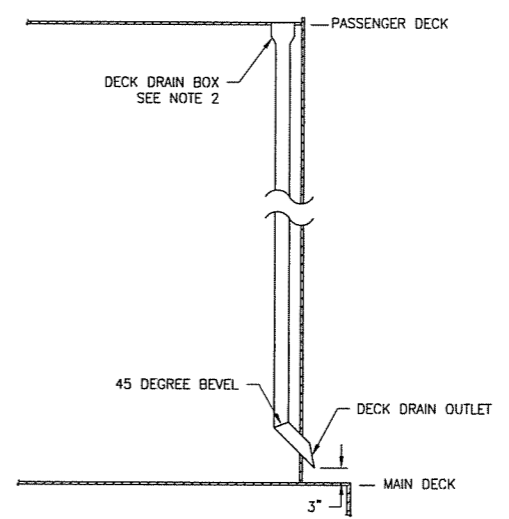
PLAN 2-4C
 MAIN DECK



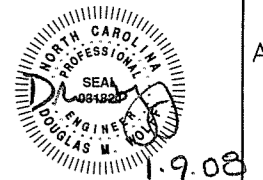
A	B	C	D	E
3 500"	2 1/2"	7 1/2"	5 1/2"	3/4"

- GENERAL NOTES**
1. AN ECCENTRIC REDUCER MAY BE USED IN LIEU OF CONCENTRIC REDUCER AS SHOWN FOR STRUCTURAL CLEARANCE.
 2. USE A SECOND REDUCER WHEN NECESSARY TO FIT UP TO DRAIN STACK.
 3. DRAIN SHALL BE LOCATED OUT OF CLEAR PASSAGE

DETAIL 2-5B
 TYPICAL DRAIN DECK BOX
 APPLY IF BLUCHER-JOSAM SYSTEM IS NOT USED
 NOT TO SCALE



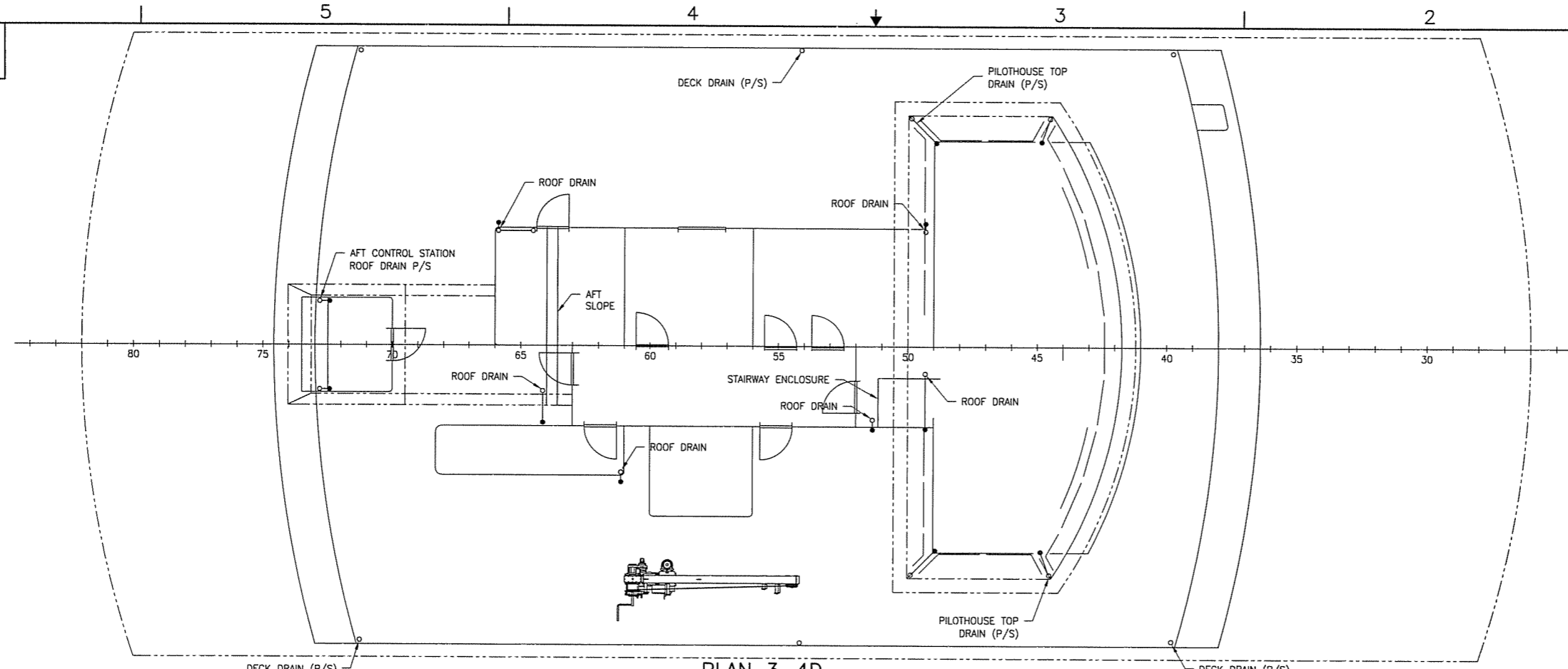
SECTION 2-2B
 TYPICAL DRAIN DETAILS
 FRAME 73 LOOKING FORWARD
 NOT TO SCALE



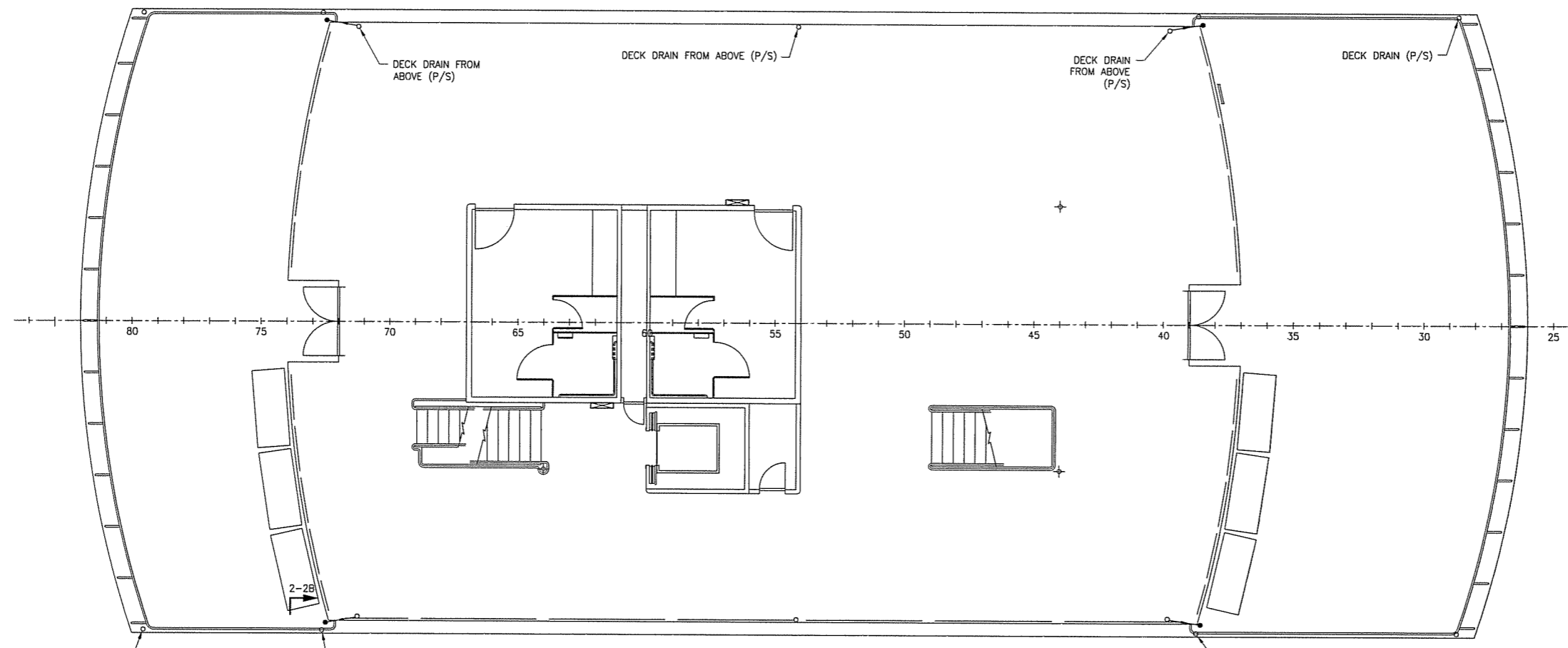
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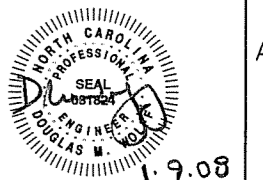
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PLAN 3-4D
 DECK HOUSE TOP



PLAN 3-4B
 PASSENGER DECK



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SCALE	NTS	FILE NAME	07069-001-5261-	SHEET	3 OF 3

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MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			FITTINGS	VALVES		REMARKS
			MATERIAL	GASKETS	BOLTING		BODY	TRIM	
PLUMBING DRAINS (BLACK & GRAY WATER)	ALL INTERIOR 2" & ABOVE	CARBON STEEL SCH 40, GALV ERW ASTM A53 GRADE B SEE NOTE 14	FLANGE STL GALV 150# WELD NECK ASTM A105 ANSI B16.5	GARLOCK STYLE 3000	BOLTS: STL, GALV ASTM A307 GRADE B ANSI B16.9 NUTS: GALV ASTM A563 GRADE A ANSI B18 2.2	FORGED STEEL, GALV 125# ASTM A234 ANSI B16.12 BUTT WELD	CHECK: BRONZE ASTM B61 & B62 FLANGED MSS-SP-80 150# BALL: FULL PORT BRONZE BODY ASTM B61 150# FLANGED MSS-SP-72	BRONZE DISK AND REGRINDABLE SEAT BRONZE BALL TFE SEAT & SEAL	
	ALL INTERIOR 1-1/2" & BELOW		UNION MAL IRON, GALV 150# ASTM A197 ANSI B16.3 THREADED				CHECK: BRONZE ASTM B61 & B62 SOCKET WELD MSS-SP-80 150# BALL: FULL PORT BRONZE BODY ASTM B61 150# SCREWED MSS-SP-72		
	EXTERIOR	STAINLESS STEEL ASTM A312 TYPE 316 ANSI B36.19 SCH 80	STAINLESS STEEL FLANGES ASTM A182 GRADE 316L WELDED ANSI B16.5 150#	BOLTS: 316 STAINLESS STL GRADE 316 ASTM F593 NUTS: 316 STAINLESS STEEL GRADE 316 ASTM F594		316 STAINLESS STL ASTM A182, GRADE 316L, BUTT OR SOCKET WELDED ANSI B16.9	316 STAINLESS STL FLANGED BALL VALVE ASTM B62 MSS-SP-80		BRZ TRIM RENEWABLE DISC & SEAT

SYMBOLS LIST

	CHECK VALVE
	BALL VALVE, FULL PORT
	BALL VALVE, 3-WAY
	CLEAN-OUT, (SEE NOTE 10)
	DISCHARGE HOSE CONNECTION
	VENT VACUUM BREAKER, (3/4" TYP)
	WATER SEALED TRAP
	HIGH LEVEL ALARM
	HIGH LEVEL SWITCH
	LOW LEVEL SWITCH
	REDUCER
	BHD PENETRATION FITTING
	CENTRIFUGAL PUMP
	OVERBOARD

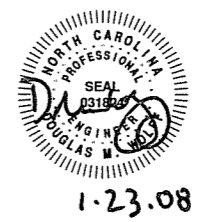
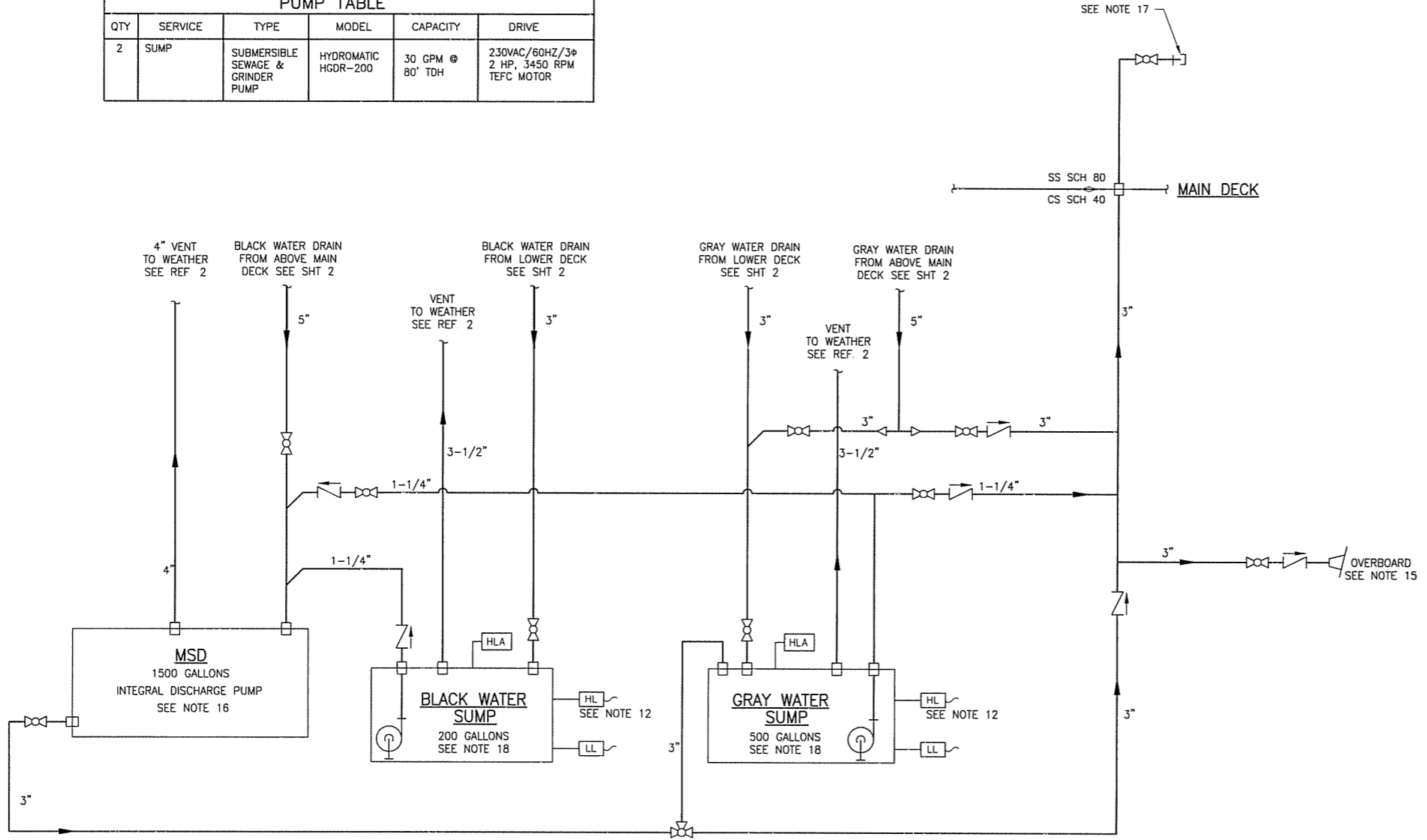
REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	GN18	CHANGE LOCATION OF SUMPS	JL	1-17/08	DMW

- GENERAL NOTES**
- MATERIALS AND WORKMANSHIP SHALL CONFORM TO AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS AND BE IN COMPLIANCE WITH U.S. COAST GUARD REGULATIONS FOR VESSELS INSPECTED UNDER 46 CFR SUBCHAPTER H
 - PIPING SHALL BE RUN AS DIRECTLY AS POSSIBLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS WITH SUFFICIENT JOINTS TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT.
 - TAKEDOWN JOINTS SHALL BE PROVIDED WHERE NECESSARY FOR REMOVAL & SERVICE OF EQUIPMENT. ADDITIONAL TAKEDOWN JOINTS SHALL BE AVOIDED WHERE PRACTICAL AND SHALL NOT BE LOCATED BEHIND LININGS.
 - PIPING PASSING THROUGH WATERTIGHT OR FIRE BOUNDARIES SHALL BE FITTED WITH SLEEVES WELDED TO THE BOUNDARY AND THE PIPE.
 - INACCESSIBLE VALVES SHALL BE FITTED WITH REACH RODS OR REMOTE OPERATORS.
 - IN ACCOMMODATION SPACES PIPES SHALL BE CONCEALED BEHIND LININGS. ACCESS PANELS SHALL BE PROVIDED FOR VALVES AND OTHER COMPONENTS NEEDING SERVICING.
 - UNIONS ARE NOT PERMITTED IN PIPING SYSTEMS BEHIND LININGS, FALSE CEILINGS, OR IN OTHER INACCESSIBLE LOCATIONS.
 - DRAIN PIPING SHALL BE SLOPED A MINIMUM OF 1/4" PER FOOT.
 - ALL PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS AND SHALL BE IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO THE SHIP STRUCTURE. HANGERS SHALL NOT BE ATTACHED BY WELDING DIRECTLY TO PIPES.
 - A SUFFICIENT NUMBER OF PIPE CLEANOUTS SHALL BE PROVIDED TO ALLOW CLEANING AT 25' MAX INTERVALS & NOT MORE THAN (2) 90° BENDS. CLEANOUTS SHALL BE LOCATED IN ACCESSIBLE AREAS AWAY FROM FOOD SERVICE & ELECTRICAL EQUIPMENT.
 - GRAY WATER DRAIN CONNECTIONS SHALL BE MADE WITH 45° Y BRANCHES, 45° ELBOWS AND LONG RADIUS 90° BENDS. BLACK WATER DRAINS SHALL BE MADE WITH SWEEP ELBOWS ONLY.
 - INSTALL HIGH LEVEL ALARM AND PUMP ACTUATION FLOAT SWITCHES IN THE GRAY WATER AND BLACK WATER SUMPS. PUMP SHALL START AT THE 70% LEVEL AND STOP AT THE 10% LEVEL. ALARM SHALL SOUND AT THE 80% LEVEL.
 - AIR GAPS ARE TO BE TWICE THE DIAMETER OF THE PIPE.
 - STEEL PIPING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
 - OVERBOARD DISCHARGE SHALL BE IN ACCORDANCE WITH ASTM F994, TYPE II, CLASS 1.
 - MSD SHALL BE AN OWENS KLEEN TANK, MODEL OW 1125M TYPE II, 220 VAC 3φ 60 Hz 2 HP TEFC FAN MOTOR, DISCHARGE 24 GPM @ 55 FT TDH.
 - DECK CONNECTION SHALL HAVE 3" CAM LOCK FITTING WITH CAP
 - BLACK AND GRAY WATER SUMPS SHALL BE POLYETHYLENE TANKS SHALL BE SECURELY MOUNTED IN THE FORWARD VOID WITH GASKETS PROTECTING THE TANKS FROM CONTACT WITH STEEL STRUCTURE FURNISH EACH TANK WITH ONE 15X23 MANHOLE

PUMP TABLE

QTY	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
2	SUMP	SUBMERSIBLE SEWAGE & GRINDER PUMP	HYDROMATIC HGDR-200	30 GPM @ 80' TDH	230VAC/60HZ/3φ 2 HP, 3450 RPM TEFC MOTOR



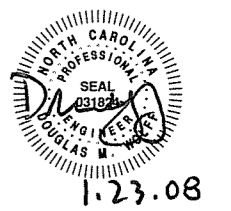
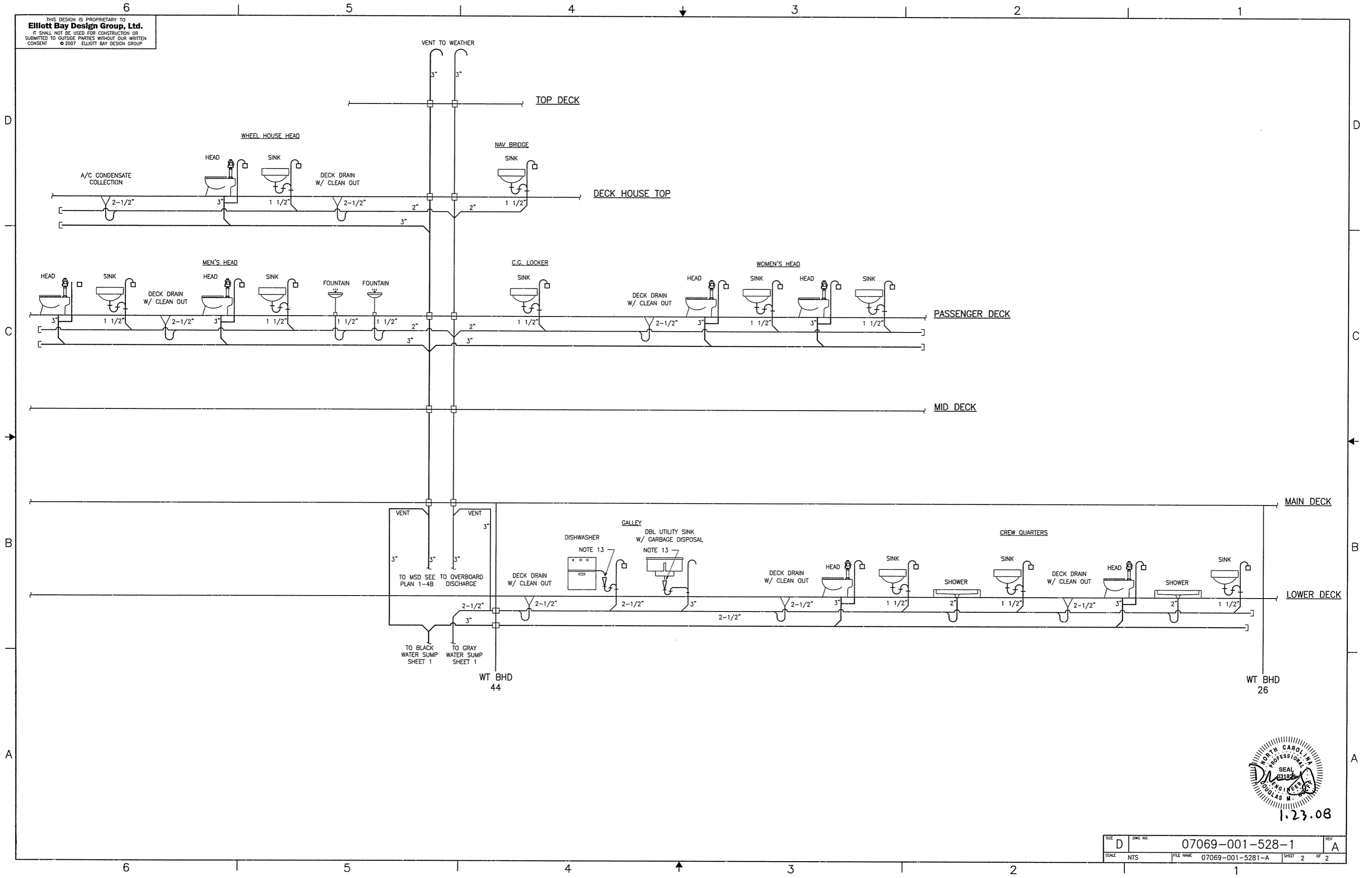
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Elliott Bay Design Group
 Seattle - New Orleans
 CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 PROJECT: NEW SOUND CLASS FERRY

SANITARY DRAINS/SEWAGE TREATMENT SYSTEM SCHEMATIC

DWN	TMH	DATE	10/17/07	SIZE	D	DWG NO.	07069-001-528-1	REV	A
CHKD	SLW	DATE	10/31/07	SCALE	NTS	FILE NAME	07069-001-5281-A	SHEET	1 OF 2
APVD	DMW	DATE	1/9/08						

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SCALE	NTS	FILE NAME	07069-001-5281-A	SHEET	2 OF 2

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CALCULATIONS

VESSEL DIMENSIONS:
 L = 220.5 FT
 B = 50 FT
 D = 12.5 FT

PIPE DIAMETER CALCULATIONS:
 WHERE:
 d = INTERNAL PIPE DIAMETER
 c = COMPARTMENT LENGTH

BILGE MAIN:
 $d = 1 + \sqrt{L * (B+D) / 2500} = 3.35" \text{ MIN.}$
 $d = 4"$

BILGE BRANCHES:
 c = 40'
 $d = 1 + \sqrt{c * (B+D) / 1500} = 2.29" \text{ MIN.}$
 $d = 3"$

BILGE PUMP CAPACITY CALCULATIONS:
 WHERE:
 v = MIN ALLOWED WATER VELOCITY (Ft/ Sec)
 Q = PUMP CAPACITY (GPM)
 A = Pipe Cross Sectional Area (Sq Ft)
 d = Pipe Inside Diameter (Inches)
 Q = VA
 $= (400 \text{ Ft/Min})(\pi * (3.35/2)^2 / 144)(7.481 \text{ gal/ft}^3)$
 $= 183 \text{ GPM}$

MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			FITTINGS	VALVES		REMARKS
			MATERIAL	GASKETS	BOLTING		BODY	TRIM	
BILGE	2 1/2" & OVER	STEEL, GALV SCH 80 ASTM A106, GR B SEAMLESS ANSI B36.10	FLANGED, SLIP-ON GALV STL, 150# ASTM A105 ANSI B16.5			STL BUTTWELD 150#, SCH 80 GALV ASTM A234 ANSI B16.9	CAST IRON FLANGED, 125# ASTM A126, CL B ANSI B16.10 & B16.34	BRZ TRIM RENEWABLE DISC & SEAT	
OILY WATER	2" & UNDER		UNIONS, MAL IRON CLASS 300 ASTM A197 THREADED ENDS ANSI B16.3 GALVANIZED			MAL IRON CLASS 300 ASTM A197 THREADED ENDS ANSI B16.3 GALVANIZED	BALL, GLOBE, CHECK, STOP CHECK; BRONZE, THD ASTM B61 OR ASTM B62 MSS-SP-80 150#	BRONZE DISK & REGRINDABLE SEAT UNION BONNET STNLS STL BALL	

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

- GENERAL NOTES**
- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS.
 - EQUIPMENT LAYOUT WITHIN A GIVEN AREA IS ONLY APPROXIMATE. PROVISION OF EQUIPMENT SHALL BE AS SHOWN ON THIS DRAWING AND AS DESCRIBED BY REFERENCE 8.
 - GALVANIZING DAMAGED DURING FABRICATION SHALL BE PAINTED WITH "GALVACON" OR EQUAL.
 - ALL VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL CLOSURE STATUS.
 - DISCHARGE CHECK VALVES SHALL BE ORIENTED IN THE FORE AND AFT DIRECTION.
 - OVERBOARD SHELL PENETRATIONS SHALL BE LOCATED APPROXIMATELY 8 FEET ABOVE BASELINE. OVERBOARD DISCHARGE VALVES SHALL BE PROVIDED WITH REMOTE CLOSING GEAR TO DECK.
 - THE BILGE PUMPS SHALL BE CAPABLE OF REMOTE STARTING SEE REFERENCE 4.
 - TDH OF PUMP FOR REQUIRED FLOW ARE APPROXIMATE ONLY THE CONTRACTOR SHALL PROVIDE PUMPS MEETING THE REQUIRED FLOW WITH THE INSTALLED PIPING SYSTEMS AND BILGE PUMP IMPELLERS SHALL BE TRIMMED TO PREVENT MOTOR OVERLOAD.
 - THE BILGE SUCTION MANIFOLD SHALL BE LOCATED SUCH THAT VALVE HANDLES ARE APPROXIMATELY 24 INCHES ABOVE THE DECK PLATES.
 - BILGE SUCTIONS SHALL HAVE STRAINER BOXES INSTALLED. STRAINER BOXES SHALL BE IN ACCORDANCE WITH ASTM F986, TYPE I, HOT DIP GALVANIZED AFTER FABRICATION.
 - SUCTION END CHECK VALVES SHALL BE OMITTED FROM THE BILGE SUCTION PIPES IF THE PIPING IS NOT LOCATED WITHIN ONE FIFTH OF THE BEAM OF THE VESSEL SIDE AS PRESCRIBED BY 46 CFR 56.50-50 (b).
 - BULKHEAD AND DECK PENETRATIONS SHALL BE VIA CONTINUOUSLY WELDED REINFORCING SLEEVES, COLLARS OR APPROVED COMMERCIAL PENETRATION SLEEVE.
 - 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.
 - THE PIPING SHALL BE CLEANED, FLUSHED, FILLED AND HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH USCG AND ABS REQUIREMENTS
 - BILGE SUCTIONS SHALL BE LOCATED 3" ABOVE SHELL PLATE AT THE COMPARTMENT LOW POINT

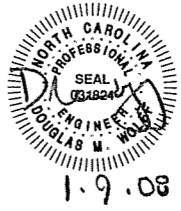
PIPING SYMBOLS

	DIRECTION OF FLOW		CAP
	REDUCER		OVERBOARD DISCHARGE
	DECK OR BHD PENETRATION		SIMPLEX STRAINER
	PIPE UP		ROSE BOX, NOTES 10 & 15
	PIPE DOWN		PRESSURE GAUGE, LOCAL READING 0-150 PSI
	GATE VALVE W/ REMOTE OPERATOR		PRESSURE GAUGE, REMOTE
	SWING CHECK VALVE		VACUUM PRESSURE GAUGE, LOCAL READING 30-0-30 PSI
	BALL VALVE		MANIFOLD W/ STOP CHECK VALVES
	STOPCHECK VALVE		CENTRIFUGAL PUMP
	RELIEF VALVE		SLIDING SHOE PUMP
	BALL CHECK VENT WITH STAINLESS STEEL FLAME SCREEN		

PUMP LIST

QTY	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
2	BILGE	SELF PRIMING HORIZONTAL CENTRIFUGAL	GOULDS 3796 MTX 3x3x13	183 GPM @104' TDH	TEFC MOTOR 208 VAC, 3Ø 15 HP, 1750 RPM IEEE-B41
		NOTE 7		NOTE 8	
1	OILY WATER PUMP	SLIDING-SHOE	MEGATOR L75	6.5 GPM @ 100' TDH	3/4 HP 115 V / 1 PH

- REFERENCES**
- 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS
 - 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
 - 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
 - 07069-001-320-1 ELECTRICAL ONE-LINE DIAGRAM
 - 07069-001-521-1 FIRE MAIN PIPING SCHEMATIC
 - 07069-001-522-1 SPRINKLER PIPING SCHEMATIC
 - 07069-001-264-1 LUBE & DIRTY OIL SCHEMATIC
 - 07069-001-529-2 BILGE PIPING ARRANGEMENT & DETAILS



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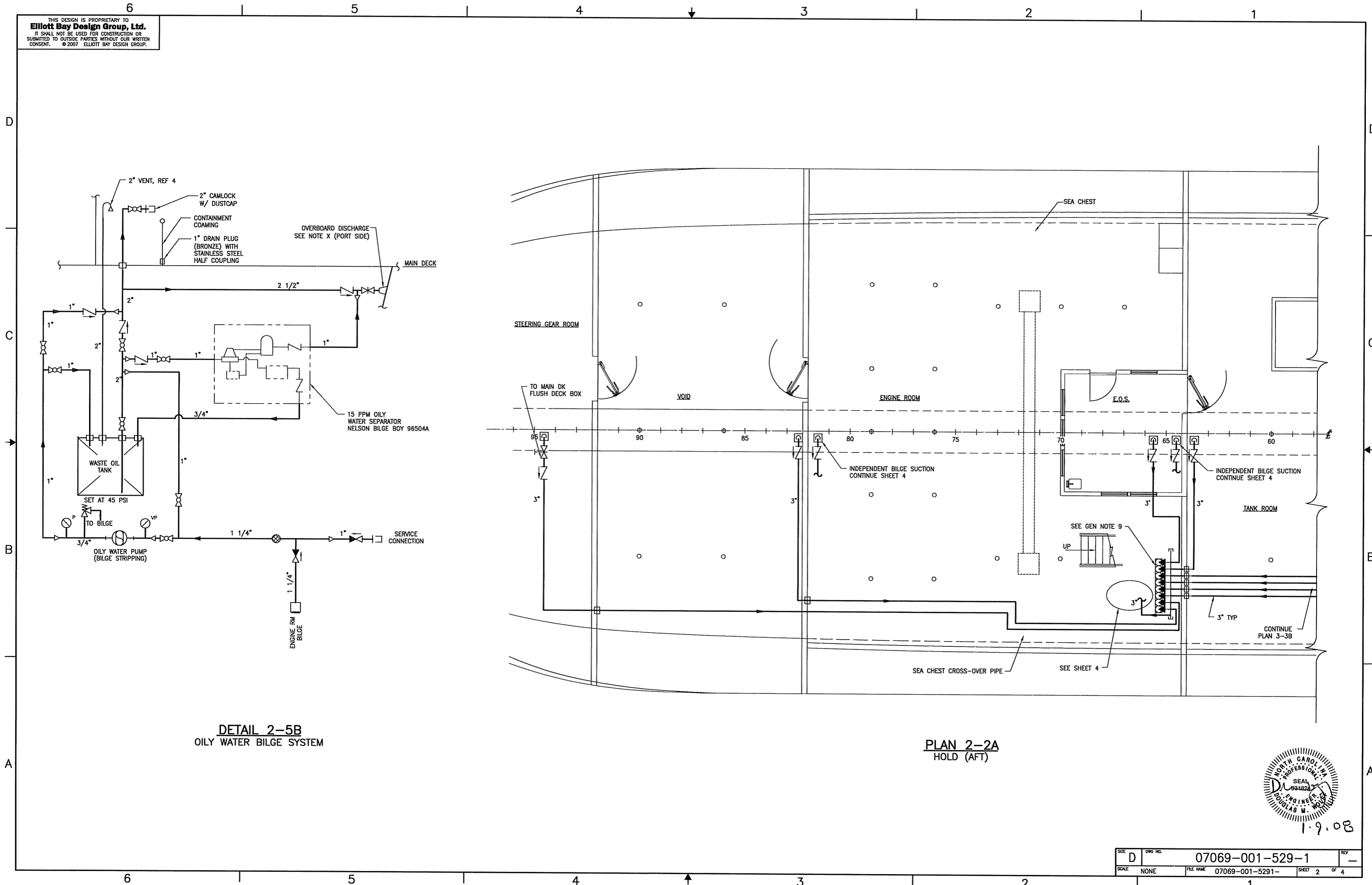
CLIENT: **NORTH CAROLINA D.O.T., FERRY DIV**
 Raleigh, North Carolina

PROJECT: **NEW SOUND CLASS FERRY**

TITLE: **BILGE & OILY WATER SYSTEM
 PIPING SCHEMATIC**

DWN: JWJ	DATE: 12/5/07	SIZE: D	DWG NO.: 07069-001-529-1	REV: -
CKD: JSB	DATE: 12/5/07	SCALE: NONE	FILE NAME: 07069-001-5291-	SHEET: 1 OF 4
APVD: DMW	DATE: 1/9/08			

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DETAIL 2-5B
 OILY WATER BILGE SYSTEM

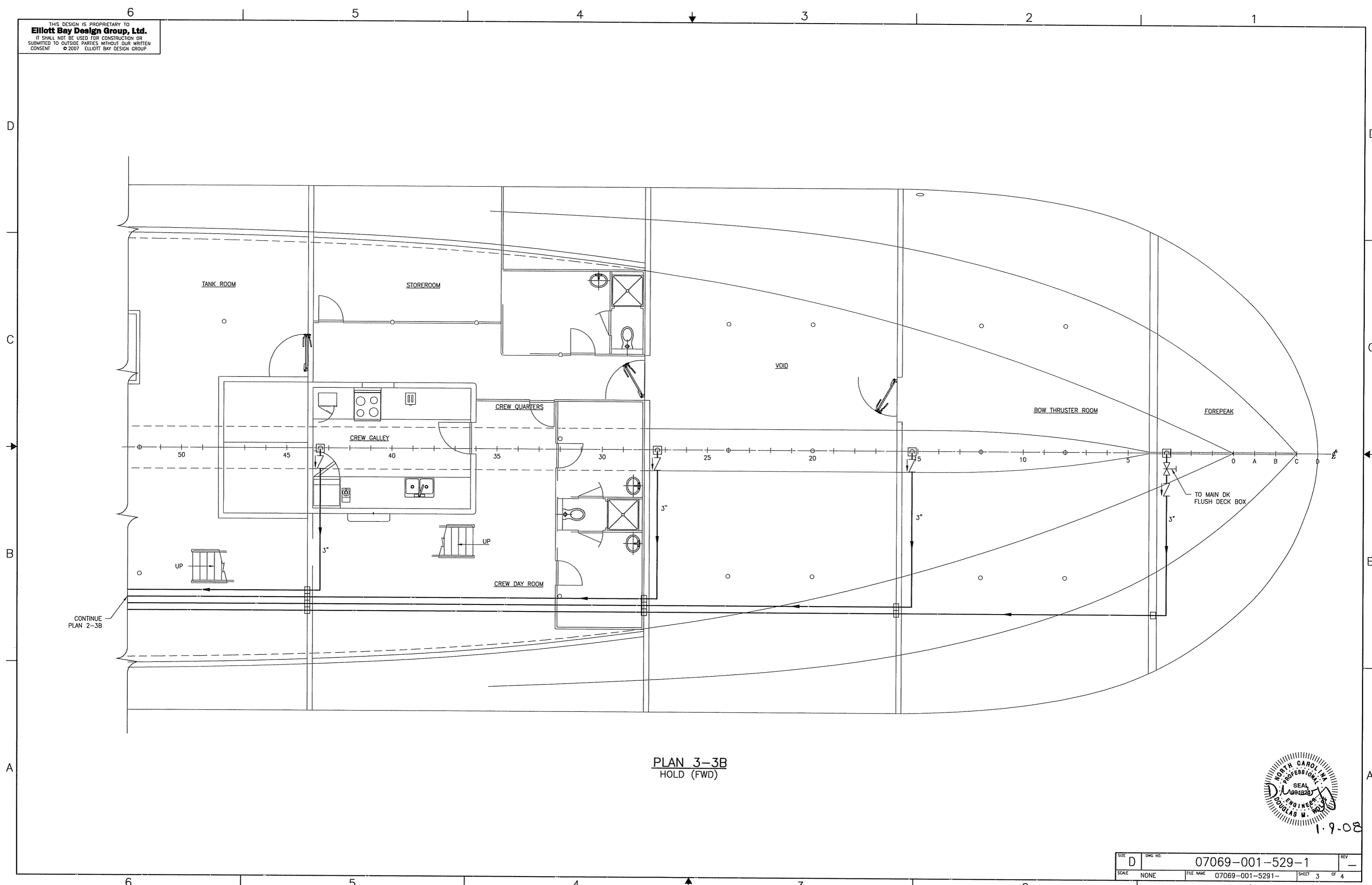
PLAN 2-2A
 HOLD (AFT)



1.9.08

SIZE	D	DWG NO.	07069-001-529-1	REV	-
SCALE	NONE	FILE NAME	07069-001-5291-	SHEET	2 OF 4

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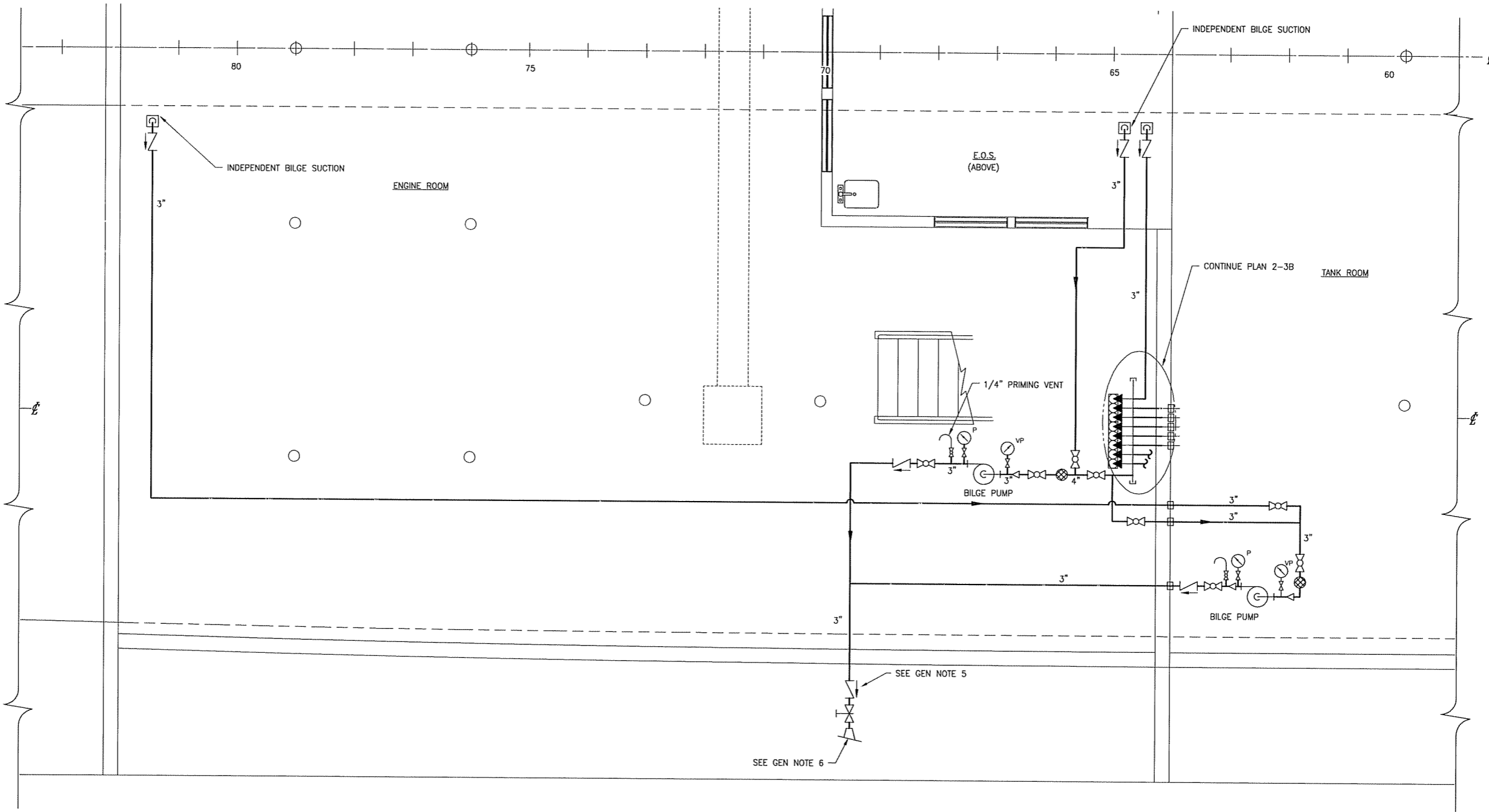
PLAN 3-3B
 HOLD (FWD)



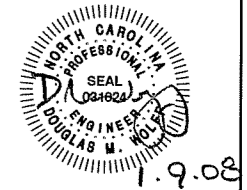
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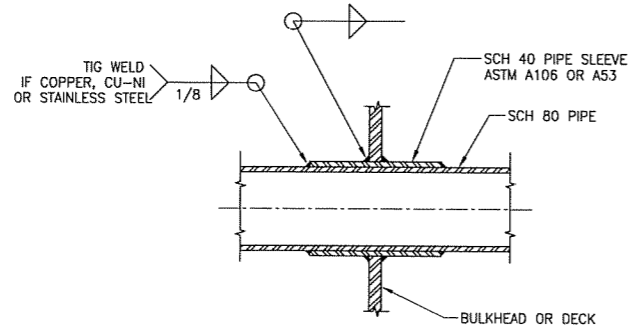


PLAN 4-3A
 BILGE PUMP ARRANGEMENT

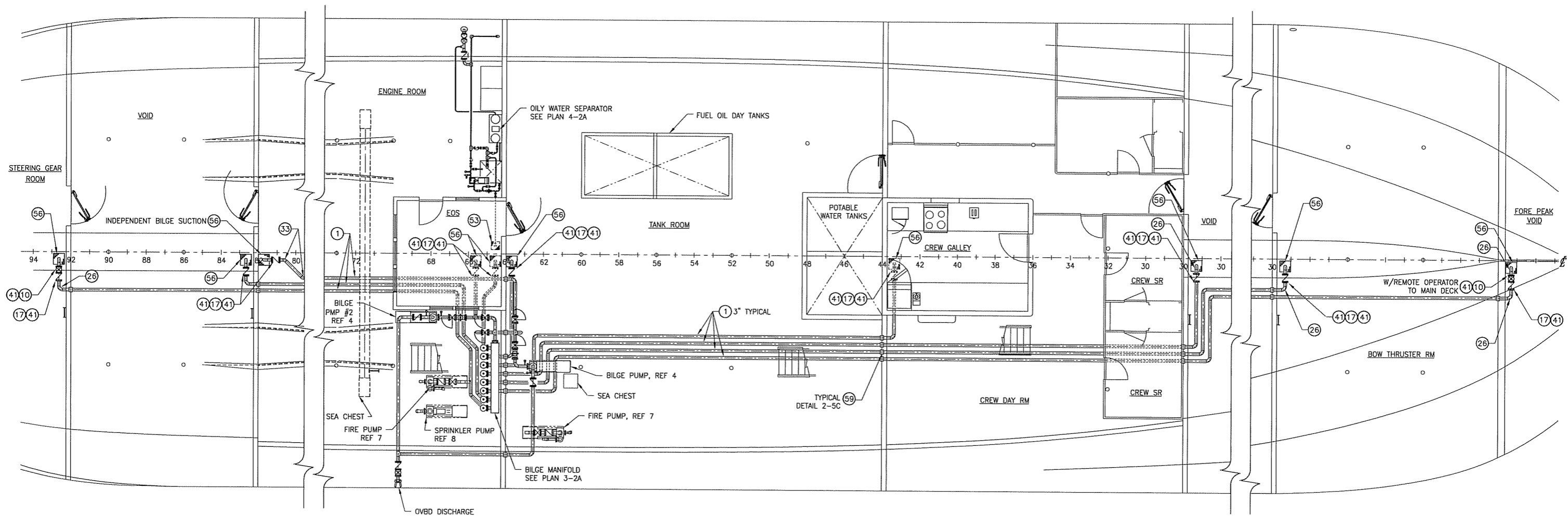


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SCALE	FILE NAME	SHEET
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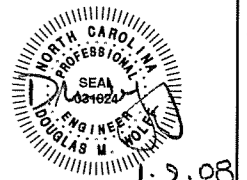


DETAIL 2-5C
 TYPICAL DECK/WT BHD PENETRATION
 SCALE: NONE



PLAN 2-3A
 LOWER DECK
 SCALE: 3/16" = 1'-0"

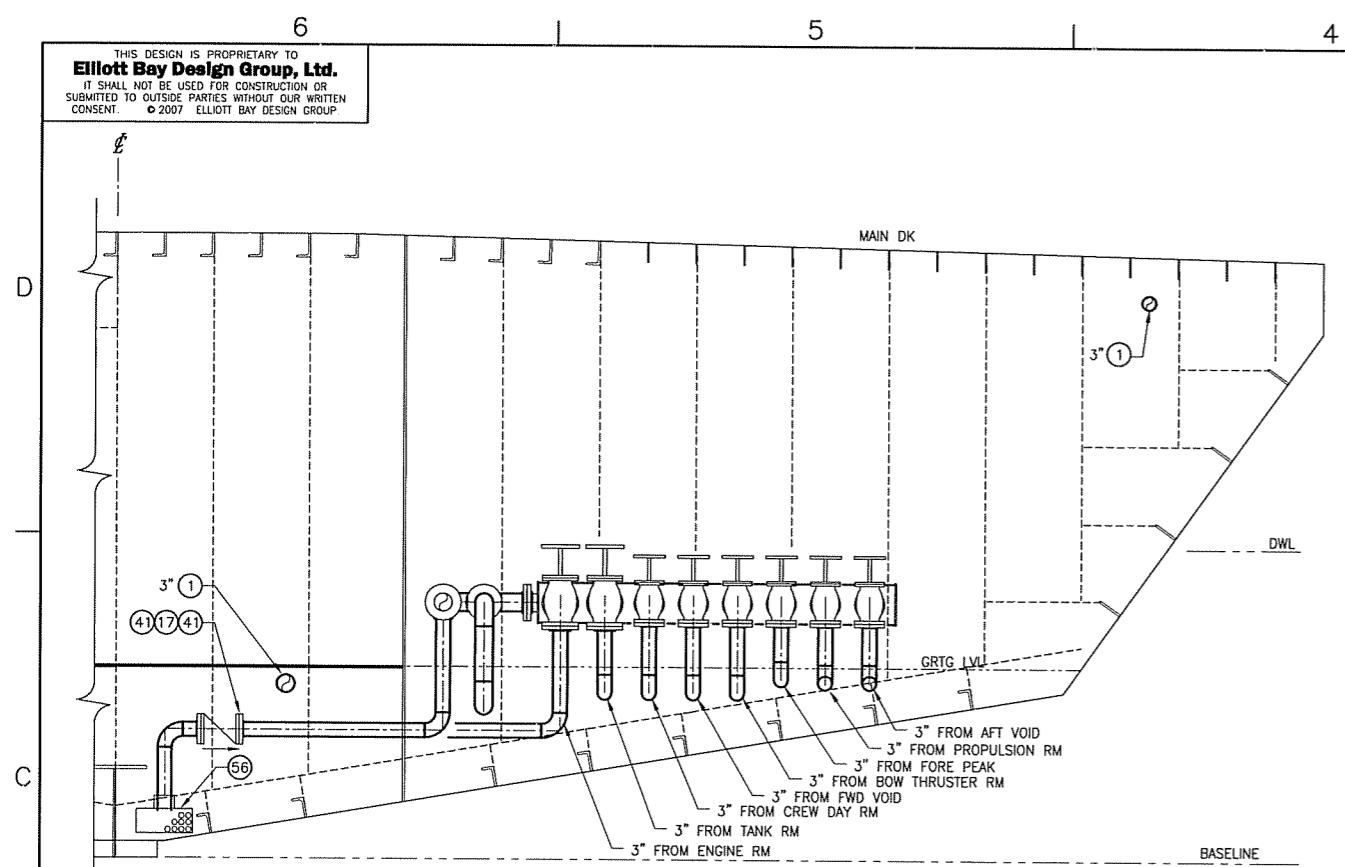
NOTE: PIPING ARRANGEMENT SHOWN IS
 SUGGESTED ROUTING ONLY.



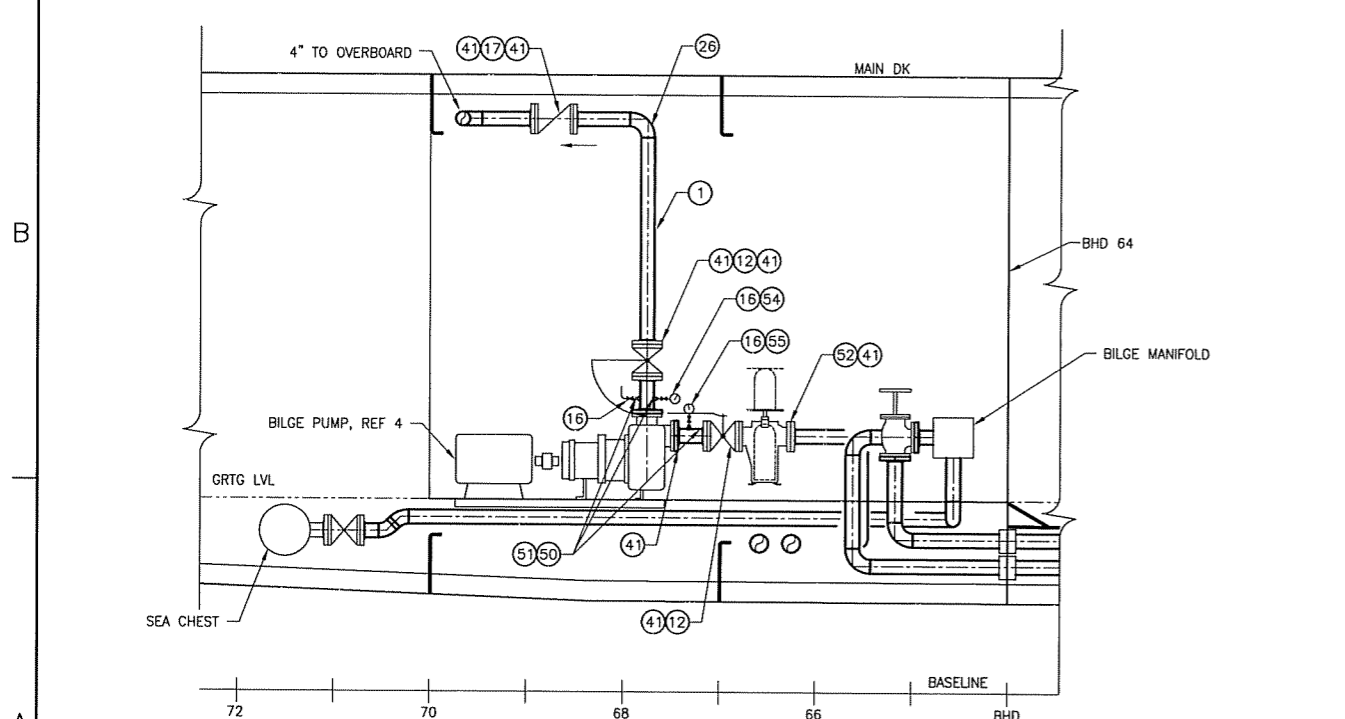
1.9.08

SIZE	D	DWG NO.	07069-001-529-2	REV	-
SCALE	NONE	FILE NAME	07069-001-5292-	SHEET	2 OF 4

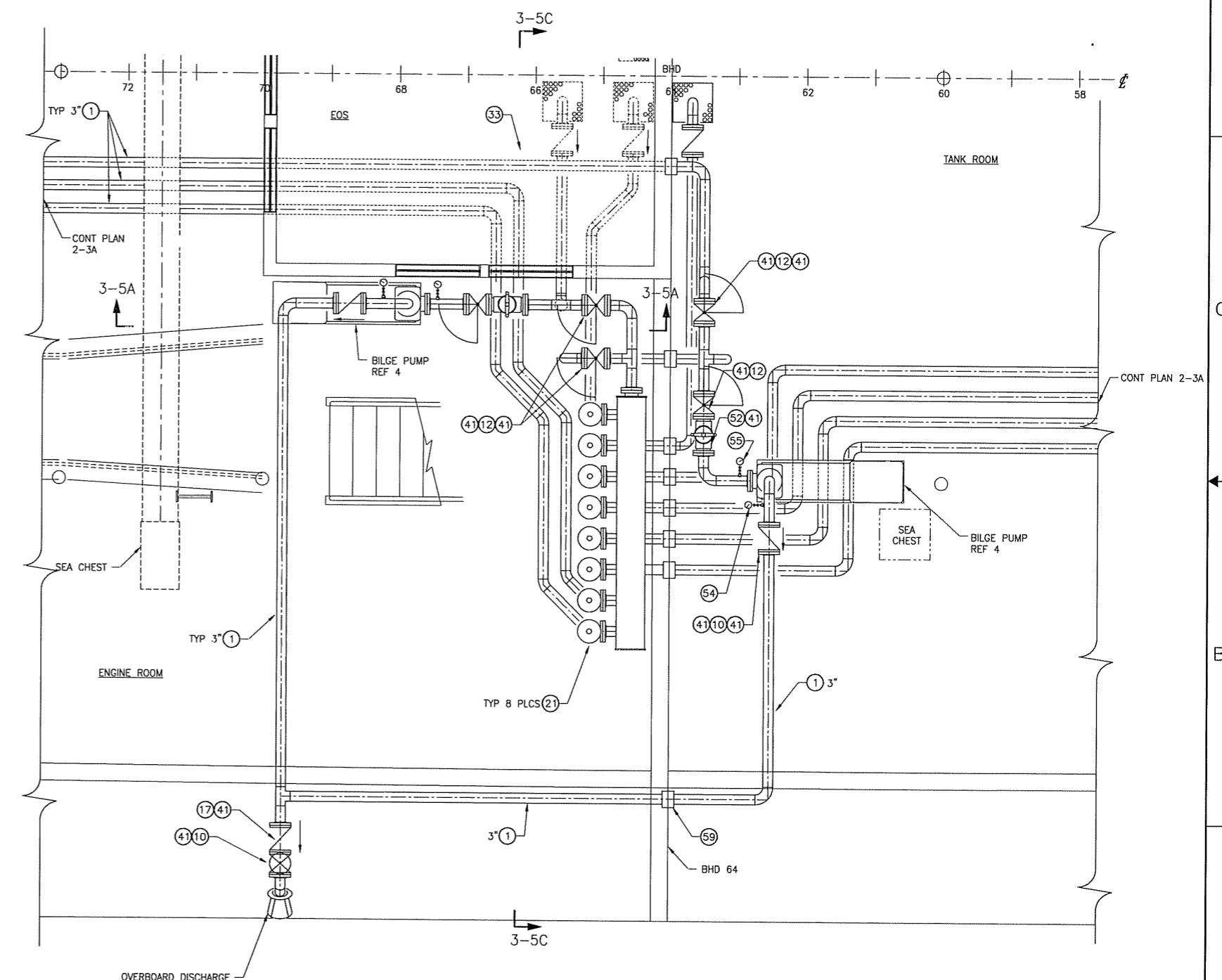
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SECTION 3-5C
 FR 66 LOOKING FWD
 SCALE: 1"=1'-0"



ELEVATION 3-5A
 STBD LOOKING OUTBD
 SCALE: 1"= 1'-0"

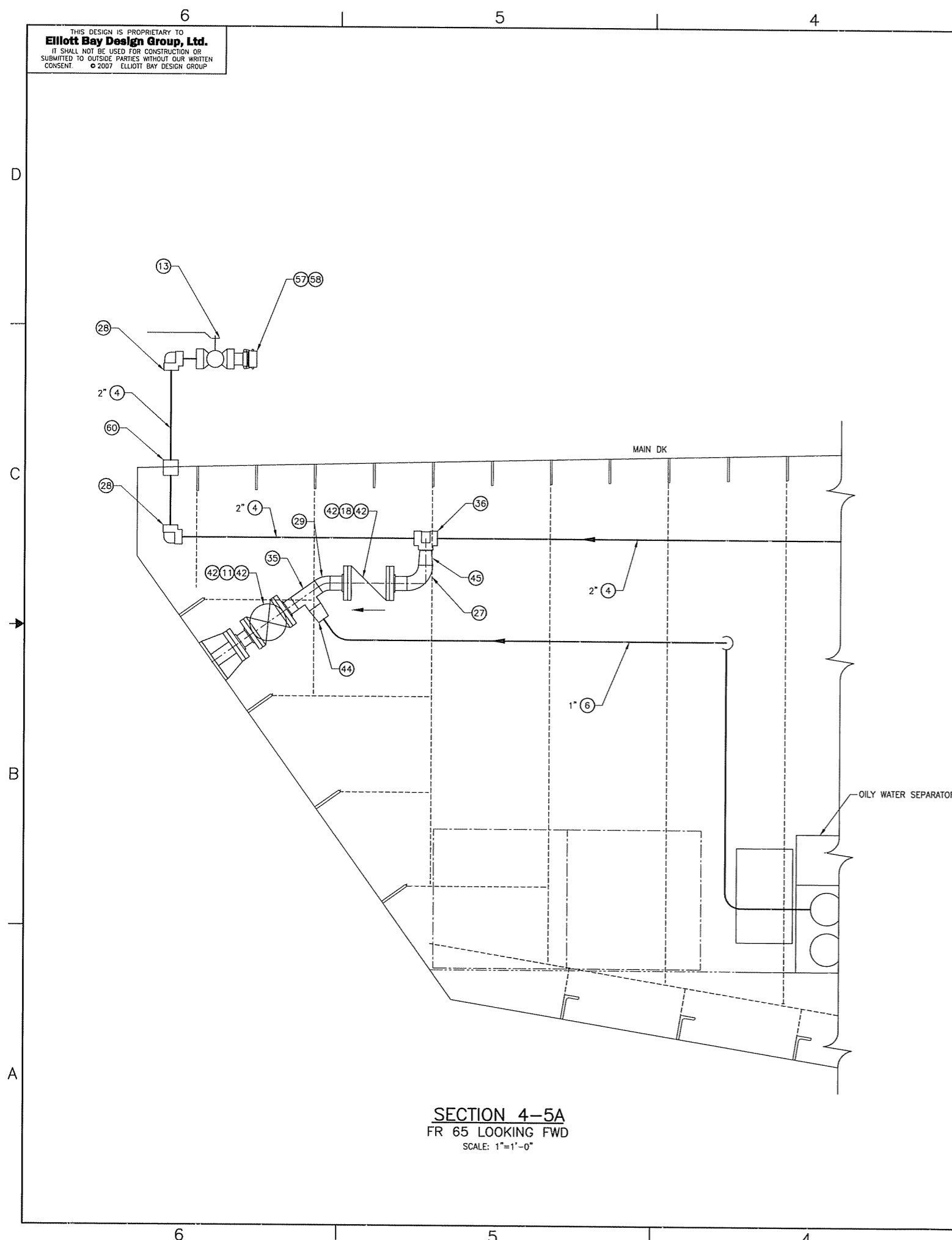


PLAN 3-2A
 LOWER DECK
 SCALE: 1"=1'-0"

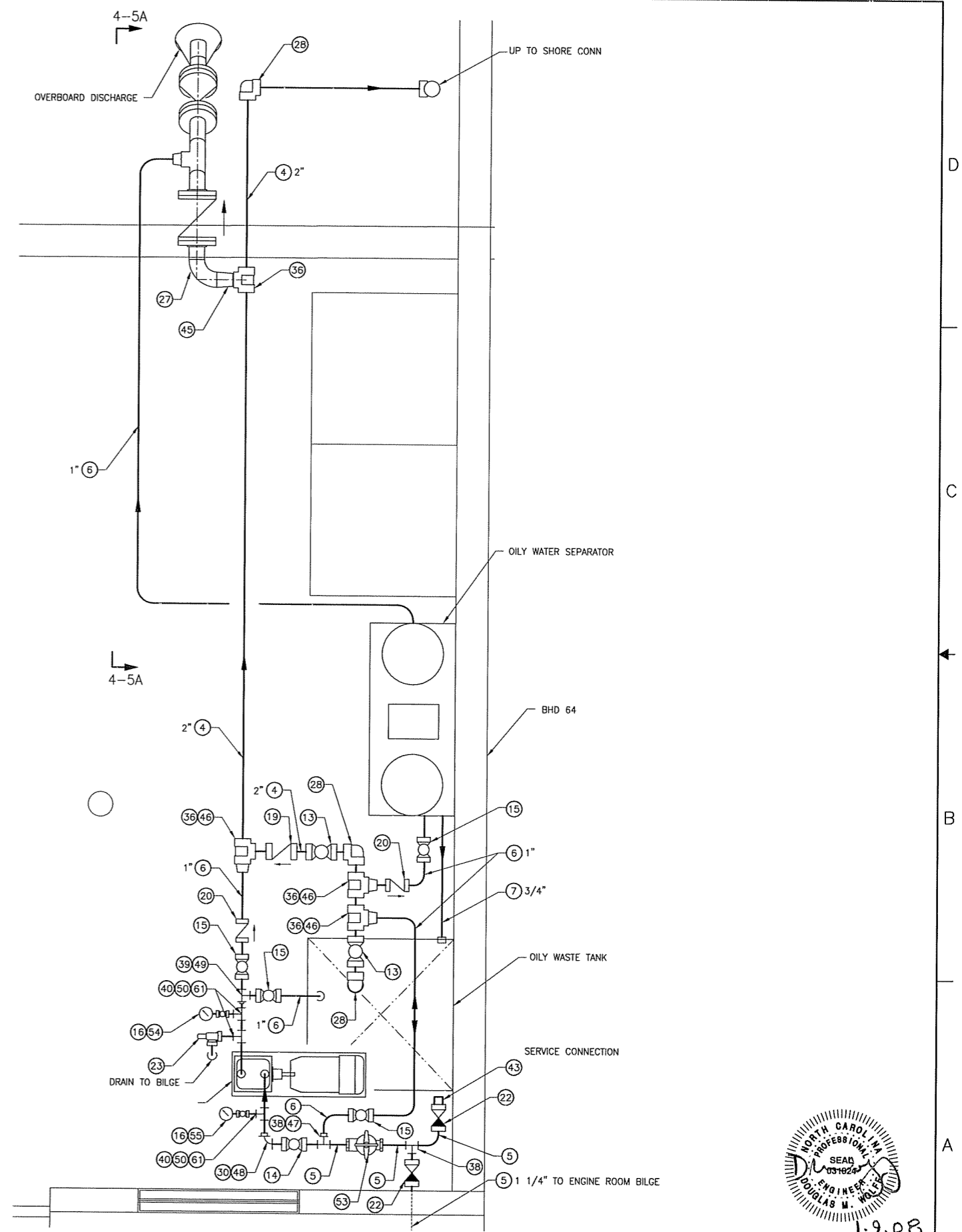


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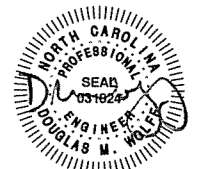
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SECTION 4-5A
 FR 65 LOOKING FWD
 SCALE: 1"=1'-0"



PLAN 4-2A
 LOWER DECK
 SCALE: 1"=1'-0"



1-9-08

SIZE	DWG NO.	REV
D	07069-001-529-2	-
SCALE	FILE NAME	SHEET
1"=1'-0"	07069-001-5292-	4 OF 4

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MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS	FITTINGS	VALVES	
					BODY	TRIM
POTABLE WATER	2" & BELOW (SEE NOTE 5)	STEEL, GALV SCH 40 ASTM A53, GR B WELDED OR SMLS ANSI B36.10	UNION, GROUND JOINT MAL IRON, GALV THREADED, 150# ASTM A-197 ANSI B16.3	MAL IRON, GALV SCREWED, 150# ASTM A-197 ANSI B16.3	BALL: STAINLESS STEEL FLANGED ASTM A351/A744 CF8M	STAINLESS STEEL BALL AND STEM TEFLON SEATS AND SEALS
	1 1/2" & BELOW	COPPER TUBING TYPE 'K' ASTM B-88	UNION, WROUGHT COPPER SOLDER END ANSI B16.22	UNION, WROUGHT COPPER SOLDER END ANSI B16.22	BRONZE SCREWED, 150# UNION BONNET ASTM B-62 MSS-SP-80	BRZ TRIM

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS
- THE POTABLE WATER PRESSURE TANK SHALL BE FITTED WITH A 85 PSIG SAFETY RELIEF VALVE. THE WATER HEATER SHALL BE FITTED WITH A TEMPERATURE/PRESSURE RELIEF VALVE
- COPPER TUBE SHALL BE ADEQUATELY SUPPORTED BY PIPE HANGARS USING RUBBER GROMMETS BETWEEN HANGER AND PIPE
- PIPE WITHIN THE ELEVATOR SHAFT AND ALL COLD AND HOT WATER PIPING WITHIN THE ENGINE ROOM SHALL BE INSULATED WITH 1" PREFORMED HIGH DENSITY FIBERGLASS WITH ALUMINUM FOIL LAGGING
- AT CONTRACTOR OPTION, TYPE 'K' COPPER TUBING AND FITTINGS MAY BE USED IN FRESH WATER PIPING AFTER THE PRESSURE PUMP AND WATER HEATER
- WATER HEATER THERMOSTAT SHALL BE SET FOR 120 DEGREES F.
- POTABLE PRESSURE PUMP SHALL BE SET TO START AT 60 PSIG AND STOP AT 75 PSIG.
- AFTER INSTALLATION, THE SYSTEM SHALL BE HYDROSTATICALLY TESTED TO A PRESSURE IN EXCESS OF THE MAXIMUM ATTAINABLE PUMP PRESSURE.
- AFTER INSTALLATION IS COMPLETE, POTABLE WATER SYSTEM SHALL BE CLEANED, SANITIZED, AND FLUSHED PER USPHS REQUIREMENTS.
- ALL CONNECTIONS TO NON-POTABLE WATER SYSTEMS SHALL BE FITTED WITH BACKFLOW PREVENTERS TO ELIMINATE CONTAMINATION.
- WATER HAMMER ARRESTORS SHALL BE INSTALLED IN SUPPLY LINES TO ANY UNIT WHERE SLOW-CLOSING VALVES ARE NOT USED

PIPING SYMBOLS

---	HOT WATER		SIMPLEX STRAINER
—	COLD WATER		PENETRATION SLEEVE
—○	PIPE UP		REDUCER
—○	PIPE DOWN		PRESSURE GAUGE W/SHUT-OFF VALVE
	BALL VALVE		COMPOUND PRESSURE GAUGE W/SHUT-OFF VALVE
	SWING CHECK VALVE		CENTRIFUGAL PUMP
	PRESSURE RELIEF VALVE		PRESSURE SWITCH
	FW SPIGOT CONNECTION		FLEXIBLE CONNECTION
	BACKFLOW PREVENTER		

PUMP & EQUIPMENT TABLE

QTY	SERVICE	TYPE	MODEL	CAPACITY	DRIVER
2	POTABLE	HORIZONTAL SELF-PRIMING CENTRIFUGAL	JACUZZI 1RM2 1 1/4" X 1"	20 GPM @ 115"	TEFC MOTOR 115V 1φ 1HP, 3550 RPM
1	PRESSURE TANK	BLADDER	MYER'S MPD 86	86 GALLON	
1	WATER HEATER		RHEEM ES50-6-G	50 GALLON	6 KW 208 V, 3φ

REFERENCES

- 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-320-1 ELECTRICAL ONE-LINE DIAGRAM
- 07069-001-522-1 SPRINKLER PIPING SCHEMATIC
- 07069-001-506-1 FILLS, VENTS & SOUNDS PIPING SCHEMATIC
- 07069-001-533-2 POTABLE WATER PIPING A & D

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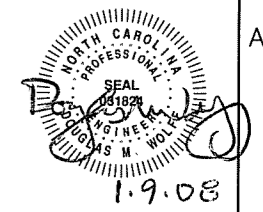
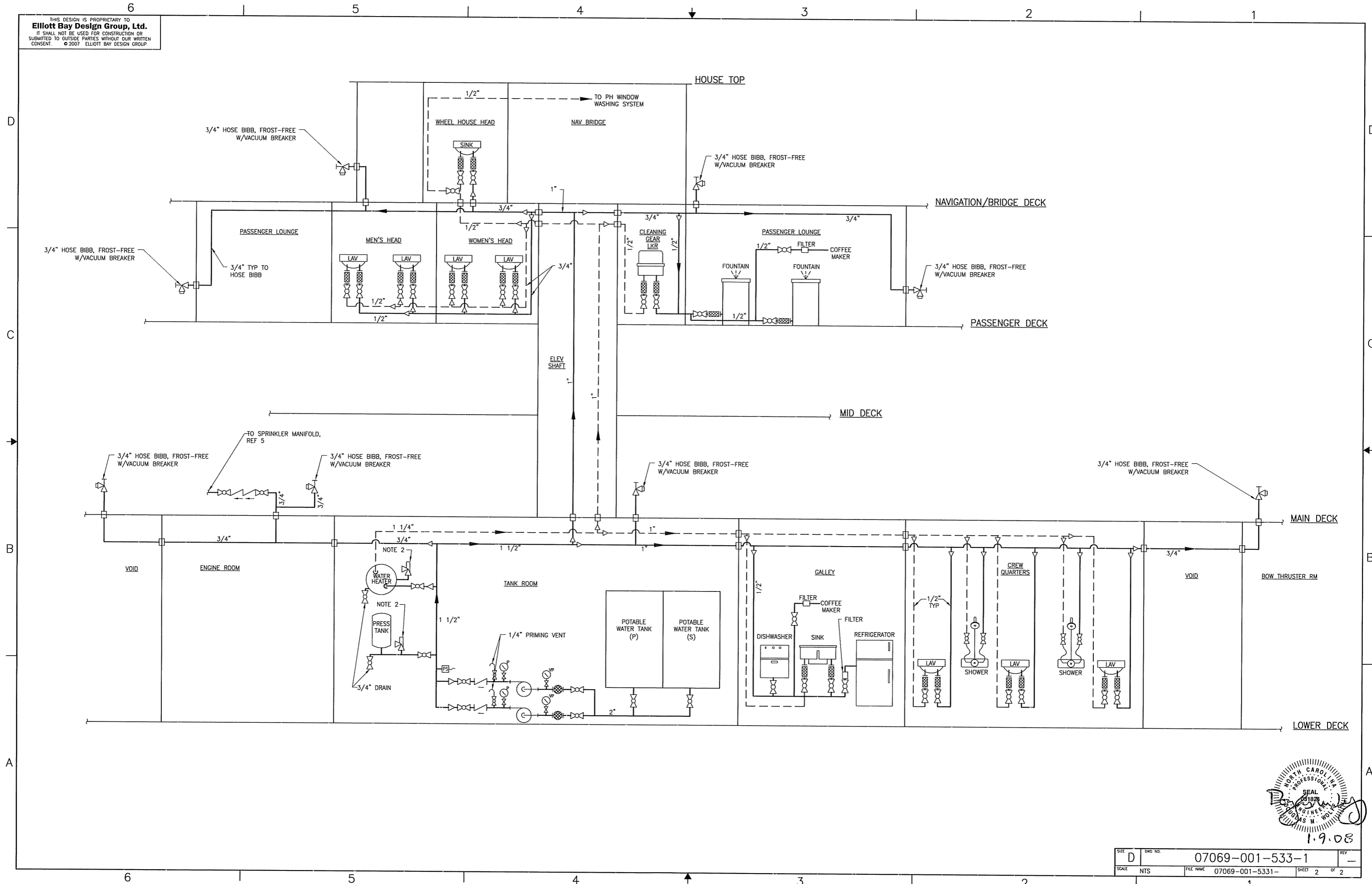
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 PROJECT: Raleigh, North Carolina
 TITLE: NEW SOUND CLASS FERRY

POTABLE WATER PIPING SCHEMATIC



DWN: JWL	DATE: 11/12/07	SIZE: D	DWG NO.: 07069-001-533-1	REV: —
CHKD: TMH	DATE: 11/20/07	SCALE: NONE	FILE NAME: 07069-001-5331-	SHEET: 1 OF 2
APVD: DMW	DATE: 1/9/08			

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SIZE	DWG NO.	07069-001-533-1	REV	-
SCALE	NTS	FILE NAME	07069-001-5331-	SHEET 2 OF 2

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SHEET NO.	SHEET CONTENT
1	LIST OF MATERIAL, GENERAL NOTES, REFERENCES
2	LIST OF MATERIAL
3	POTABLE WATER TANK/PUMP AREA, LOWER DECK
4	LOWER DECK
5	MAIN DECK
6	PASSENGER DECK, FIXTURE DETAILS
7	NAVIGATION BRIDGE DECK
8	POTABLE WATER TANK/PUMP DETAILS

LIST OF MATERIALS

PIECE No.	QUANTITY	DESCRIPTION	MATERIAL OR MANUFACTURER	SPEC, GRADE OR MODEL	REMARKS
1	15 LF	2" PIPE, SCH 40, SEAMLESS	CARBON STEEL	ASTM A-53	ANSI B36.10
2	12 LF	1 1/2" PIPE, SCH 40, SEAMLESS	CARBON STEEL	ASTM A-53	ANSI B36.10
3	6 LF	1 1/4" PIPE, SCH 40, SEAMLESS	CARBON STEEL	ASTM A-53	ANSI B36.10
4	4 LF	1" PIPE, SCH 40, SEAMLESS	CARBON STEEL	ASTM A-53	ANSI B36.10
5	1 LF	1/4" PIPE, SCH 40, SEAMLESS	CARBON STEEL	ASTM A-53	ANSI B36.10
6	40 LF	TUBING, 1 1/2", TYPE "K"	COPPER	ASTM B-88	
7	42 LF	TUBING, 1 1/4", TYPE "K"	COPPER	ASTM B-88	
8	34 LF	TUBING, 1", TYPE "K"	COPPER	ASTM B-88	
9	320 LF	TUBING, 3/4", TYPE "K"	COPPER	ASTM B-88	
10	120 LF	TUBING, 1/2", TYPE "K"	COPPER	ASTM B-88	
11	1 LF	TUBING, 1/4", TYPE "K"	COPPER	ASTM B-88	
12					
13					
14	2	BALL VALVE, 2" FPT, 150#, FLANGED	CARBON STEEL	ASTM A-216 WCB	MSS SP-72, FULL PORT
15	1	BALL VALVE, 1 1/2" FEM THD, 400#	BRONZE	ASTM B-62	MSS SP-110, FULL PORT
16	3	BALL VALVE, 1 1/4" FEM THD, 400#	BRONZE	ASTM B-62	MSS SP-110, FULL PORT
17	2	BALL VALVE, 1" FPT, 400#, FEM THD	BRONZE	ASTM B-62	MSS SP-110, FULL PORT
18	1	BALL VALVE, 3/4" FPT, 400#, FEM THD	BRONZE	ASTM B-62	MSS SP-110, FULL PORT
19	2	BALL VALVE, 1/2" FPT, 400#, FEM THD	BRONZE	ASTM B-62	MSS SP-110, FULL PORT
20	6	BALL VALVE, 1/4" FPT, 400#, FEM THD	BRONZE	ASTM B-62	MSS SP-110, FULL PORT
21	2	SWING CHECK VALVE, 1" FPT, 200#, FEM THD	BRONZE	ASTM B-584	MSS SP-80
22	2	SWING CHECK VALVE, 3/4" FPT, 200#, FEM THD	BRONZE	ASTM B-584	MSS SP-80
23	8	HOSE BIBB VALVE, FROST FREE W/VACUUM BREAKER, 3/4" FPT	BRONZE	COML	
24	1	PRESSURE RELIEF VALVE, 1 1/4" FEM THD, 300#	BRONZE	ASTM B-62	MSS SP-80
25					
26					
27					
28	4	ELBOW, 90°, 2", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
29	4	ELBOW, 90°, 1 1/2", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
30	2	ELBOW, 90°, 1 1/4", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
31	3	ELBOW, 90°, 1", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
32	3	ELBOW, 90°, 1 1/2", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
33	4	ELBOW, 90°, 1 1/4", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
34	4	ELBOW, 90°, 1", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
35	30	ELBOW, 90°, 3/4", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
36	80	ELBOW, 90°, 1/2", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
37	2	TEE, 2", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
38	4	TEE, 1 1/2", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
39	2	TEE, 1 1/4", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
40	4	TEE, 1", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
41	2	TEE, 1 1/2", WROUGHT, SOLDER JOINT, C x C x C	COPPER	ASTM B-75	ANSI B16.22
42	1	TEE, 1 1/4", WROUGHT, SOLDER JOINT, C x C x C	COPPER	ASTM B-75	ANSI B16.22
43	8	TEE, 1", WROUGHT, SOLDER JOINT, C x C x C	COPPER	ASTM B-75	ANSI B16.22
44	10	TEE, 3/4", WROUGHT, SOLDER JOINT, C x C x C	COPPER	ASTM B-75	ANSI B16.22
45	10	TEE, 1/2", WROUGHT, SOLDER JOINT, C x C x C	COPPER	ASTM B-75	ANSI B16.22
46	3	UNION, 1 1/2", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
47	5	UNION, 1 1/4", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
48	4	UNION, 1", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
49	2	UNION, 1 1/2", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
50	2	UNION, 1 1/4", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
51	2	UNION, 1", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
52	8	UNION, 3/4", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
53	10	UNION, 1/2", WROUGHT, SOLDER JOINT, C x C	COPPER	ASTM B-75	ANSI B16.22
54	2	BUSHING, 2" x 1 1/4", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
55	1	BUSHING, 1 1/2" x 1/4", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
56	2	BUSHING, 1 1/4" x 1/4", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
57	2	BUSHING, 1" x 1/4", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
58	2	BUSHING, 1 1/2" x 1", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
59	1	BUSHING, 1 1/2" x 1 1/4", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
60	2	BUSHING, 1 1/2" x 1", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
61	1	BUSHING, 1 1/2" x 3/4", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
62	1	BUSHING, 1 1/4" x 1", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
63	1	BUSHING, 1 1/4" x 3/4", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS
- EQUIPMENT LAYOUT WITHIN A GIVEN AREA IS ONLY APPROXIMATE. PROVISION OF EQUIPMENT SHALL BE AS SHOWN ON THIS DRAWING AND AS DESCRIBED BY REF (1).
- THE POTABLE WATER PRESSURE TANK SHALL BE FITTED WITH A 85 PSIG SAFETY RELIEF VALVE. THE HOT WATER HEATER SHALL BE FITTED WITH A TEMPERATURE/PRESSURE RELIEF VALVE.
- COPPER TUBE SHALL BE ADEQUATELY SUPPORTED BY PIPE HANGERS USING RUBBER GROMMETS BETWEEN HANGER AND PIPE.
- PIPE WITHIN THE ENGINE ROOM AND UNHEATED SPACES SHALL BE INSULATED WITH 1" PREFORMED HIGH DENSITY FIBERGLASS WITH ALUMINUM FOIL LAGGING.
- AT CONTRACTOR OPTION, TYPE 'K' COPPER TUBING AND FITTINGS MAY BE USED IN FRESH WATER PIPING AFTER THE PRESSURE PUMP AND WATER HEATER.
- WATER HEATER THERMOSTAT SHALL BE SET FOR 120 DEGREES F.
- POTABLE PRESSURE PUMP SHALL BE SET TO START AT 60 PSIG AND STOP AT 75 PSIG.
- AFTER INSTALLATION, THE SYSTEM SHALL BE HYDROSTATICALLY TESTED TO A PRESSURE IN EXCESS OF THE MAXIMUM ATTAINABLE PUMP PRESSURE.
- AFTER INSTALLATION IS COMPLETE, POTABLE WATER SYSTEM SHALL BE CLEANED, SANITIZED, AND FLUSHED PER USPHS REQUIREMENTS.
- ALL CONNECTIONS TO NON-POTABLE WATER SYSTEMS SHALL BE FITTED WITH BACKFLOW PREVENTERS TO ELIMINATE CONTAMINATION.
- WATER HAMMER ARRESTORS SHALL BE PROVIDED AND INSTALLED IN SUPPLY LINES TO ANY UNIT WHERE SLOW-CLOSING VALVES ARE NOT USED.
- MATERIALS FOR PILOTHOUSE WINDOW WASHING SYSTEM ARE NOT INCLUDED. SEE SECTION 662.4 OF REFERENCE 1.

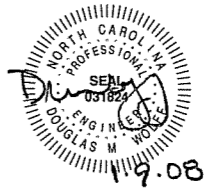
REFERENCES

- 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-533-1 POTABLE WATER PIPING SCHEMATIC
- 07069-001-522-1 SPRINKLER PIPING SCHEMATIC
- 07069-001-506-1 FILLS, VENTS & SOUNDS PIPING SCHEMATIC
- 07069-001-320-1 ELECTRICAL ONE-LINE DIAGRAM

Elliott Bay Design Group
 Seattle • New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 PROJECT: Raleigh, North Carolina
 TITLE: NEW SOUND CLASS FERRY

POTABLE WATER PIPING ARRANGEMENT & DETAILS

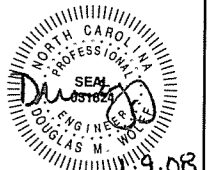


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APVD	DMW	DATE	1/9/08						

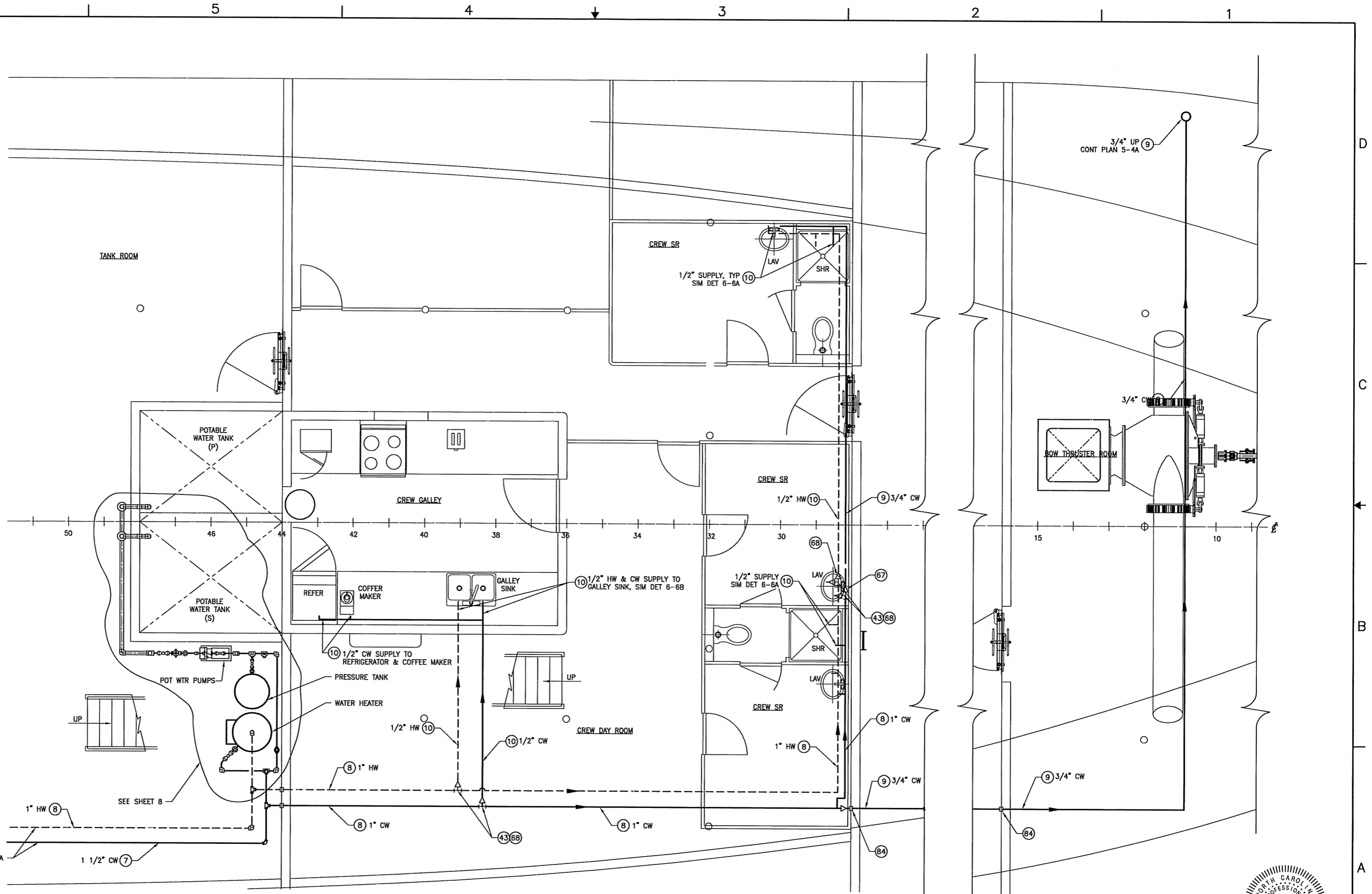
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LIST OF MATERIALS

PIECE No.	QUANTITY	DESCRIPTION	MATERIAL OR MANUFACTURER	SPEC. GRADE OR MODEL	REMARKS
64	10	BUSHING, 1" x 3/4", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
65	2	BUSHING, 1 1/2" x 1 1/4", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
66	2	BUSHING, 1 1/4" x 3/4", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
67	2	BUSHING, 1 1/4" x 1/2", 150#, GALVANIZED, FEM THD	MAL IRON	ASTM A-197	ANSI B16.3
68	6	BUSHING, 1" x 1/2", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
69	10	BUSHING, 3/4" x 1/2", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
70	2	BUSHING, 1 1/2" x 3/4", WROUGHT, SOLDER JOINT, FTG x C	COPPER	ASTM B-75	ANSI B16.22
71					
72					
73	2	ADAPTER, 1", WROUGHT, SOLDER JOINT, C x MPT	COPPER	ASTM B-75	ANSI B16.22
74	16	ADAPTER, 3/4", WROUGHT, SOLDER JOINT, C x MPT	COPPER	ASTM B-75	ANSI B16.22
75	20	ADAPTER, 1/2", WROUGHT, SOLDER JOINT, C x MPT	COPPER	ASTM B-75	ANSI B16.22
76	1	NIPPLE, 1/2", 3000#, CLOSE	CARBON STEEL	ASTM A-182	ANSI B16.11
77	4	NIPPLE, 1/4", 3000#, CLOSE	CARBON STEEL	ASTM A-182	ANSI B16.11
78	2	STRAINER, SIMPLEX, 1 1/4", FEM THD	CAST IRON	COML	
79	2	PRESSURE GAUGE, 0-100 PSI, 2 1/2" DIAL, 1/4" MPT BOTTOM CONN	VARIOUS	COML	
80	2	VACUUM PRESSURE GAUGE, 30-0-30, 2 1/2" DIAL, 1/4" MPT BOTTOM CONN	VARIOUS	COML	
81	4	FLANGE, 2", 150#, RAISED FACE, SLIP-ON	CARBON STEEL	ASTM A-105	ANSI B16.5
82	2	DECK/BHD SLEEVE, 2"	CARBON STEEL	ASTM A-53	ANSI B36.10
83	3	DECK/BHD SLEEVE, 1"	CARBON STEEL	ASTM A-53	ANSI B36.10
84	16	DECK/BHD SLEEVE, 3/4"	CARBON STEEL	ASTM A-53	ANSI B36.10
85	5	DECK/BHD SLEEVE, 1/2"	CARBON STEEL	ASTM A-53	ANSI B36.10



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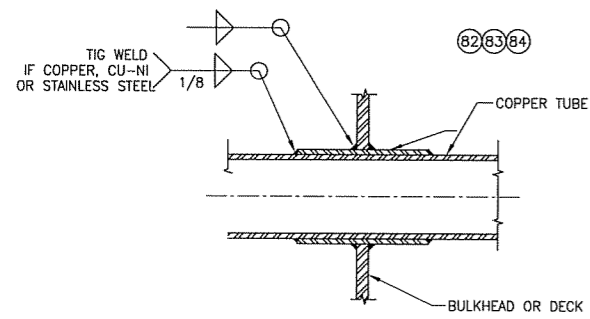


PLAN 3-3A
 LOWER DECK
 SCALE: 3/8" = 1'-0"

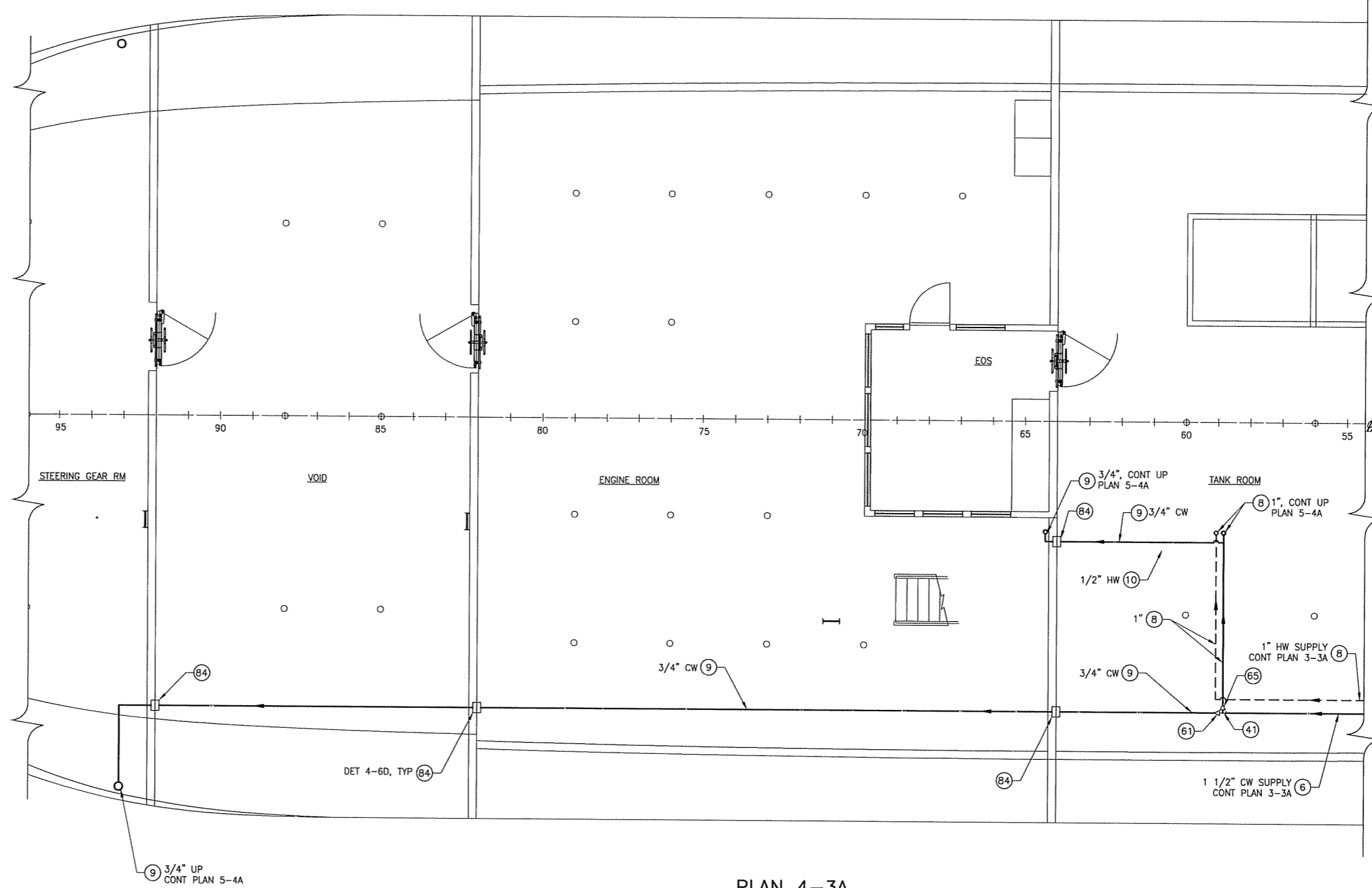


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SCALE	AS SHOWN	FILE NAME	07069-001-5332-	SHEET	3 OF 8

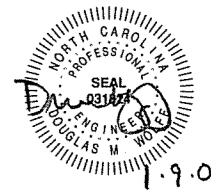
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DETAIL 4-6D
 TYP DECK/WT BULKHEAD PENETRATION
 NOT TO SCALE

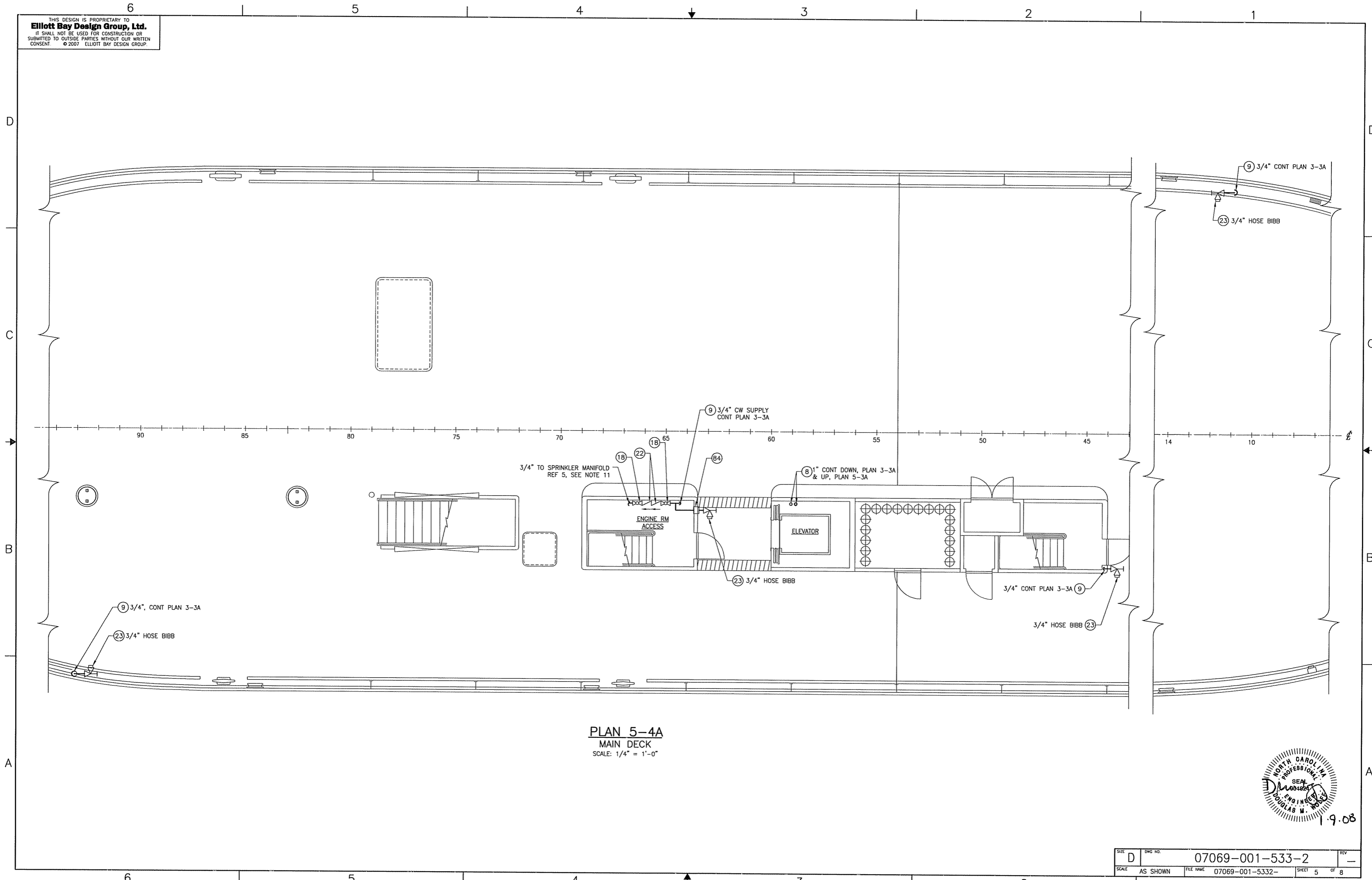


PLAN 4-3A
 LOWER DECK
 SCALE: 1/4" = 1'-0"

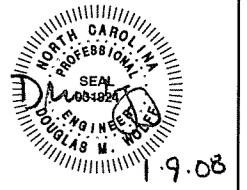


SIZE	DWG NO.	REV
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SCALE	FILE NAME	SHEET
AS SHOWN	07069-001-5332-	4 OF 8

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PLAN 5-4A
 MAIN DECK
 SCALE: 1/4" = 1'-0"



SIZE	D	DWG NO.	07069-001-533-2	REV	-
SCALE	AS SHOWN	FILE NAME	07069-001-5332-	SHEET	5 OF 8

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D

C

B

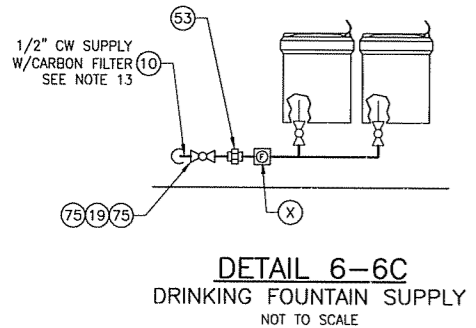
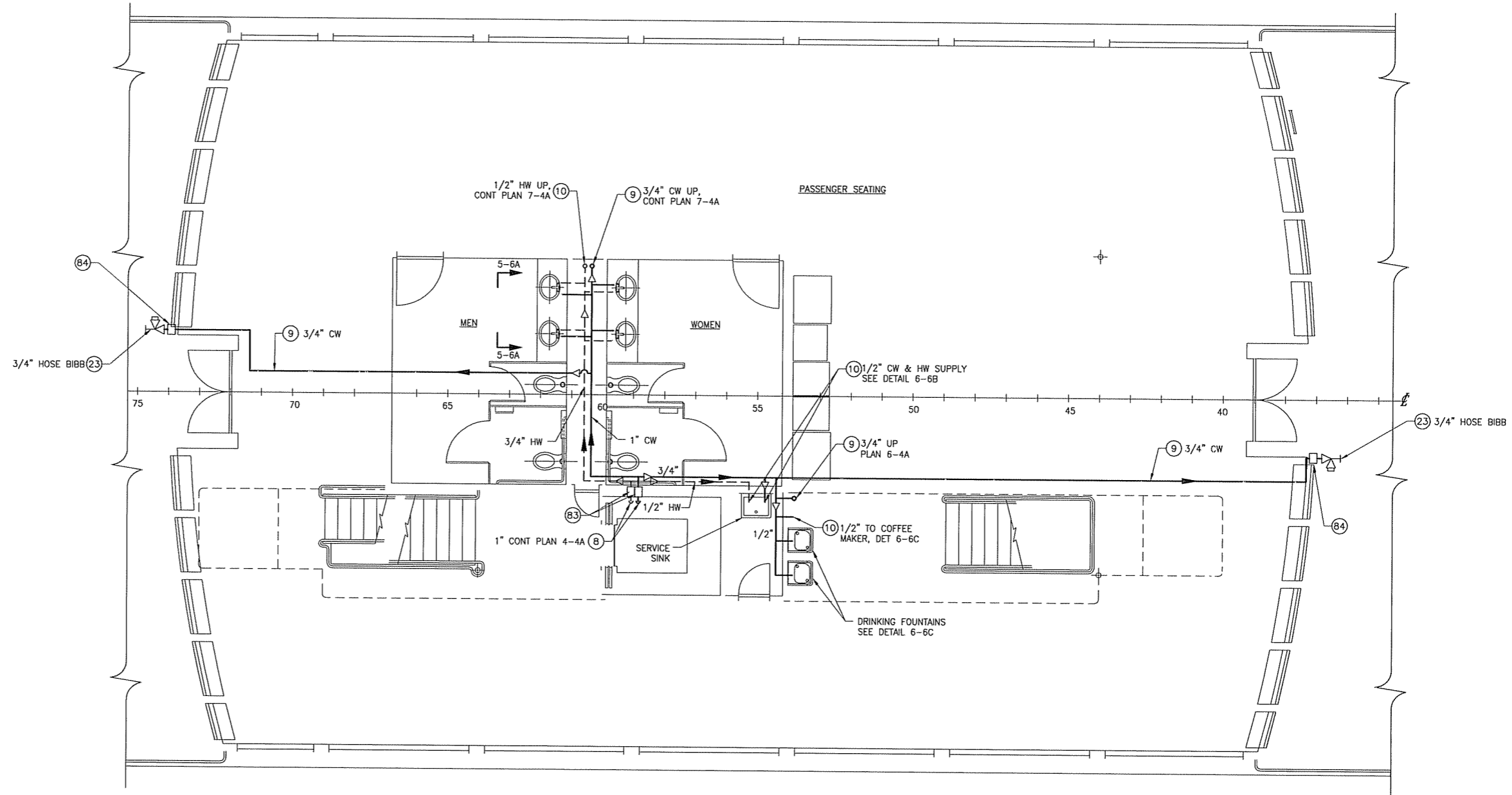
A

D

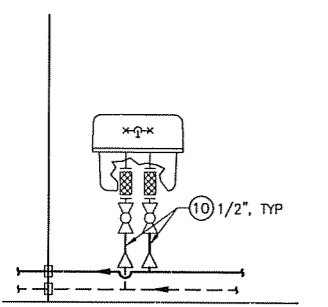
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B

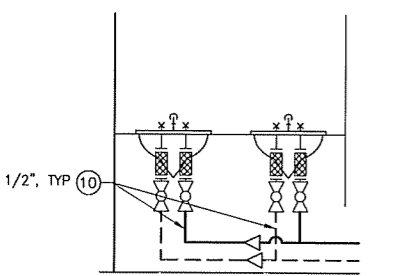
A



DETAIL 6-6C
 DRINKING FOUNTAIN SUPPLY
 NOT TO SCALE



DETAIL 6-6B
 SERVICE SINK SUPPLY
 NOT TO SCALE



SECTION 6-6A
 TYPICAL LAVATORY SUPPLY
 NOT TO SCALE

PLAN 6-3A
 PASSENGER DECK
 SCALE: 1/4" = 1'-0"



1.9.08

SIZE	D	ENG. NO.	07069-001-533-2	REV.	-
SCALE	AS SHOWN	FILE NAME	07069-001-5332-	SHEET	6 OF 8

6

5

4

3

2

1

6

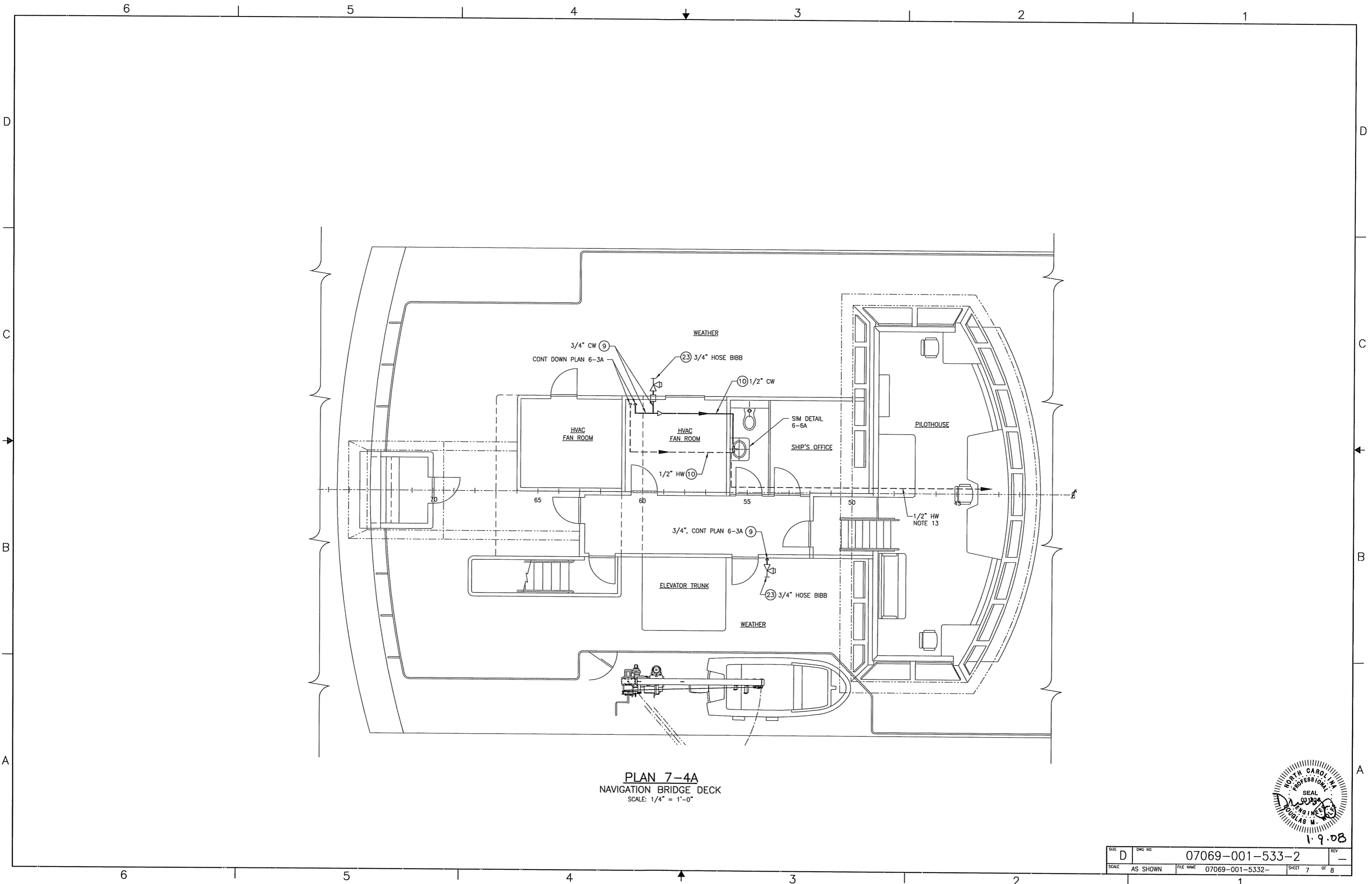
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4

3

2

1



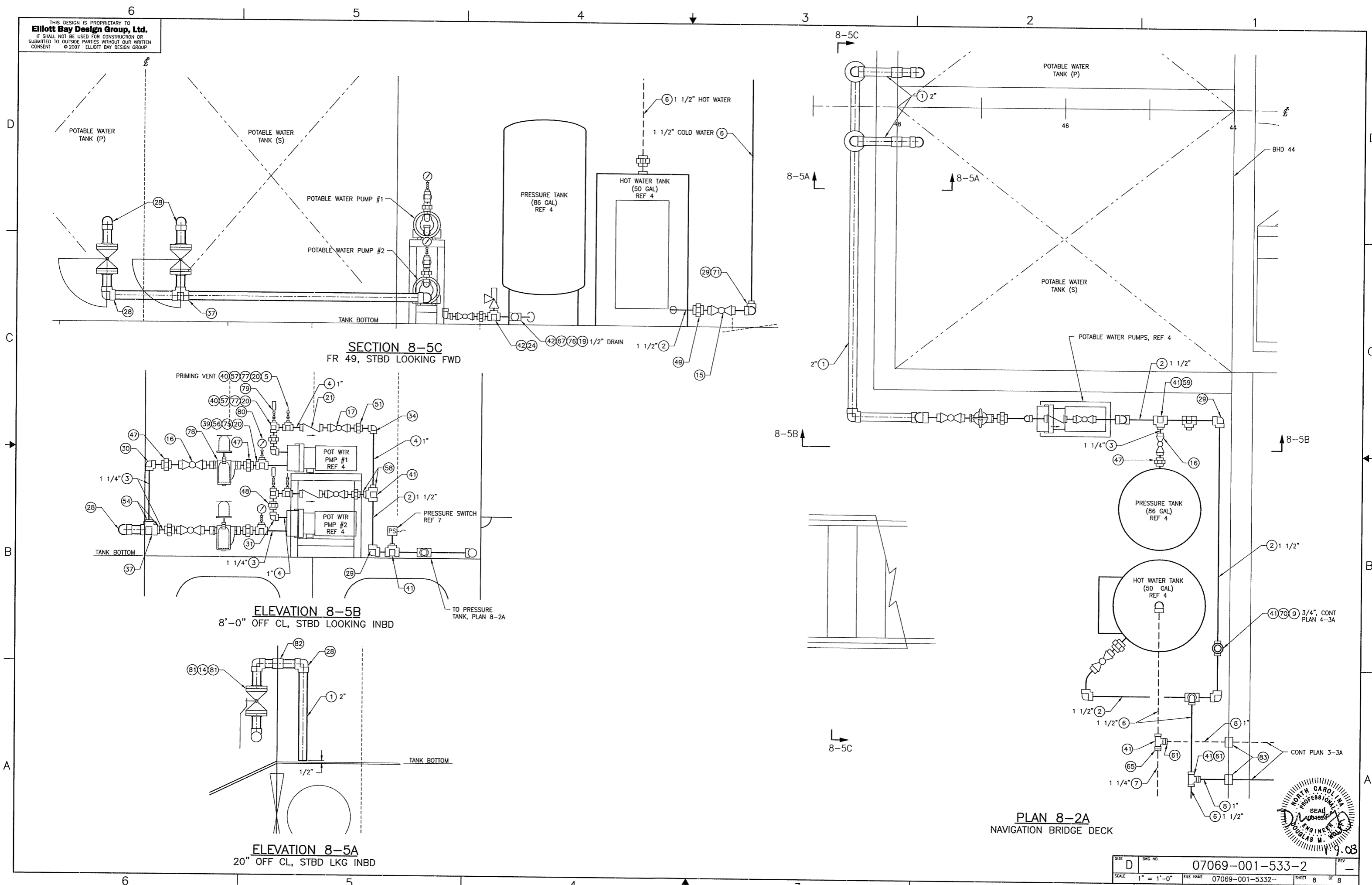
PLAN 7-4A
 NAVIGATION BRIDGE DECK
 SCALE: 1/4" = 1'-0"



1.9.08

SIZE	D	DWG NO.	07069-001-533-2	REV	-
SCALE	AS SHOWN	FILE NAME	07069-001-5332-	SHEET	7 OF 8

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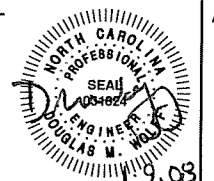


SECTION 8-5C
 FR 49, STBD LOOKING FWD

ELEVATION 8-5B
 8'-0" OFF CL, STBD LOOKING INBD

ELEVATION 8-5A
 20" OFF CL, STBD LKG INBD

PLAN 8-2A
 NAVIGATION BRIDGE DECK



SIZE	D	DWG NO.	07069-001-533-2	REV	-
SCALE	1" = 1'-0"	FILE NAME	07069-001-5332-	SHEET	8 OF 8

SYMBOLS LIST

	LIFT CHECK VALVE, COMPRESSOR TYPE
	GATE VALVE
	BALL VALVE, FULL PORT
	GLOBE VALVE
	SERVICE CONNECTION
	DRAIN VALVE
	PRESSURE RELIEF VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	AIR REGULATOR W/PRESSURE GAUGE
	WYE STRAINER
	FLEXIBLE HOSE ASSEMBLY
	PRESSURE SWITCH
	REDUCER
	PRESSURE GAUGE W/SHUT-OFF VALVE SEE NOTE 9
	AIR HORN. SEE NOTE 14
	MATERIAL TRANSITION
	AIR FILTER
	AIR DRIER
	STOP CHECK VALVE

REVISION HISTORY

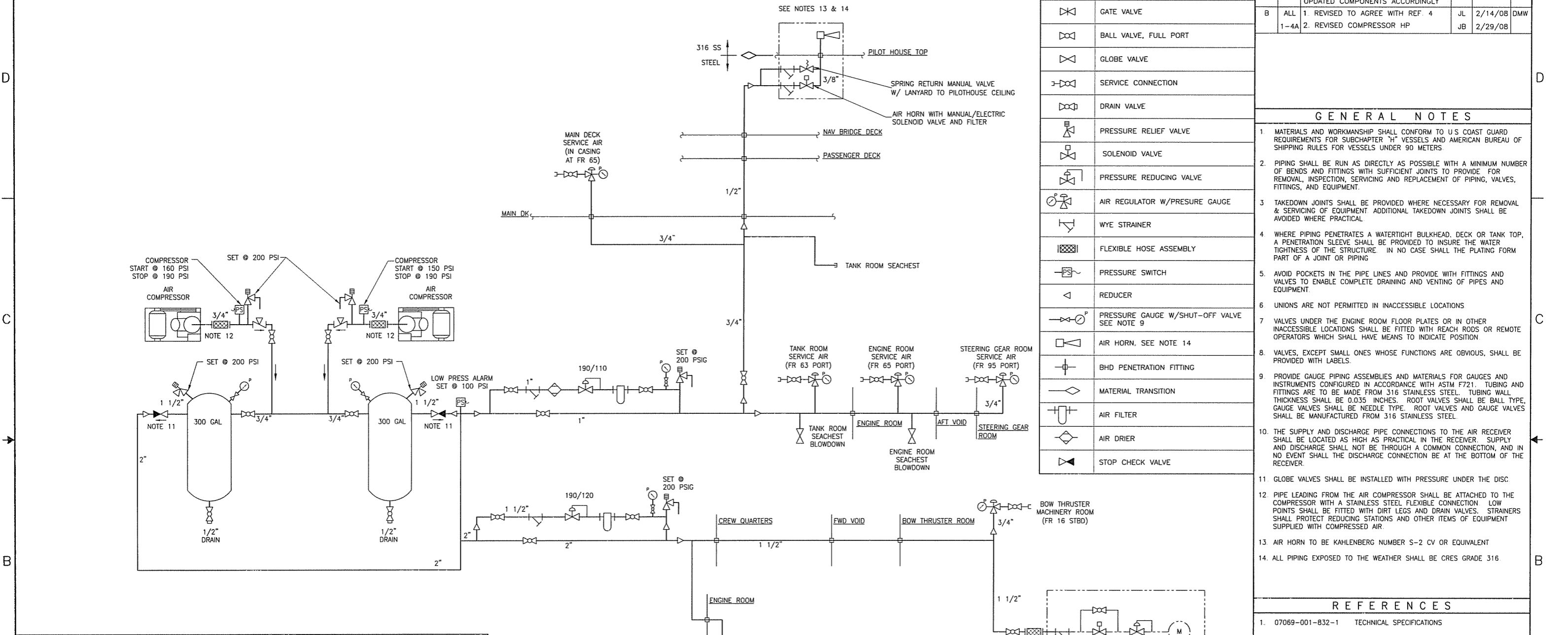
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-CS	CHANGED TO LOWER PRESSURE COMP UPDATED COMPONENTS ACCORDINGLY	JL	1/22/08	DMW
B	ALL	1. REVISED TO AGREE WITH REF. 4 2. REVISED COMPRESSOR HP	JL	2/14/08	DMW
	1-4A		JB	2/29/08	

GENERAL NOTES

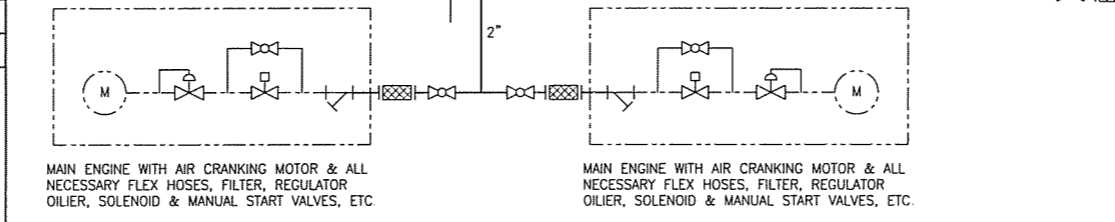
- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS.
- PIPING SHALL BE RUN AS DIRECTLY AS POSSIBLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS WITH SUFFICIENT JOINTS TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT.
- TAKEDOWN JOINTS SHALL BE PROVIDED WHERE NECESSARY FOR REMOVAL & SERVICING OF EQUIPMENT. ADDITIONAL TAKEDOWN JOINTS SHALL BE AVOIDED WHERE PRACTICAL.
- WHERE PIPING PENETRATES A WATERTIGHT BULKHEAD, DECK OR TANK TOP, A PENETRATION SLEEVE SHALL BE PROVIDED TO INSURE THE WATER TIGHTNESS OF THE STRUCTURE. IN NO CASE SHALL THE PLATING FORM PART OF A JOINT OR PIPING.
- AVOID POCKETS IN THE PIPE LINES AND PROVIDE WITH FITTINGS AND VALVES TO ENABLE COMPLETE DRAINING AND VENTING OF PIPES AND EQUIPMENT.
- UNIONS ARE NOT PERMITTED IN INACCESSIBLE LOCATIONS.
- VALVES UNDER THE ENGINE ROOM FLOOR PLATES OR IN OTHER INACCESSIBLE LOCATIONS SHALL BE FITTED WITH REACH RODS OR REMOTE OPERATORS WHICH SHALL HAVE MEANS TO INDICATE POSITION.
- VALVES, EXCEPT SMALL ONES WHOSE FUNCTIONS ARE OBVIOUS, SHALL BE PROVIDED WITH LABELS.
- PROVIDE GAUGE PIPING ASSEMBLIES AND MATERIALS FOR GAUGES AND INSTRUMENTS CONFIGURED IN ACCORDANCE WITH ASTM F721. TUBING AND FITTINGS ARE TO BE MADE FROM 316 STAINLESS STEEL. TUBING WALL THICKNESS SHALL BE 0.035 INCHES. ROOT VALVES SHALL BE BALL TYPE, GAUGE VALVES SHALL BE NEEDLE TYPE. ROOT VALVES AND GAUGE VALVES SHALL BE MANUFACTURED FROM 316 STAINLESS STEEL.
- THE SUPPLY AND DISCHARGE PIPE CONNECTIONS TO THE AIR RECEIVER SHALL BE LOCATED AS HIGH AS PRACTICAL IN THE RECEIVER. SUPPLY AND DISCHARGE SHALL NOT BE THROUGH A COMMON CONNECTION, AND IN NO EVENT SHALL THE DISCHARGE CONNECTION BE AT THE BOTTOM OF THE RECEIVER.
- GLOBE VALVES SHALL BE INSTALLED WITH PRESSURE UNDER THE DISC.
- PIPE LEADING FROM THE AIR COMPRESSOR SHALL BE ATTACHED TO THE COMPRESSOR WITH A STAINLESS STEEL FLEXIBLE CONNECTION. LOW POINTS SHALL BE FITTED WITH DIRT LEGS AND DRAIN VALVES. STRAINERS SHALL PROTECT REDUCING STATIONS AND OTHER ITEMS OF EQUIPMENT SUPPLIED WITH COMPRESSED AIR.
- AIR HORN TO BE KAHLBERG NUMBER S-2 CV OR EQUIVALENT.
- ALL PIPING EXPOSED TO THE WEATHER SHALL BE CRES GRADE 316.

REFERENCES

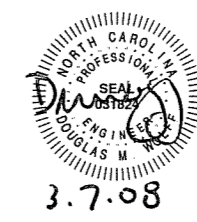
- 07069-001-832-1 TECHNICAL SPECIFICATIONS
- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-320-1 ELECTRICAL ONE-LINE DIAGRAM
- 07069-001-551-2 COMPRESSED AIR PIPING ARRANGEMENT & DETAIL



PIPING REQUIREMENTS						
SYSTEM	SIZE	PIPING	TAKEDOWN JOINTS	VALVES		FITTINGS
				BODY	TRIM	
COMPRESSED AIR	ALL	CARBON STL SCH 40 ASTM A53 OR A106 GRADE B SEAMLESS ANSI B36.10	UNION FORGED STEEL SCREWED OR SOCKET WELD 300# ASTM A105	BALL: BRONZE SCREWED FULL PORT B105-1 OR EQ MSS-SP-72 GLOBE: CARBON STEEL SOCKET WELD ANSI B16.34 ASTM A234 OR A105	STAINLESS STEEL BALL AND STEM TEFLON SEATS AND SEALS STEM, WEDGE, OR DISK CRES, ASTM A182	FORGED STEEL SCREWED OR SOCKET WELD 300# ASTM A105
COMPRESSED AIR NOT EXPOSED TO WEATHER	3/8"		UNION FORGED STEEL SCREWED 300# ASTM A-105 ANSI B16.11			FORGED STEEL SCREWED 300# ASTM A-105 ANSI B16.11
COMPRESSED AIR EXPOSED TO WEATHER	3/8"	STAINLESS STEEL SCH 40 ASTM A312 TYPE 316 SEAMLESS ANSI B36.19	UNION STAINLESS STEEL SCREWED TYPE 316 3000# ASTM A-312 ANSI B16.11			STAINLESS STEEL SCREWED TYPE 316 3000# ASTM A-312 ANSI B16.11



COMPRESSOR TABLE						
QTY	SERVICE	TYPE	MODEL	CAPACITY	DRIVE	
2	SERVICE & STARTING AIR	TWO STAGE PISTON	QUINCY QR-25 D325	10.4 CFM @ 175 PSI	230V/60HZ/3φ 5 HP, 1750 RPM TEFC MOTOR	



Elliott Bay Design Group
 Seattle - New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 PROJECT: NEW SOUND CLASS FERRY

TITLE: COMPRESSED AIR PIPING SCHEMATIC

DATE: 10/30/07
 DATE: 1/9/08
 DATE: 1/10/08

SCALE: NONE
 FILE NAME: 07069-001-551B
 SHEET: 1 OF 1

07069-001-551-1

5/9/2008 10:10:01 AM

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LIST OF MATERIALS

PIECE No.	QUANTITY	DESCRIPTION	MATERIAL OR MANUFACTURER	SPEC. GRADE OR MODEL	REMARKS
1	110 LF	PIPE, 1 1/2", SCH 40, SEAMLESS	CARBON STEEL	ASTM A53 OR 106, GR B	ANSI B36 10
2	30 LF	PIPE, 1", SCH 40, SEAMLESS	CARBON STEEL	ASTM A53 OR 106, GR B	ANSI B36 10
3	135 LF	PIPE, 3/4", SCH 40, SEAMLESS	CARBON STEEL	ASTM A53 OR 106, GR B	ANSI B36 10
4	90 LF	PIPE, 1/2", SCH 40, SEAMLESS	CARBON STEEL	ASTM A53 OR 106, GR B	ANSI B36 10
5	6 LF	PIPE, 3/8", SCH 40, SEAMLESS	CARBON STEEL	ASTM A53 OR 106, GR B	ANSI B36 10
6	1 LF	PIPE, 3/8", SCH 40, SEAMLESS	STAINLESS STEEL	ASTM A312, TY 316	ANSI B36 10
7	90 LF	PIPE, 2", SCH 40, SEAMLESS	CARBON STEEL	ASTM A53 OR 106, GR B	ANSI B36 10
8	2 LF	PIPE, 1/4", SCH 40, SEAMLESS	CARBON STEEL	ASTM A53 OR 106, GR B	ANSI B36 10
9	3	VALVE, BALL, 2" THD, FULL PORT	BRONZE	ASTM B61 OR B62	ANSI B16 10, FULL PORT
10	2	VALVE, BALL, 1 1/2" THD, FULL PORT	BRONZE	ASTM B61 OR B62	ANSI B16 10, FULL PORT
11	3	VALVE, BALL, 1" THD, FULL PORT	BRONZE	ASTM B61 OR B62	ANSI B16 10, FULL PORT
12	10	VALVE, BALL, 3/4" THD, FULL PORT	BRONZE	ASTM B61 OR B62	ANSI B16 10, FULL PORT
13	3	VALVE, BALL, 1/2" THD, FULL PORT	BRONZE	ASTM B61 OR B62	ANSI B16 10, FULL PORT
14	2	VALVE, BALL, 3/8" THD, FULL PORT	BRONZE	ASTM B61 OR B62	ANSI B16 10, FULL PORT
15	2	VALVE, BALL, 1/4" THD, FULL PORT	STAINLESS STEEL	ASTM A351	FULL PORT
16	2	VALVE, STOP CHECK, 1 1/2" THD	BRONZE	ASTM B61 OR B62	ANSI B1 20.1
17	2	VALVE, LIFT CHECK, 1 1/2" THD	BRONZE	ASTM B61 OR B62	ANSI B1 20.1
18	1	VALVE, RELIEF, 1 1/2" THD, SET @ 200 PSIG	BRONZE	ASTM B61 OR B62	ANSI B1 20.1
19	1	VALVE, RELIEF, 1" THD, SET @ 200 PSIG	BRONZE	ASTM B61 OR B62	ANSI B1 20.1
20	2	VALVE, RELIEF, 3/4" THD, SET @ 200 PSIG	BRONZE	ASTM B61 OR B62	ANSI B1 20.1
21	6	ELBOW, 90°, 2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
22	3	ELBOW, 90°, 1 1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
23	3	ELBOW, 90°, 1", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
24	16	ELBOW, 90°, 3/4", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
25	7	ELBOW, 90°, 1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
26	2	ELBOW, 90°, 3/8", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
27	1	ELBOW, 90°, 3/8", 3000#, THD	STAINLESS STEEL	ASTM A312, TY 316	ANSI B16 11
28	6	TEE, 2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
29	8	TEE, 1 1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
30	4	TEE, 1", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
31	9	TEE, 3/4", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
32	2	TEE, 1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
33	2	TEE, 3/8", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
35	4	UNION, 1 1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
36	3	UNION, 1", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
37	6	UNION, 3/4", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
38	1	UNION, 1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
39	1	UNION, 3/8", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
40	1	UNION, 3/8", 3000#, THD	STAINLESS STEEL	ASTM A312, TY 316	ANSI B16 11
41	1	UNION, 2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
42	4	REDUCER BUSHING, 2"x1 1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
43	1	REDUCER BUSHING, 1 1/2"x1", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
44	3	REDUCER BUSHING, 1"x3/4", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
45	1	REDUCER BUSHING, 3/4"x1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
46	1	REDUCER BUSHING, 1/2"x3/8", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
47	1	REDUCER BUSHING, 1 1/2"x1/4", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
48	1	REDUCER BUSHING, 1"x1/4", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
49	2	REDUCER BUSHING, 2"x3/4", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
50	1	REDUCER BUSHING, 1 1/2"x3/4", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
51	1	REDUCER BUSHING, 2"x1", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
52	2	PIPE SLEEVE, 2", SCH 80, FOR 1 1/2" PIPE	CARBON STEEL	ASTM A53	DETAIL 3-6D
53	3	PIPE SLEEVE, 1 1/2", MECH TUBE, FOR 3/4" PIPE	CARBON STEEL	ASTM A53	DETAIL 3-6D
54	4	PIPE SLEEVE, 1", SCH 80, FOR 1/2" PIPE	CARBON STEEL	ASTM A53	DETAIL 3-6D
55	1	PIPE SLEEVE, 2 1/2", SCH 80, FOR 2" PIPE	CARBON STEEL	ASTM A53	DETAIL 3-6D
56	1	Y-STRAINER, 1 1/2", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
57	1	Y-STRAINER, 1", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
58	2	Y-STRAINER, 3/8", 3000#, THD	STEEL	ASTM A105	ANSI B16 11
59	1	PRESSURE REDUCER, 190/120 PSI, 1 1/2", THD	VARIOUS	COML	
60	1	PRESSURE REDUCER, 190/110 PSI, 1", THD	VARIOUS	COML	
61	6	PRESSURE REGULATOR W/GAUGE, 0-125 PSI, 3/4", THD	VARIOUS	COML	
62	2	PRESSURE GAUGE, 0-300 PSI, 1/4" THD BOTL CONN	VARIOUS	COML	
63	1	AIR FILTER, 1 1/2", 40 MICRON, THD	ZINC	COML	
64	1	AIR FILTER, 1", 40 MICRON, THD	ZINC	COML	

SYMBOLS LIST

	LIFT CHECK VALVE, COMPRESSOR TYPE
	GATE VALVE
	BALL VALVE, FULL PORT
	GLOBE VALVE
	SERVICE CONNECTION
	DRAIN VALVE
	PRESSURE RELIEF VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	AIR REGULATOR W/PRESURE GAUGE
	WYE STRAINER
	FLEXIBLE HOSE ASSEMBLY
	PRESSURE SWITCH
	REDUCER
	PRESSURE GAUGE W/SHUT-OFF VALVE SEE NOTE 9
	AIR HORN, SEE NOTE 14
	BHD PENETRATION FITTING
	MATERIAL TRANSITION
	AIR FILTER
	AIR DRIER
	STOP CHECK VALVE

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	ALL	UPDATED TANKS, PIPING AND ASSOCIATED EQUIPMENT PER CLIENT	SEG	02/14/08	DMW
B	ALL	REVISED REVISION TO "B" TO COMPLETE REQUIREMENTS FOR DELIVERABLES	SEG	03/4/08	DMW

GENERAL NOTES

- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER "H" VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS.
- AIR RECEIVER DISCHARGES ARE TO BE PIPED FROM THE UPPER PORTION OF EACH RECEIVER.
- FLEXIBLE CONNECTIONS AT AIR COMPRESSORS SHALL BE WIRE MESH JACKETED STAINLESS STEEL BELLOWS TYPE.
- AIR RECEIVERS SHALL BE 300 GALLON CAPACITY VERTICALLY MOUNTED WITH A MAWP OF 250 PSIG. AIR RECEIVERS SHALL BE USCG APPROVED.
- AIR STARTED ENGINES SHALL BE FITTED WITH REGULATORS, STRAINERS, AND SOLENOID VALVES.
- THIS DRAWING IS DIAGRAMMATIC ONLY AND DOES NOT PORTRAY A DETAILED PIPING SYSTEM ARRANGEMENT. THE CONTRACTOR SHALL DEVELOP A PIPING ARRANGEMENT SUITABLE FOR THE CONTRACTOR'S DETAIL INSTALLATION AND TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES.
- FLEXIBLE PIPING CONNECTIONS SHALL NOT BE LONGER THAN 30 INCHES AND SHALL MEET THE REQUIREMENTS OF THE USCG 46 CFR, PART 56, PARAGRAPH 56.60-25.
- PRIOR TO FABRICATION OF MATING PIPE ASSEMBLIES, VERIFY EQUIPMENT CONNECTIONS FOR SIZE, LOCATION AND TYPE IN ACCORDANCE WITH MANUFACTURER CERTIFIED DRAWINGS, OR DIRECTLY FROM THE EQUIPMENT. TEMPLATE BOLTING PATTERNS AND CONNECTIONS AS REQUIRED.
- PROVIDE TWO UTILITY HOSES, EACH 50 FT LONG, WITH SUITABLE QUICK CONNECT END FITTINGS AND HOSE RACKS. OWNER SHALL DIRECT LOCATION OF HOSE RACK.

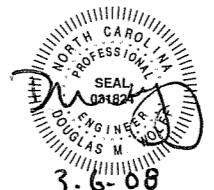
REFERENCES

- 07069-001-832-1 TECHNICAL SPECIFICATIONS
- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
- 07069-001-200-1 ENGINE ROOM & TANK ROOM ARRANGEMENT
- 07069-001-551-1 COMPRESSED AIR PIPING SCHEMATIC
- 07069-001-320-1 ELECTRICAL ONE-LINE DIAGRAM
- 07069-001-506-1 FILLS, VENTS & SOUNDS PIPING SCHEMATIC

Elliott Bay Design Group
Seattle - New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
PROJECT: RALEIGH, NORTH CAROLINA
NEW SOUND CLASS FERRY

COMPRESSED AIR PIPING ARRANGEMENT & DETAILS



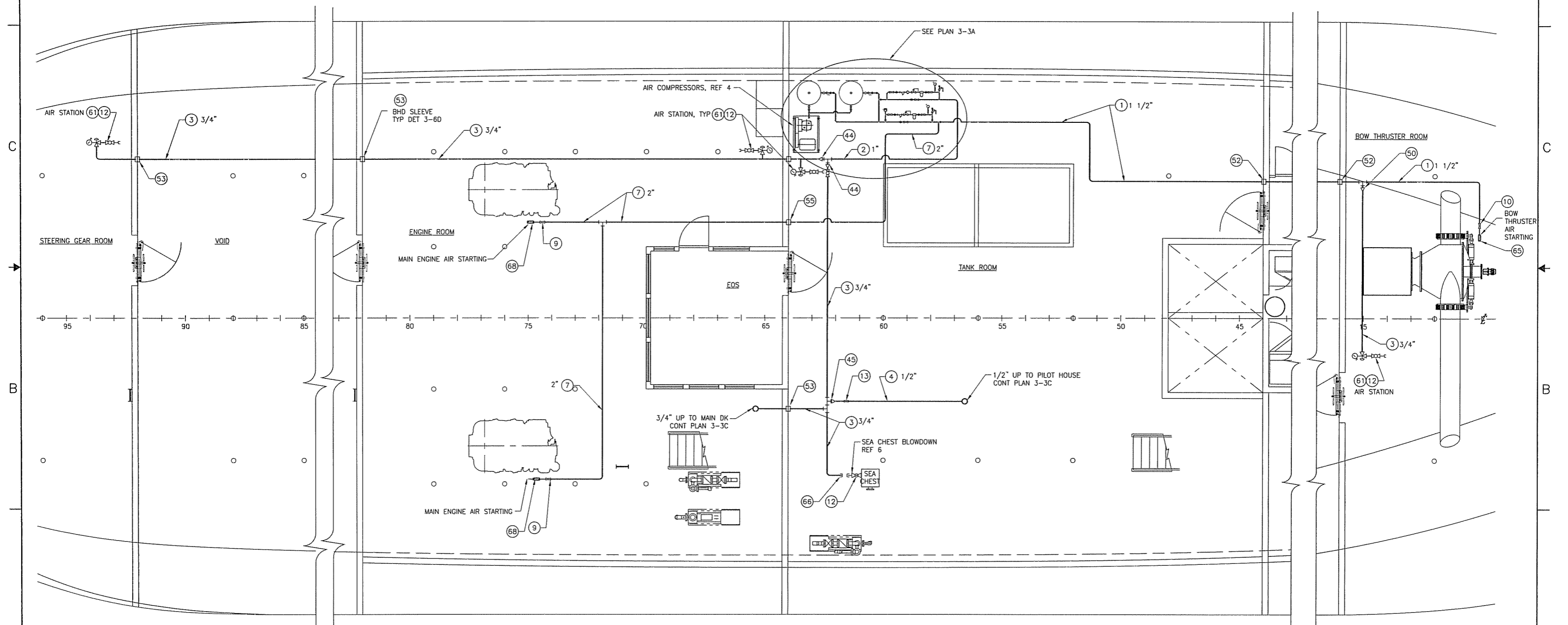
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CRD: JSB	DATE: 11/12/07	SCALE: NONE	FILE NAME: 07069-001-5512B	SHEET: 1 OF 4
APVD: DMW	DATE: 1/9/08			

3/5/2008 10:49:39 AM

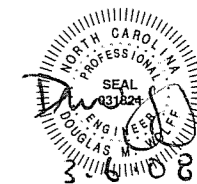
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LIST OF MATERIALS

PIECE No.	QUANTITY	DESCRIPTION	MATERIAL OR MANUFACTURER	SPEC, GRADE OR MODEL	REMARKS
65	1	HOSE ASSEMBLY, 1 1/2", W/QUICK-DISCONNECT END CONN	-	COML	NOTE 7
66	3	HOSE ASSEMBLY, 3/4", W/QUICK-DISCONNECT END CONN	-	COML	NOTE 7
68	2	HOSE ASSEMBLY, 2", W/QUICK-DISCONNECT END CONN	-	COML	NOTE 7
69	2	AIR RECEIVER, 300 GAL	STEEL	COML	RATED TO 250 PSI
70	1	AIR HORN, W/MANUAL & ELECTRIC SOLENOID VALVE & FILTER, 3/8" THD	BRASS/BRONZE	KAHLENBERG, S-2CV	
71	1	SPRING RETURN MANUAL VALVE W/ LANYARD TO PILOTHOUSE CEILING, 3/8" THD	BRASS/BRONZE	KAHLENBERG, S-2CV	
72	1	AIR DRYER			



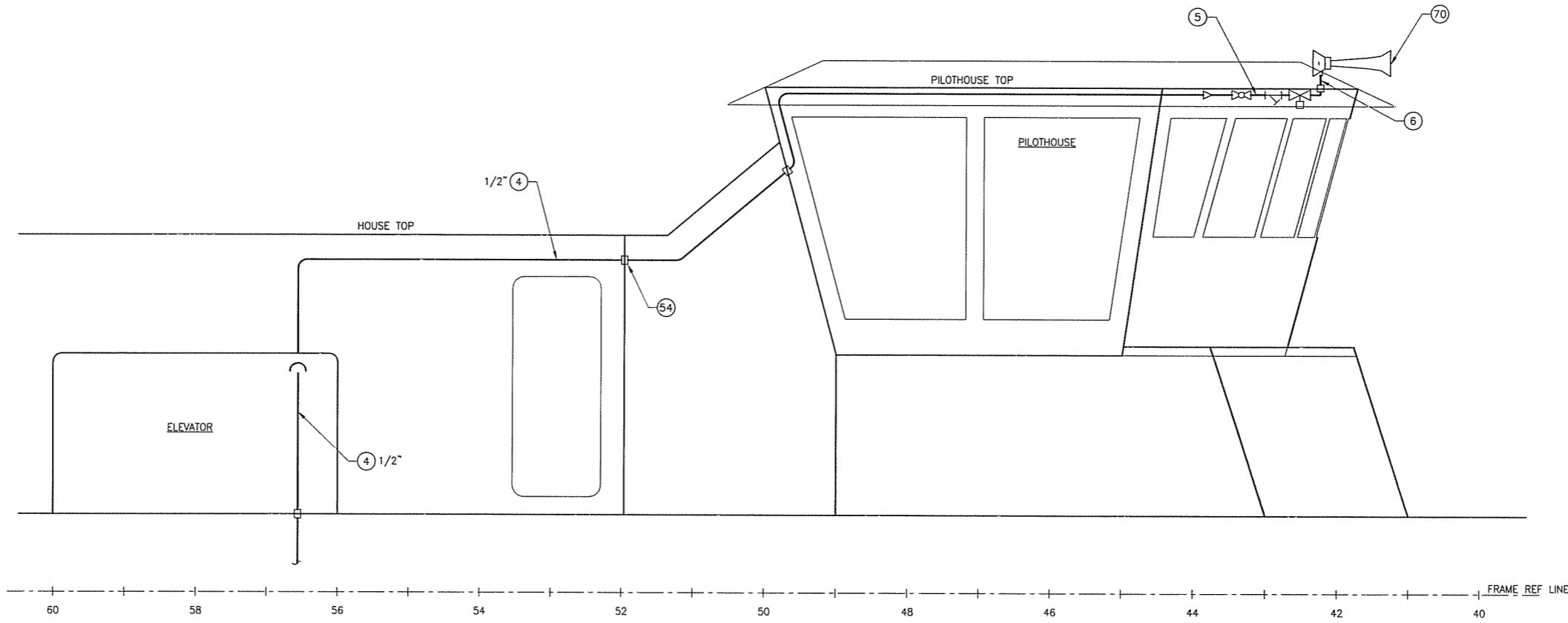
PLAN 2-3A
 LOWER DECK
 SCALE: 1/4" = 1'-0"



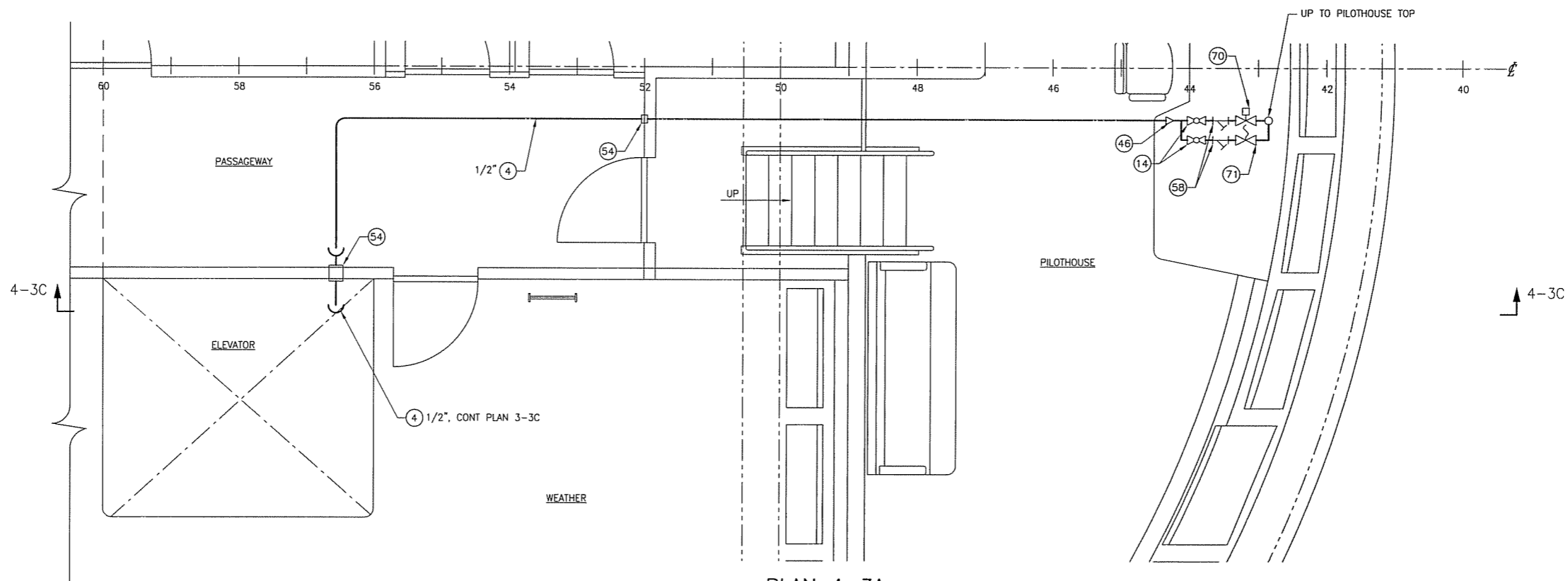
SIZE D	DWG NO. 07069-001-551-2	REV B
SCALE NONE	FILE NAME 07069-001-5512B	SHEET 2 OF 4

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ELEVATION 4-3C
 STBD LOOKING INBD
 SCALE: 1/2" = 1'-0"



PLAN 4-3A
 NAVIGATION/BRIDGE DECK
 SCALE: 1/2" = 1'-0"



3.6.08

SIZE	D	DWG. NO.	07069-001-551-2	REV	B
SCALE	AS SHOWN	FILE NAME	07069-001-5512B	SHEET	4 OF 4

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	2-4A	INCREASED LOWER STOCK DIAMETER PER NC DOT DIRECTION	KTS	3/06/08	DMW

GENERAL NOTES

- 5 POUND ZINC ANODES SHALL BE INSTALLED WHERE NOTED.
- CARRIER BEARING ID 4", FLANGE 9.5" MINIMUM.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SPECIFICATIONS PRIOR TO CONSTRUCTION.

REFERENCES

- 07069-001-823-1 TECHNICAL SPECIFICATIONS
- 07069-001-100-1 LINES PLAN
- 07069-001-110-1 SHELL PLATING AND FRAMES

Elliott Bay Design Group
 Seattle • New Orleans

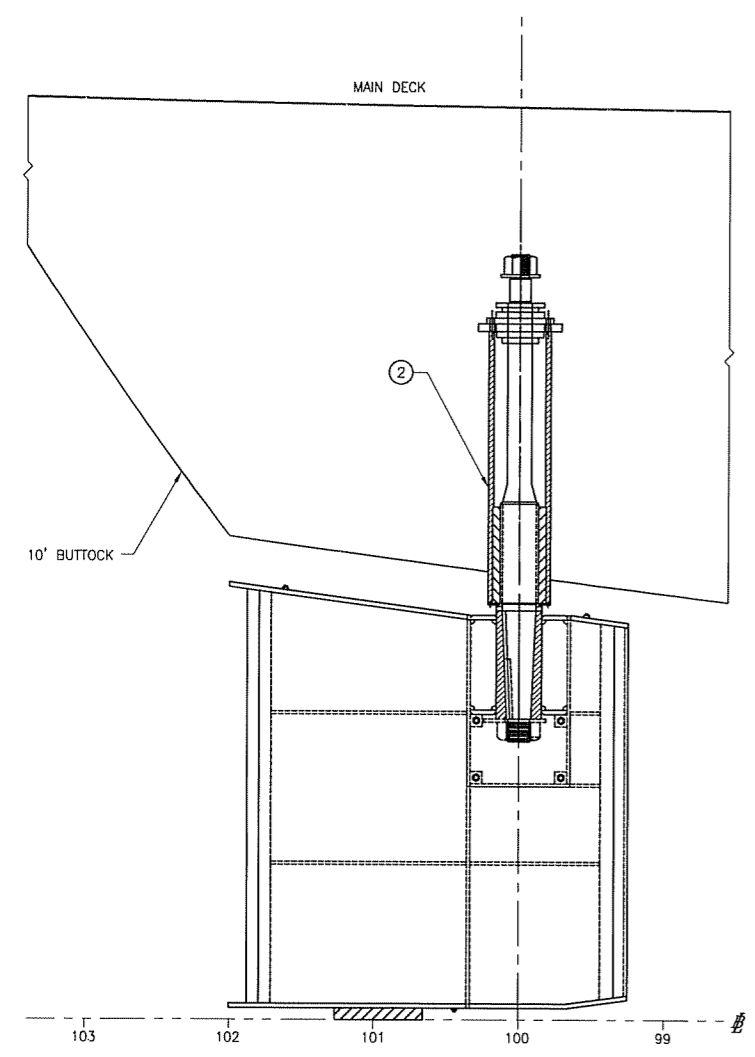
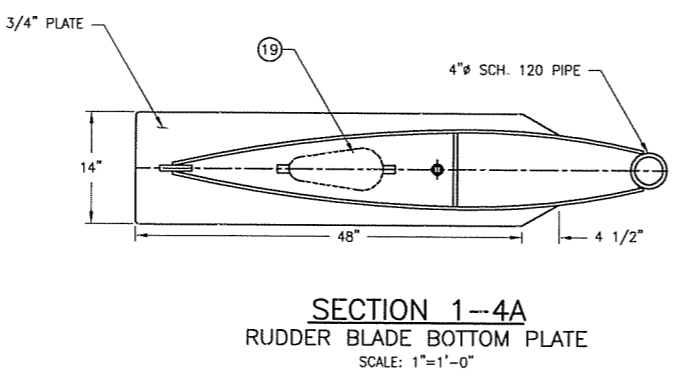
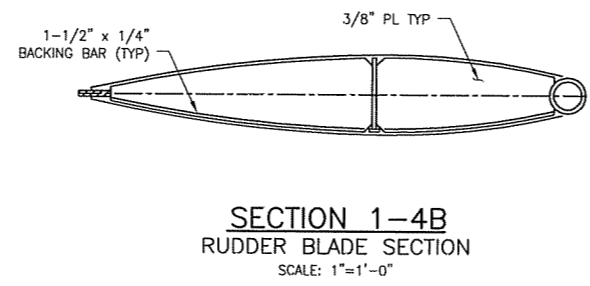
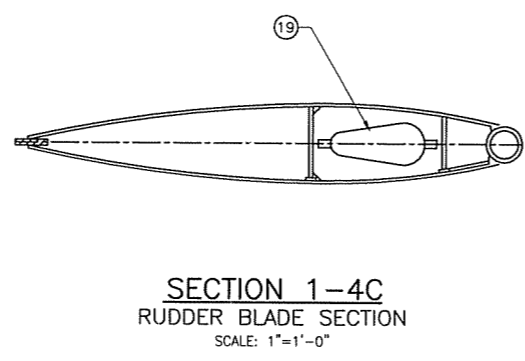
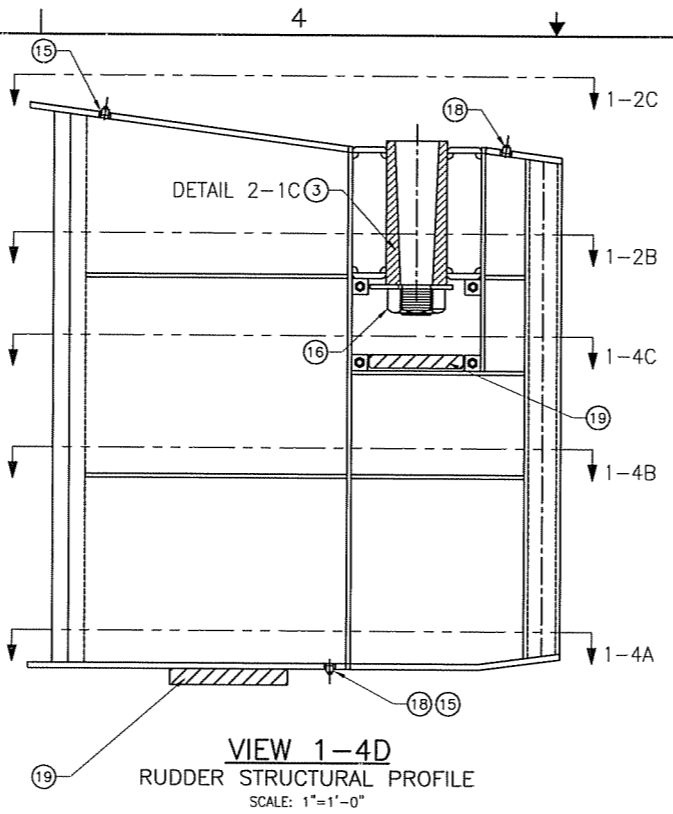
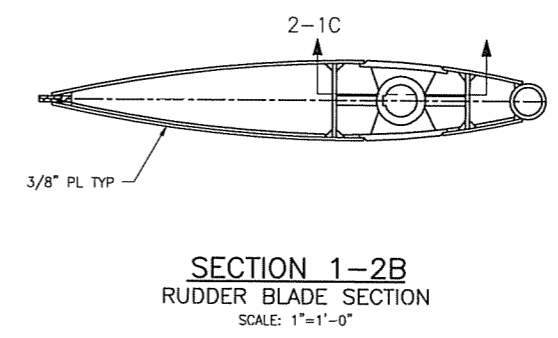
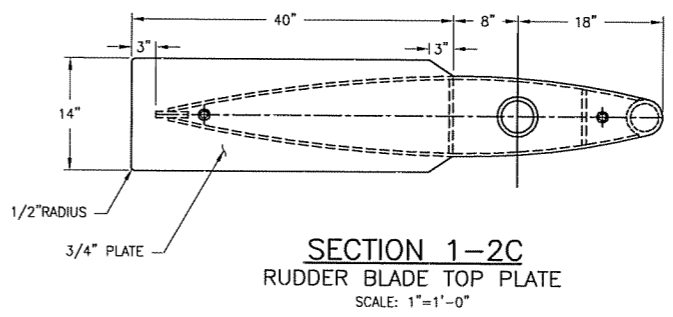
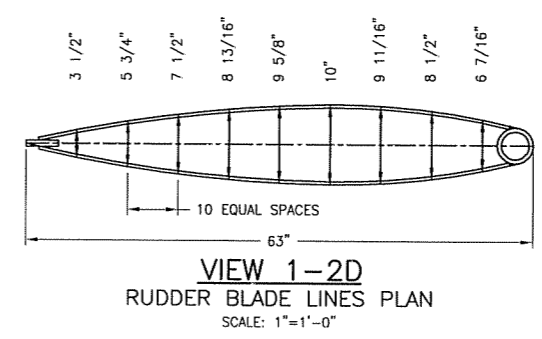
CLIENT
NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT
 NEW SOUND CLASS FERRY

RUDDER ARRANGEMENT AND DETAIL



DWN	JL	DATE	1/31/08	SIZE	D	DWG NO.	07069-001-562-1	REV	A
CRD	KTS	DATE	2/1/08	SCALE	AS SHOWN	FILE NAME	07069-001-5621A	SHEET	1 OF 2
APVD	DMW	DATE	2/1/08						

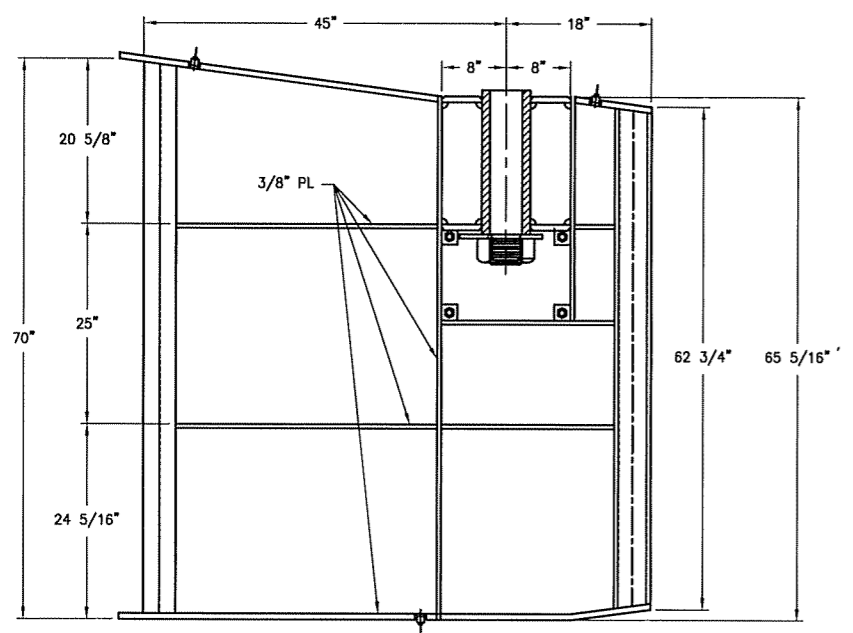


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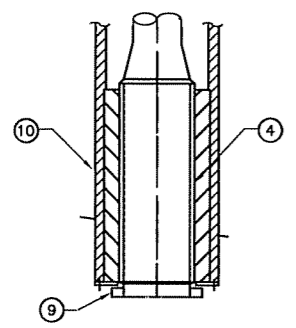
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LIST OF MATERIALS

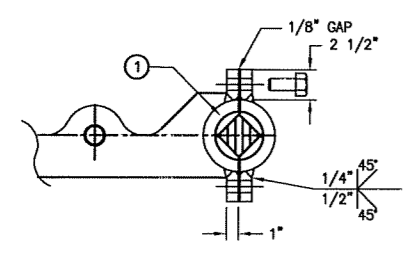
PIECE No.	QUANTITY	DESCRIPTION	MATERIAL OR MANUFACTURER	SPEC, GRADE OR MODEL	REMARKS
1	2	RUDDER STOCK	ST. STEEL	AQUAMET 22	5.5" Ø MAX X 6'-9" LONG
2	2	RUDDER STOCK UPPER BOSS	STEEL	ASTM A-53	8" SCH 80 PIPE
3	2	RUDDER STOCK LOWER BOSS	STEEL	ASTM A-53	8 1/2" ID 10 1/4" OD, 11" ID 12 3/4" OD TUBE
4	2	SHRINK-ON LINER	BRASS	-	-
5	2	RUDDER BLADE NUT KEEPER	STEEL	ASTM A-36	3/8" PL
6	2	CARRIER NUT	STEEL	ASTM 195	3" Ø 4 THD/IN
7	2	BEARING RETAINER PLATE	ST. STEEL	ASTM 316	6 1/2" ID, 10.25" OD X 1/4"
8	8	BEARING RETAINER BOLT	ST. STEEL	ASTM 316	3/8" Ø
9	2	RUDDER STOP SPACER	BRASS	-	5 1/2" ID, 6 1/2" OD X 3/4"
10	2	RUDDER BEARING	RUBBER	-	-
11	2	FLANGED CARRIER BEARING	-	-	-
12	2	CARRIER BEARING SUPPORT PLATE	STEEL	ASTM A-36	-
13	8	BEARING RETAINING BOLT	ST. STEEL	ASTM 316	3/4" Ø
14	2	CARRIER NUT WASHER	BRASS	-	6" OD X 3 1/4" ID X 1/2"
15	6	1" PIPE PLUG, SQUARE HEAD	BRONZE	-	-
16	2	RUDDER BLADE RETAINER NUT	STEEL	ASTM 195	4" Ø 4 THD/IN
17	2	RUDDER STOCK LOWER KEY	STEEL	ASTM 1040	5/8" X 1" X 5"
18	6	1" HALF COUPLING	ST. STEEL	ASTM 316	-
19	4	ZINC ANODE	ZINC	-	-
20	16	3/8" UNC NUT	ST. STEEL	ASTM 316	-
21	16	3/8" UNC BOLT	BRONZE	-	-



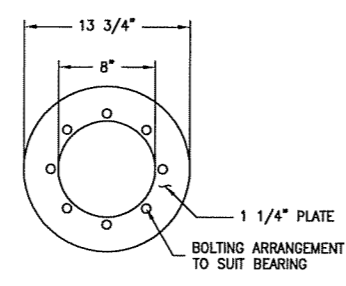
DETAIL 2-6C
 RUDDER STRUCTURAL DETAIL
 PORT RUDDER SHOWN, STBD SIMILAR
 SCALE: 1"=1'-0"



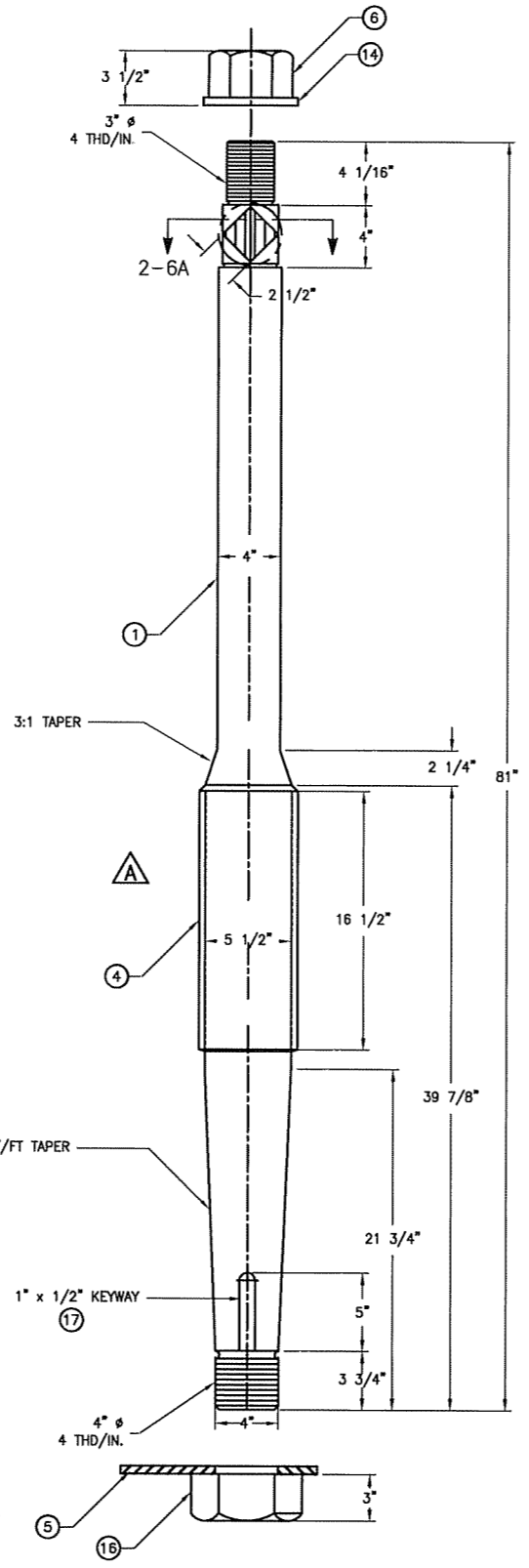
DETAIL 2-6B
 RUDDER BEARING DETAIL
 SCALE: 1 1/2"=1'-0"



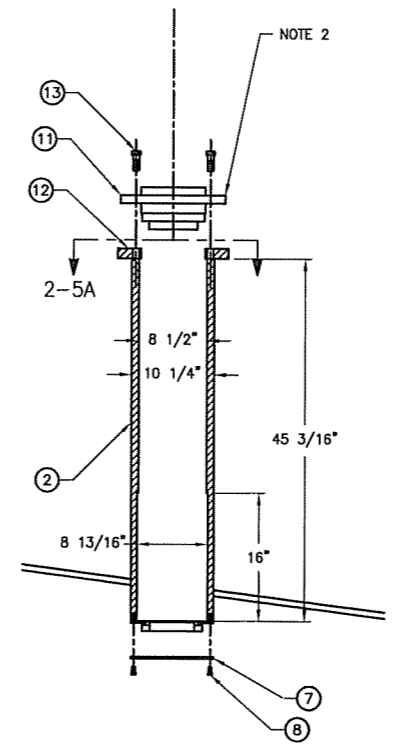
SECTION 2-6A
 TILLER ATTACHMENT POINT
 SCALE: 1 1/2"=1'-0"



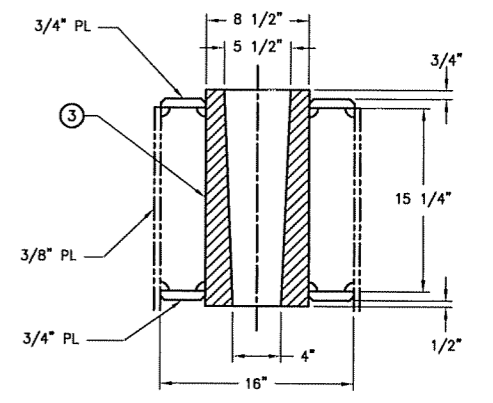
SECTION 2-5A
 BEARING SUPPORT PLATE
 SCALE: 1 1/2"=1'-0"



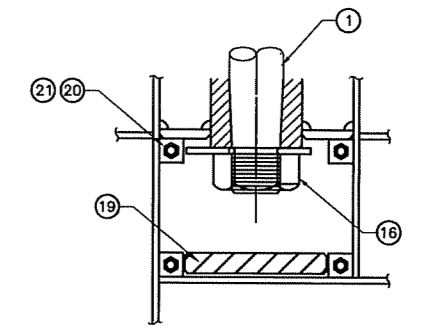
DETAIL 2-4A
 RUDDER STOCK DETAIL
 SCALE: 2"=1'-0"



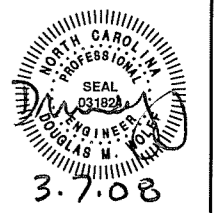
DETAIL 2-3B
 RUDDER STOCK UPPER BOSS
 SCALE: 1"=1'-0"



DETAIL 2-1C
 RUDDER STOCK LOWER BOSS
 SCALE: 1-1/2"=1'-0"



DETAIL 2-1A
 ACCESS PLATE ATTACHMENT DETAIL
 SCALE: 1-1/2"=1'-0"



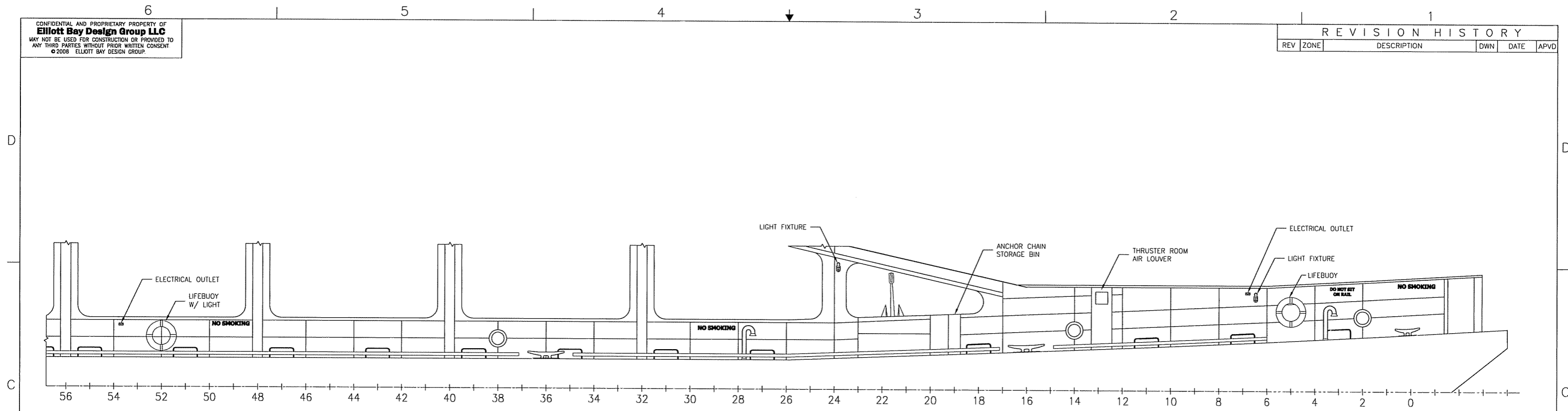
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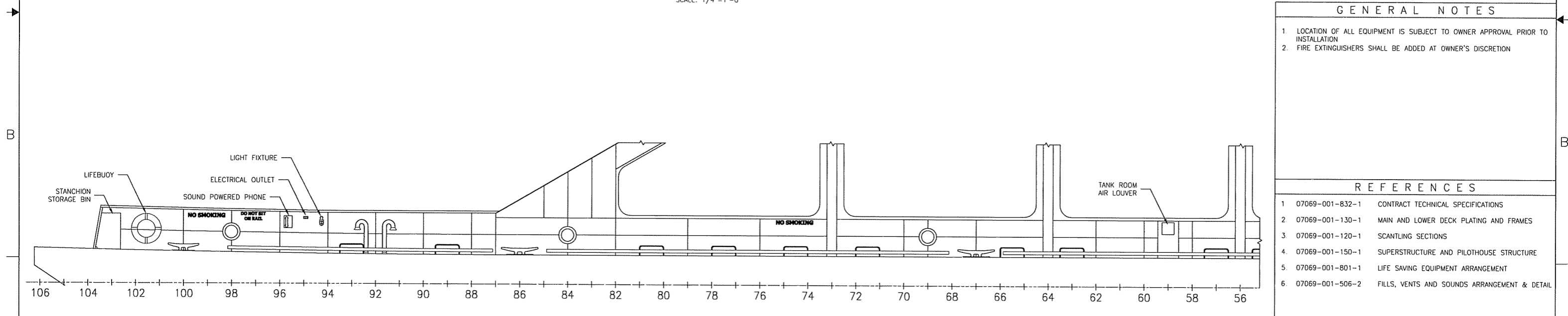
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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD



SECTION 1-4C
 PORT SIDE BULWARK OUTFITTING
 CENTERLINE LOOKING OUTBOARD
 FWD END
 SCALE: 1/4"=1'-0"

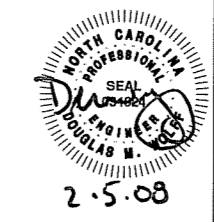


SECTION 1-4A
 PORT SIDE BULWARK OUTFITTING
 CENTERLINE LOOKING OUTBOARD
 AFT END
 SCALE: 1/4"=1'-0"

GENERAL NOTES

1. LOCATION OF ALL EQUIPMENT IS SUBJECT TO OWNER APPROVAL PRIOR TO INSTALLATION
2. FIRE EXTINGUISHERS SHALL BE ADDED AT OWNER'S DISCRETION

- REFERENCES**
- 1 07069-001-832-1 CONTRACT TECHNICAL SPECIFICATIONS
 - 2 07069-001-130-1 MAIN AND LOWER DECK PLATING AND FRAMES
 - 3 07069-001-120-1 SCANTLING SECTIONS
 - 4 07069-001-150-1 SUPERSTRUCTURE AND PILOTHOUSE STRUCTURE
 - 5 07069-001-801-1 LIFE SAVING EQUIPMENT ARRANGEMENT
 - 6 07069-001-506-2 FILLS, VENTS AND SOUNDS ARRANGEMENT & DETAIL



Elliott Bay Design Group
 Seattle • New Orleans

CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

TITLE: **BULWARK ARRANGEMENT**

DWN	JL	DATE	1/22/08	SIZE	D	DWG NO.	07069-001-600-1	REV	-
CKD		DATE		SCALE	AS NOTED	FILE NAME	07069-001-6001-	SHEET	1 OF 2
APVD	Dmw	DATE	2.5.08						

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D

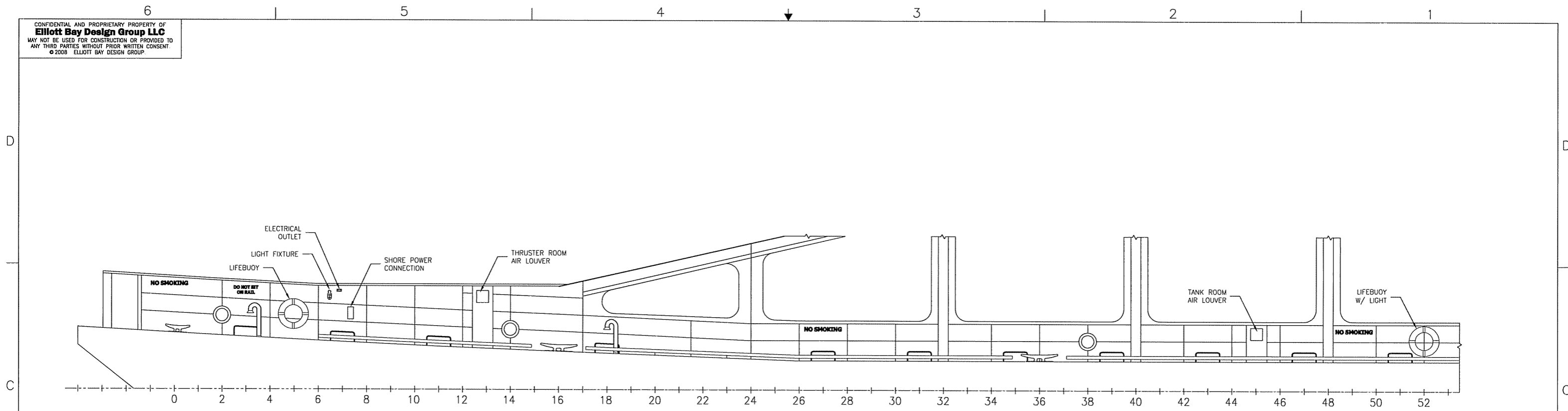
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B

A

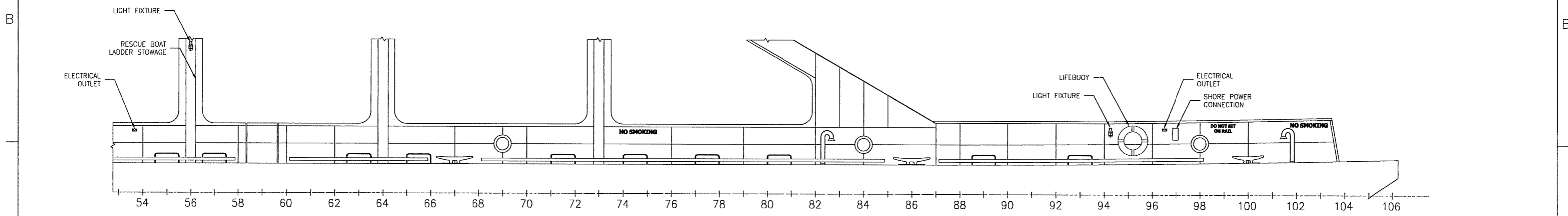
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← FWD

SECTION 2-4C
 STBD SIDE BULWARK OUTFITTING
 CENTERLINE LOOKING OUTBOARD
 FWD END
 SCALE: 1/4"=1'-0"



← FWD

SECTION 2-4A
 STBD SIDE BULWARK OUTFITTING
 CENTERLINE LOOKING OUTBOARD
 AFT END
 SCALE: 1/4"=1'-0"



2.5.08

SIZE	D	DWG NO.	07069-001-600-1	REV	—
SCALE	AS NOTED	FILE NAME	07069-001-6001-	SHEET	2 OF 2

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REVISION HISTORY				
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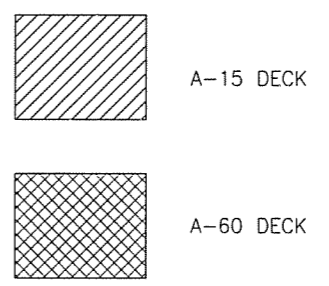
GENERAL NOTES

- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER H VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS
- STRUCTURAL FIRE PROTECTION BOUNDARIES AND SPACE DESIGNATIONS ARE IN ACCORDANCE WITH 46 CFR PART 72.05 AND NVIC 9-97.
- (X) INDICATES SPACE CLASSIFICATION
- ALL BOUNDARIES ARE "A-0" UNLESS NOTED OTHERWISE

REFERENCES

1	07069-001-101-1	PROFILES AND DECK ARRANGEMENTS
2	07069-001-832-1	TECHNICAL SPECIFICATIONS

DECK INSULATION LEGEND



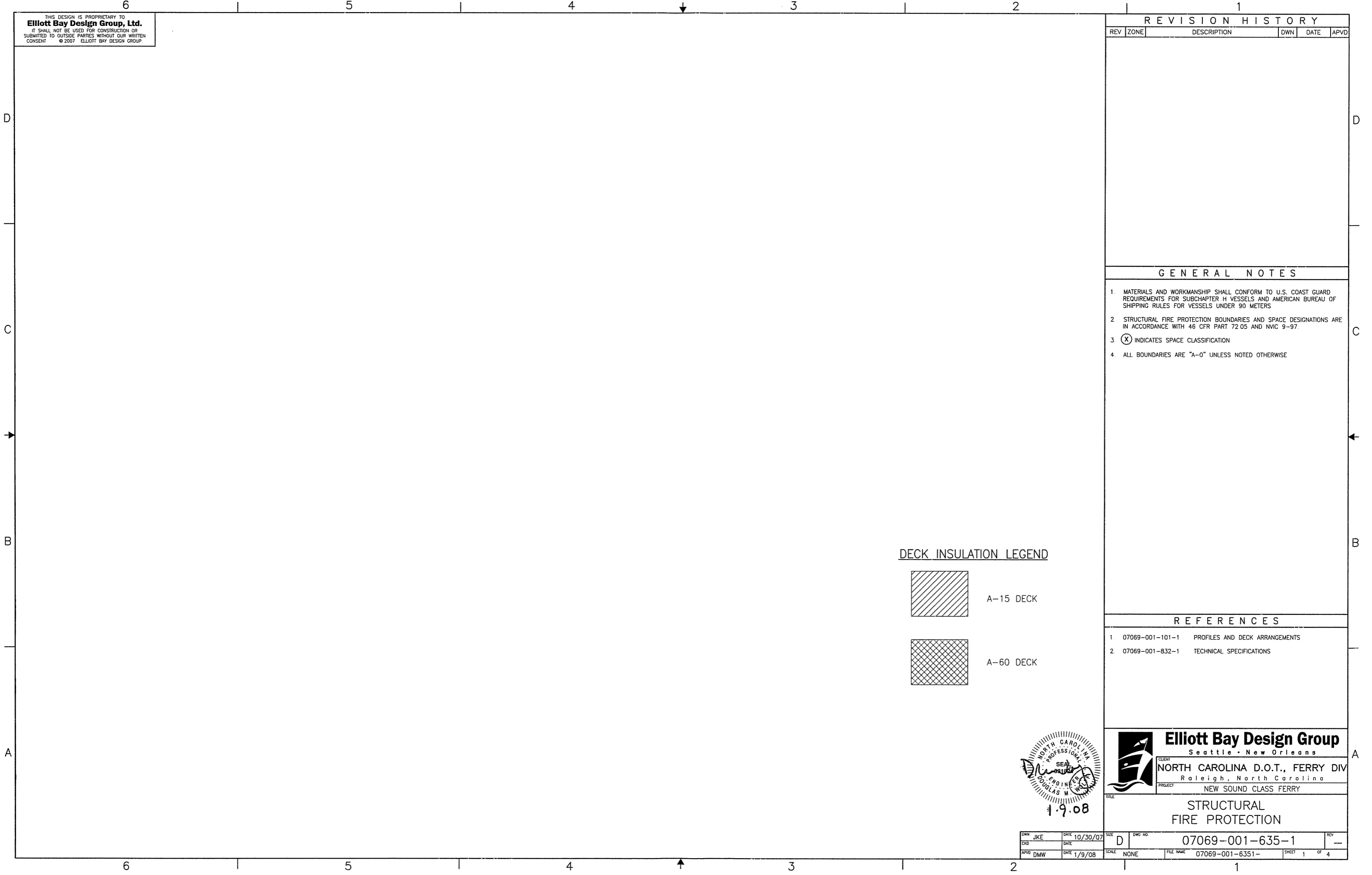
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CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

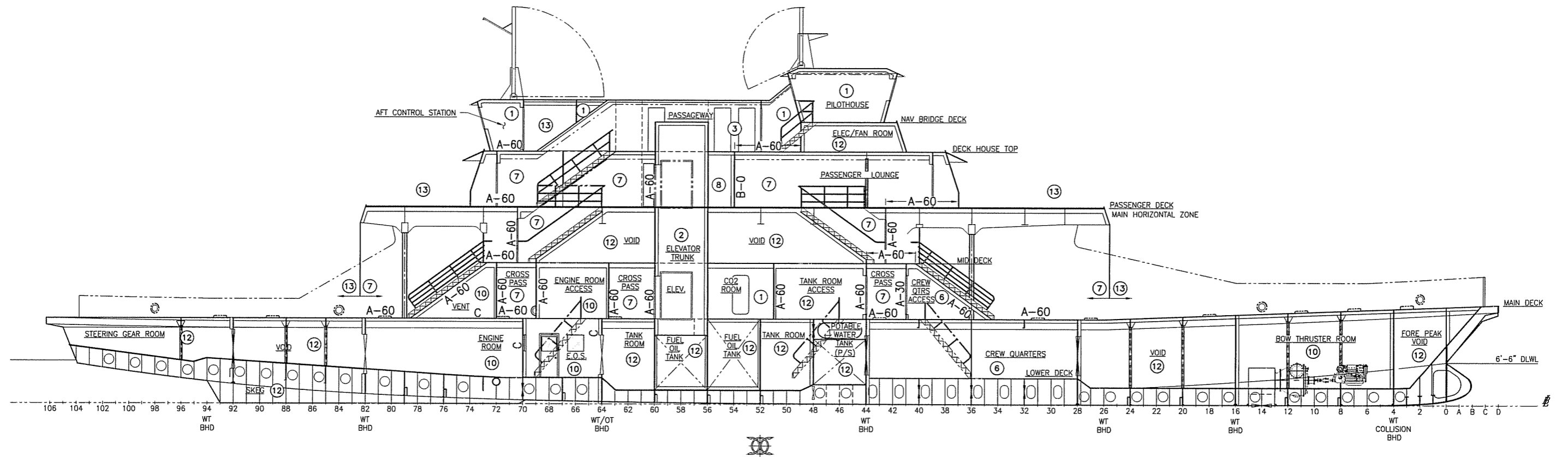
PROJECT: NEW SOUND CLASS FERRY

**STRUCTURAL
 FIRE PROTECTION**

DWN	JKE	DATE	10/30/07	SIZE	D	DWG NO.	07069-001-635-1	REV	---
CDR		DATE		SCALE	NONE	FILE NAME	07069-001-6351-	SHEET	1 OF 4
APVD	DMW	DATE	1/9/08						



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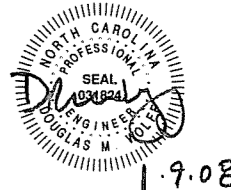
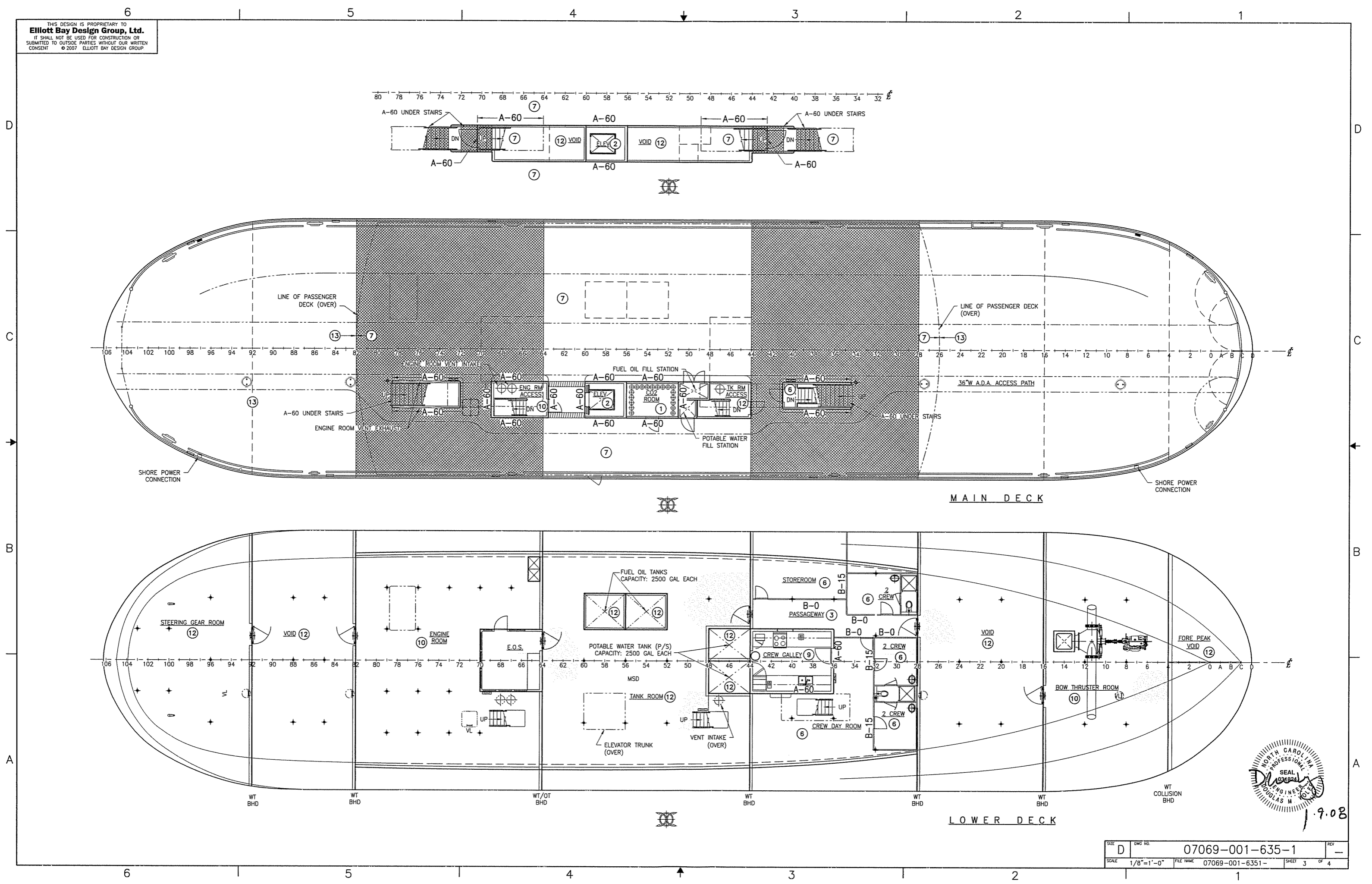
INBOARD PROFILE



1-9-08

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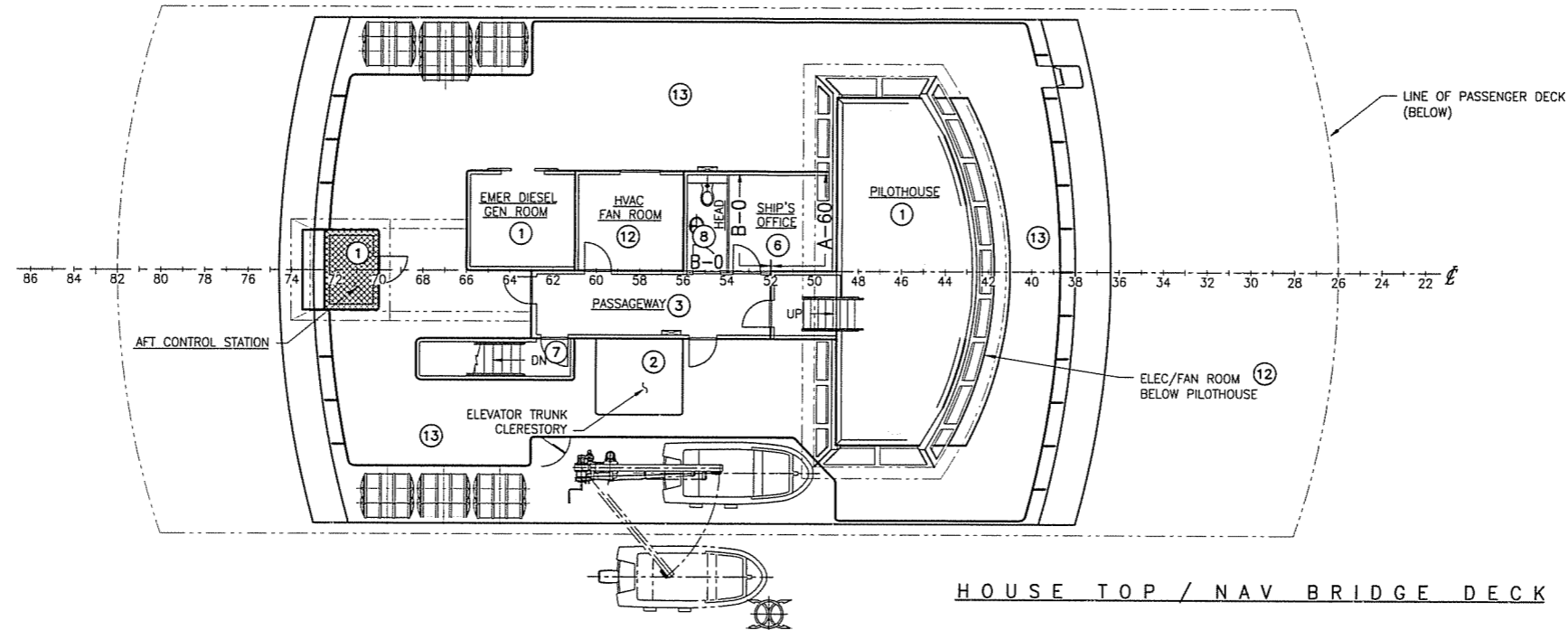
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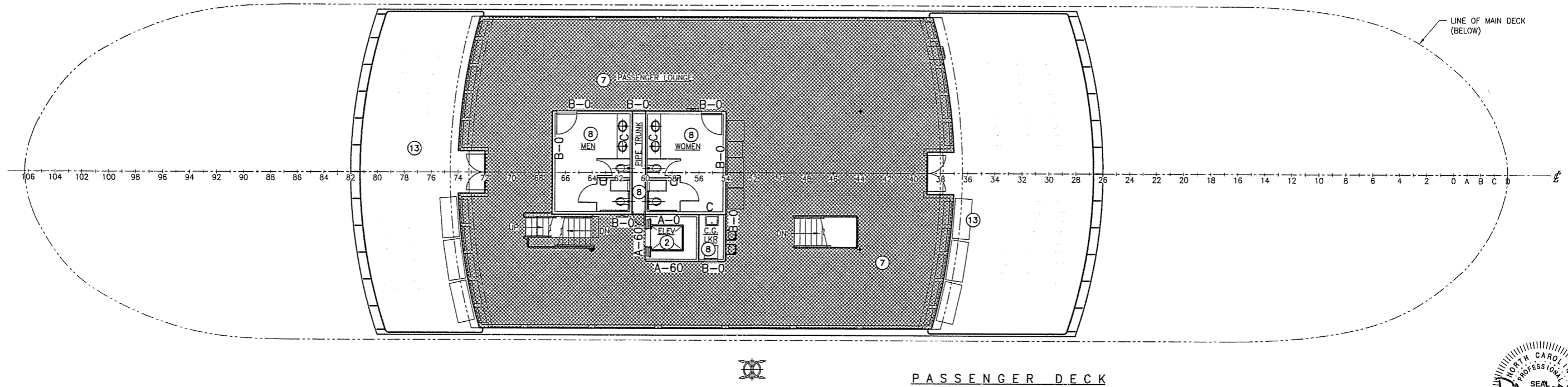
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SIZE	D	DWG NO.	07069-001-635-1	REV	-
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HOUSE TOP / NAV BRIDGE DECK



PASSENGER DECK




























































1-9-08

SIZE	D	DWG. NO.	07069-001-635-1	REV.	-
SCALE	1/8"=1'-0"	FILE NAME	07069-001-6351-	SHEET	4 OF 4

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

SYMBOLS LEGEND

 FIRE & SAFETY PLAN	 PUSH BUTTON/SWITCH FOR GENERAL ALARM	 MANUALLY OPERATED CALL POINT	 GENERAL ALARM BELL	 FIRE STATION (WATER)	 BREATHING APPARATUS	 LOCKER WITH ADDITIONAL PROTECTIVE CLOTHING
 TELEPHONE STATION SOUND POWERED	 CONTROL STATION	 FIRE ALARM CONTROL PANEL	 INTERNATIONAL SHORE CONNECTION	 SHIP'S BELL	 FIRE AXE	 LOCKER WITH ADDITIONAL BREATHING APPARATUS
 EMERGENCY GENERATOR	 EMERGENCY SWITCHBOARD	 SMOKE DETECTOR	 SPACE PROTECTED BY CO2	 SPACE PROTECTED BY SPRINKLER	 WATER FOG APPLICATOR	 CO2 HORN
 PORTABLE DRY CHEMICAL FIRE EXTINGUISHER	 PORTABLE CO2 FIRE EXTINGUISHER	 HEAT DETECTOR	 REMOTE FIRE PUMP CONTROLS	 FIRE PUMP	 FIREMAN WITH FIRE VALVES	 CO2 RELEASE STATION
 A CLASS DIVISION	 B CLASS DIVISION	 MAIN VERTICAL ZONE	 REMOTE FOR FUEL OIL VALVES	 CO2 BATTERY	RESERVATION 1	
 FIRE DAMPER "A"	 CLOSING DEVICE FOR VENT (A)	 REMOTE CLOSING DEVICE FOR VENT (A)	 FIRE DAMPER - M	 REMOTE VENTILATION SHUTOFF - "A"	 REMOTE VENTILATION SHUTOFF - "M"	 REMOTE VENTILATION SHUTOFF - "M"
 LIFERAFT	 LIFE BUOY	 LIFE BUOY WITH LIGHT	 LIFE BUOY WITH LINE	 LIFE BUOY WITH LIGHT AND SMOKE	 STRETCHER	 FIRST AID EQUIPMENT
 RESCUE BOAT	 EMBARKATION LADDER	 CHILD'S LIFE JACKET	 ADULT'S LIFE JACKET	 MUSTER STATION	RESERVATION 1	
 PARACHUTE FLARES	 SURVIVAL CRAFT PYROTECHNIC DISTRESS SIGNALS	 LINE THROWING APPLIANCE	 SEARCH & RESCUE TRANSPONDER (SART)	 EMERGENCY POSITION INDICATING RADIO BEACON	RESERVATION 1	

GENERAL NOTES

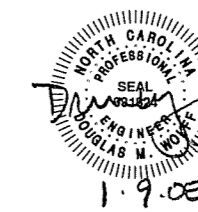
- MATERIALS AND WORKMANSHIP SHALL CONFORM TO U.S. COAST GUARD REQUIREMENTS FOR SUBCHAPTER H VESSELS AND AMERICAN BUREAU OF SHIPPING RULES FOR VESSELS UNDER 90 METERS

RESERVATIONS

- HVAC SYSTEM PENDING DESIGN DEVELOPMENT

REFERENCES

- 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS



Elliott Bay Design Group
 Seattle • New Orleans

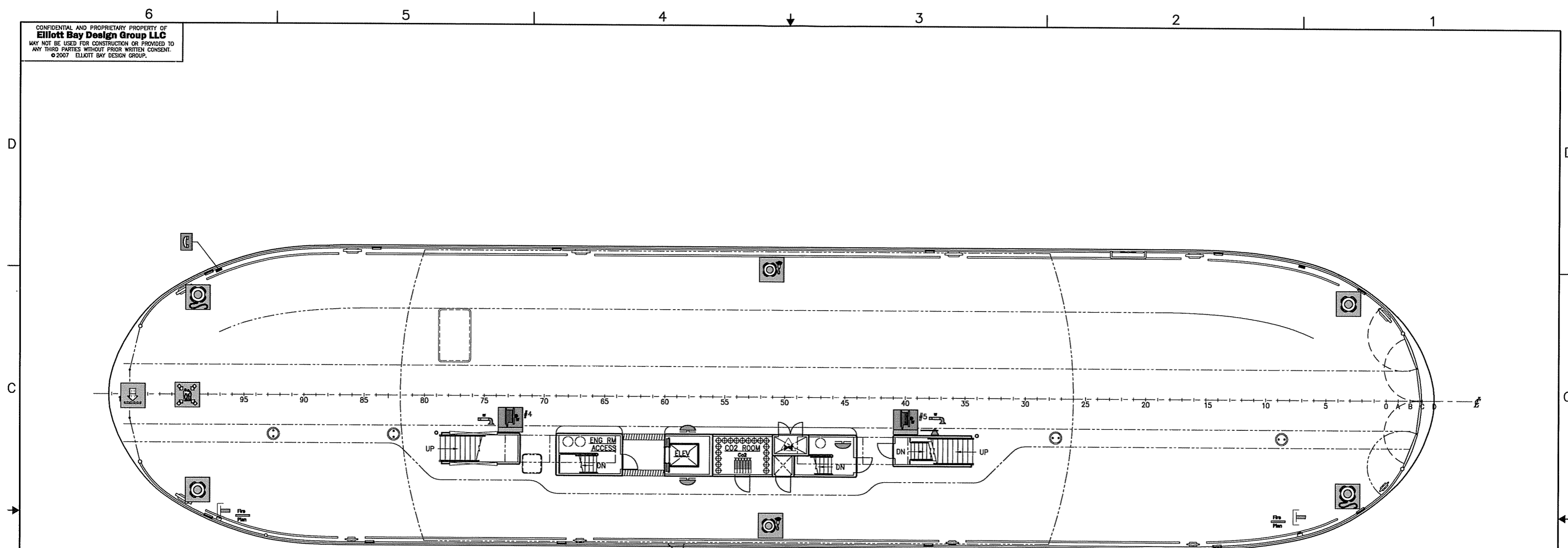
CLIENT: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

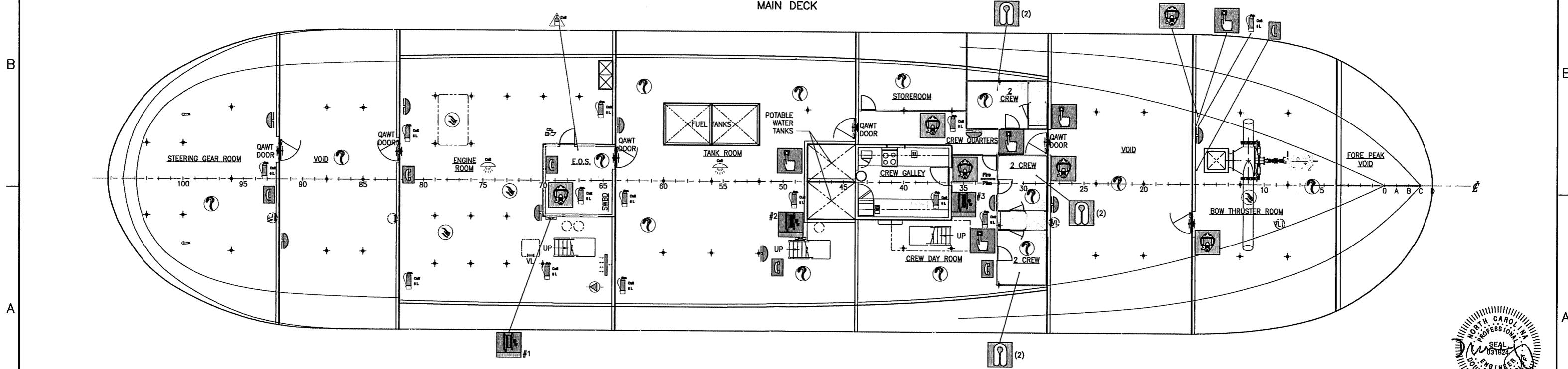
LIFE SAVING EQUIPMENT ARRANGEMENT

DWN: JXB	DATE: 10/26/07	SIZE: D	DWG NO.: 07069-003-801-1	REV: -
CHK: DMW	DATE: 1/9/08	SCALE: AS NOTED	FILE NAME: 07069-003-8011-	SHEET: 1 OF 3

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PLAN 2-3C
 MAIN DECK

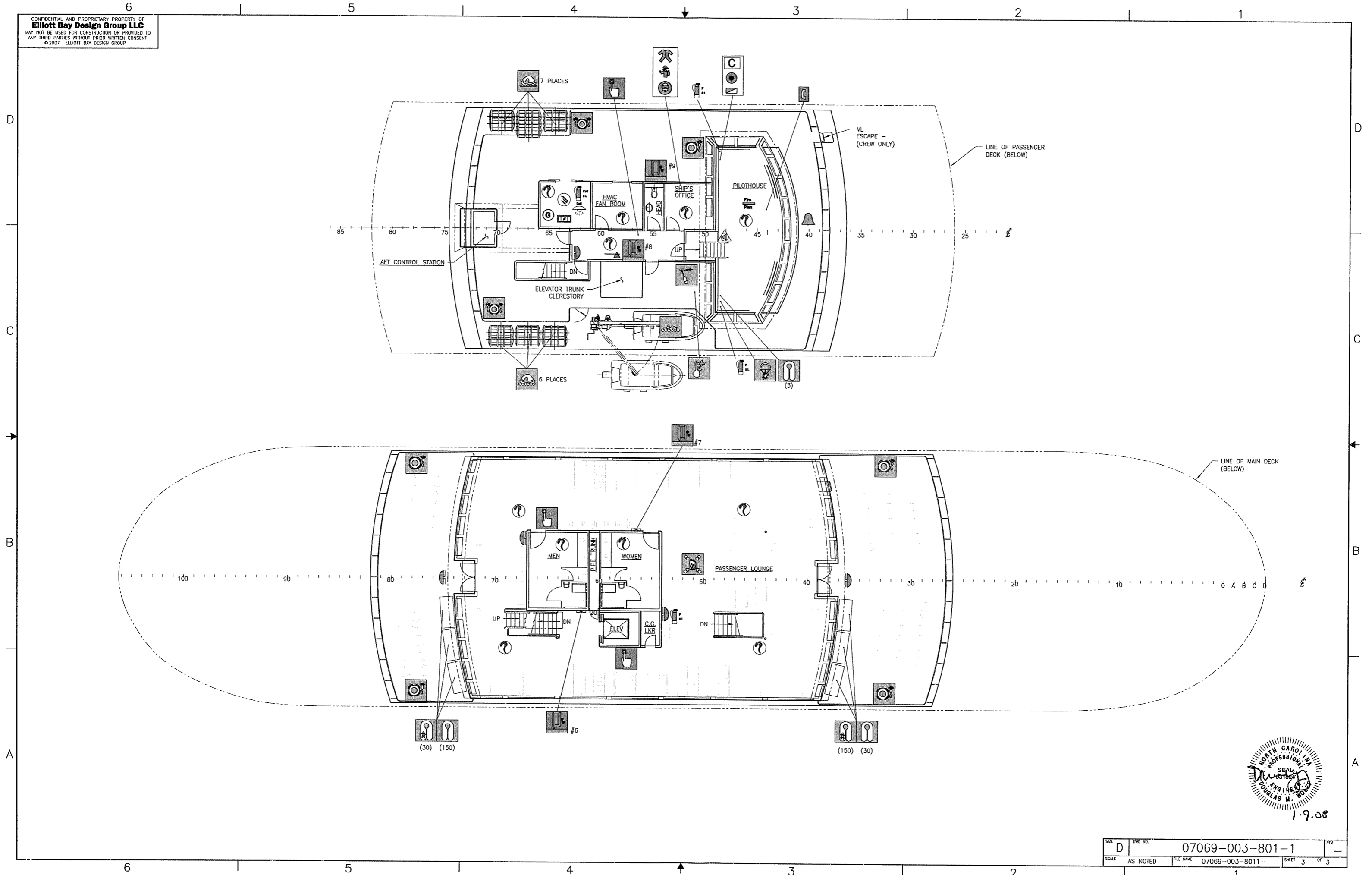


PLAN 2-3A
 LOWER DECK



1.9.08

SIZE	D	DWG NO.	07069-003-801-1	REV	-
SCALE	1/8" = 1'-0"	FILE NAME	07069-003-8011-	SHEET	2 OF 3



SIZE	D	DWG NO.	07069-003-801-1	REV	---
SCALE	AS NOTED	FILE NAME	07069-003-8011-	SHEET	3 OF 3

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
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GENERAL NOTES

1. THE MAIN DECK IS THE QUALIFIED REFUGE AREA (QRA). THIS VESSEL DOES NOT HAVE A MVZ DIVISION.
2. STAGE 1 EGRESS FROM FIRE ON THE PASSENGER DECK REQUIRES ALL PASSENGERS TO EVACUATE TO THE QRA ON THE MAIN DECK AND DISPERSE AS INSTRUCTED.
3. STAGE 2 EGRESS REQUIRES ALL PASSENGERS TO PROCEED TO THE EMBARKATION AREA ON THE MAIN DECK AND DISEMBARK AS INSTRUCTED.
4. FIRE LOAD IN PASSENGER ACCOMMODATIONS TO BE LESS THAN 3LB/FT².
5. EVACUATION PLAN ON SHEET 1 IS FOR WORST CASE PASSENGER LOADING AND FIRE LOCATION.
6. IT IS ASSUMED THAT THE PASSENGERS ARE CONCENTRATED OUT OF THE WEATHER ON THE PASSENGER DECK.

REFERENCES

1. 07069-001-101-1 PROFILES AND DECK ARRANGEMENTS
2. NVIC 8-93

Elliott Bay Design Group
 Seattle • New Orleans

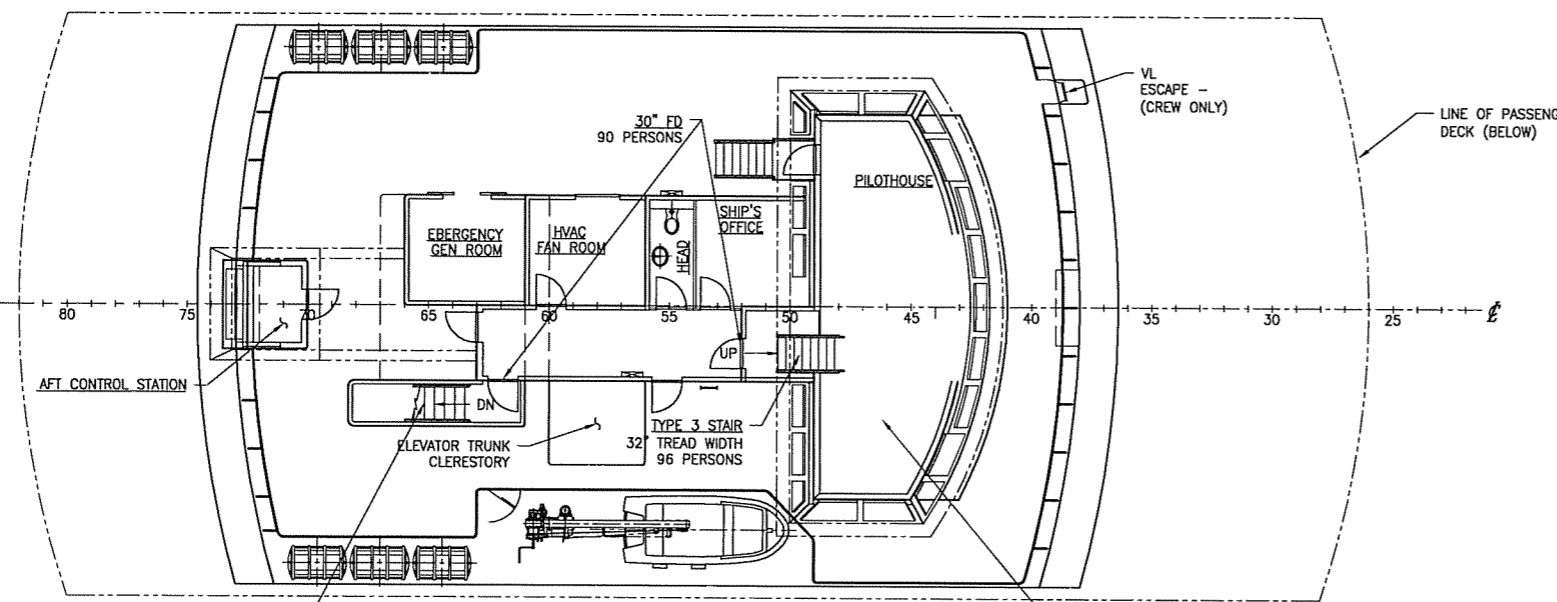
CUSTOMER: NORTH CAROLINA D.O.T., FERRY DIV
 Raleigh, North Carolina

PROJECT: NEW SOUND CLASS FERRY

EVACUATION PLAN



DWN	RCB	DATE	1/30/08	SIZE	D	DWG NO.	07069-001-891-1	REV	-
CKD		DATE		SCALE	NONE	FILE NAME	07069-001-8911-	SHEET	1 OF 2
APVD	DMW	DATE	2.5.08						



HOUSE TOP / NAV BRIDGE DECK

OPERATING CAPACITY
 2 CREW
 2 TOTAL

EVACUATION PLAN: FIRE IN THE PASSENGER LOUNGE

STAGE 1 EGRESS

TOTAL OPERATING CAPACITY: (300)

HOLD (6):

-6 CREW MEMBERS EXIT BY TAKING THE STAIRS AT FR 3B.
 (0) CREW REMAIN.

PASSENGER DECK: (288)

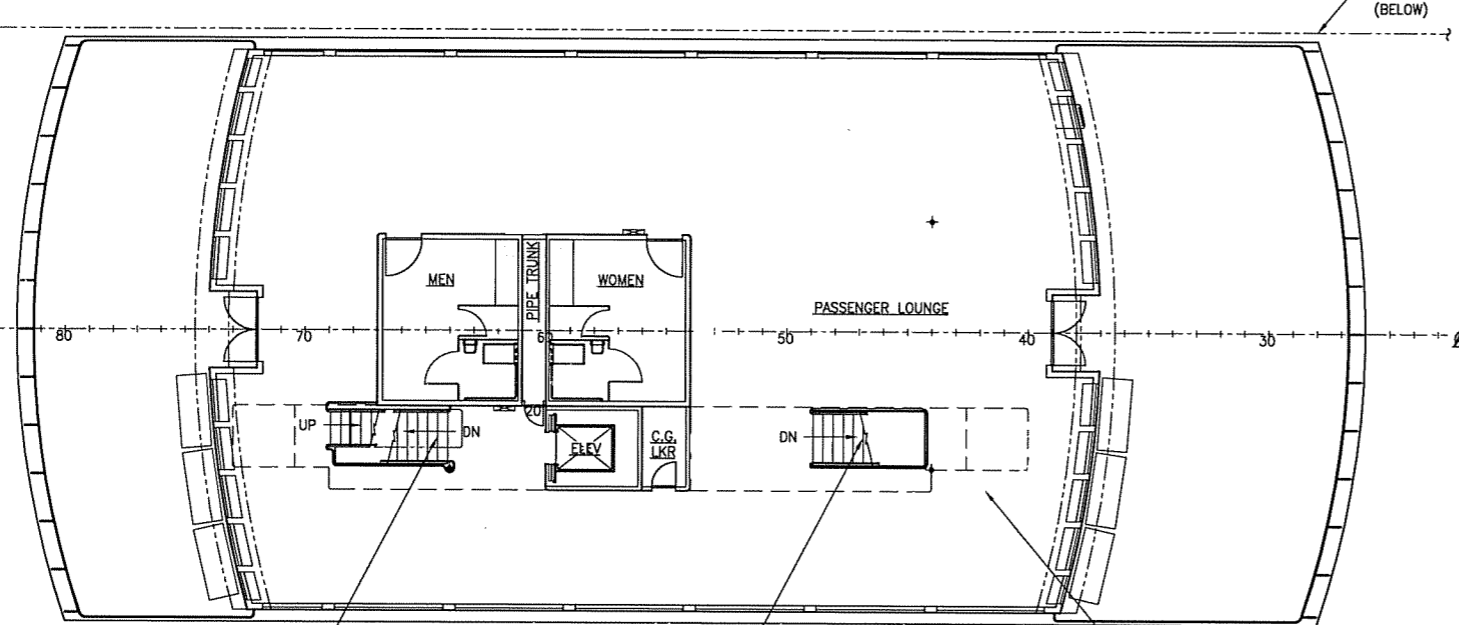
-144 PASSENGERS EXIT BY TAKING THE FORWARD STAIRS.
 -144 PASSENGERS EXIT BY TAKING THE AFT STAIRS.
 (0) PASSENGERS REMAIN.

NAV BRIDGE

-(2) CREW REMAIN.

STAGE 2 EGRESS:

SEE NOTE 3.



PASSENGER DECK

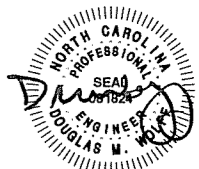
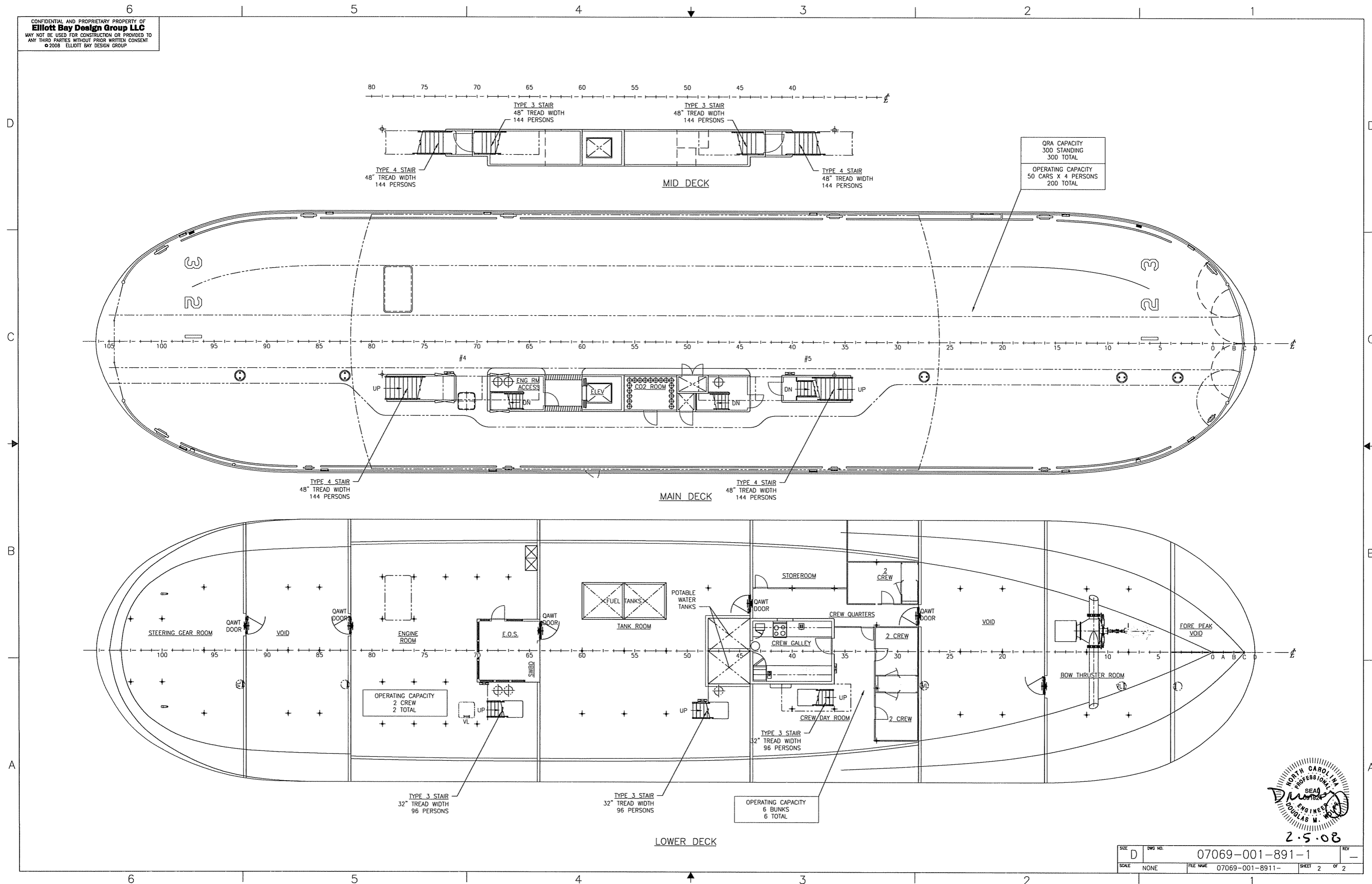
OPERATING CAPACITY
 197 SEATS + 91 STANDING
 288 TOTAL

6 5 4 3 2 1

6 5 4 3 2 1

D
C
B
A

D
C
B
A



2.5.08

SIZE	D	DWG NO.	07069-001-891-1	REV	-
SCALE	NONE	FILE NAME	07069-001-8911-	SHEET	2 OF 2