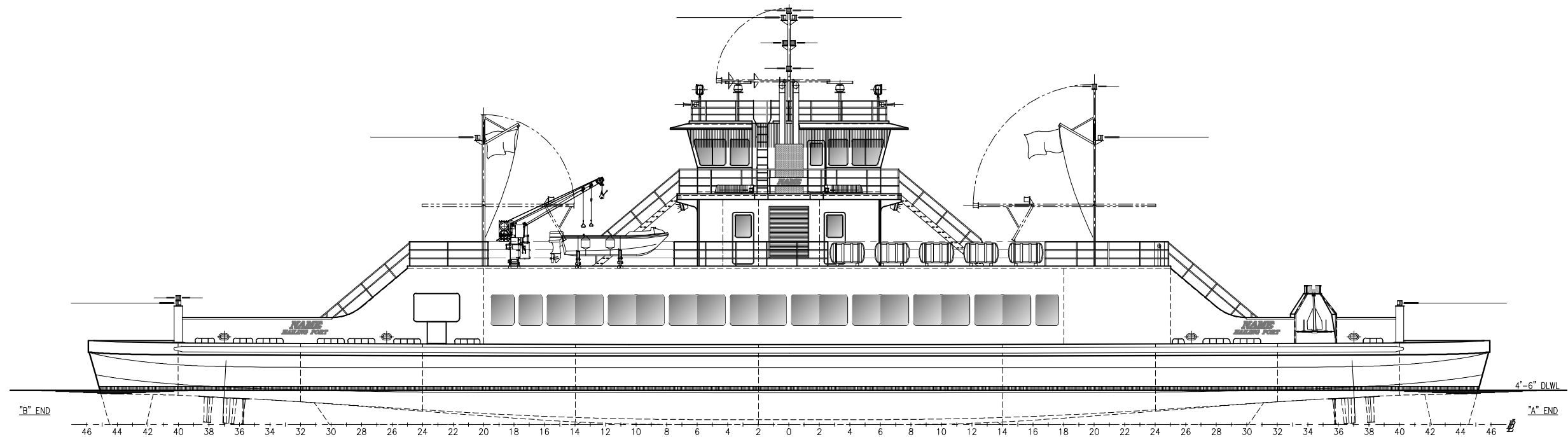


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REVISION HISTORY				
REV	ZONE	DESCRIPTION	DWN	DATE



VESSEL DRAWINGS		
Drawing No.	Rev	Drawing Title
16101-200-100-1	---	Lines Plan
16101-200-101-1	---	Profiles and Deck Arrangements
16101-200-101-3	---	Lifesaving Equipment Arrangement
16101-200-101-7	---	Fire Zone Plan
16101-200-101-8	---	Emergency Evacuation Plan
16101-200-110-1	---	Bottom and Side Shell
16101-200-110-2	---	Skegs
16101-200-120-1	---	Midship Section
16101-200-120-2	---	Inboard Structural Profile
16101-200-120-3	---	Hull Transverse Bulkheads
16101-200-120-4	---	Hull Transverse Frames
16101-200-120-5	---	Hull Longitudinal Bulkheads and Girders
16101-200-130-2	A	Main Deck
16101-200-150-1	A	Superstructure Main Deck to 01 Deck
16101-200-150-2	A	Superstructure 01 Deck to Pilot House Top
16101-200-150-3	---	Main Deck Bulwarks
16101-200-170-1	---	Masts
16101-200-180-1	A	Propulsion Unit Foundations
16101-200-201-1	---	Machinery Arrangement

VESSEL DRAWINGS		
Drawing No.	Rev	Drawing Title
16101-200-243-1	---	Shaft Arrangement
16101-200-256-1	---	Cooling System Schematic
16101-200-259-1	---	Exhaust Arrangement
16101-200-261-1	A	Fuel Oil Piping Schematic
16101-200-320-1	---	Ships Service Electrical One Line Diagram
16101-200-330-1	---	Power and Lighting Plan
16101-200-422-1	---	Navigation Light Arrangement and Block Diagram
16101-200-506-1	---	Fills, Vents, and Sounds
16101-200-513-1	---	Machinery Ventilation Arrangement
16101-200-521-1	---	Fire Main System Schematic
16101-200-526-1	---	Deck Drain Piping Schematic
16101-200-528-1	---	Sanitary Drains Schematic
16101-200-529-1	---	Bilge and Ballast Schematic
16101-200-529-2	A	Lube Oil and Waste Oil Piping Schematic
16101-200-533-1	A	Potable and Sanitary Water Piping Schematic
16101-200-551-1	---	Compressed Air Piping Schematic
16101-200-624-1	---	Window Schedule
16101-200-624-2	---	Door Schedule
16101-200-624-3	---	Hatch Schedule



 Elliott Bay Design Group North Carolina, PLLC	
CLIENT	NORTH CAROLINA D.O.T. RALEIGH, NORTH CAROLINA
PROJECT	NEW RIVER CLASS FERRY
DRAWING INDEX	
SIZE	D
DWG NO.	16101-200-000-1
SCALE	NONE
FILE NAME	16101-200-000-1-
SHEET	1 OF 1
DWN	
MOD	
CKD	
APVD	
APVD DATE	

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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-3B	1. UPDATED PE STAMP FOR REV A. 2. UPDATED DESCRIPTION OF BILGE TANGENTS.	DKG	08/31/17	KAJ
	1-2B	3. REMOVED 10" AND 12" WATERLINES FROM BODY PLAN.			
	2-2A	4. ADDED THRUSTER CL AT FR 37 TO SHEAR PLAN.			
	1-5B	5. ADDED TRANSVERSE CHINE LINE TO FLAT			
	2-2C				

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS ARE MOLDED.
4. HULL IS SYMMETRICAL ABOUT MIDSHIP AND CENTERLINE.

VESSEL PARTICULARS

LENGTH OVERALL:	183'-7"
LENGTH DESIGN LOAD WATERLINE:	180'-6"
BEAM OVER GUARDS:	46'-0"
DEPTH AT SIDE:	10'-6"
DRAFT AT DLWL:	4'-6"
FREEBOARD AT SIDE:	6'-0"
TOTAL PERSONS ON BOARD CAPACITY:	300 MAX.
VEHICLE CAPACITY:	40 SV

REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION



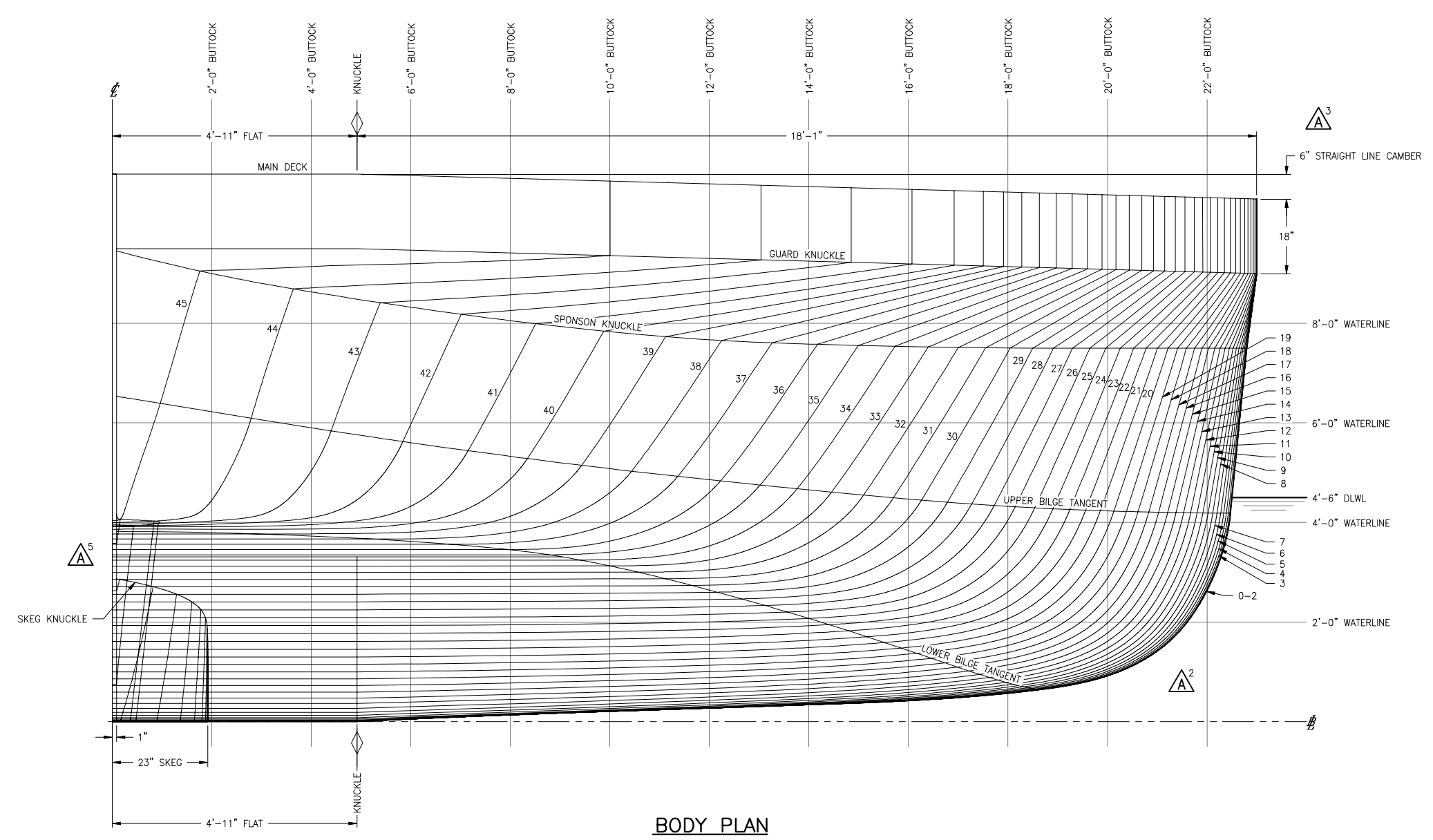
Elliott Bay Design Group
 North Carolina, PLLC

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

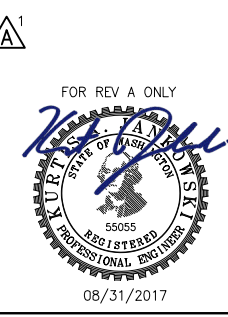
PROJECT: NEW RIVER CLASS FERRY

LINES PLAN

SIZE	D	DWG NO.	16101-200-100-1	REV	A
SCALE	3/4" = 1'-0"	FILE NAME	16101-200-100-1A	SHEET	1 OF 2
DWN	ZDL	MOD	WHL	CKD	M-W
		APVD	KAJ	APVD DATE	07/27/2017



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 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313

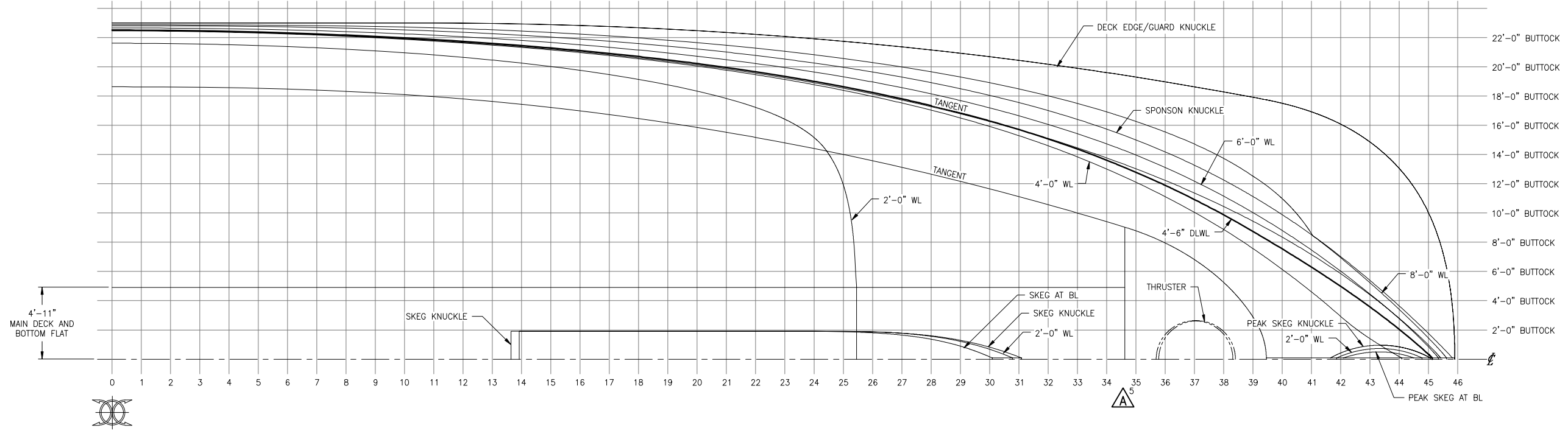


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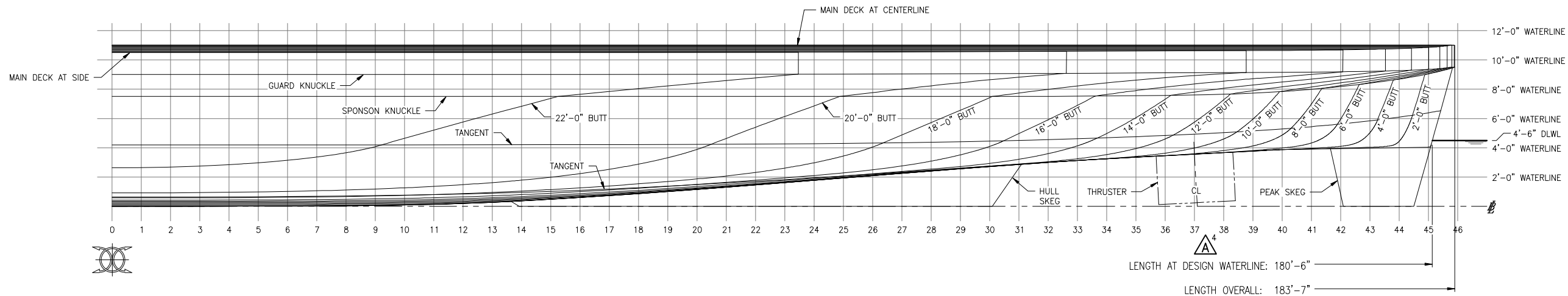
D | C | B | A

6 | 5 | 4 | 3 | 2 | 1

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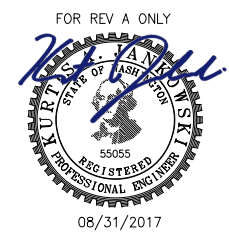


HALF BREADTH PLAN



SHEAR PLAN

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SIZE	D	OWG NO.	16101-200-100-1	REV	A
SCALE	1/4" = 1'-0"	FILE NAME	16101-200-100-1A	SHEET	2 OF 2

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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-3B 1-5B 2-3C	1. UPDATED PE STAMP FOR REV A. 2. RELOCATED MASTS TO FRAME 23. 3. ADDED CAMBER AND TUMBLEHOME DIMENSIONS TO MIDSHIP SECTION. 4. UPDATED CHOCK AND CLEAT LOCATIONS IN MAIN DECK PLAN. 5. ADDED HATCHES TO MAIN DK AND HOLD PLAN VIEWS. 6. ADDED TANK CAPACITIES TO HOLD PLAN. 7. MODIFIED PILOT CHAIR LOCATION AND SIZE IN PILOT HOUSE CONSOLE DETAIL. 8. ADDED GRABRAIL TO PILOT HOUSE CONSOLE DETAIL.	DKG	08/31/17	KAJ

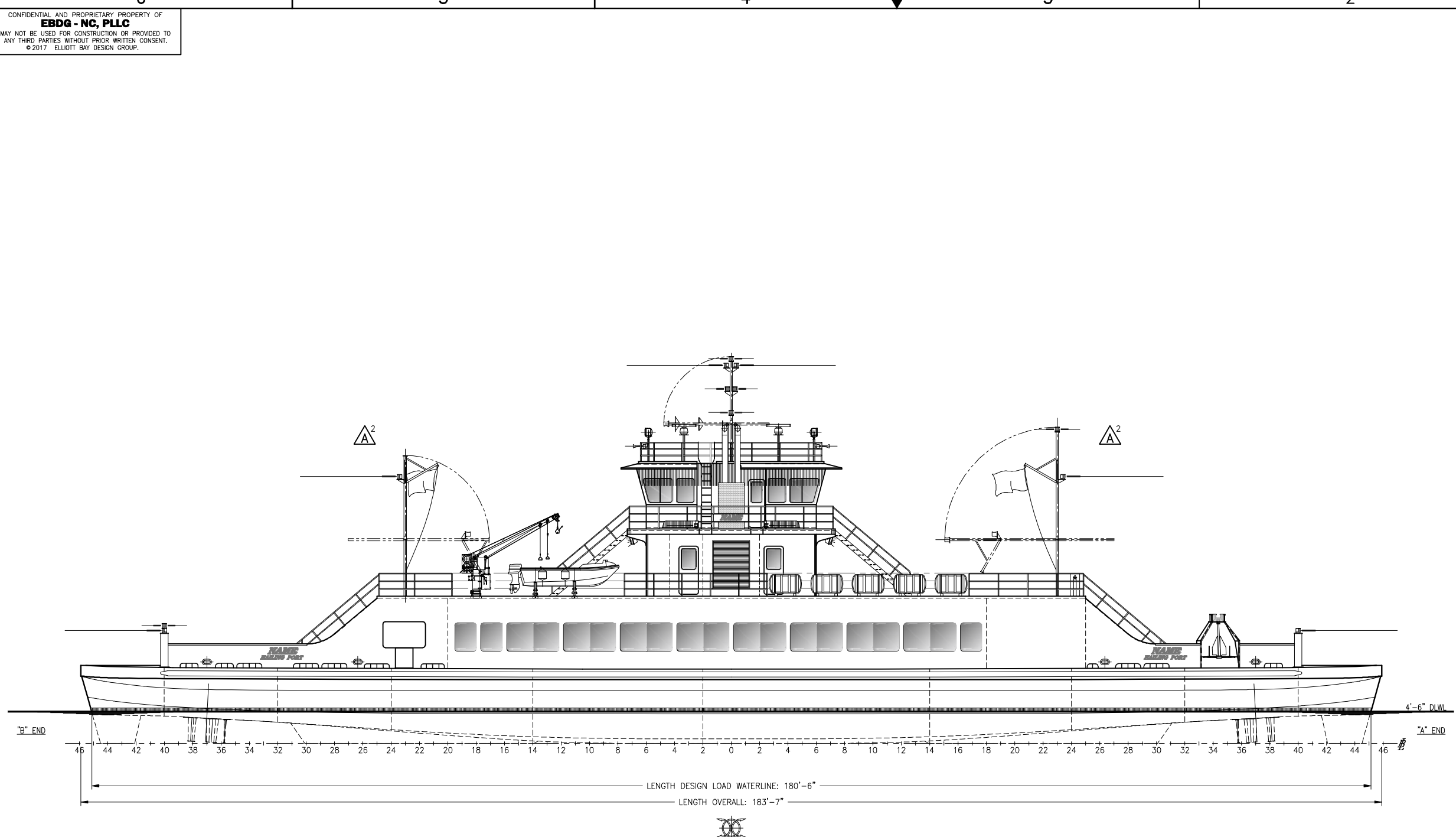
GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

VESSEL PARTICULARS

LENGTH OVERALL:	183'-7"
LENGTH DESIGN LOAD WATERLINE:	180'-6"
BEAM, MOLDED:	46'-0"
BEAM OVER GUARDS:	46'-10"
DEPTH AT SIDE:	10'-6"
DRAFT AT DLWL:	4'-6"
FREEBOARD AT SIDE:	6'-0"
TOTAL PASSENGER CAPACITY:	300 MAX.
VEHICLE CAPACITY:	40 SV

- REFERENCES**
1. 16101-200-832-1 TECHNICAL SPECIFICATION
 2. 16101-200-100-1 LINES PLAN
 3. 16101-200-101-7 FIRE ZONE PLAN
 4. 16101-200-120-1 MIDSHIP SECTION
 5. 16101-200-201-1 MACHINERY ARRANGEMENT



OUTBOARD PROFILE



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 North Carolina, PLLC

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

PROJECT: **NEW RIVER CLASS FERRY**

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 DATED: 07/27/2017
 STATE: WA
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TITLE: **PROFILES AND DECK ARRANGEMENTS**

SIZE: D DWG NO.: 16101-200-101-1 REV: A

SCALE: 1/8" = 1'-0" FILE NAME: 16101-200-101A SHEET 1 OF 4

DWN: ZDL MOD: MWR CKD: M-W APVD: KAJ APVD DATE: 7/27/2017

6

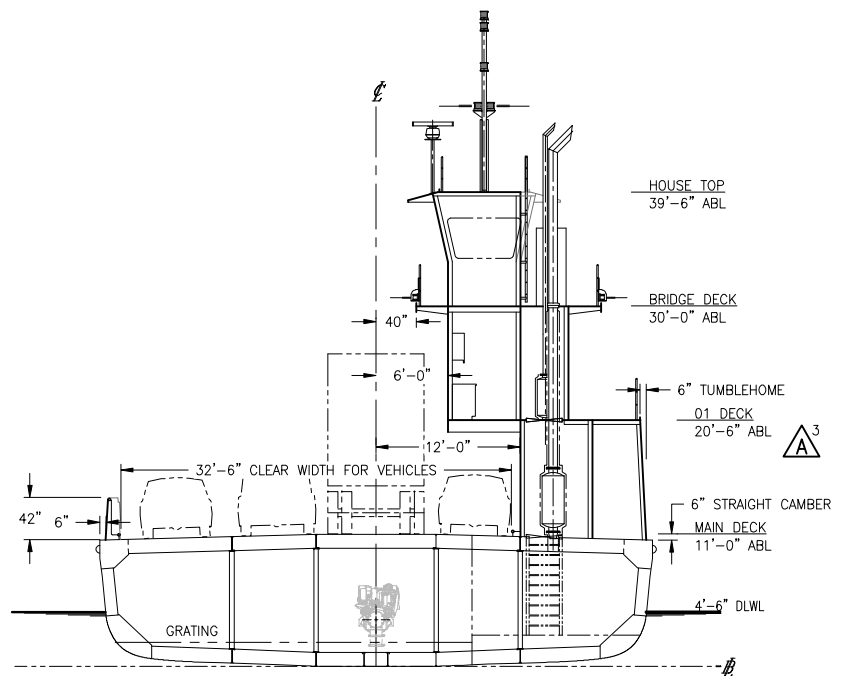
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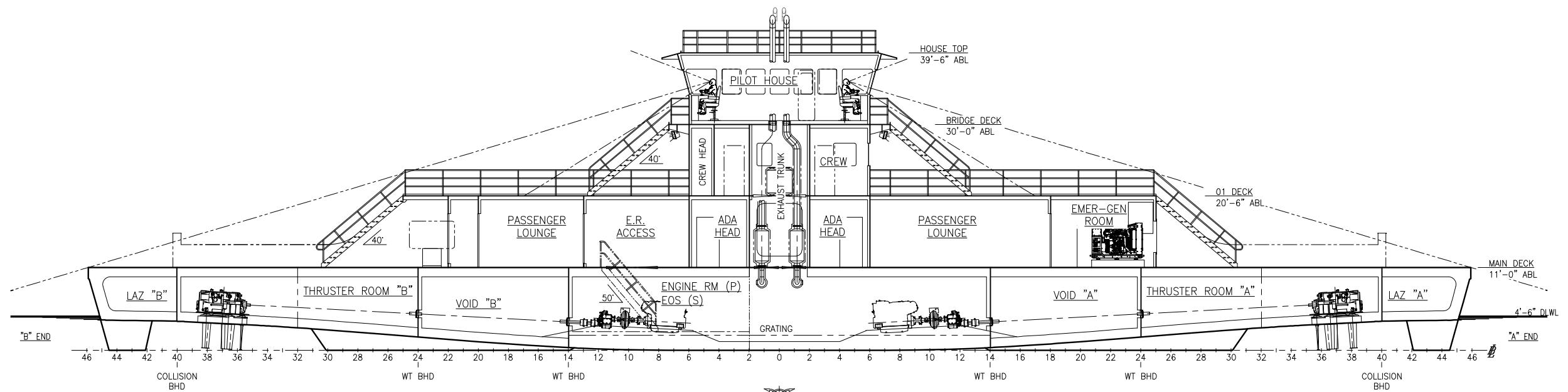
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2

1

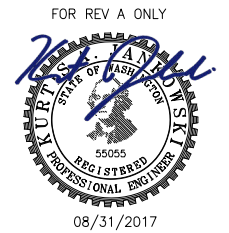


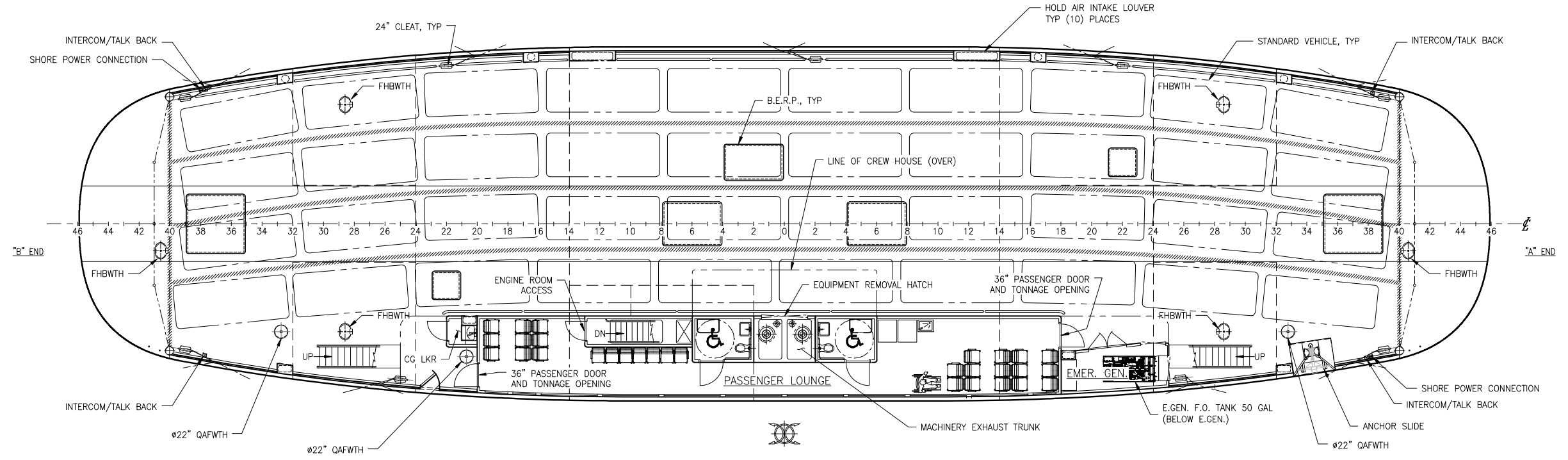
MIDSHIP SECTION



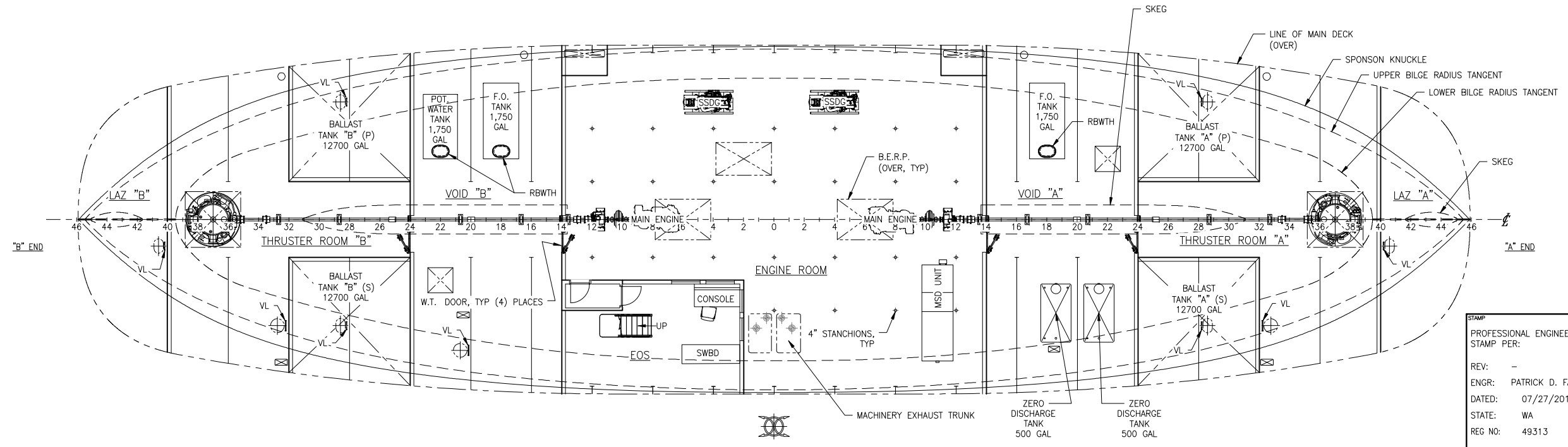
INBOARD PROFILE

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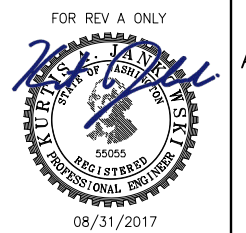


A^{4,5} MAIN DECK PLAN



A^{5,6} HOLD PLAN

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 ENGR: PATRICK D. FAAS
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08/31/2017

SIZE	D	DWG NO.	16101-200-101-1	REV	A
SCALE	1/8" = 1'-0"	FILE NAME	16101-200-101A	SHEET	3 OF 4

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6 5 4 3 2 1

D

C

B

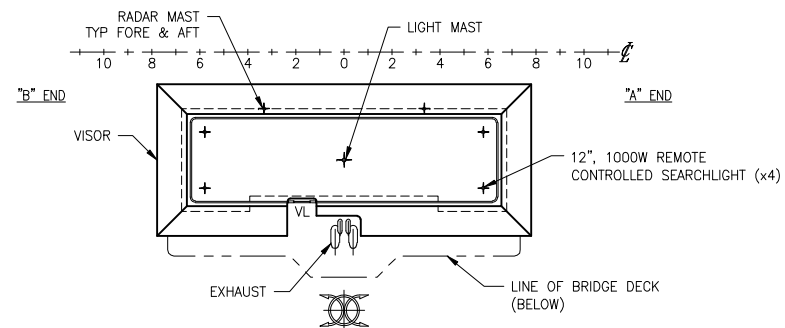
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D

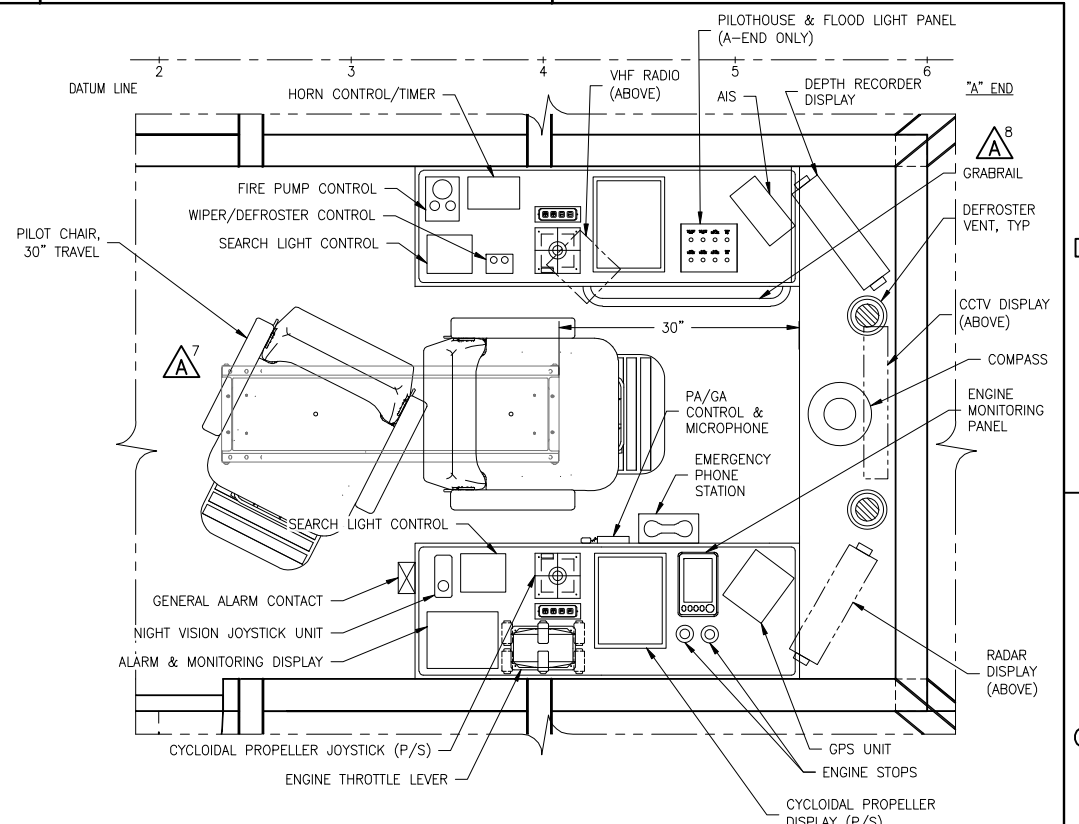
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B

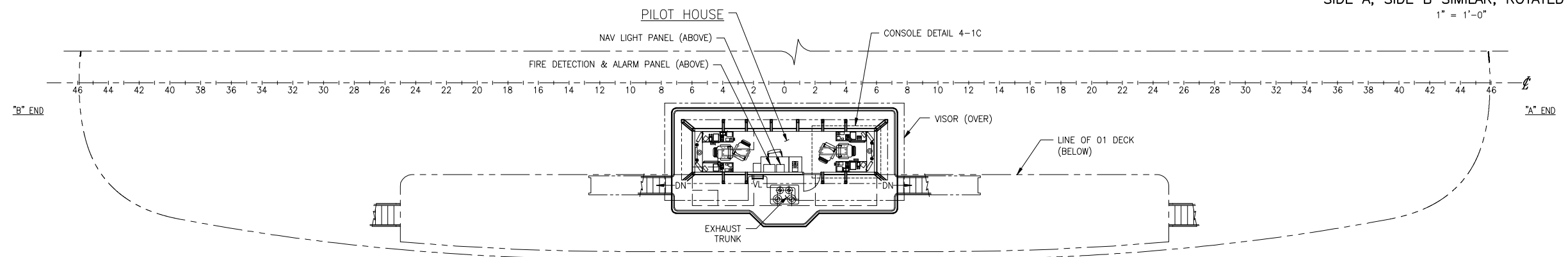
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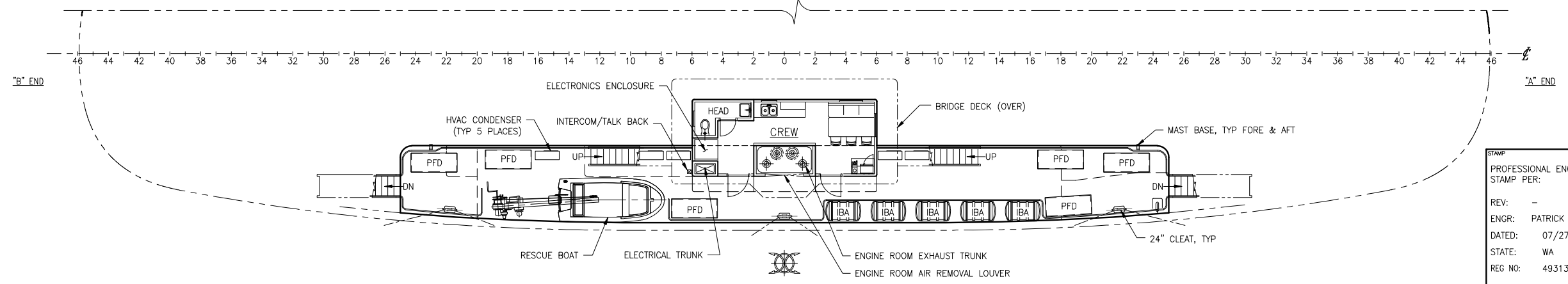
HOUSE TOP PLAN



PILOT HOUSE CONSOLE DETAIL 4-1C
 SIDE A; SIDE B SIMILAR, ROTATED 180
 1" = 1'-0"

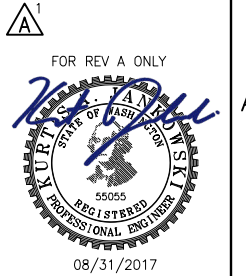


BRIDGE DECK PLAN



O1 DECK PLAN

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 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
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SIZE D DWG NO. 16101-200-101-1 REV A
 SCALE 1/8"=1'-0" UNO FILE NAME 16101-200-101A SHEET 4 OF 4

6 5 4 3 2 1

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EQUIPMENT LIST

NO.	QTY	DESCRIPTION	COMMENT
1	1	RESCUE BOAT	
2	5	50 PERSON LIFERAFTS	
3	2	RESCUE LADDER	
4	2	LIFE RINGS	
5	2	LIFE RINGS	WITH LINE
6	4	LIFE RINGS	WITH LIGHT
7	300	LIFE JACKETS	ADULT
8	30	LIFE JACKETS	CHILD
9	7	LIFE JACKETS	CREW
10	20	PORTABLE FIRE EXTINGUISHER	TYPE VARIES
11	2	FIRE STATION	
12	1	EYE WASH STATION	

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

VESSEL PARTICULARS

LENGTH OVERALL: 183'-7"
 LENGTH DESIGN LOAD WATERLINE: 180'-6"
 BEAM OVER GUARDS: 46'-0"
 FREEBOARD AT SIDE: 6'-0"
 DEPTH AT SIDE: 10'-6"
 DRAFT AT DLWL: 4'-6"
 TOTAL PERSONS ON BOARD CAPACITY: 300 MAX.
 VEHICLE CAPACITY: 40 SV

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-130-2 MAIN DECK
- 16101-200-150-1 SUPERSTRUCTURE MAIN DECK TO 01 DECK

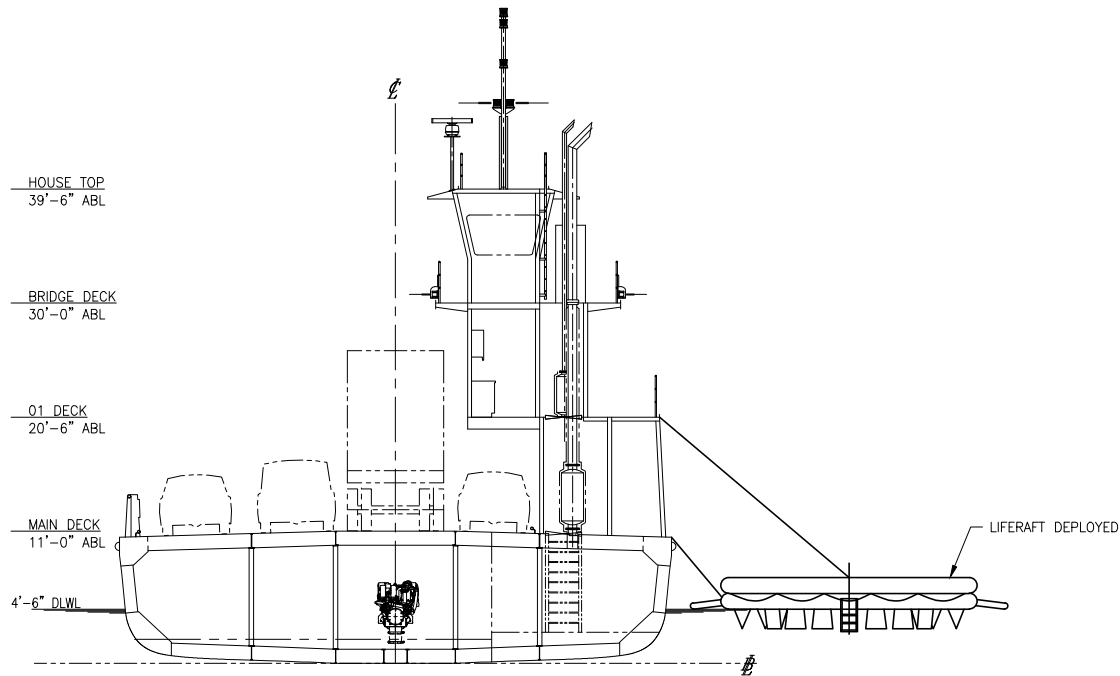


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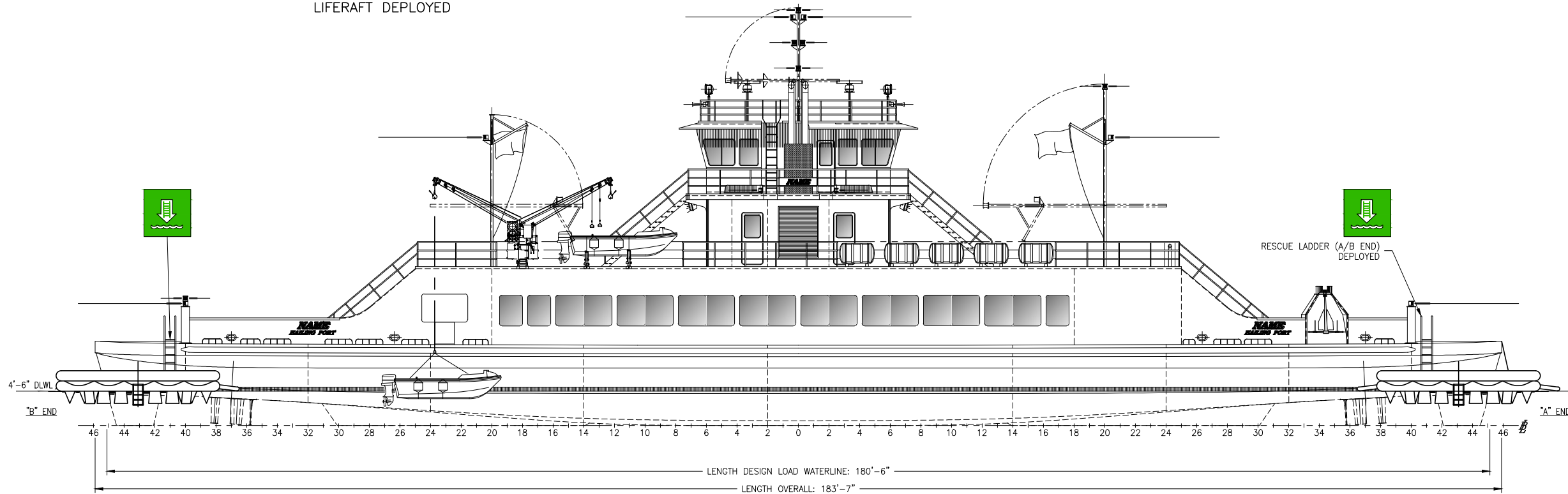
CLIENT: NORTH CAROLINA D.O.T.
 RALEIGH, NORTH CAROLINA
 PROJECT: NEW RIVER CLASS FERRY

LIFE SAVING EQUIPMENT ARRANGEMENT

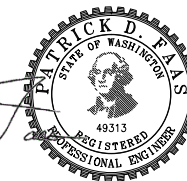
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SCALE	FILE NAME	SHEET
1/8" = 1'-0"	16101-200-101-3-	1 OF 4
DWN	MOD	APVD
MWR	WHL	PDF
CND	PDF	APVD DATE
		07/28/2017



MIDSHIP SECTION
 LIFERAFT DEPLOYED



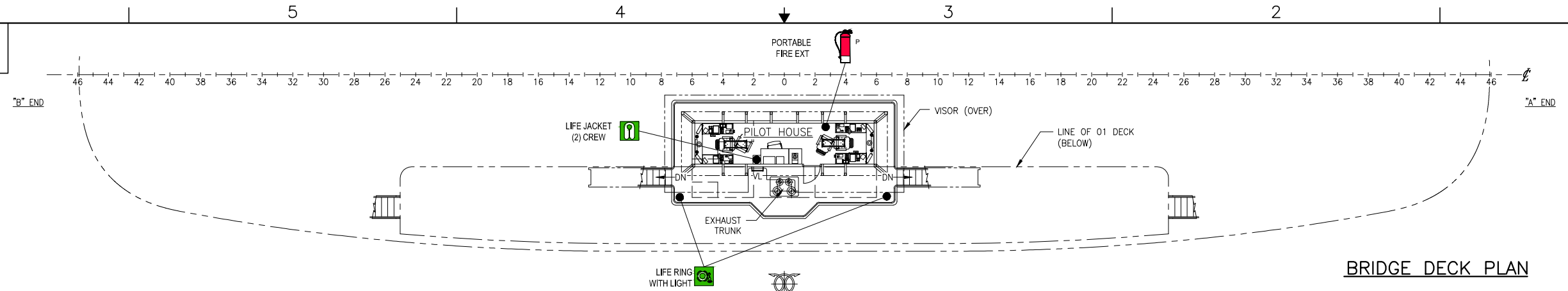
OUTBOARD PROFILE



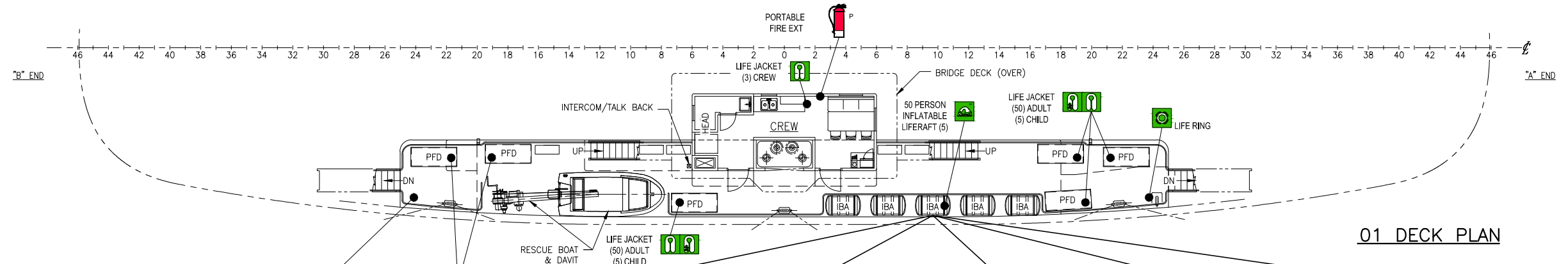
Patrick

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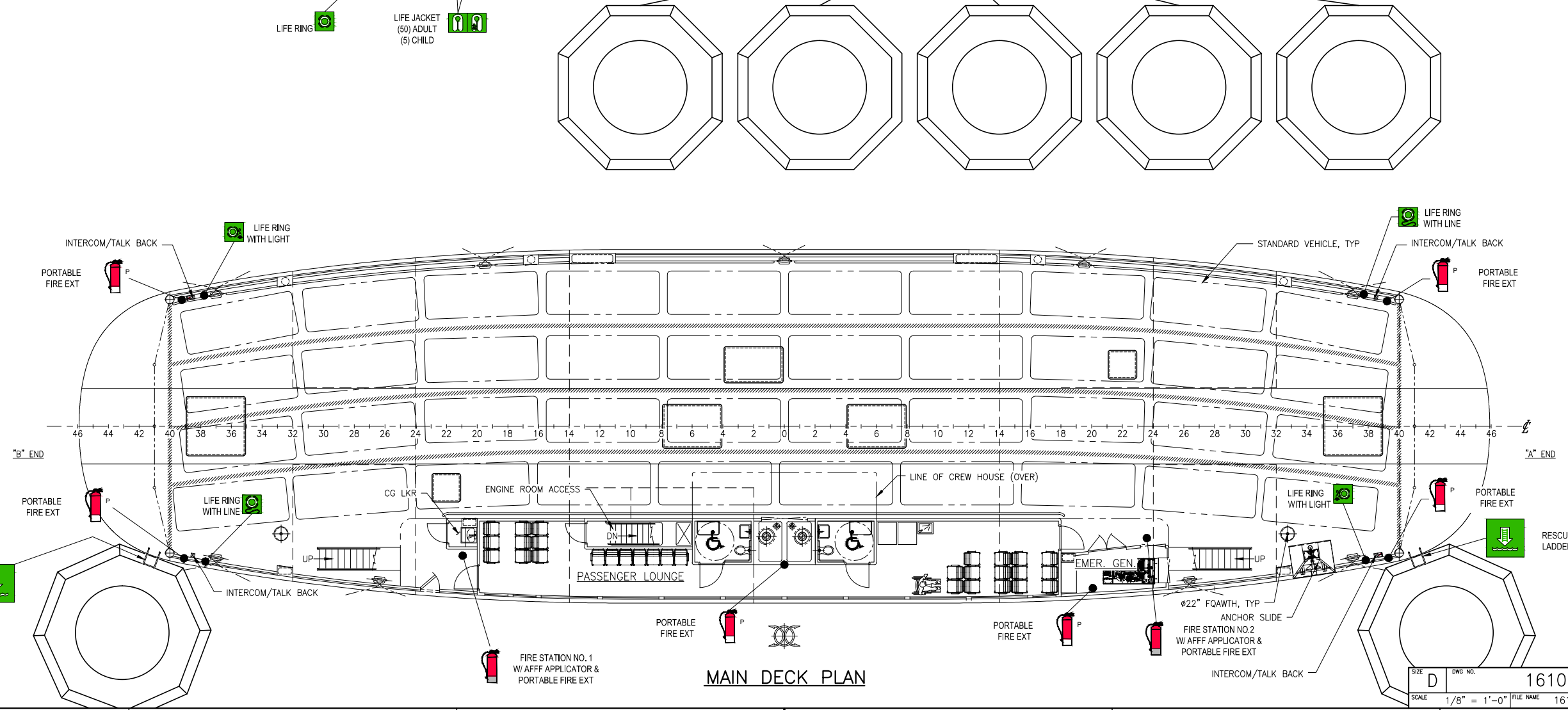
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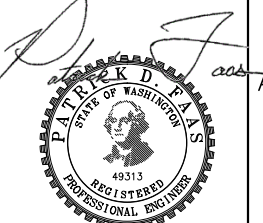
BRIDGE DECK PLAN



01 DECK PLAN



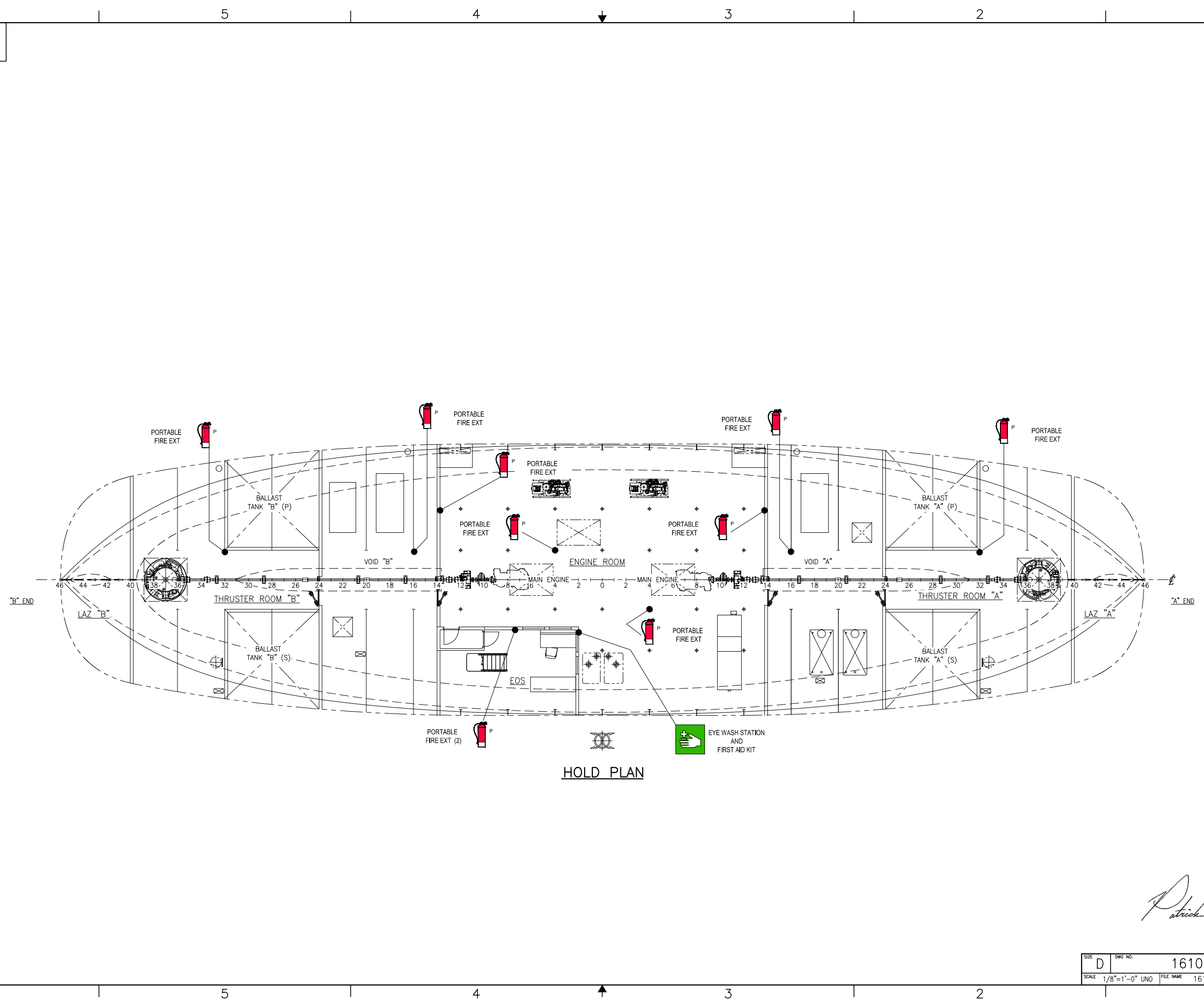
MAIN DECK PLAN



SIZE	D	DWG NO.	16101-200-101-3	REV	-
SCALE	1/8" = 1'-0"		FILE NAME	16101-200-101-3-	SHEET 2 OF 4

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HOLD PLAN

Patrick D. Hayes
 PATRICK D. HAYES
 STATE OF WASHINGTON
 49313
 REGISTERED PROFESSIONAL ENGINEER

SIZE	D	DWG NO.	16101-200-101-3	REV	-
SCALE	1/8"=1'-0" UNO	FILE NAME	16101-200-101-3-	SHEET	3 OF 4

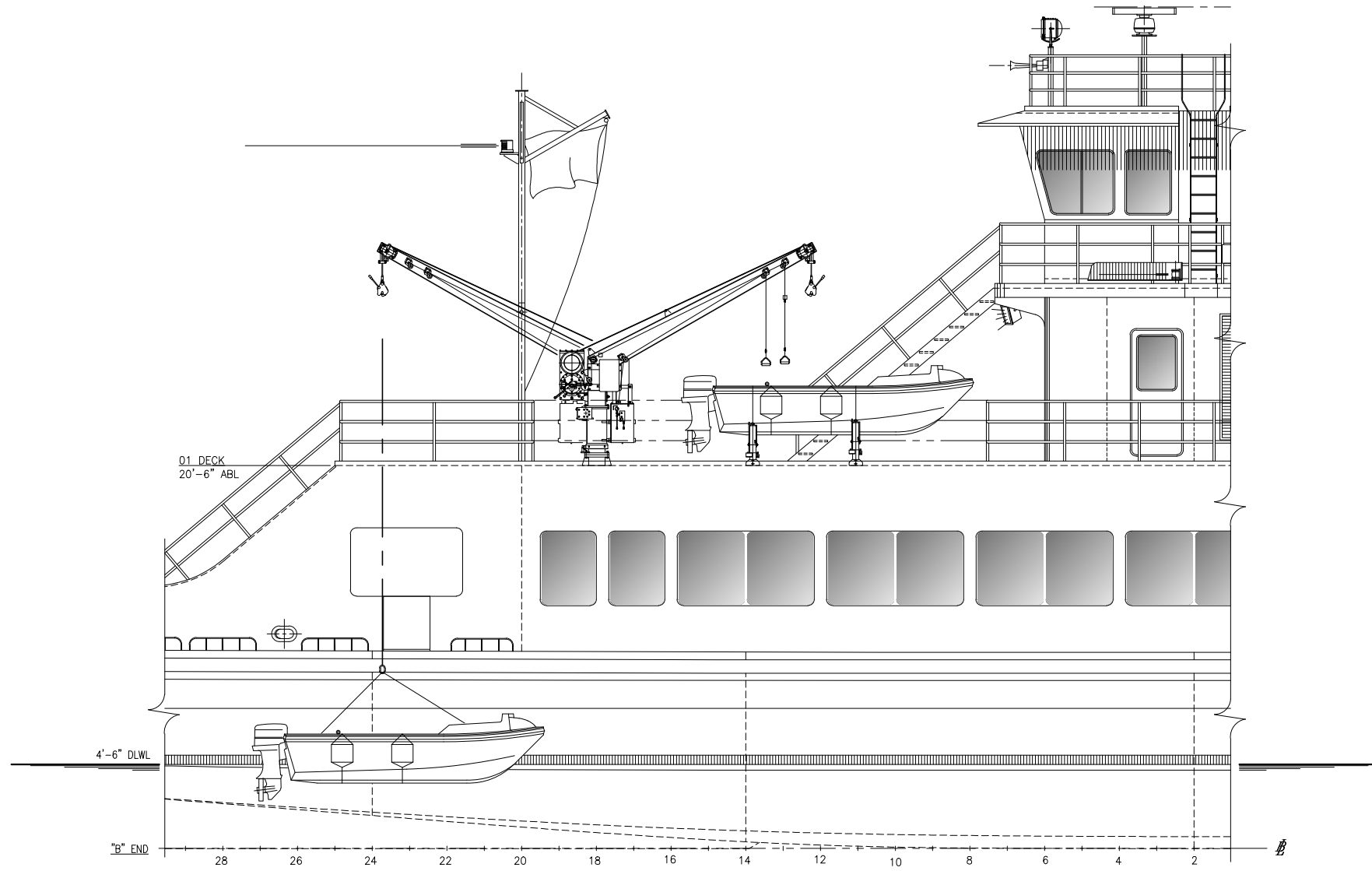
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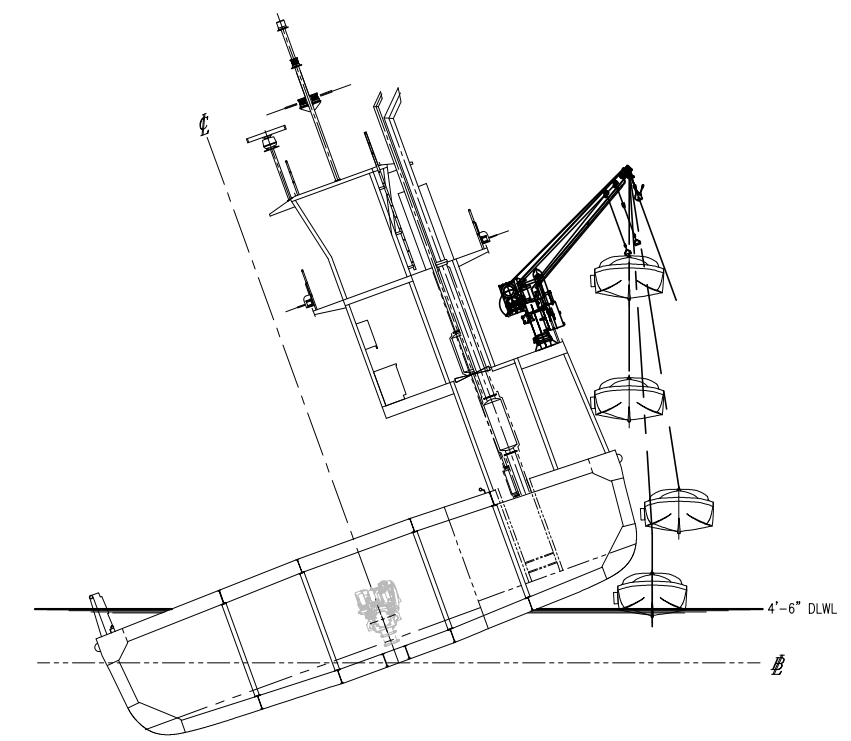
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D
C
B
A

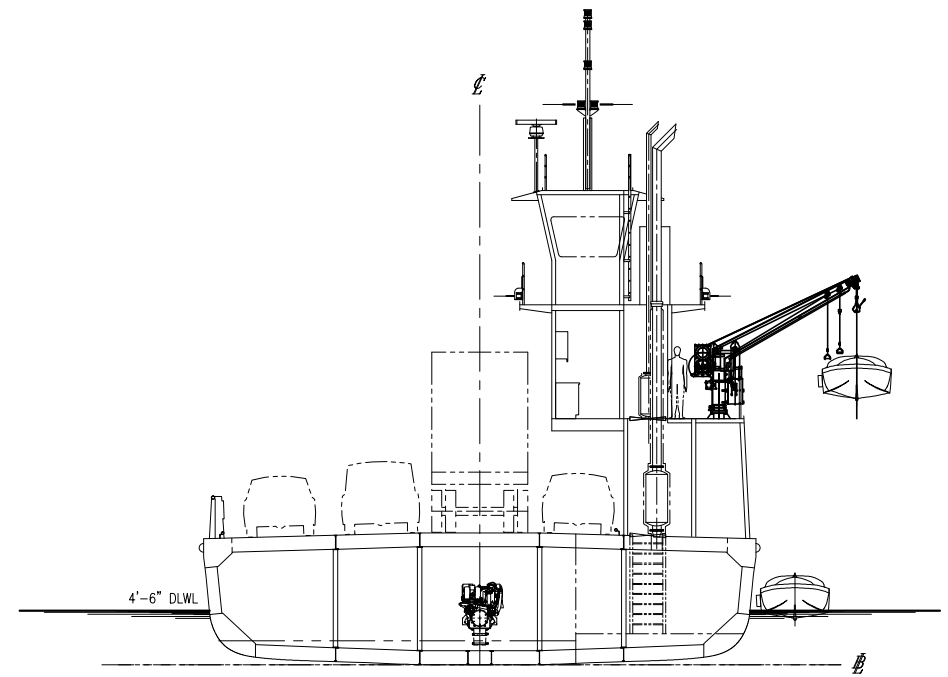
D
C
B
A




ELEVATION AT RESCUE BOAT
 STARBOARD, "B" END
 SCALE: 1/4"=1'-0"



SECTION OF VESSEL AT 20° HEEL



SECTION OF VESSEL AT EVEN KEEL

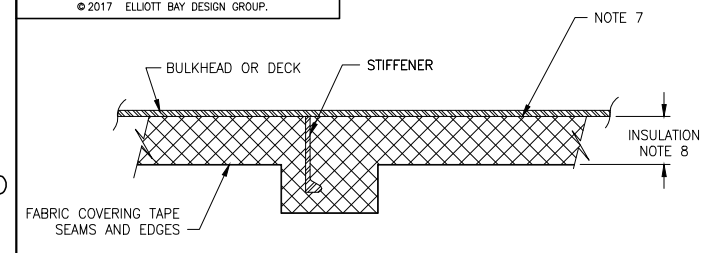
Patrick


SIZE	DWG NO.	REV
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SCALE	FILE NAME	SHEET
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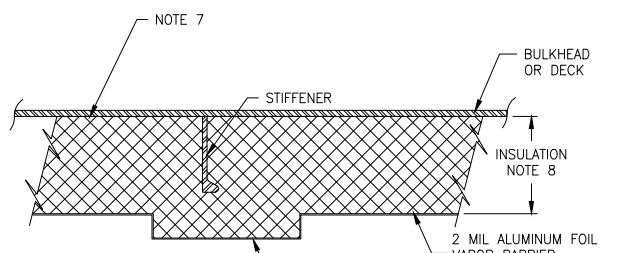
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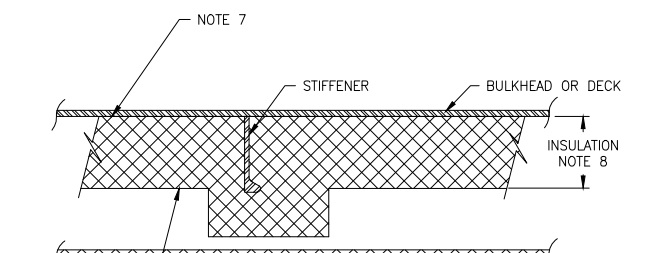
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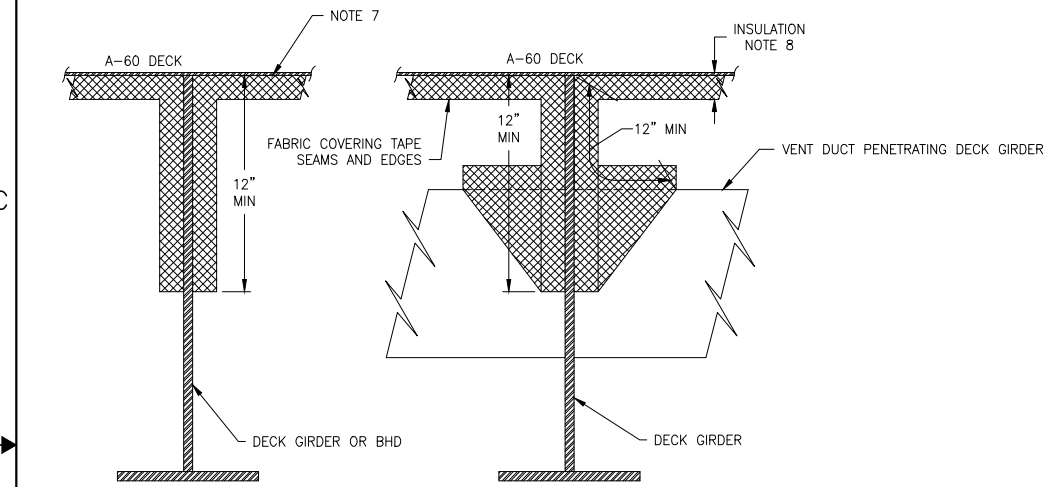
DETAIL 1-6D
 BULKHEAD/DECK INSULATION
 W/FABRIC COVERING
 NOTE 6
 SCALE: 3"=1'-0"



DETAIL 1-5D
 BULKHEAD/DECK INSULATION
 W/SHEATHING
 NOTE 3
 SCALE: 3"=1'-0"



DETAIL 1-3D
 BULKHEAD/DECK INSULATION
 W/JOINER LINING OR BULKHEAD PANEL
 SCALE: 3"=1'-0"



DETAIL 1-6B
 ENGINE ROOM
 DECKHEAD INSULATION
 NOTE 3
 SCALE: 1 1/2"=1'-0"

USCG DESIGNATIONS	
CONTROL STATIONS	①
STAIRWAYS AND ELEVATOR ENCLOSURES	②
CORRIDORS	③
LIFEBOAT EMBARKATION OR LOWERING STATIONS	④
STATEROOMS AND ALL PUBLIC SPACES WITH INCOMBUSTIBLE VENEERS AND TRIM AND FIRE RESISTANT FURNISHINGS	⑤
STATEROOMS AND PUBLIC SPACES OF 500 SQUARE FEET OR LESS WITH COMBUSTIBLE FURNISHINGS, AND ISOLATED STOREROOMS	⑥
PUBLIC SPACES OVER 500 SQUARE FEET WITH COMBUSTIBLE FURNISHINGS	⑦
WASHROOMS, TOILET SPACES, AND ISOLATED PANTRIES WITH INCOMBUSTIBLE FITTINGS	⑧
GALLEYS, MAIN PANTRIES, STOREROOMS, AND WORKSHOPS	⑨
MACHINERY SPACES	⑩
DRY CARGO SPACES	⑪
FUEL AND WATER TANKS AND VOIDS	⑫
OPEN DECKS AND ENCLOSED PROMENADES (NOT SAFETY AREAS)	⑬

LEGEND

A-0	SEE NOTE 2	—
A-15		—
A-30		—
A-60		—
B-0		—
B-15		—
C		—

USCG DESIGNATION ⑫

REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD

- GENERAL NOTES**
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
 - WHERE THE FIRE CONTROL DECK TYPE IS NOT INDICATED, THESE DECKS SHALL BE CONSIDERED A-0 DECKS
 - INSTALL 20-GA ALUMINUM SHEATHING OVER ALL BULKHEAD AND DECKHEAD INSULATION IN ENGINE ROOM AND UPTAKE SPACES.
 - SHIPYARD MAY PROPOSE ALTERNATIVE INSULATION METHODS, PROVIDED THEY MEET USCG REQUIREMENTS AND ARE APPROVED BY THE OWNER'S REPRESENTATIVE.
 - FIRE LOAD CALCULATIONS ARE TO BE SUBMITTED TO THE USCG IN ACCORDANCE WITH REF 3.
 - INSTALL FABRIC COVERING OVER INSULATION IN VOIDS AND ELECTRIC DISTRIBUTION SPACES AND ALL OTHER SPACES SUBJECT TO USE AND NOT OTHERWISE COVERED BY SHEATHING OR JOINERY.
 - INSTALL WELD-ON STEEL PINS IN ACCORDANCE WITH INSULATION MANUFACTURER'S USCG APPROVED DETAILS. SECURE INSULATION WITH SPEED CLIP RETAINERS AND ALUMINUM FINISH CAPS AS APPROPRIATE FOR INSULATION AND LININGS ARE APPLIED.
 - INSULATION DENSITY AND THICKNESS TO SUIT FIRE ZONE REQUIREMENTS IN ACCORDANCE WITH REFERENCES 3 AND 4.

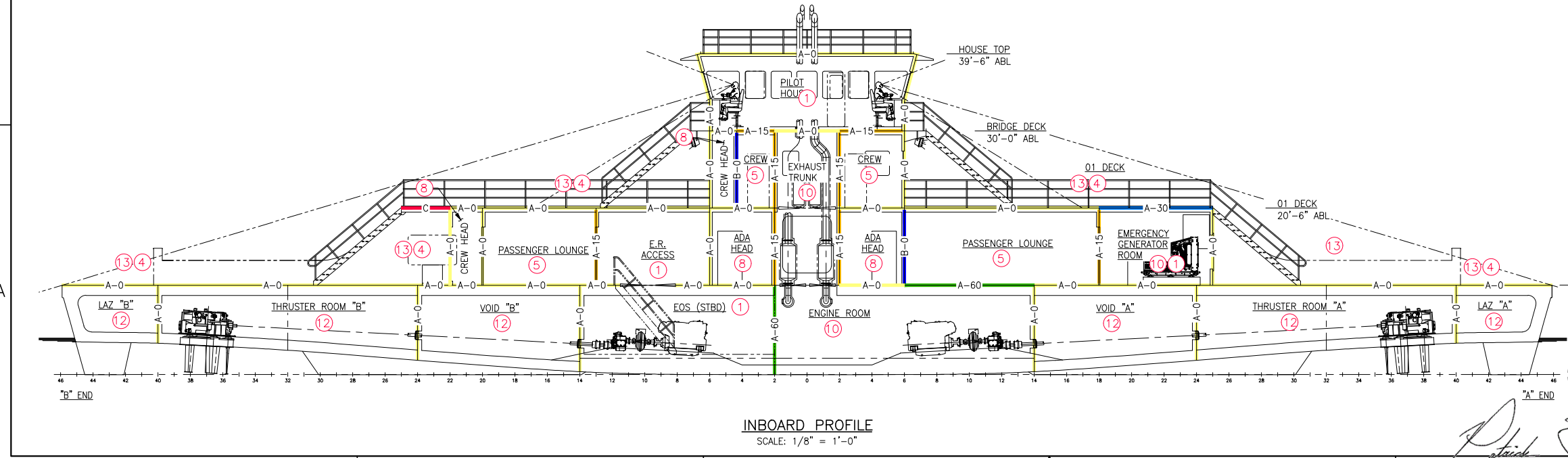
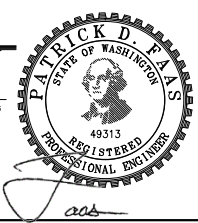
- REFERENCES**
- 16101-200-832-1 TECHNICAL SPECIFICATION
 - 16101-200-101-0 PROFILES & ARRANGEMENTS
 - 46 CFR SUBCHAPTER H
 - NVIC 9-97 CH. 1



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 North Carolina, PLLC

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

PROJECT: **NEW RIVER CLASS FERRY**



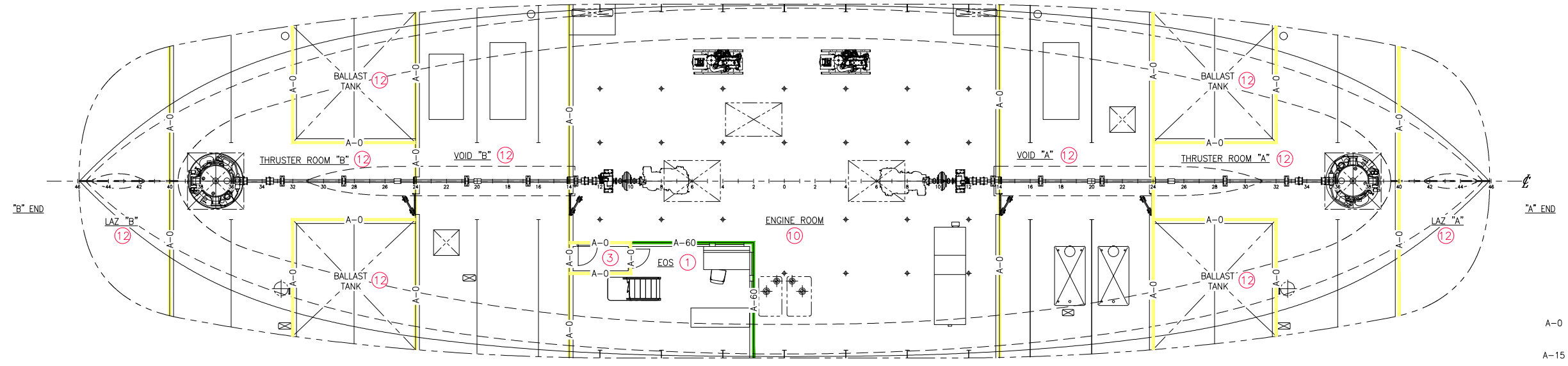
INBOARD PROFILE
 SCALE: 1/8" = 1'-0"

FIRE ZONE PLAN

SIZE	D	DWG NO.	16101-200-101-7	REV	—
SCALE	AS NOTED	FILE NAME	16101-200-101-7-	SHEET	1 OF 3
DWN	ZDL	MOD	CND PDF	APVD	PDF
				APVD DATE	07/28/2017

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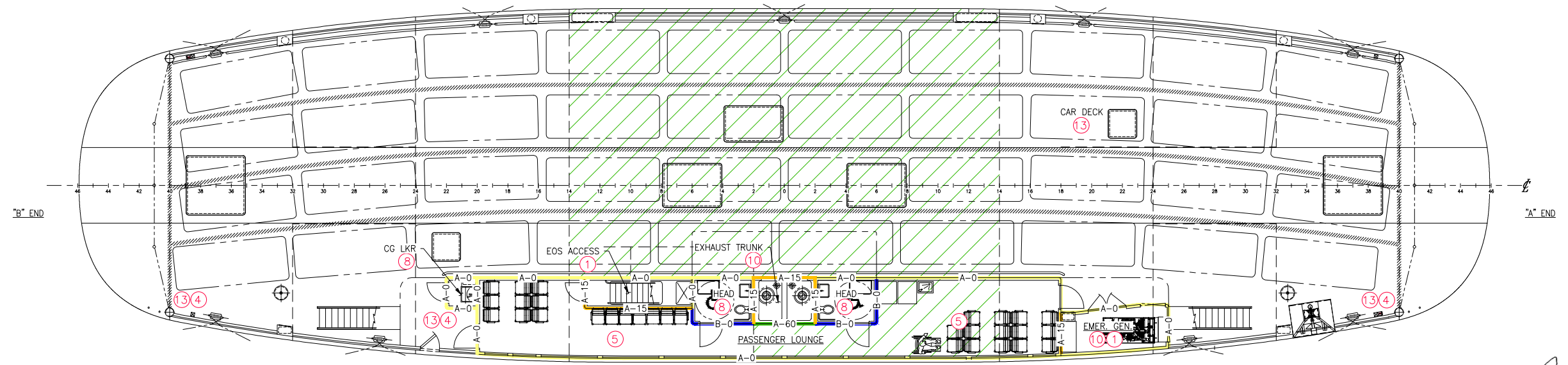


HOLD PLAN

LEGEND

- A-0 SEE NOTE 2
- A-15 [Pattern]
- A-30 [Pattern]
- A-60 [Pattern]
- B-0 [Pattern]
- B-15 [Pattern]
- C [Pattern]

USCG DESIGNATION 12



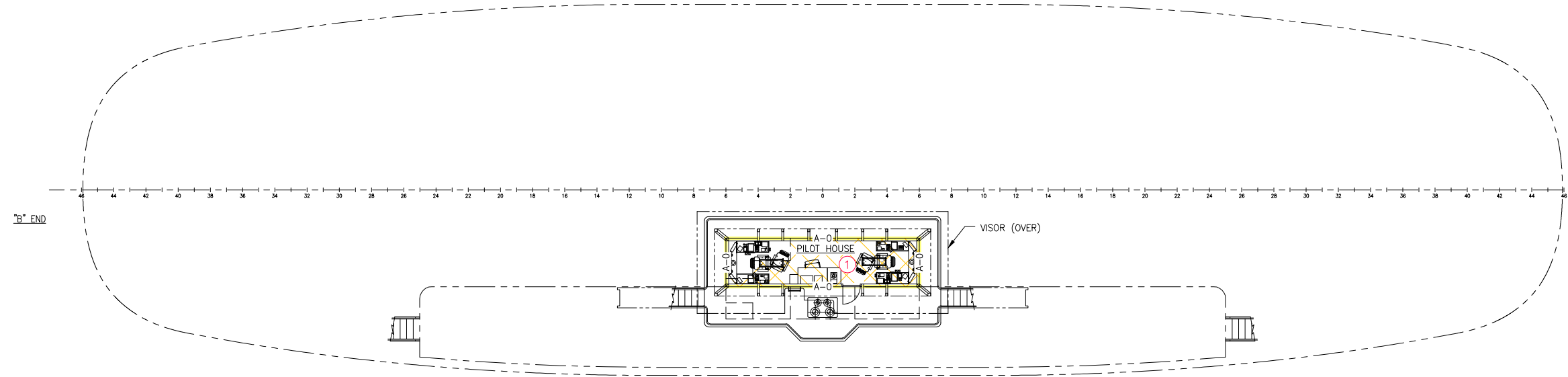
MAIN DECK PLAN

Patrick J. ...
PATRICK D. PAIS
 STATE OF WASHINGTON
 49313
 REGISTERED PROFESSIONAL ENGINEER

SIZE	D	DWG NO.	16101-200-101-7	REV	-
SCALE	1/8" = 1'-0"	FILE NAME	16101-200-101-7	SHEET	2 OF 3

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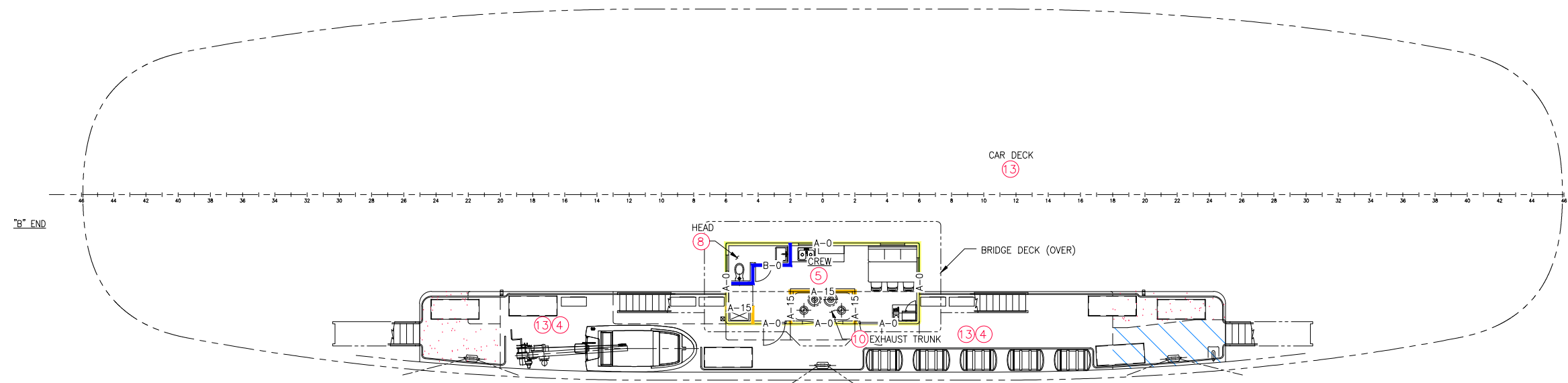


BRIDGE DECK PLAN

LEGEND

A-0	SEE NOTE 2	
A-15		
A-30		
A-60		
B-0		
B-15		
C		

USCG DESIGNATION **12**



01 DECK PLAN

Patrick J. ...
PATRICK D. PATRICK
 STATE OF WASHINGTON
 49313
 REGISTERED PROFESSIONAL ENGINEER

SIZE	D	DWG NO.	16101-200-101-7	REV	-
SCALE	1/8" = 1'-0"	FILE NAME	16101-200-101-7-	SHEET	3 OF 3

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
-----	------	-------------	-----	------	------

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

VESSEL PARTICULARS

LENGTH OVERALL:	183'-7"
LENGTH DESIGN LOAD WATERLINE:	180'-6"
BEAM OVER GUARDS:	46'-0"
FREEBOARD AT SIDE:	6'-0"
DEPTH AT SIDE:	10'-6"
DRAFT AT DLWL:	4'-6"
TOTAL PERSONS ON BOARD CAPACITY:	300 MAX.
VEHICLE CAPACITY:	40 SV

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-101-0 PROFILES AND DECK ARRANGEMENTS
- 46 CFR SUBCHAPTER H
- NVC 9-97 CH.1



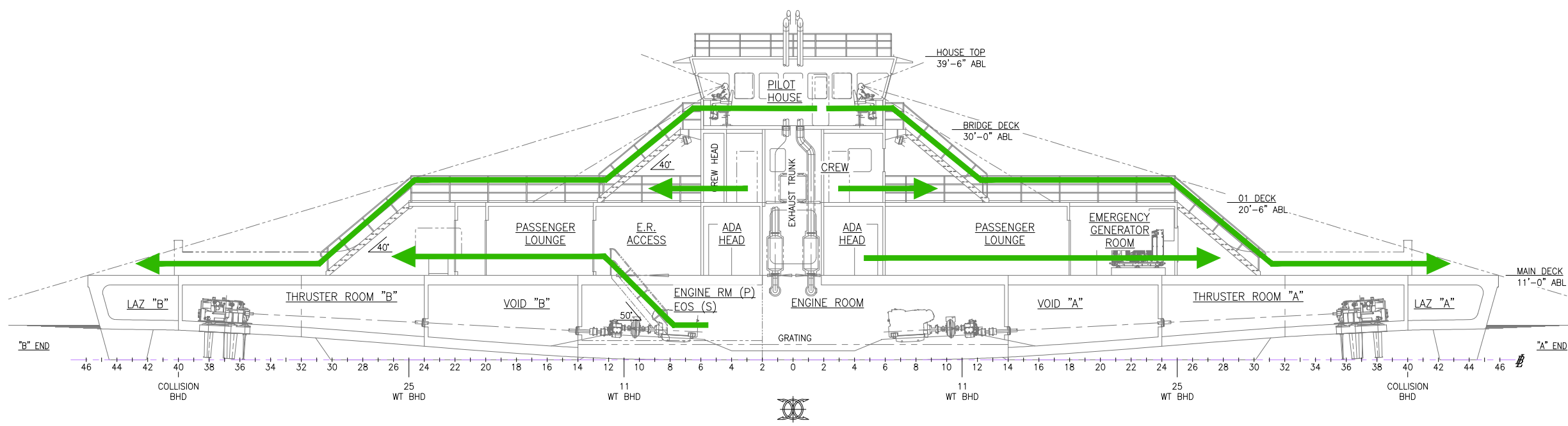
Elliott Bay Design Group
 North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY

EMERGENCY EVACUATION PLAN

SIZE	D	DWG NO.	16101-200-101-8	REV	-
SCALE	1/8"=1'-0"	FILE NAME	16101-200-101-8-	SHEET	1 OF 3
DWN	MWR	MOD	WHL	CND	PDF
APVD	PDF	APVD DATE	07/28/17		



INBOARD PROFILE

← PRIMARY MEANS OF ESCAPE

Patrick J. ...

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GENERAL NOTES

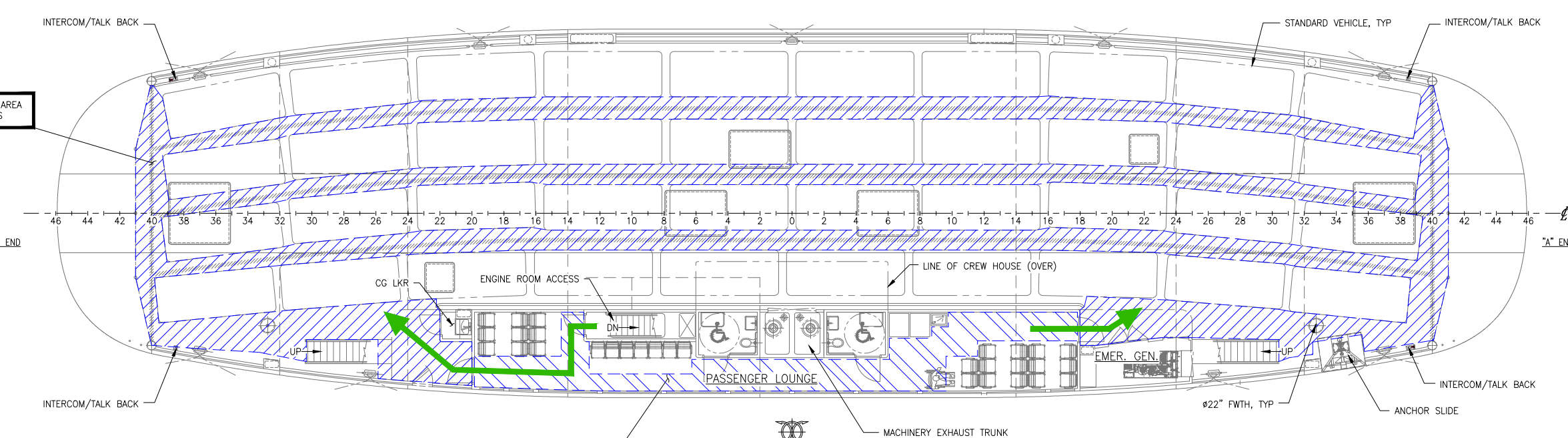
HOLD
 THRUSTER ROOM A & B (NORMALLY UNOCCUPIED)
 PRIMARY: W.T. DOORS TO STAIRS
 SECONDARY: V.L. TO ESCAPE HATCH IN MAIN DECK

VOID A & B (NORMALLY UNOCCUPIED)
 PRIMARY: W.T. DOOR TO ENGINE ROOM UP STAIR
 SECONDARY: W.T. DOOR TO THRUSTER ROOM UP
 V.L. TO MAIN DECK

ENGINE ROOM & EOS (NORMALLY OCCUPIED)
 PRIMARY: UP STAIR
 SECONDARY: W.T. DOORS TO THRUSTER ROOM UP
 V.L. TO MAIN DECK

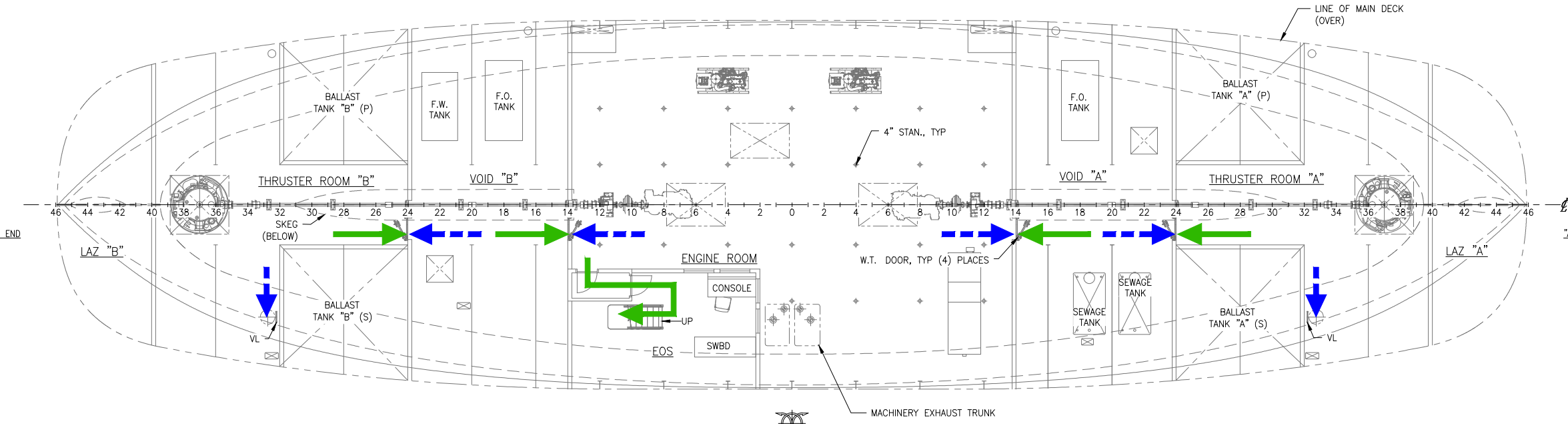
MAIN DECK
 PASSENGER LOUNGE
 PRIMARY: THROUGH DOORS TO ASSEMBLY AREAS ON
 MAIN DECK

ASSEMBLY AREAS
 MAIN DECK OFFERS >1500 SQ FT PROVIDING
 REFUGE FOR MORE THAN 300 PASSENGERS.



MAIN DECK PLAN

- PRIMARY MEANS OF ESCAPE
- SECONDARY MEANS OF ESCAPE
- ASSEMBLY AREAS
- PASSENGER STANDING



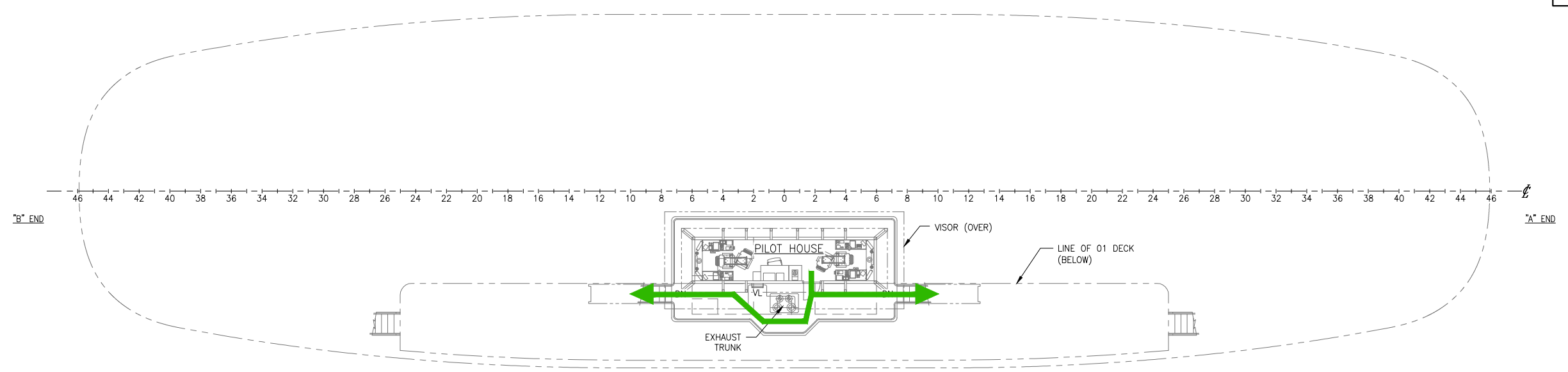
HOLD PLAN

Patrick J. ...

SIZE	D	DWG NO.	16101-200-101-8	REV	-
SCALE	1/8" = 1'-0"	FILE NAME	16101-200-101-8-	SHEET	2 OF 3

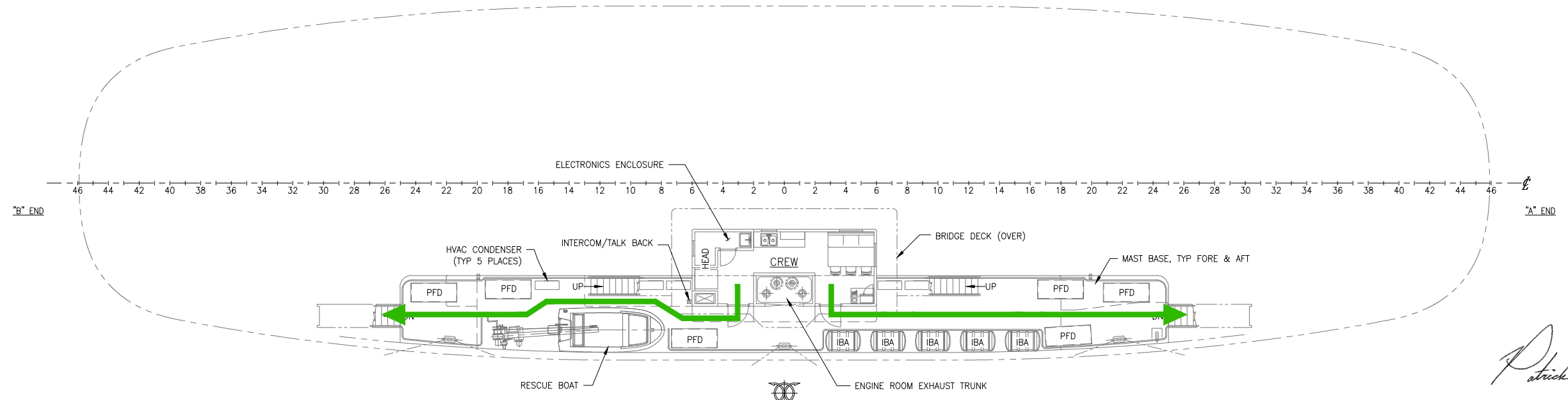
7/28/2017 3:46:29 PM

01 DECK
 CREW LOUNGE
 PRIMARY: DOWN STAIRS TO MAIN DECK
 ASSEMBLY AREAS
 BRIDGE DECK
 PILOT HOUSE
 PRIMARY: DOWN STAIRS TO MAIN DECK
 ASSEMBLY AREAS



BRIDGE DECK PLAN
 CREW ONLY

← PRIMARY MEANS OF ESCAPE
 ← SECONDARY MEANS OF ESCAPE



01 DECK PLAN
 CREW ONLY

Patrick J. ...

SIZE	D	DWG NO.	16101-200-101-8	REV	-
SCALE	1/8" = 1'-0"	FILE NAME	16101-200-101-8-	SHEET	3 OF 3

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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	ZONE 2-4D 4-4B	1. UPDATED PE STAMP FOR REV A. 2. REVERSED POSITION OF GENERATOR KEEL COOLERS ABOUT MIDSHIP.	DKG	08/31/17	KAJ

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION
2. 16101-200-061-1 SCANTLING CALCULATIONS
3. 16101-200-100-1 LINES PLAN
4. 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
5. 16101-200-110-2 SKEGS
6. 16101-200-120-1 MIDSHIP SECTION
7. 16101-200-120-3 HULL TRANSVERSE BULKHEADS
8. 16101-200-120-4 HULL TRANSVERSE FRAMES
9. 16101-200-120-5 HULL LONGITUDINAL BULKHEADS AND GIRDERS
10. 16101-200-130-2 MAIN DECK
11. 16101-200-180-1 PROPULSION UNIT FOUNDATIONS

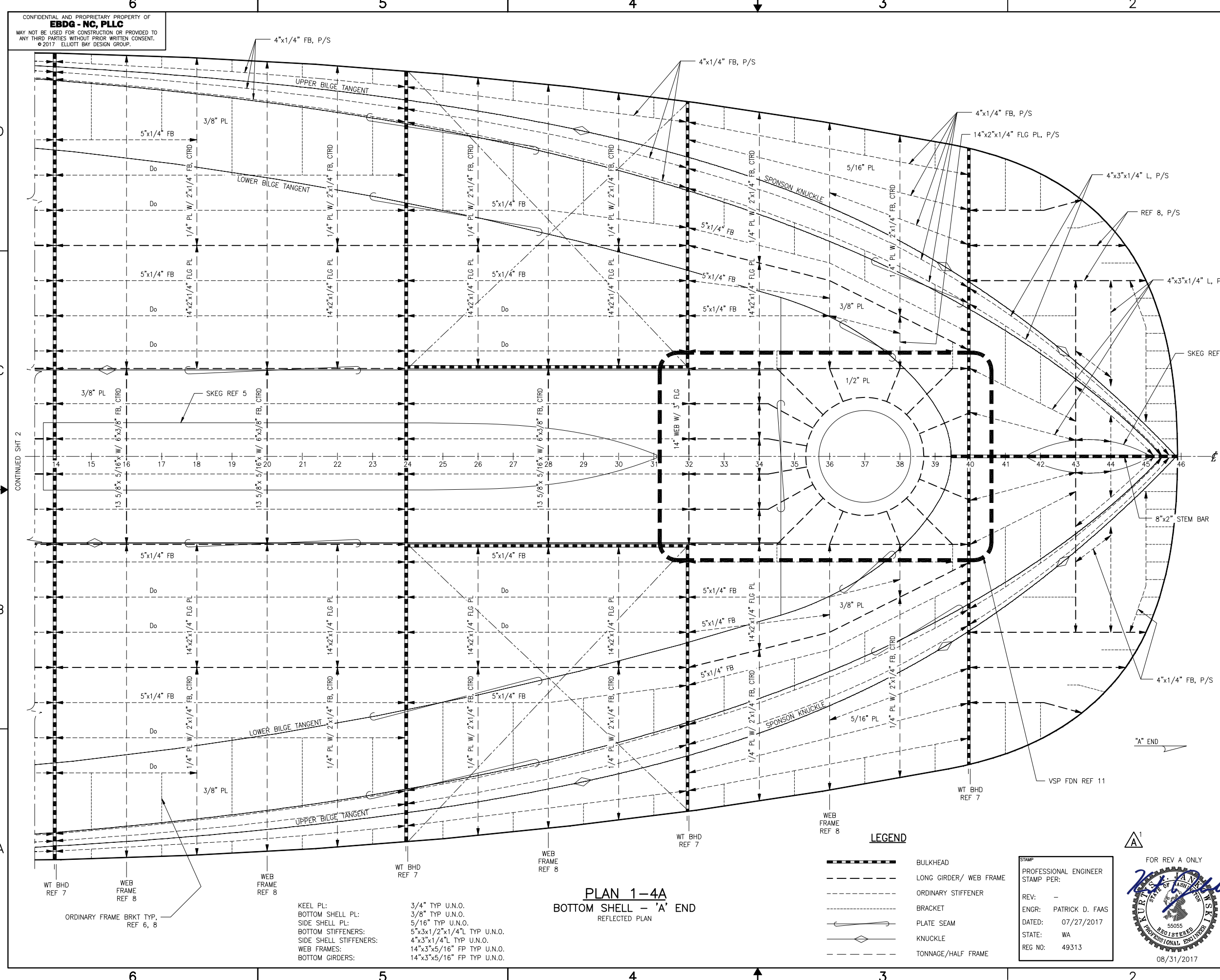


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 RALEIGH, NORTH CAROLINA
 PROJECT: NEW RIVER CLASS FERRY

BOTTOM AND SIDE SHELL

SIZE	D	DWG NO.	16101-200-110-1	REV	A
SCALE	3/8" = 1'-0"	FILE NAME	16101-200-110-1A	SHEET	1 OF 4
DWN	ZDL	MOD	DKG	CKD	M-W
APVD	KAJ	APVD DATE	7/27/2017		



PLAN 1-4A
 BOTTOM SHELL - 'A' END
 REFLECTED PLAN

LEGEND

	BULKHEAD
	LONG GIRDER/ WEB FRAME
	ORDINARY STIFFENER
	BRACKET
	PLATE SEAM
	KNUCKLE
	TONNAGE/HALF FRAME

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313



- KEEL PL:
 BOTTOM SHELL PL:
 SIDE SHELL PL:
 BOTTOM STIFFENERS:
 SIDE SHELL STIFFENERS:
 WEB FRAMES:
 BOTTOM GIRDERS:
- 3/4" TYP U.N.O.
 3/8" TYP U.N.O.
 5/16" TYP U.N.O.
 5"x3x1/2"x1/4" TYP U.N.O.
 4"x3x1/4" TYP U.N.O.
 14"x3x5/16" FP TYP U.N.O.
 14"x3x5/16" FP TYP U.N.O.

ORDINARY FRAME BRKT TYP.
 REF 6, 8

CONTINUED SHIT 2

FOR REV A ONLY

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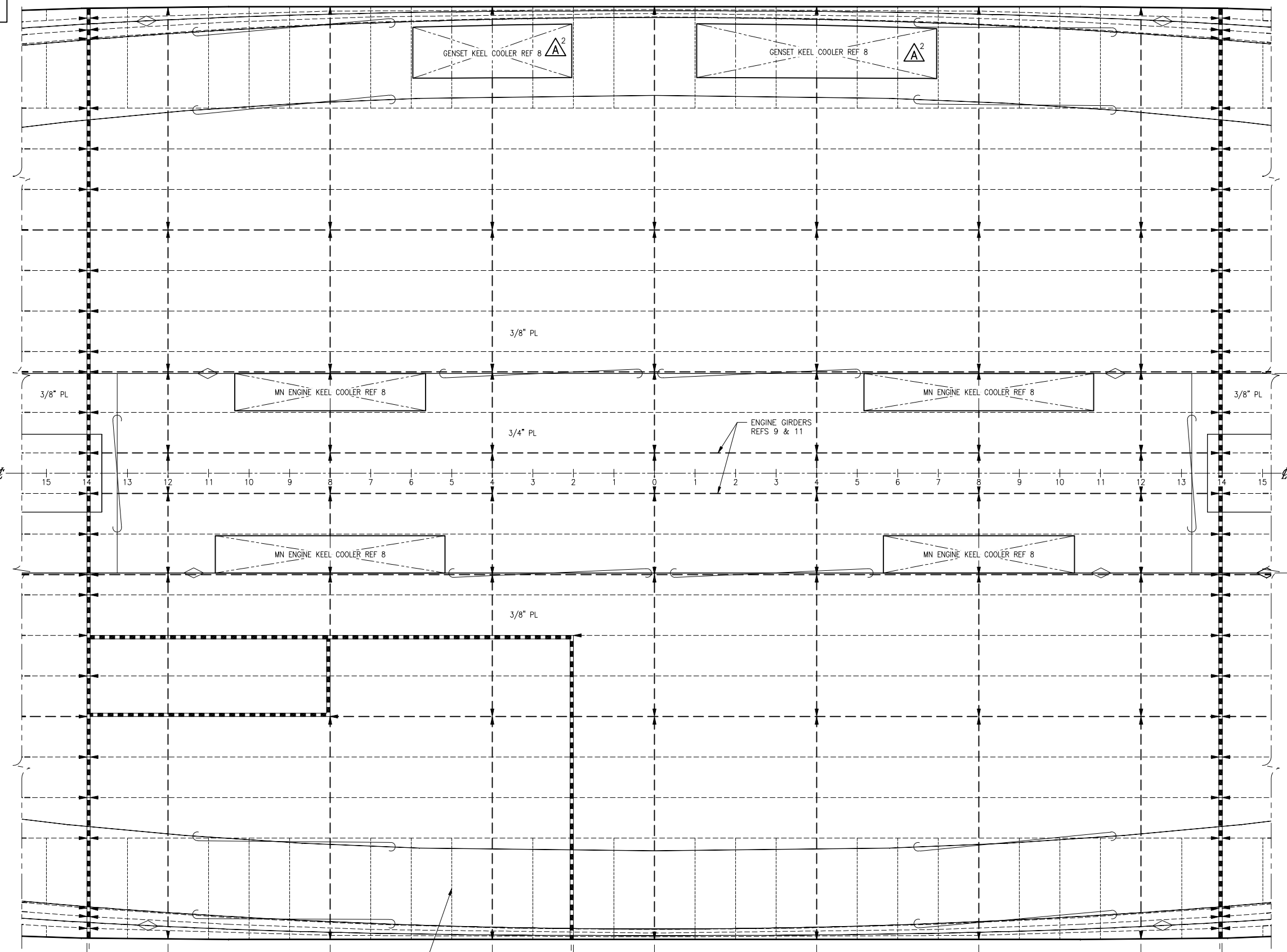
5

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CONTINUED SHT 3

CONTINUED SHT 1

9'-10"
FLAT KEEL

LEGEND

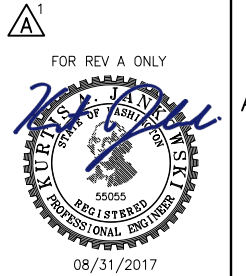
- BULKHEAD
- LONG GIRDER/ WEB FRAME
- ORDINARY STIFFENER
- BRACKET
- PLATE SEAM
- KNUCKLE
- TONNAGE/HALF FRAME

KEEL PL: 3/4" TYP U.N.O.
 BOTTOM SHELL PL: 3/8" TYP U.N.O.
 SIDE SHELL PL: 5/16" TYP U.N.O.
 BOTTOM STIFFENERS: 5"x3x1/2"x1/4"L TYP U.N.O.
 SIDE SHELL STIFFENERS: 4"x3"x1/4"L TYP U.N.O.
 WEB FRAMES: 14"x3"x5/16" FP TYP U.N.O.
 BOTTOM GIRDERS: 14"x3"x5/16" FP TYP U.N.O.

ORDINARY FRAME BRKT TYP.
REF 6, 8

PLAN 2-4A
 BOTTOM SHELL - MIDSHIP
 REFLECTED PLAN

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 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313



SIZE D DWG NO. 16101-200-110-1 REV A
 SCALE 3/8" = 1'-0" FILE NAME 16101-200-110-1A SHEET 2 OF 4

6

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6

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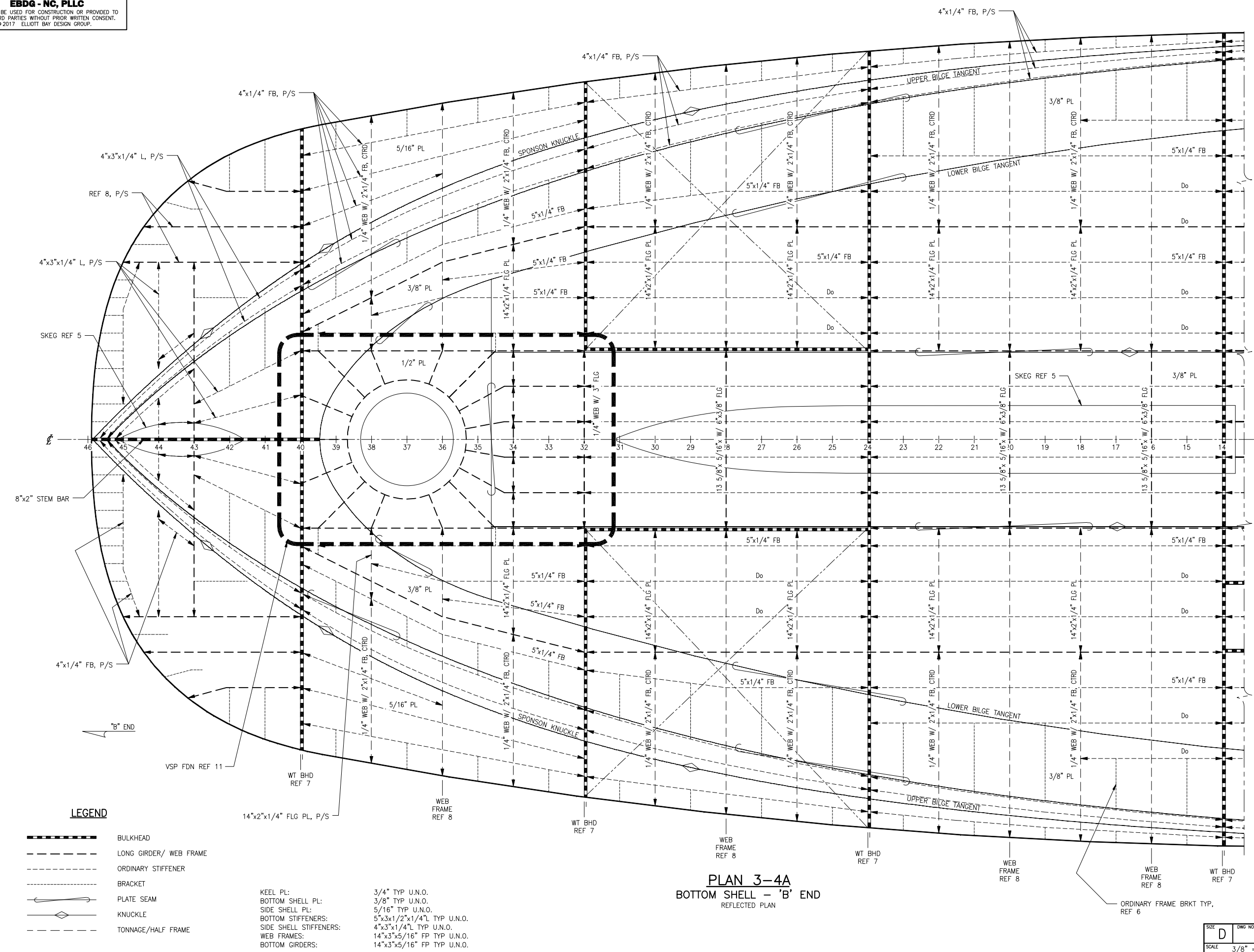
A

D

C

B

A



PLAN 3-4A
 BOTTOM SHELL - 'B' END
 REFLECTED PLAN

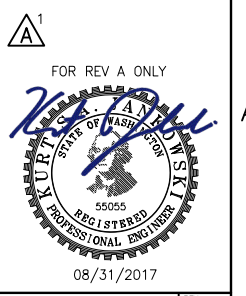
CONTINUED SHT 2

LEGEND

- BULKHEAD
- LONG GIRDER/ WEB FRAME
- ORDINARY STIFFENER
- BRACKET
- PLATE SEAM
- KNUCKLE
- TONNAGE/HALF FRAME

KEEL PL: 3/4" TYP U.N.O.
 BOTTOM SHELL PL: 3/8" TYP U.N.O.
 SIDE SHELL PL: 5/16" TYP U.N.O.
 BOTTOM STIFFENERS: 5"x3x1/2"x1/4" L TYP U.N.O.
 SIDE SHELL STIFFENERS: 4"x3x1/4" L TYP U.N.O.
 WEB FRAMES: 14"x3x5/16" FP TYP U.N.O.
 BOTTOM GIRDERS: 14"x3x5/16" FP TYP U.N.O.

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 PROFESSIONAL ENGINEER
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 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313



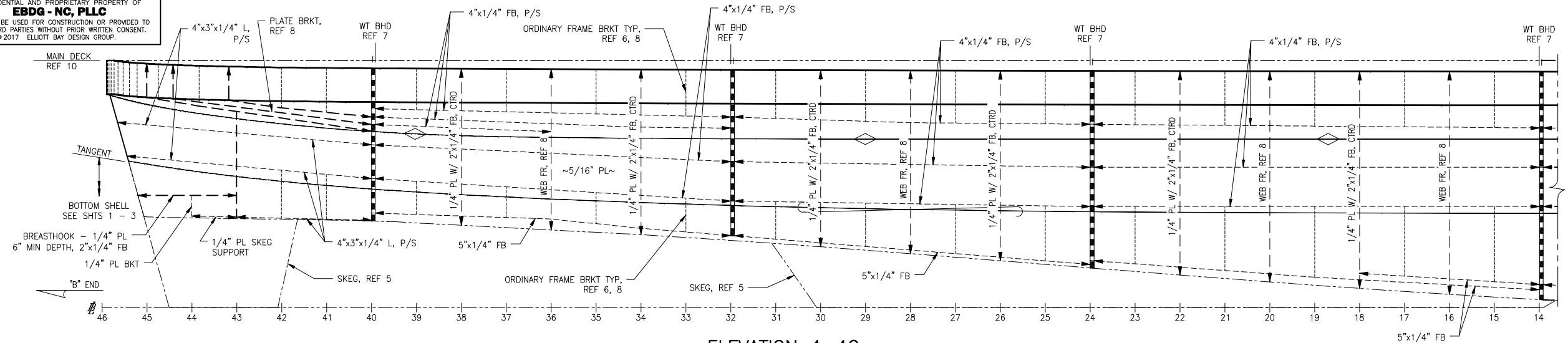
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 SCALE 3/8" = 1'-0" FILE NAME 16101-200-110-1A SHEET 3 OF 4

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6 | 5 | 4 | 3 | 2 | 1

D

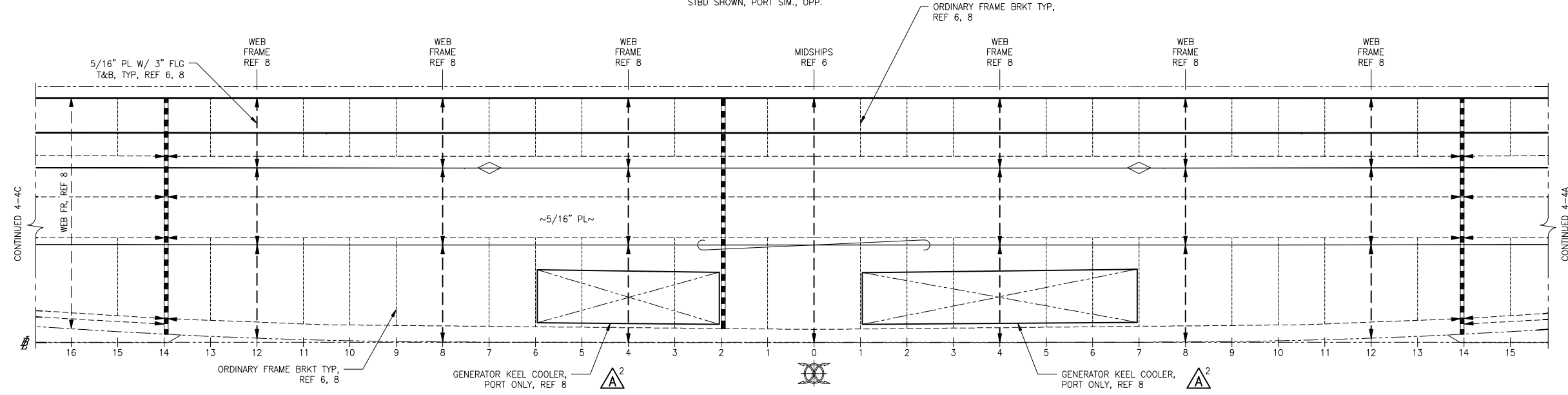
D



ELEVATION 4-4C
 SIDE SHELL - 'B' END
 STBD SHOWN, PORT SIM., OPP.

C

C



ELEVATION 4-4B
 SIDE SHELL - MIDSHIP
 STBD SHOWN, PORT SIM., OPP., U.N.O.

LEGEND

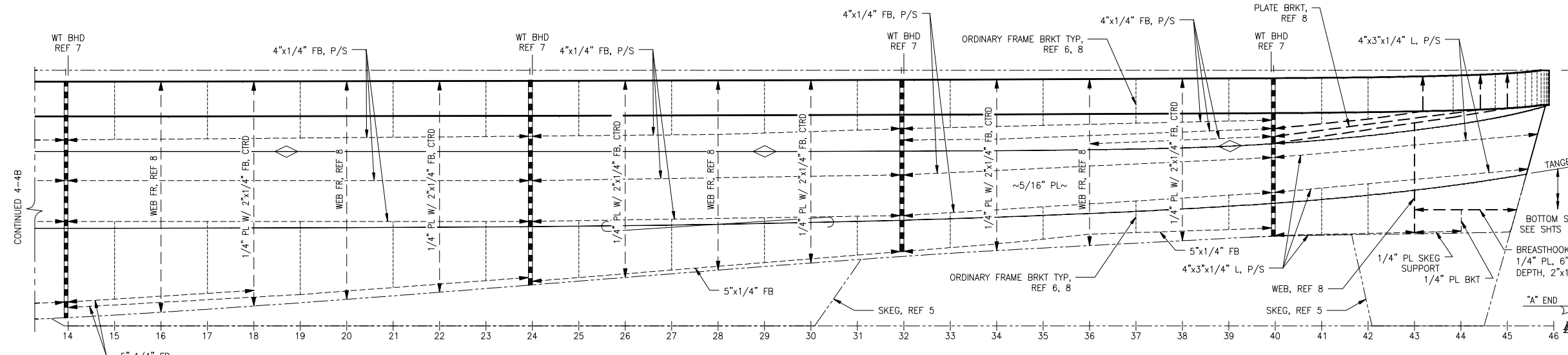
- BULKHEAD
- LONG GIRDER/ WEB FRAME
- ORDINARY STIFFENER
- BRACKET
- PLATE SEAM
- KNUCKLE
- TONNAGE/HALF FRAME

B

B

A

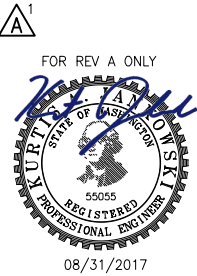
A



ELEVATION 4-4A
 SIDE SHELL - 'A' END
 STBD SHOWN, PORT SIM., OPP.

SIDE SHELL PL: 5/16" TYP, U.N.O.
 SIDE SHELL STIFFENERS: 4"x3"x1/4" L TYP, U.N.O.
 SIDE SHELL WEB FRAMES: 12"x3"x1/4" FP TYP, U.N.O.

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 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313

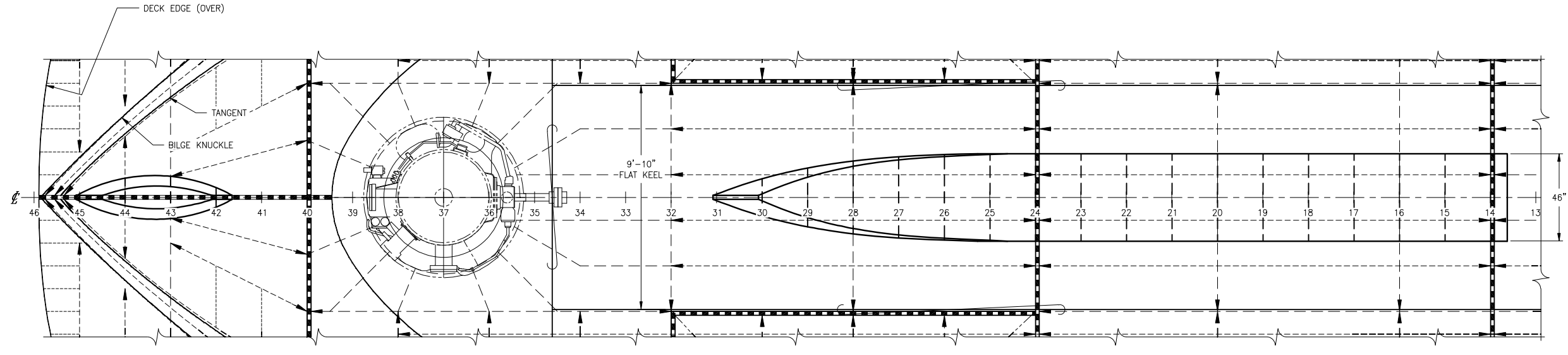


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 SCALE: 3/8" = 1'-0" | FILE NAME: 16101-200-110-1A | SHEET: 4 OF 4

6 | 5 | 4 | 3 | 2 | 1

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REVISION HISTORY				
REV	ZONE	DESCRIPTION	DWN	DATE



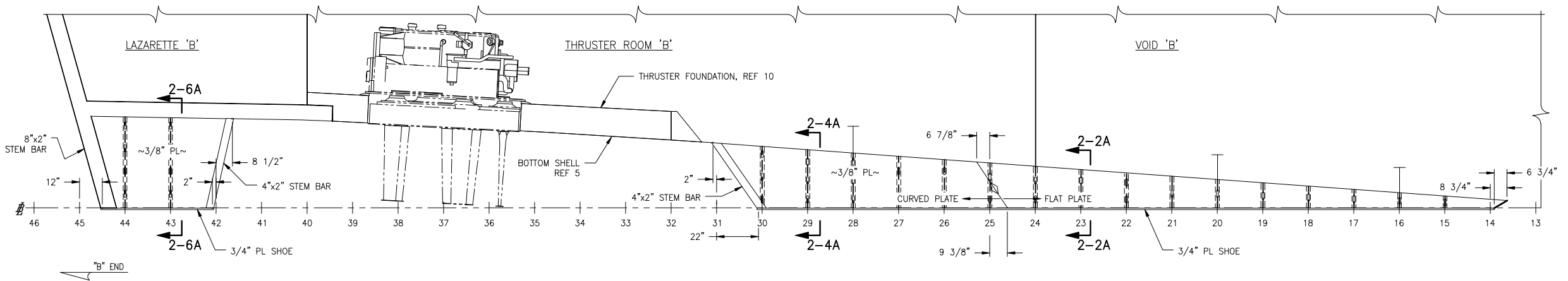
PLAN 1-4C
'B' END SKEGS
 REFLECTED PLAN
 'A' END SIM., OPP.

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION
2. 16101-200-061-1 SCANTLING CALCULATIONS
3. 16101-200-100-1 LINES PLAN
4. 16101-100-101-1 PROFILES AND ARRANGEMENTS
5. 16101-200-110-1 BOTTOM AND SIDE SHELL
6. 16101-200-120-1 MIDSHIP SECTION
7. 16101-200-120-3 HULL TRANSVERSE BULKHEADS
8. 16101-200-120-4 HULL TRANSVERSE FRAMES
9. 16101-200-120-5 HULL LONGITUDINAL BULKHEADS AND GIRDERS
10. 16101-200-180-1 PROPULSION UNIT FOUNDATIONS



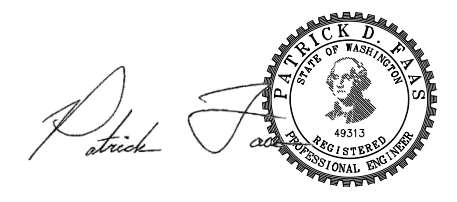
ELEVATION 1-4A
'B' END SKEG PROFILE
 'A' END SIM., OPP.



Elliott Bay Design Group
 North Carolina, PLLC

CLIENT: **NORTH CAROLINA D.O.T.**
 RALEIGH, NORTH CAROLINA
 PROJECT: **NEW RIVER CLASS FERRY**

SKEGS



SIZE	D	DWG NO.	16101-200-110-2	REV	-
SCALE	3/8" = 1'-0"	FILE NAME	16101-200-110-2-	SHEET	1 OF 2
DWN	ZDL	MOD	CKD PDF	APVD	PDF
				APVD DATE	7/25/2017

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6

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D

C

B

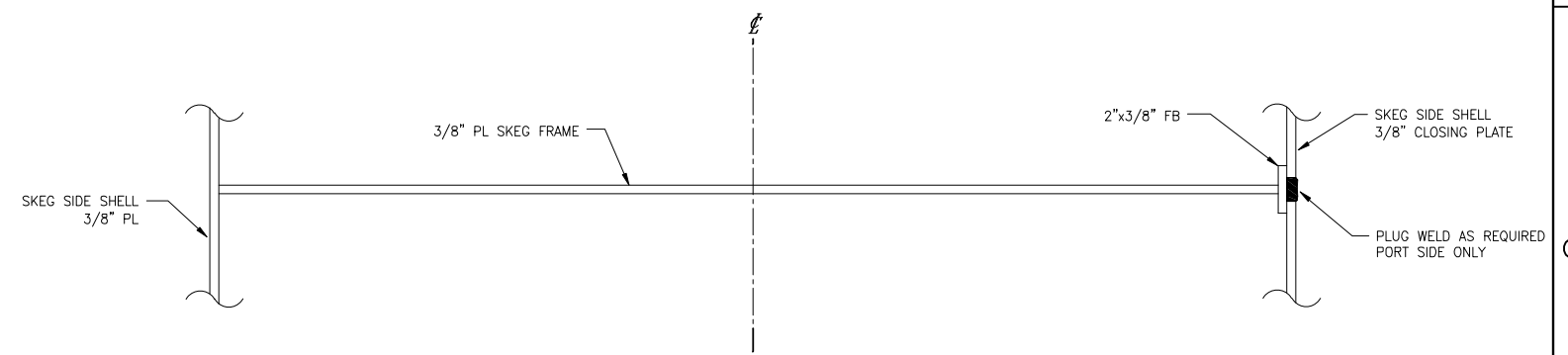
A

D

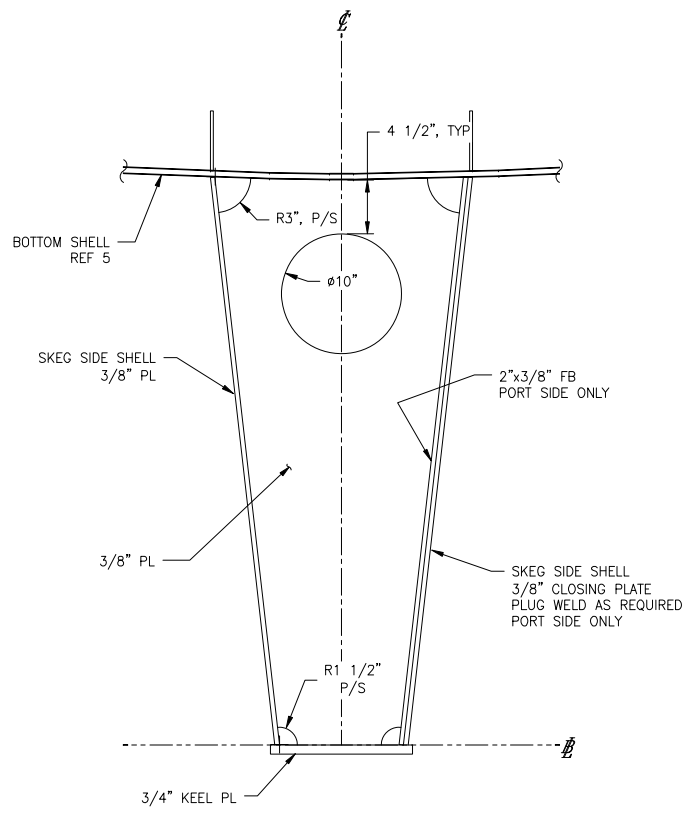
C

B

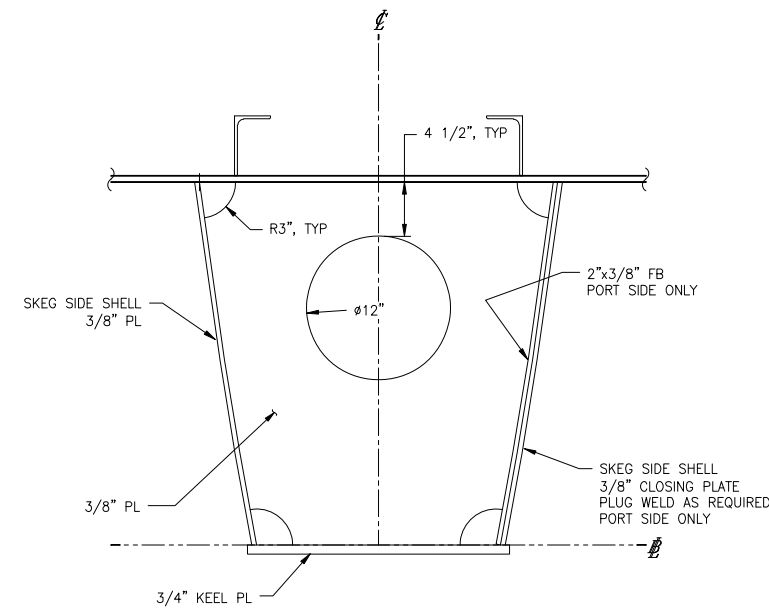
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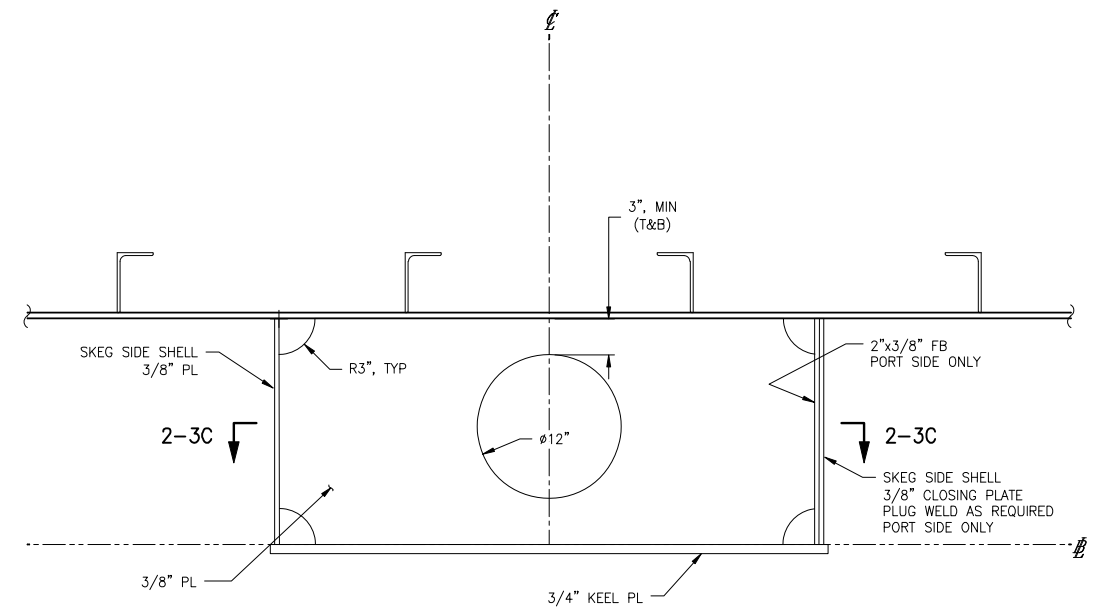
DETAIL 2-3C
 TYPICAL SKEG FRAME
 SCALE: 3" = 1'-0"



SECTION 2-6A
 FR 43
 LOOKING AFT
 SCALE: 1 1/2" = 1'-0"



SECTION 2-4A
 FR 29
 LOOKING AFT
 SCALE: 1 1/2" = 1'-0"



SECTION 2-2A
 FR 23
 LOOKING AFT
 SCALE: 1 1/2" = 1'-0"

Patrick D. Parks
 PATRICK D. PARKS
 STATE OF WASHINGTON
 49313
 REGISTERED
 PROFESSIONAL ENGINEER

SIZE	DWG NO.	REV
D	16101-200-110-2	-
SCALE	FILE NAME	SHEET
AS NOTED	16101-200-110-2-	2 OF 2

6

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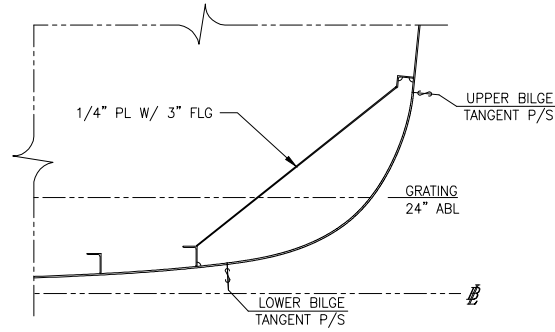
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3

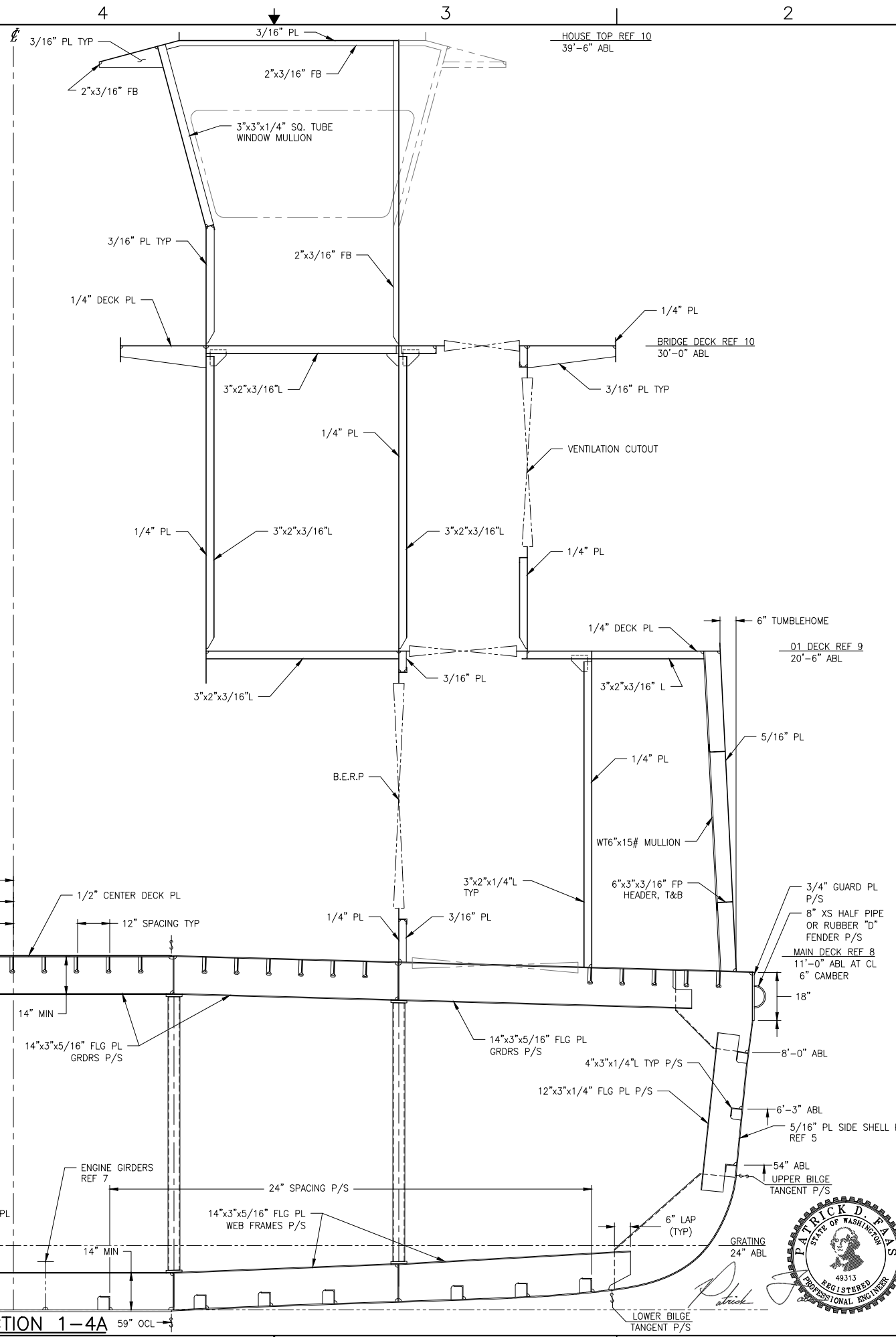
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1

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DETAIL 1-5C
 TYPICAL ORDINARY FRAME BRACKET



MIDSHIP SECTION 1-4A

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24".

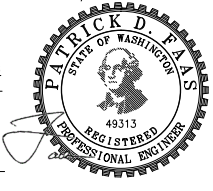
REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION
2. 16101-200-061-1 SCANTLING CALCULATIONS
3. 16101-200-100-1 LINES PLAN
4. 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
5. 16101-200-110-1 BOTTOM AND SIDE SHELL
6. 16101-200-120-3 HULL TRANSVERSE BULKHEADS
7. 16101-200-120-5 HULL LONGITUDINAL BULKHEADS AND GIRDERS
8. 16101-200-130-2 MAIN DECK
9. 16101-200-150-1 SUPERSTRUCTURE MAIN DECK TO 01 DECK
10. 16101-200-150-2 SUPERSTRUCTURE 01 DECK TO PILOT HOUSE TOP
11. 16101-200-150-3 MAIN DECK BULWARKS



Elliott Bay Design Group
 North Carolina, PLLC

CLIENT: **NORTH CAROLINA D.O.T.**
 RALEIGH, NORTH CAROLINA
 PROJECT: **NEW RIVER CLASS FERRY**



MIDSHIP SECTION

SIZE	D	DWG NO.	16101-200-120-1	REV	-
SCALE	1/2"=1'-0"	FILE NAME	16101-200-120-1-	SHEET	1 OF 1
DWN	JPC	MOD	ZDL	OKD	PDF
APVD	PDF	APVD DATE	7/27/2017		

7/27/2017 7:10:56 PM

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REVISION HISTORY

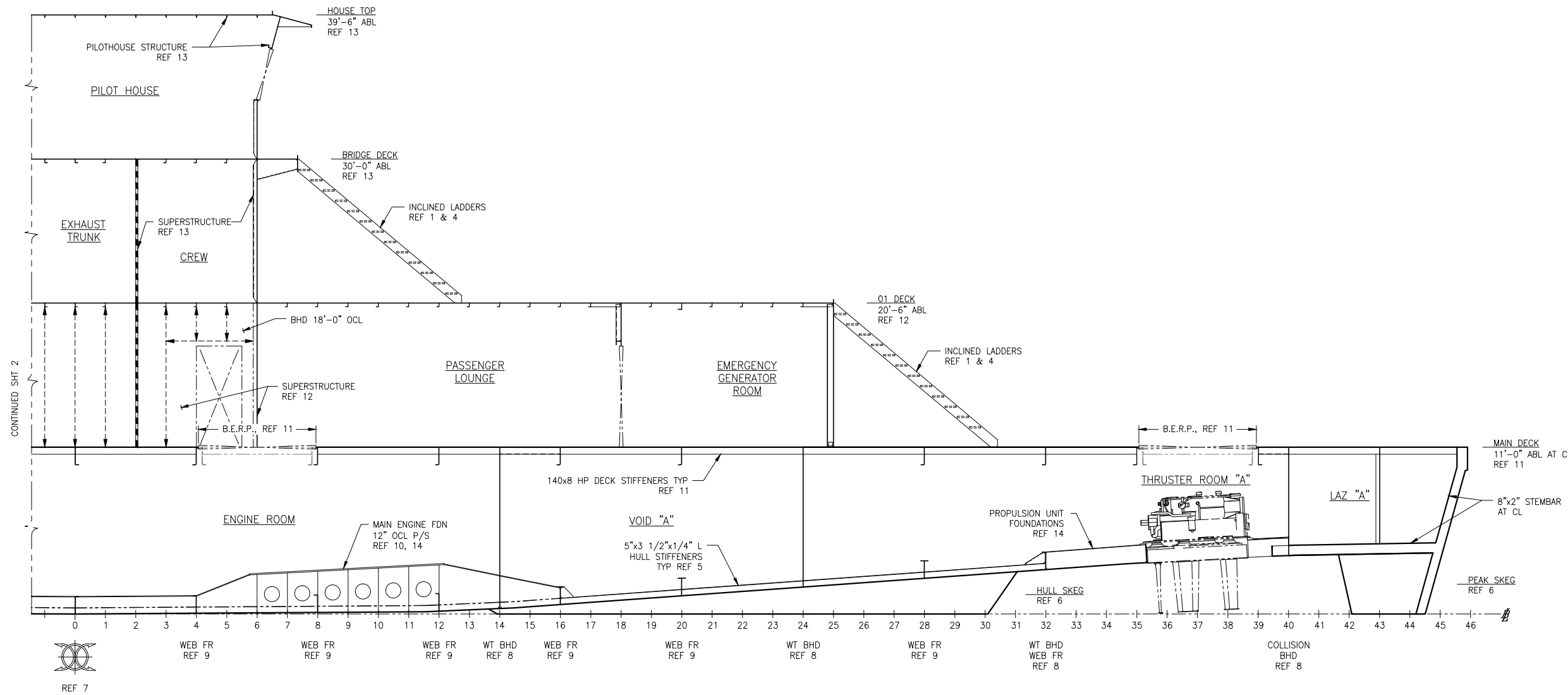
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
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GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24".

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-061-1 SCANTLING CALCULATIONS
- 16101-200-100-1 LINES PLAN
- 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-110-1 BOTTOM AND SIDE SHELL
- 16101-200-110-2 SKEGS
- 16101-200-120-1 MIDSHIP SECTION
- 16101-200-120-3 HULL TRANSVERSE BULKHEADS
- 16101-200-120-4 HULL TRANSVERSE FRAMES
- 16101-200-120-5 HULL LONGITUDINAL BULKHEADS AND GIRDERS
- 16101-200-130-2 MAIN DECK
- 16101-200-150-1 SUPERSTRUCTURE MAIN DECK TO 01 DECK
- 16101-200-150-2 SUPERSTRUCTURE 01 DECK TO PILOT HOUSE TOP
- 16101-200-180-1 PROPULSION UNIT FOUNDATIONS



ELEVATION 1-4A
 INBOARD STRUCTURAL PROFILE
 STRUCTURE SHOWN VARIES IN DISTANCE FROM CL

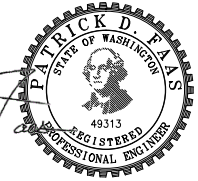
FRAME SPACING = 24"
 WEB FRAME SPACING = 8'-0"



Elliott Bay Design Group
 North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY



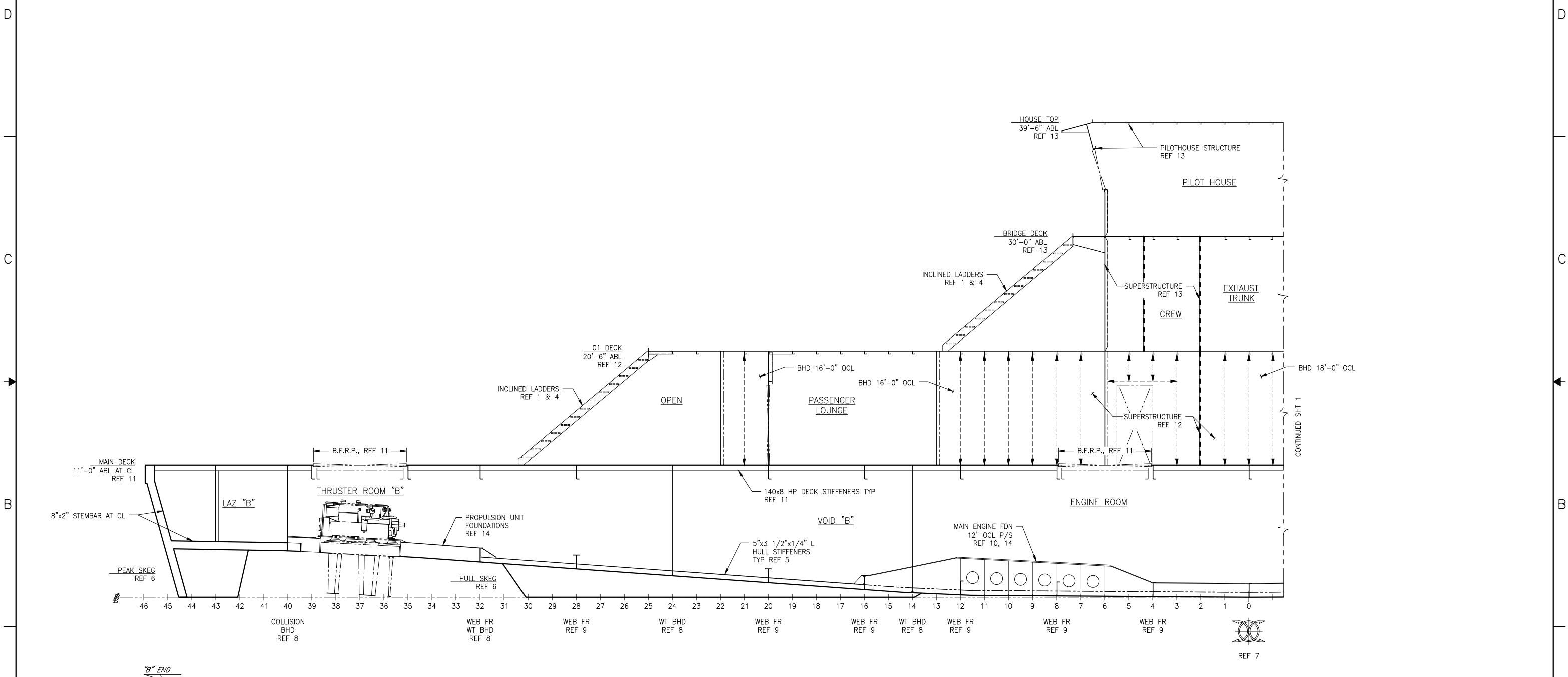
Patrick J.

TITLE: INBOARD STRUCTURAL PROFILE

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SCALE: 1/4"=1'-0"	FILE NAME: 16101-200-120-2-	SHEET: 1 OF 2
DWN: ZDL	MOD: JPC/DKG	OKD: PDF
APVD: PDF	APVD DATE: 7/27/2017	

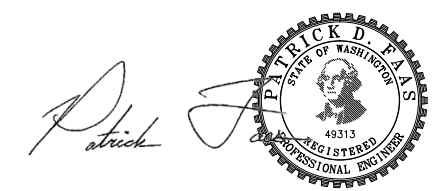
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6 5 4 3 2 1



ELEVATION 2-4A
 INBOARD STRUCTURAL PROFILE
 STRUCTURE SHOWN VARIES IN DISTANCE FROM CL

FRAME SPACING = 24"
 WEB FRAME SPACING = 8'-0"



SIZE	D	DWG NO.	16101-200-120-2	REV	-
SCALE	1/4" = 1'-0"	FILE NAME	16101-200-120-2-	SHEET	2 OF 2

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6 5 4 3 2 1

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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

REFERENCES

1. 16101-100-832-1 TECHNICAL SPECIFICATION
2. 16101-200-061-1 SCANTLING CALCULATIONS
3. 16101-200-100-1 LINES PLAN
4. 16101-100-101-1 PROFILES AND ARRANGEMENTS
5. 16101-200-110-1 BOTTOM AND SIDE SHELL
6. 16101-200-120-4 HULL TRANSVERSE FRAMES
7. 16101-200-120-5 HULL LONGITUDINAL BULKHEADS AND GIRDERS
8. 16101-200-130-2 MAIN DECK
9. 16101-200-180-1 PROPULSION UNIT FOUNDATIONS



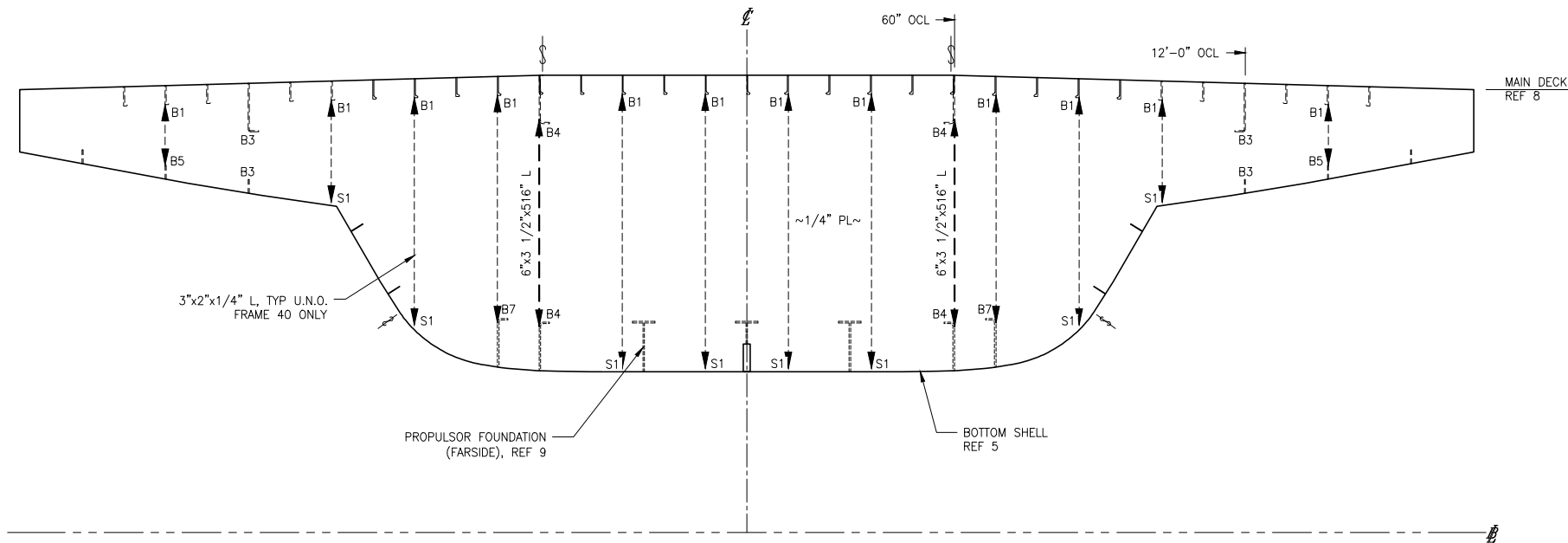
Elliott Bay Design Group
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 RALEIGH, NORTH CAROLINA

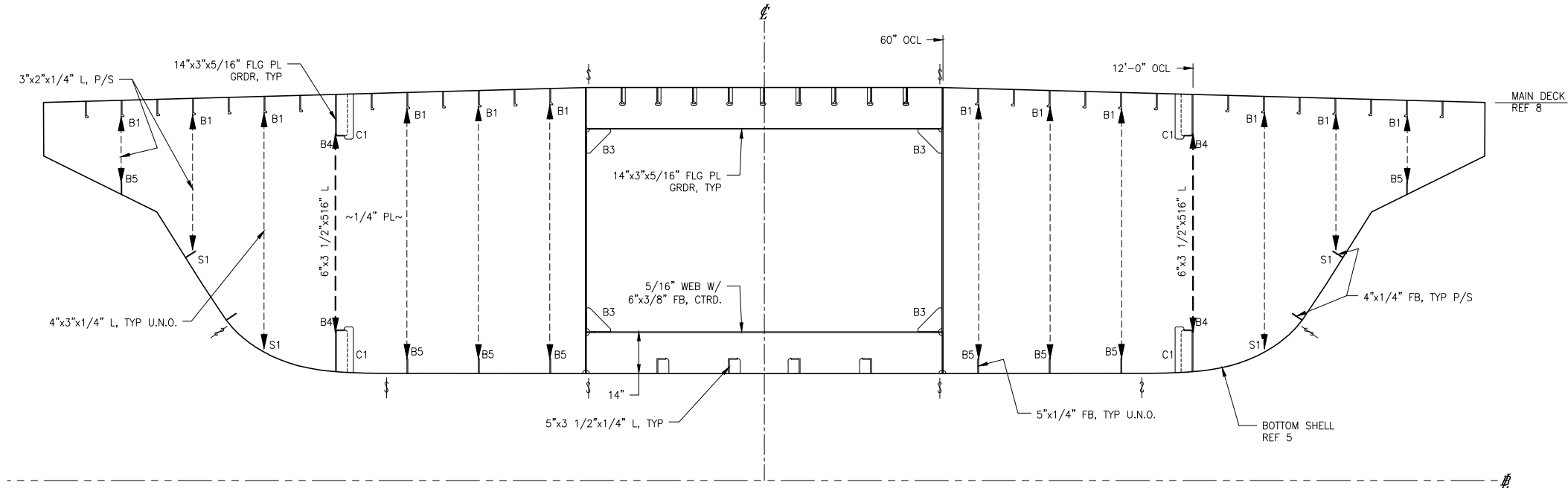
PROJECT: NEW RIVER CLASS FERRY

HULL TRANSVERSE BULKHEADS

SIZE D	DWG NO. 16101-200-120-3	REV -
SCALE 1/2" = 1'-0"	FILE NAME 16101-200-120-3-	SHEET 1 OF 4
DWN ZDL	MOD	OKD PDF
APVD PDF	APVD DATE 7/27/2017	



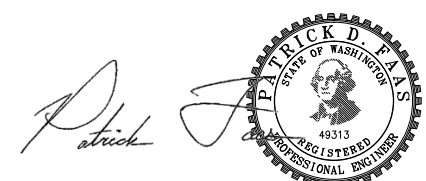
SECTION 1-4C
 FRAME 40, 'B' END
 LOOKING FWD



SECTION 1-4A
 FRAME 32, 'B' END
 LOOKING FWD

KEY

	BULKHEAD FAR SIDE
	BULKHEAD NEAR SIDE
	GIRDER FAR SIDE
	GIRDER NEAR SIDE
	ORDINARY STIFFENER FAR SIDE
	ORDINARY STIFFENER NEAR SIDE
	KNUCKLE



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6 5 4 3 2 1

D

C

B

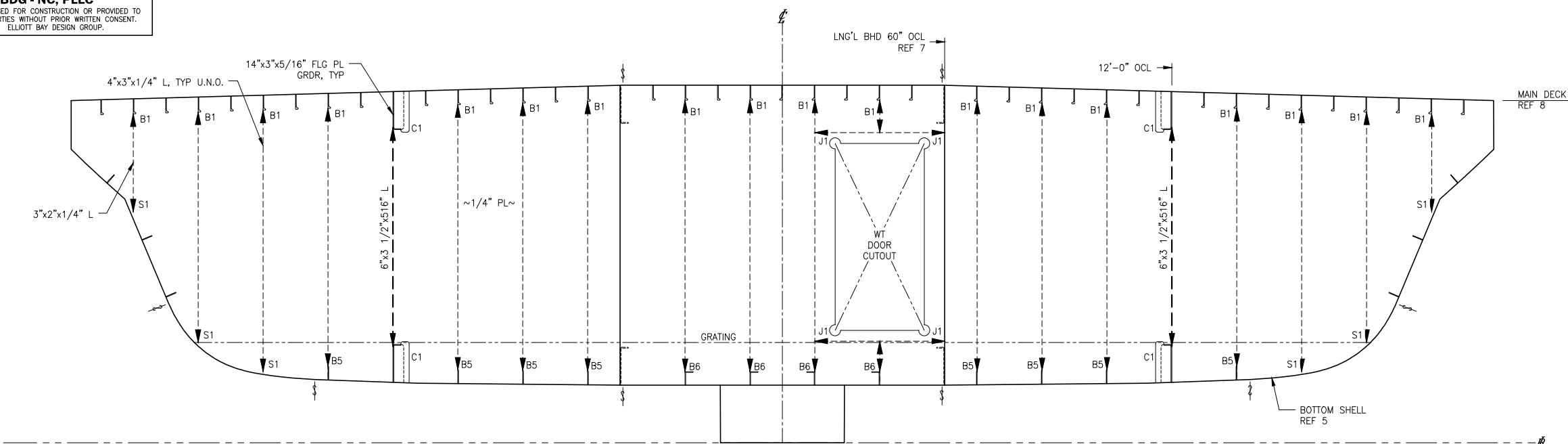
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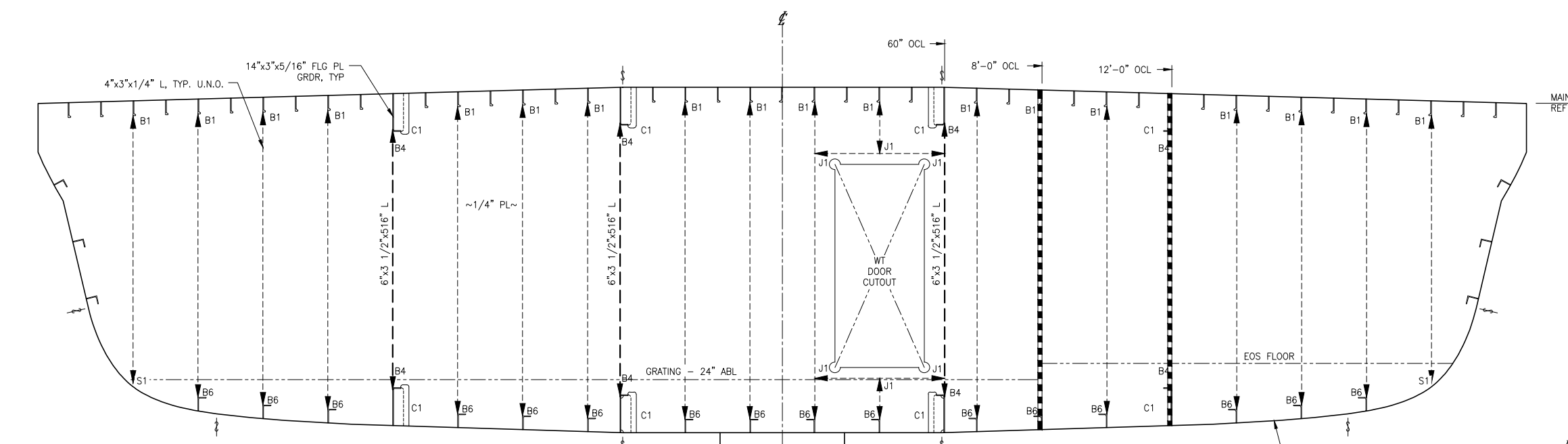
C

B

A

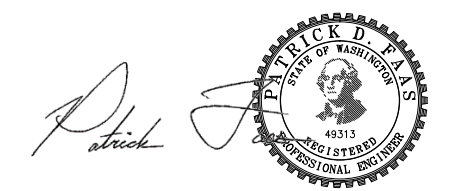


SECTION 2-4C
 FRAME 24, 'B' END
 LOOKING FWD



SECTION 2-4A
 FRAME 14, 'B' END
 LOOKING FWD

6 5 4 3 2 1



SIZE	D	DWG NO.	16101-200-120-3	REV	-
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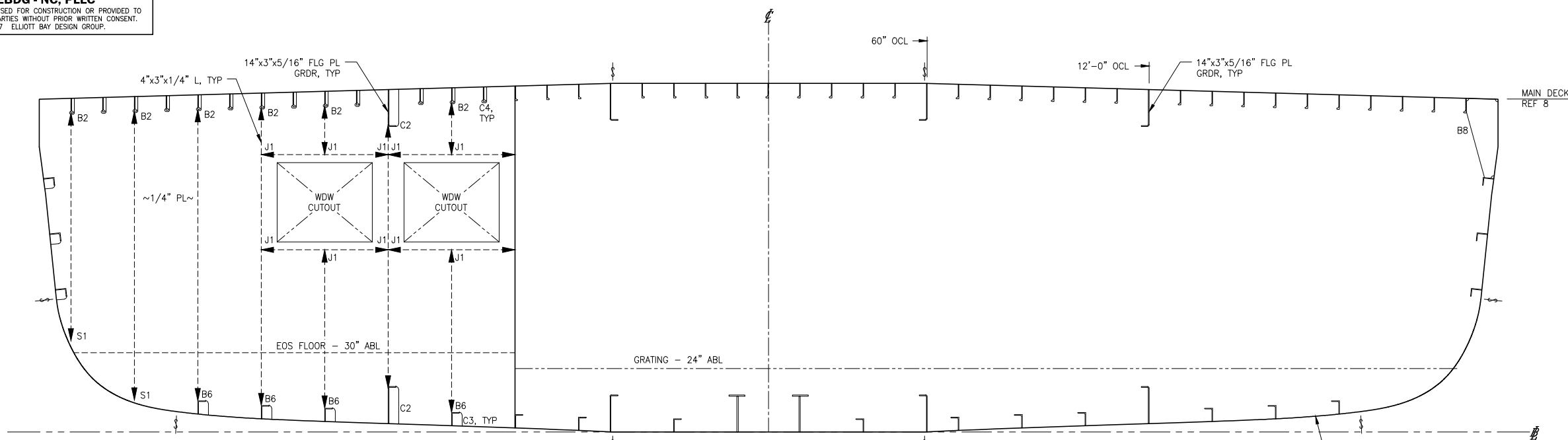
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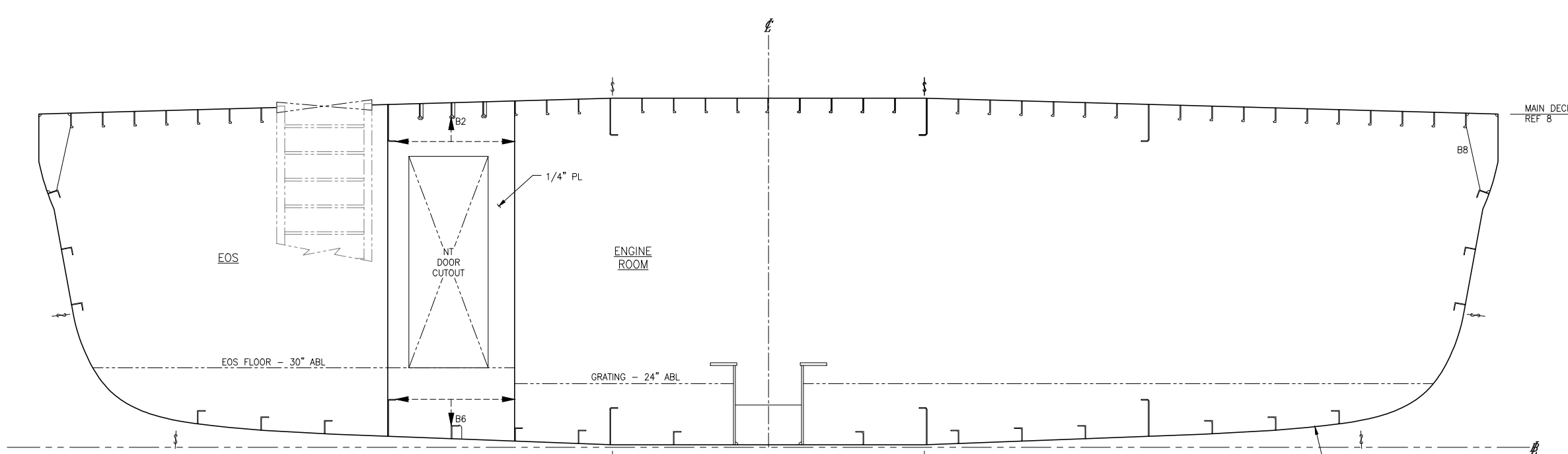
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D
C
B
A

D
C
B
A

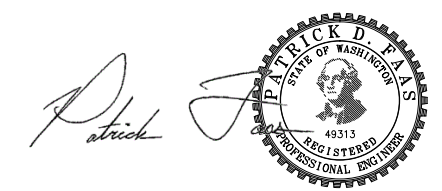


SECTION 3-4C
 FRAME 2, 'B' END
 LOOKING AFT



SECTION 3-4A
 FRAME 10, 'B' END
 LOOKING AFT

6 5 4 3 2 1



SIZE	D	DWG NO.	16101-200-120-3	REV	-
SCALE	1/2" = 1'-0"	FILE NAME	16101-200-120-3-	SHEET	3 OF 4

7/27/2017 7:46:39 PM

6

5

4

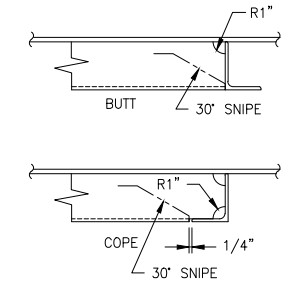
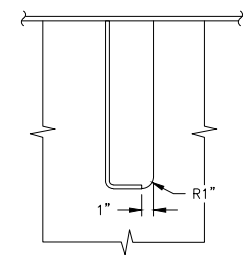
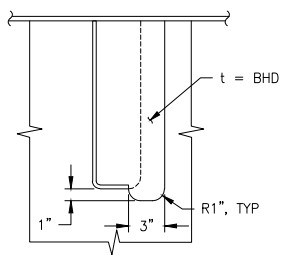
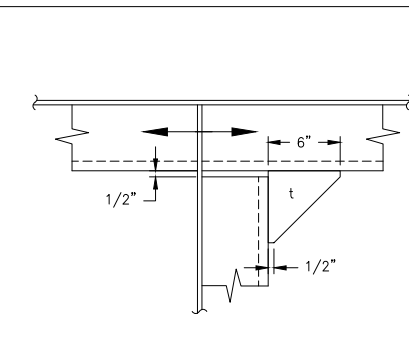
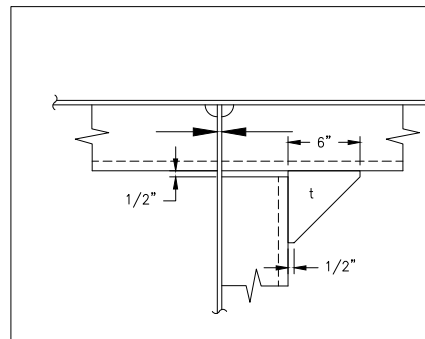
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2

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D

D



B1

B2

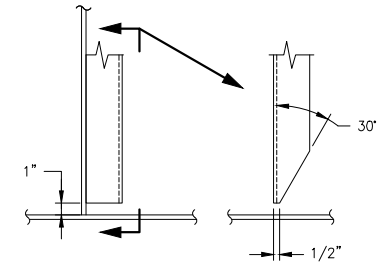
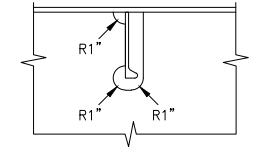
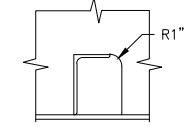
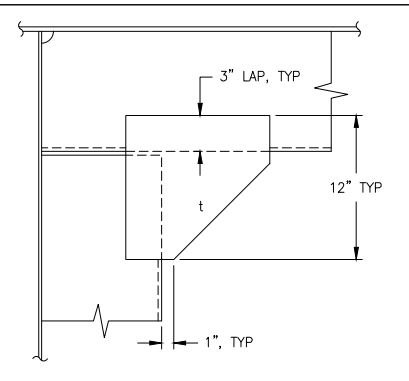
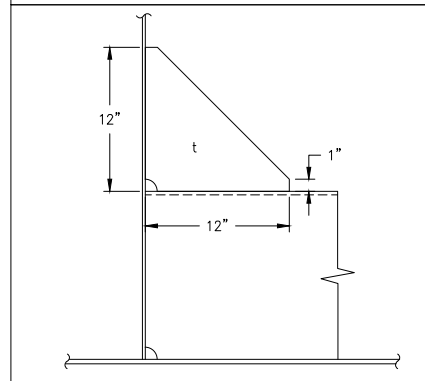
C1

C2

J1

C

C



B3

B4

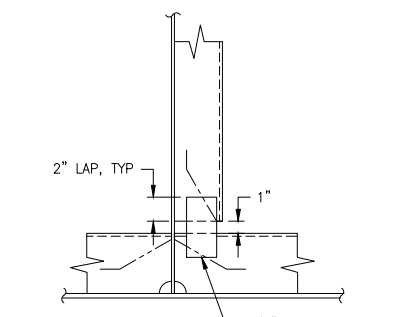
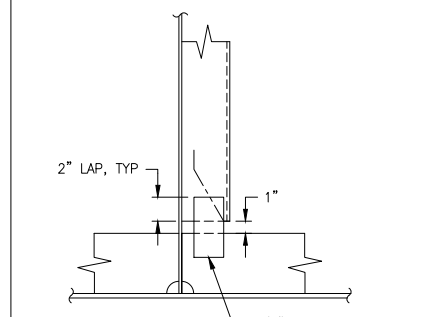
C3

C4

S1

B

B

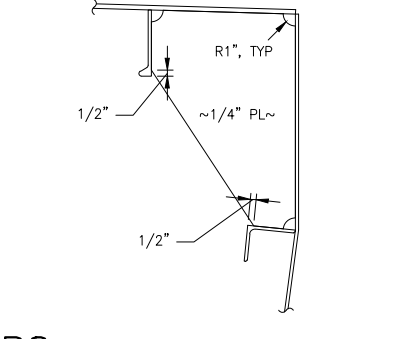
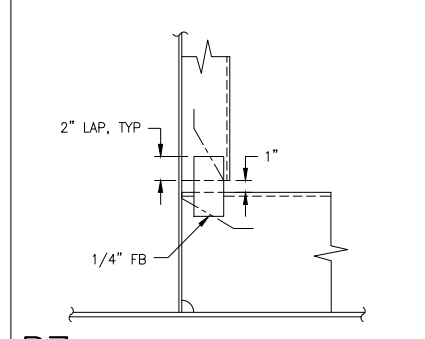


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B6

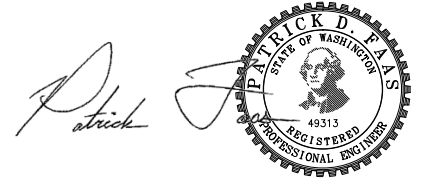
A

A



B7

B8



6

5

4

3

2

1

7/27/2017 7:46:47 PM

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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	2-3A 3-4A	1. UPDATED TONNAGE FRAME LIGHTENING HOLE SCHEME TO CLARIFY.	PDF	8/2/17	PDF
B	2-2A	1. UPDATED PE STAMP FOR REV B. 2. ADDED VIEW 2-2A FOR FR 28.	DKG	8/31/17	KAJ

INDEX	
SHEET NO.	SHEET CONTENT
1	FRAMES 08 AND 13.
2	PARTIAL FRAME 5. FRAMES 18, 20, AND 28.
3	FRAMES 31 AND 36.
4	FRAMES 38 AND 39.
5	FRAMES 42 AND 43. LNG'L BRACKET DETAILS.
6	DETAILS

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-061-1 SCANTLING CALCULATIONS
- 16101-200-100-1 LINES PLAN
- 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-110-1 BOTTOM AND SIDE SHELL
- 16101-200-110-2 SKEGS
- 16101-200-120-3 HULL TRANSVERSE BULKHEADS
- 16101-200-120-5 HULL LONGITUDINAL BULKHEADS AND GIRDERS
- 16101-200-130-2 MAIN DECK
- 16101-200-150-3 MAIN DECK BULKWORKS
- 16101-200-180-1 PROPULSION UNIT FOUNDATIONS
- 16101-200-200-1 MACHINERY ARRANGEMENT

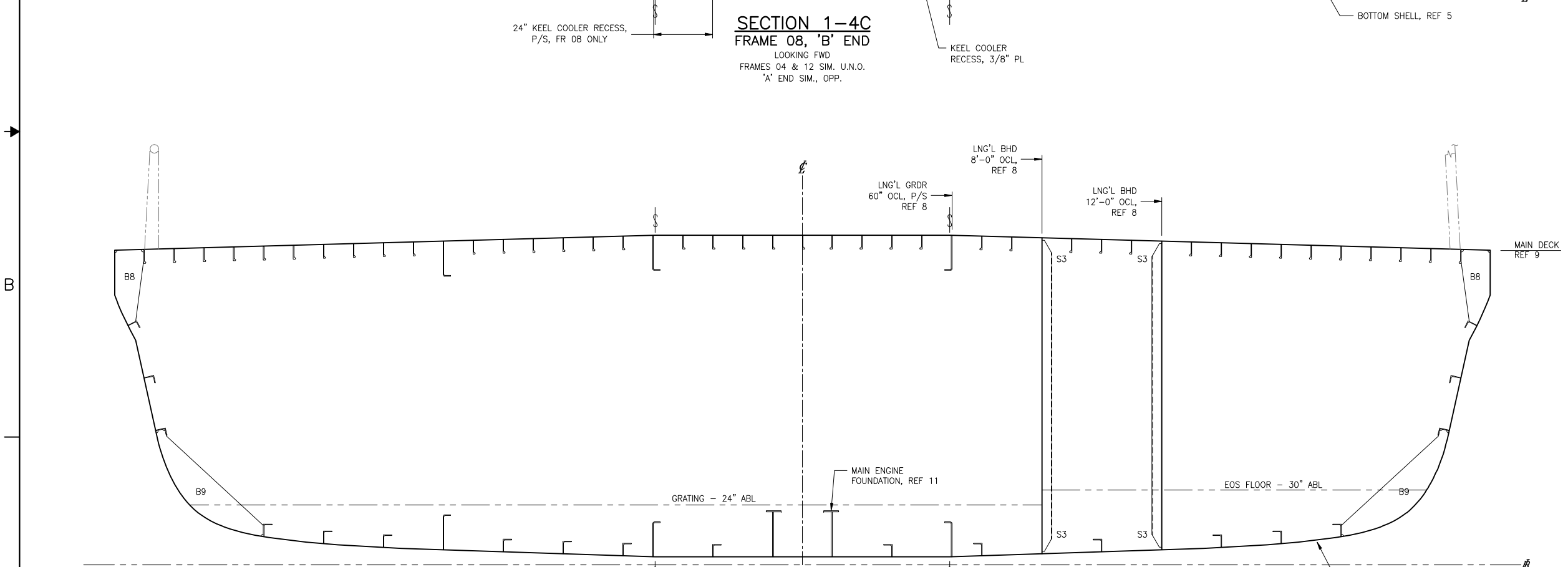
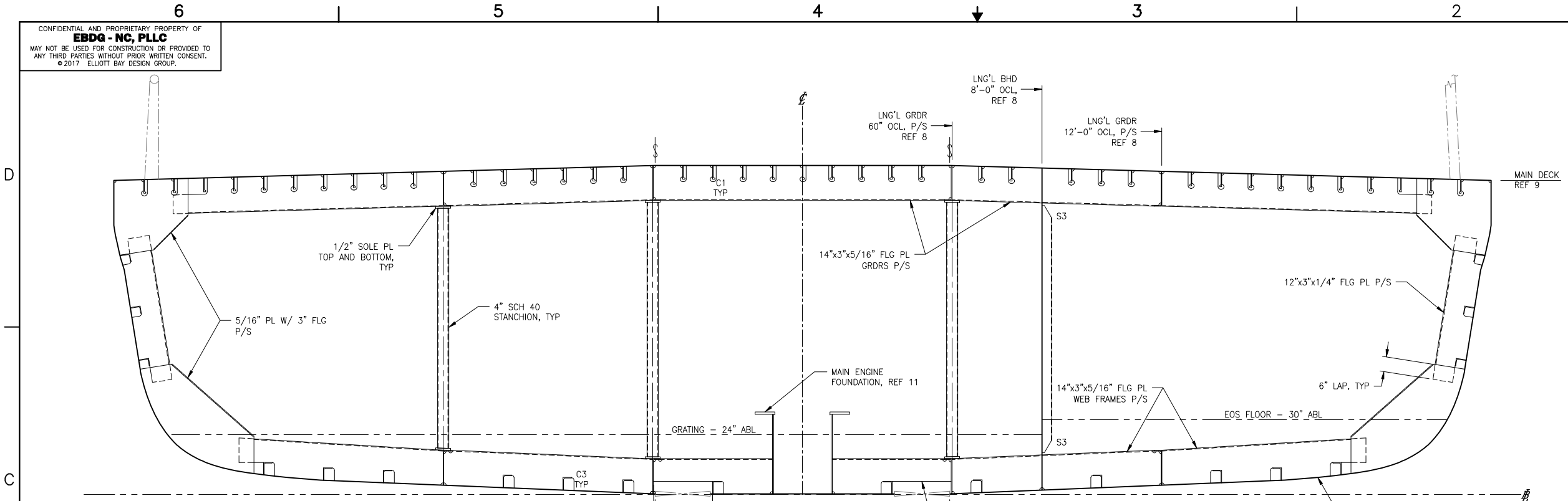


Elliott Bay Design Group
 North Carolina, PLLC

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

HULL TRANSVERSE FRAMES

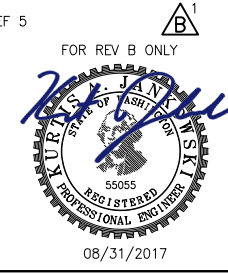
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SCALE	1/2" = 1'-0"	FILE NAME	16101-200-120-4B	SHEET	1 OF 6
DWN	ZDL	MOD	PDF	CKD	PDF
APVD	KAJ	APVD DATE	7/27/2017		



KEY

	BULKHEAD FAR SIDE
	BULKHEAD NEAR SIDE
	GIRDER FAR SIDE
	GIRDER NEAR SIDE
	ORDINARY STIFFENER FAR SIDE
	ORDINARY STIFFENER NEAR SIDE
	KNUCKLE

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: A
 ENGR: PATRICK D. FAAS
 DATED: 08/02/2017
 STATE: WA
 REG NO: 49313



6

5

4

3

2

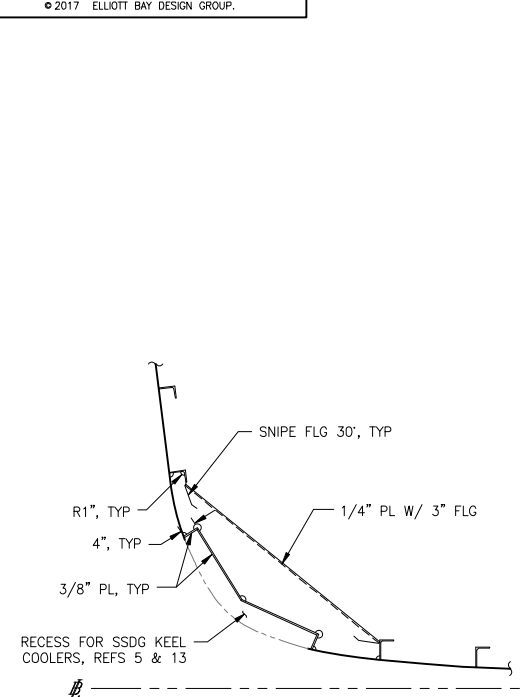
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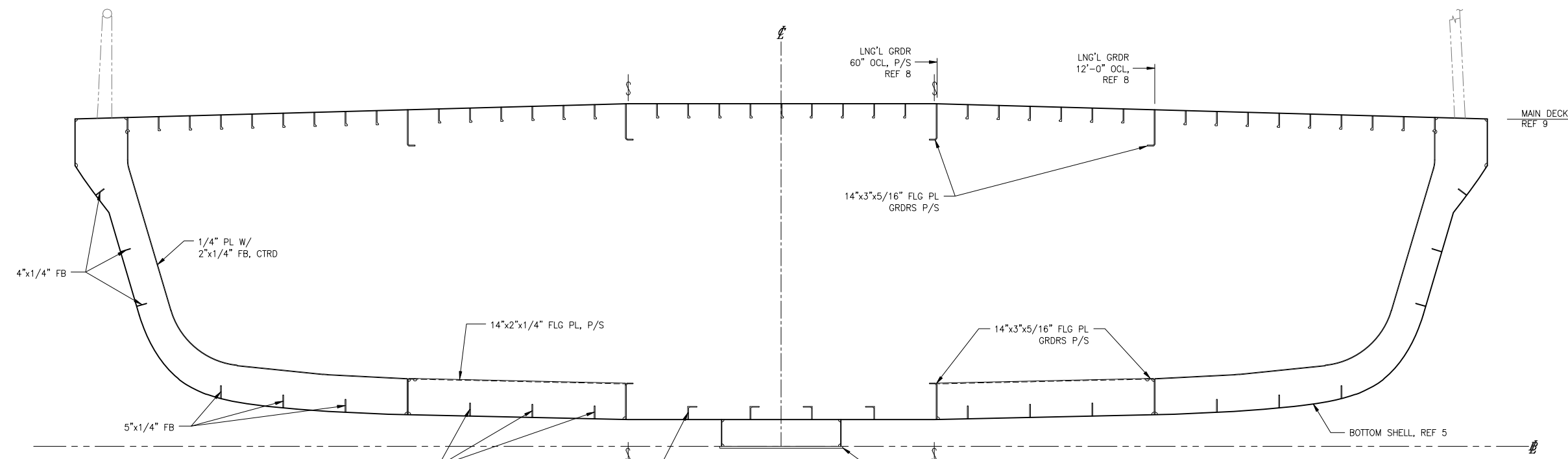
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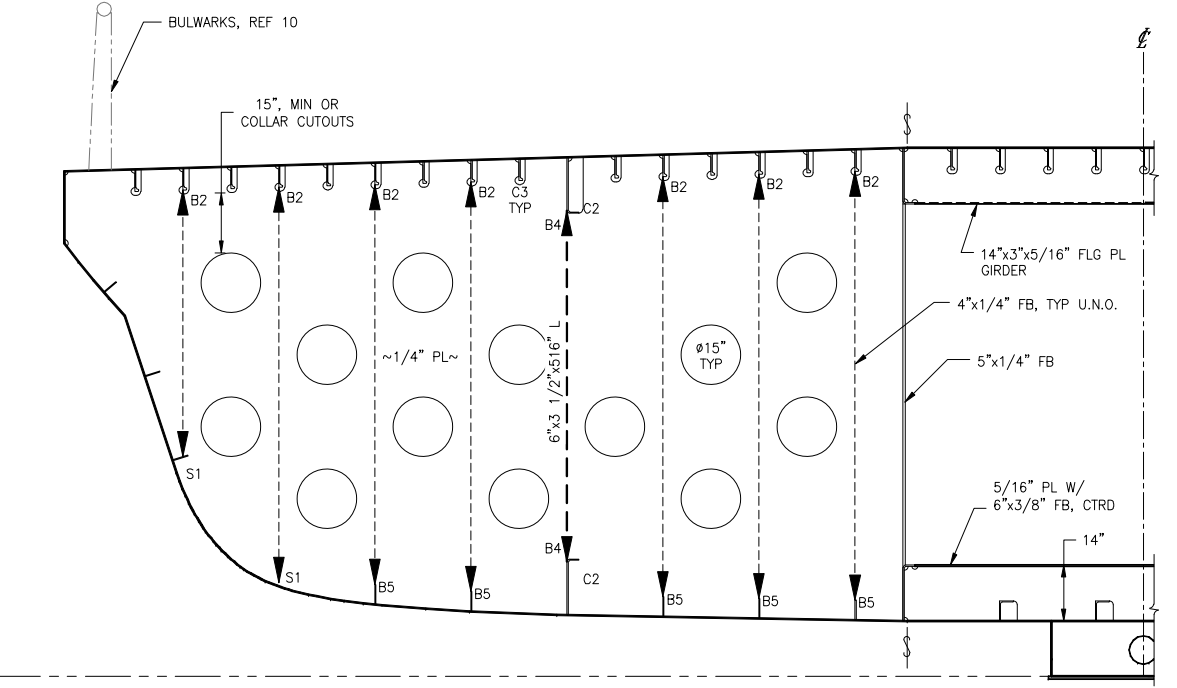
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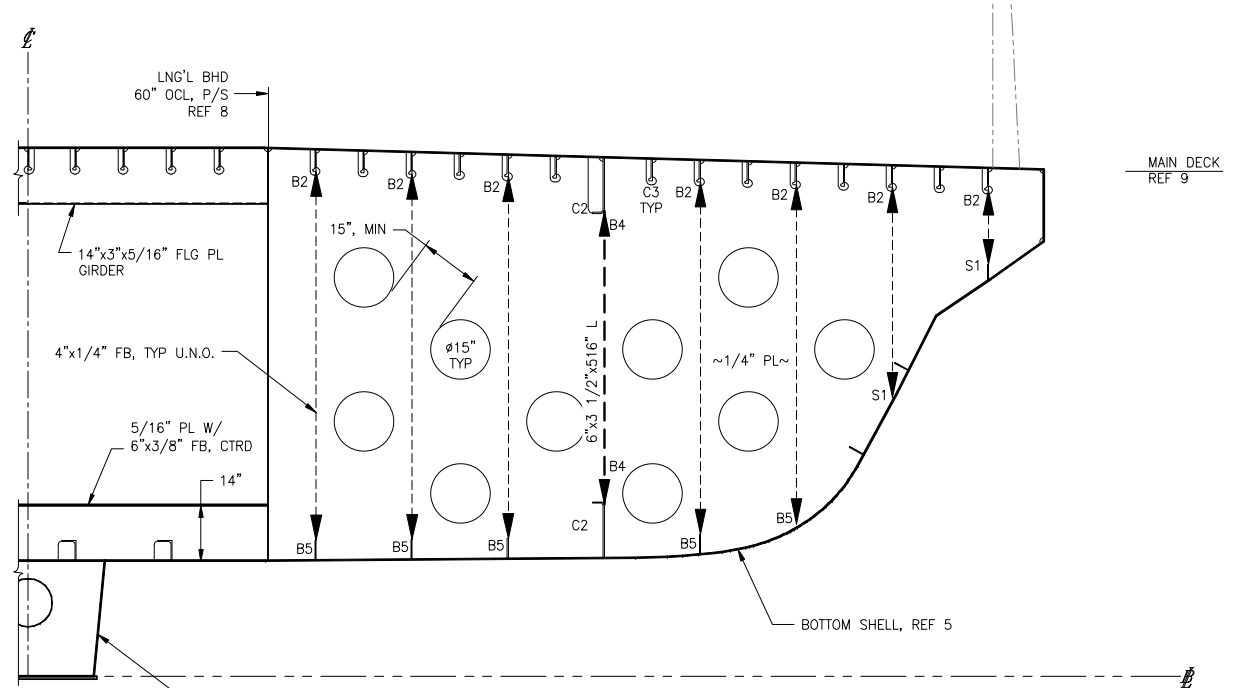
SECTION 2-6C
FRAME 05 (PARTIAL)
 'B' END, PORT SIDE, LOOKING FWD
 FRAMES 03, 04, & 06 SIM,
 FRAMES 02, 03, 04, & 05 'A' END SIM., OPP.



SECTION 2-3C
FRAME 18, 'B' END
 LOOKING FWD
 FRAMES 22, 26 & 30 SIM.
 'A' END SIM., OPP.

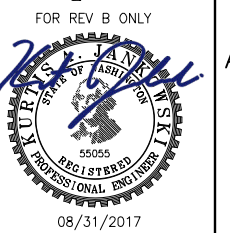


SECTION 2-3A
FRAME 20, 'B' END
 LOOKING FWD
 FRAME 16 SIM.
 'A' END SIM., OPP.
 PORT SHOWN STBD SIM., OPP.



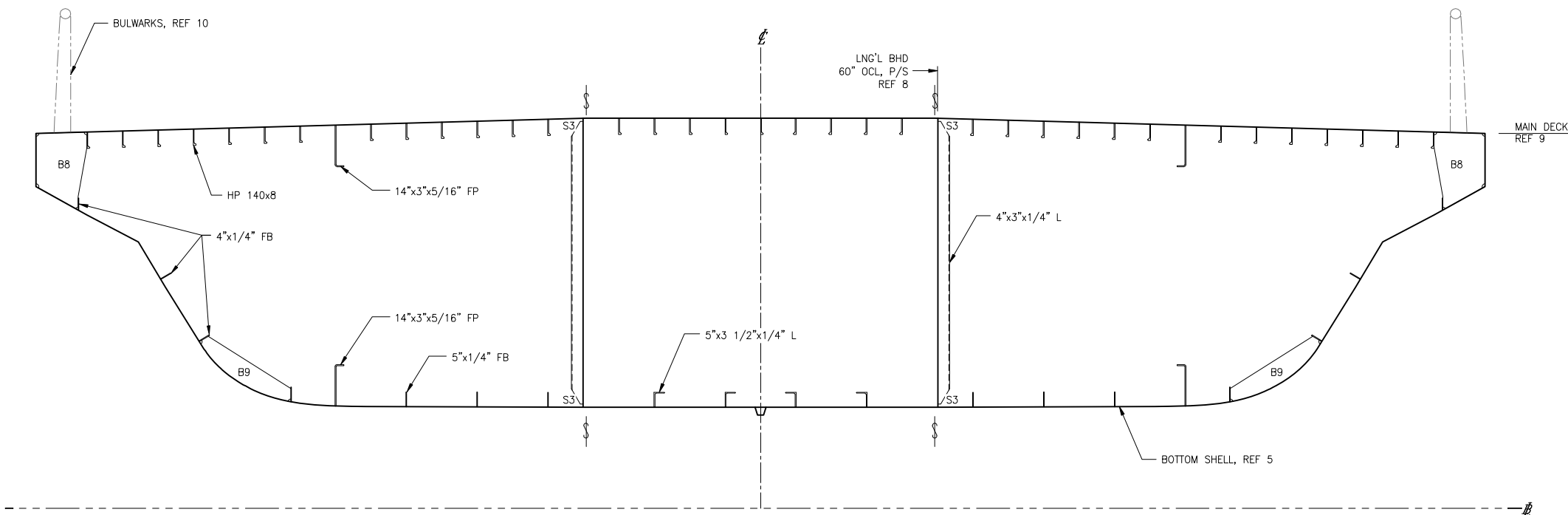
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FRAME 28, 'B' END
 LOOKING FWD
 'A' END SIM., OPP.
 STBD SHOWN PORT SIM., OPP.

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: A
 ENGR: PATRICK D. FAAS
 DATED: 08/02/2017
 STATE: WA
 REG NO: 49313

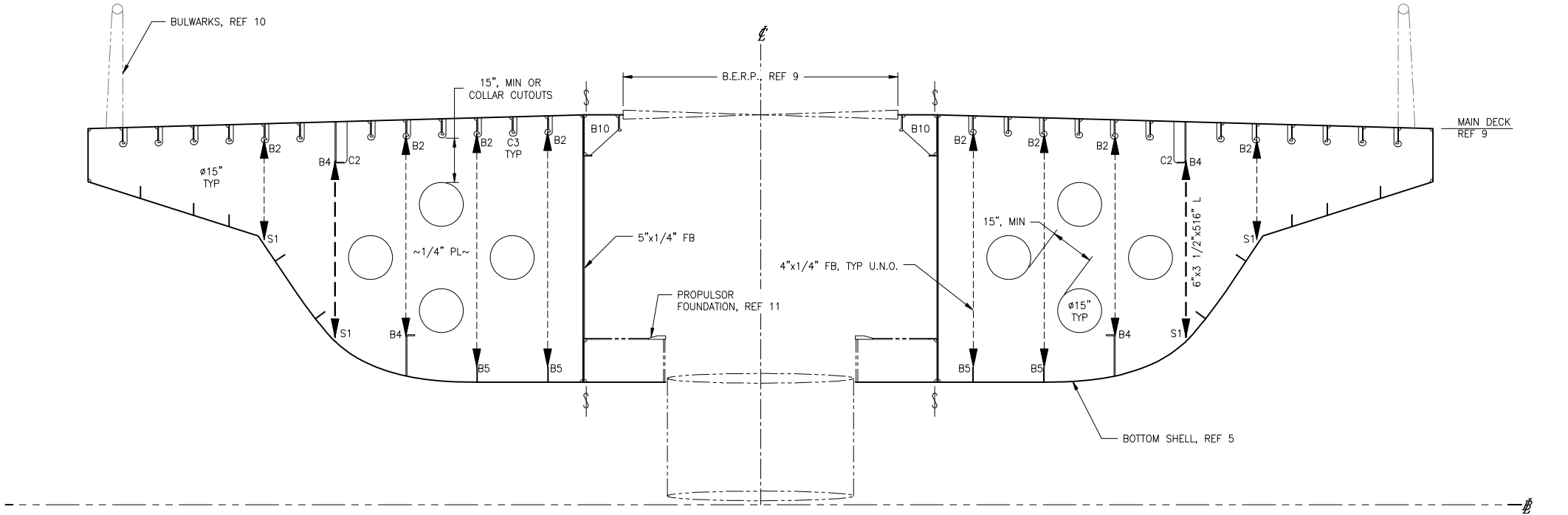


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SCALE	1/2" = 1'-0"	FILE NAME	16101-200-120-4B	SHEET	2 OF 6

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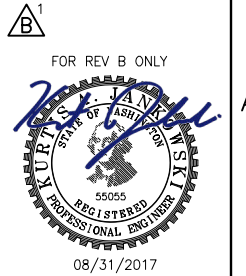


SECTION 3-4C
 FRAME 31, 'B' END
 LOOKING FWD



SECTION 3-4A
 FRAME 36, 'B' END
 LOOKING FWD

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: A
 ENGR: PATRICK D. FAAS
 DATED: 08/02/2017
 STATE: WA
 REG NO: 49313



SIZE	D	OWG NO.	16101-200-120-4	REV	B
SCALE	1/2" = 1'-0"	FILE NAME	16101-200-120-4B	SHEET	3 OF 6

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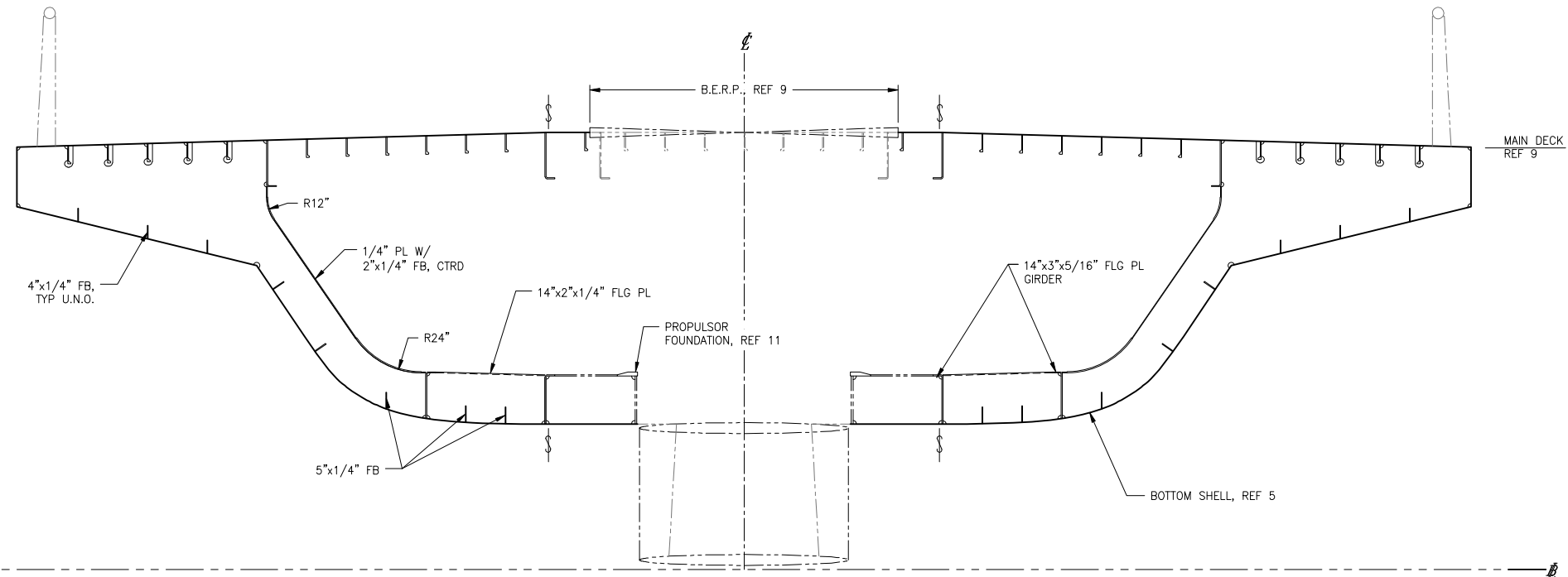
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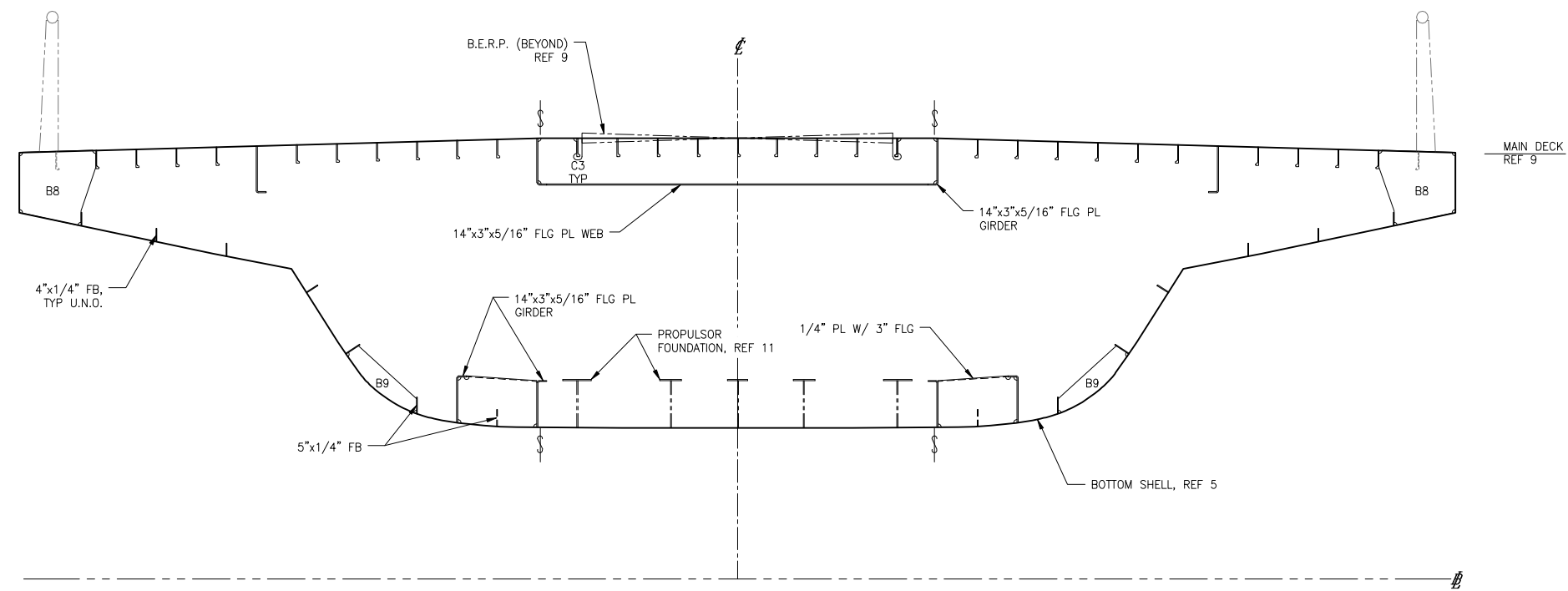
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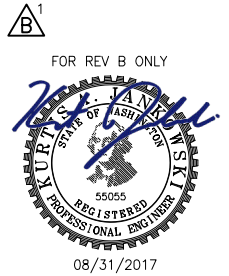


SECTION 4-4C
FRAME 38, 'B' END
 LOOKING FWD



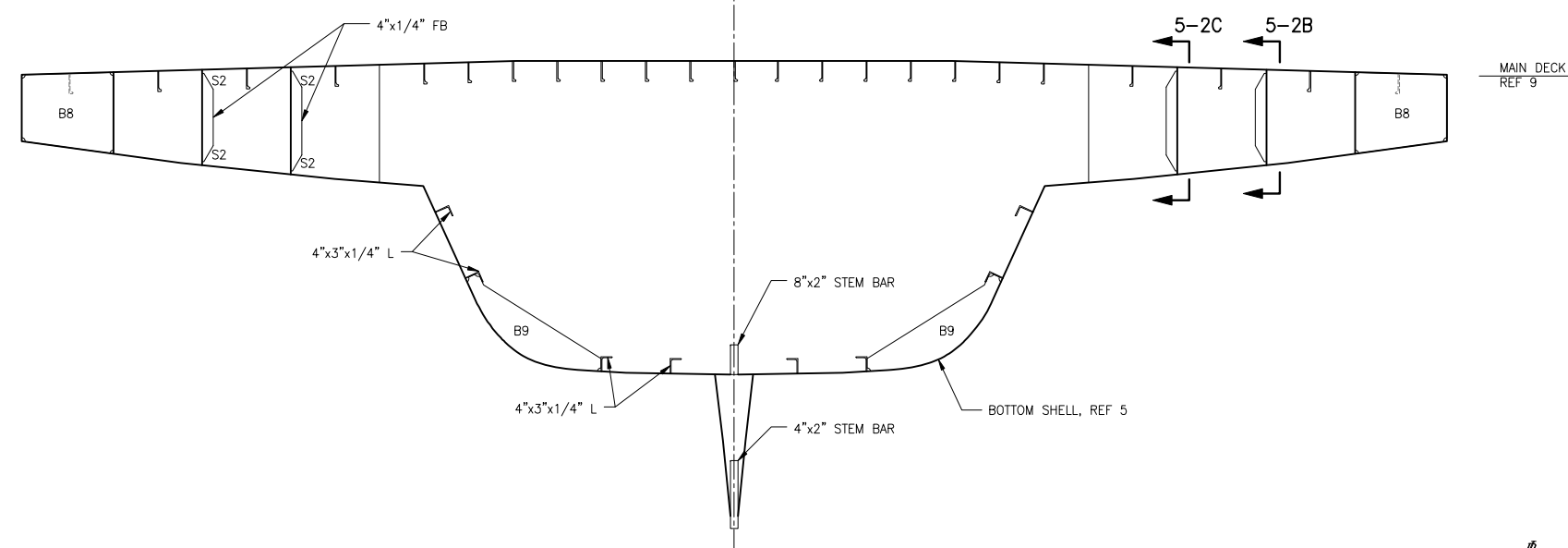
SECTION 4-4A
FRAME 39, 'B' END
 LOOKING FWD

STAMP
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 STAMP PER:
 REV: A
 ENGR: PATRICK D. FAAS
 DATED: 08/02/2017
 STATE: WA
 REG NO: 49313

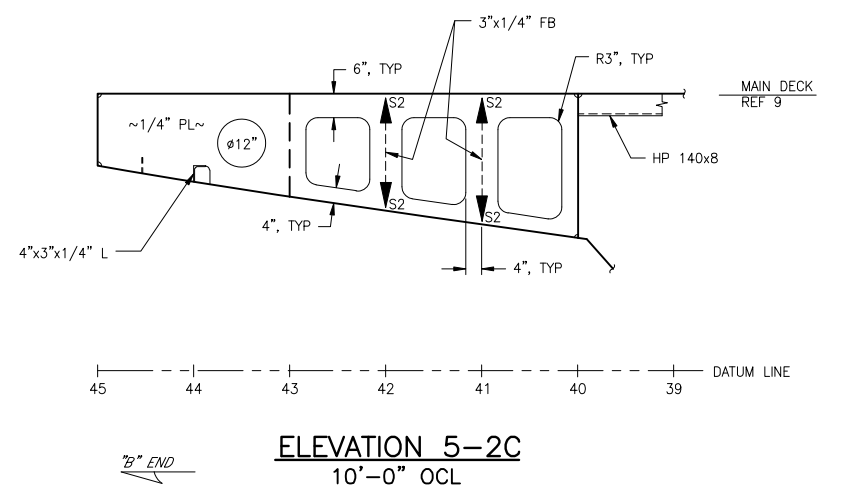


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SCALE	1/2" = 1'-0"	FILE NAME	16101-200-120-4B	SHEET	4 OF 6

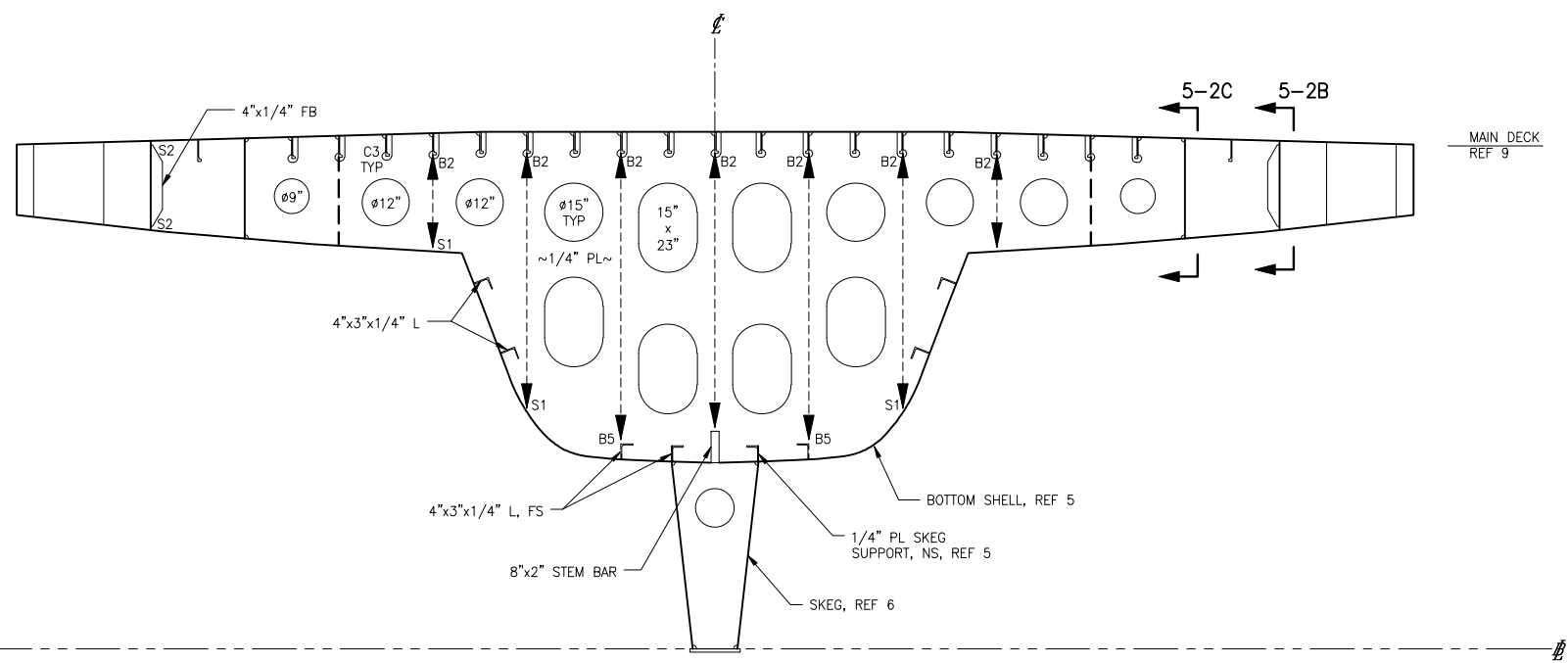
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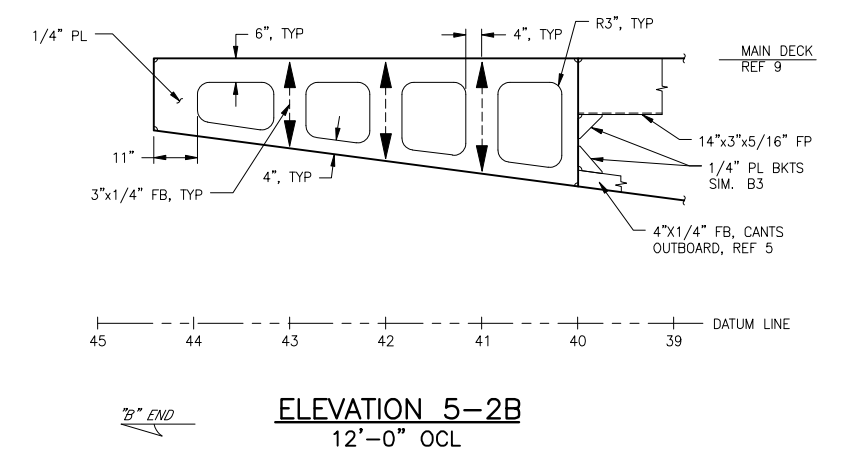
SECTION 5-4C
FRAME 42, 'B' END
 LOOKING FWD



ELEVATION 5-2C
 10'-0" OCL

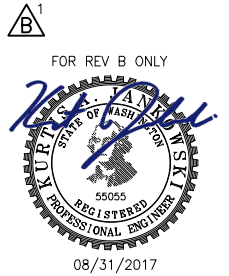


SECTION 5-4A
FRAME 43, 'B' END
 LOOKING FWD



ELEVATION 5-2B
 12'-0" OCL

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: A
 ENGR: PATRICK D. FAAS
 DATED: 08/02/2017
 STATE: WA
 REG NO: 49313



SIZE	DWG NO.	REV
D	16101-200-120-4	B
SCALE	FILE NAME	SHEET
1/2" = 1'-0"	16101-200-120-4B	5 OF 6

6

5

4

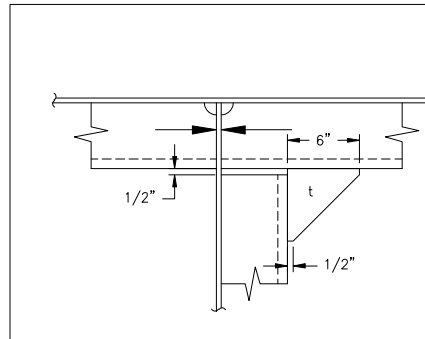
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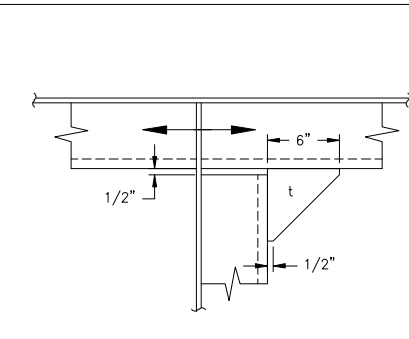
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D

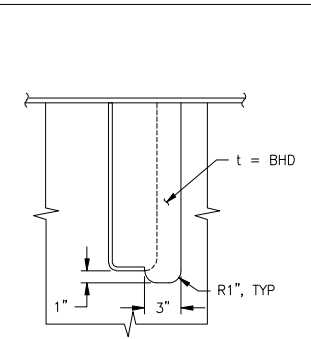
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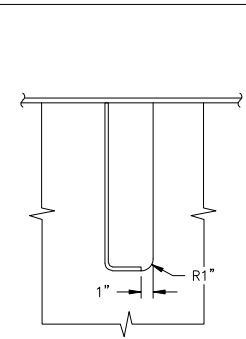
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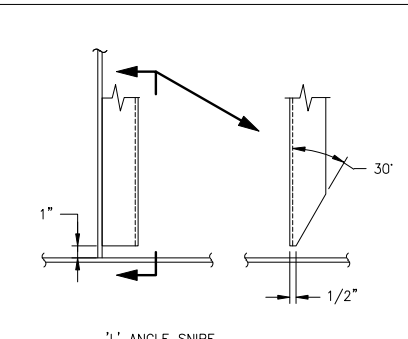
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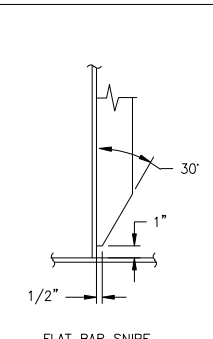
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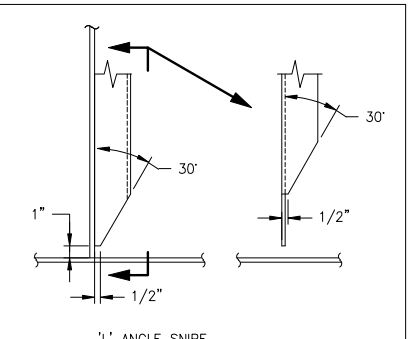
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S1



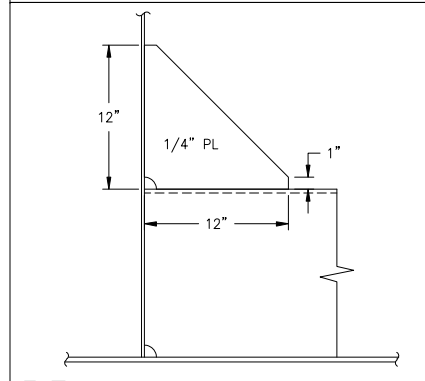
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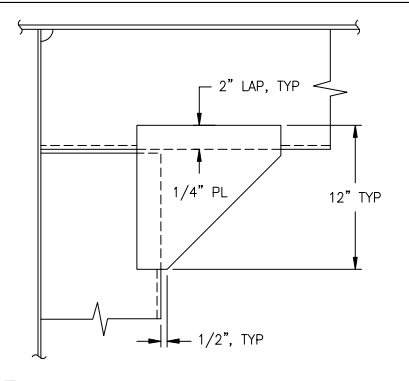
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C

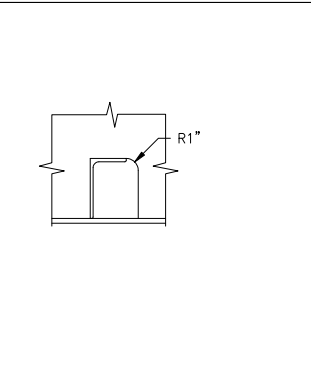
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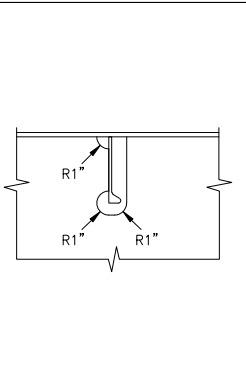
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B4



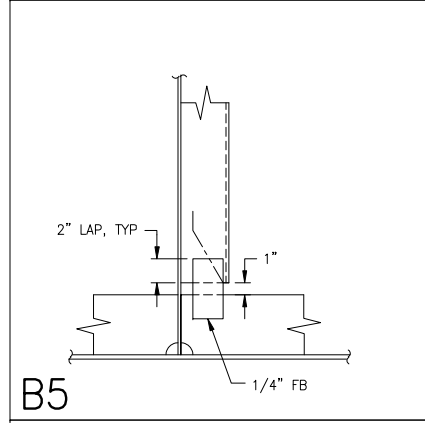
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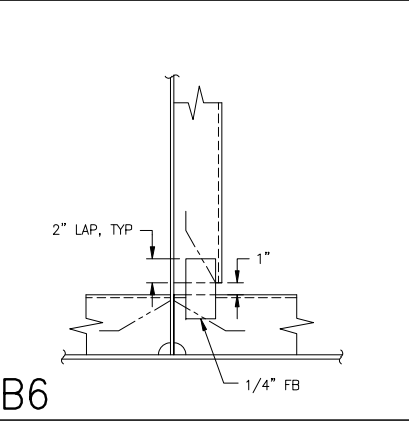
C4

B

B



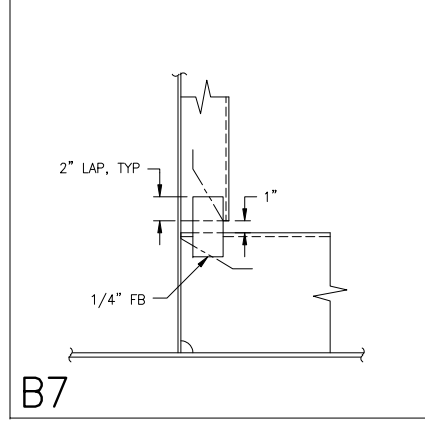
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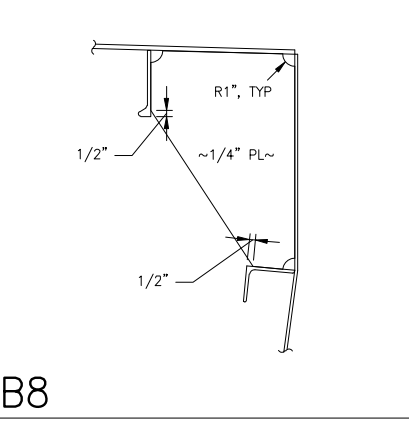
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A

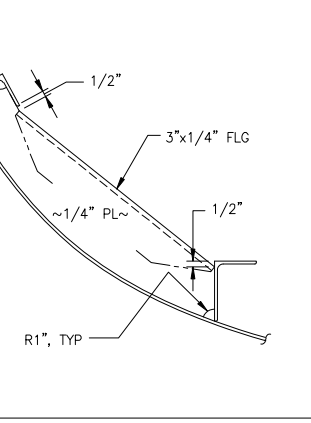
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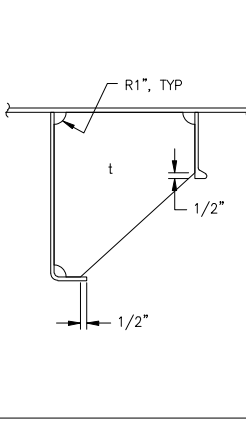
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B8



B9



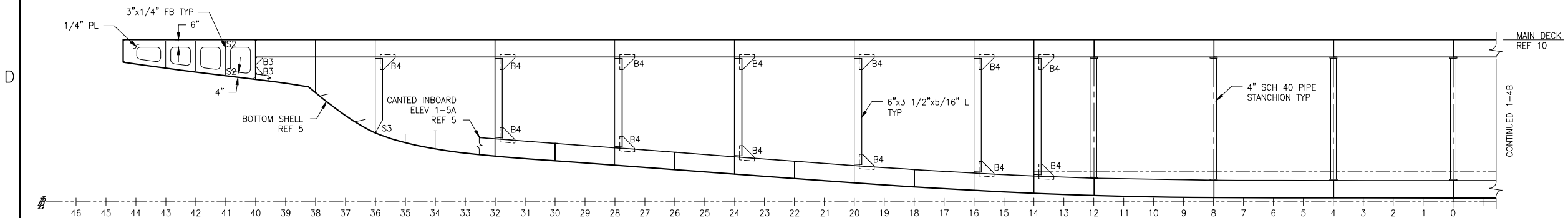
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 ENGR: PATRICK D. FAAS
 DATED: 08/02/2017
 STATE: WA
 REG NO: 49313

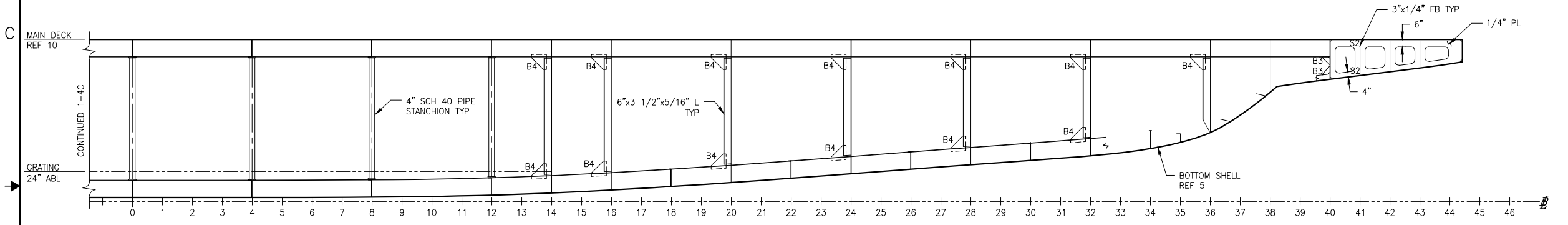


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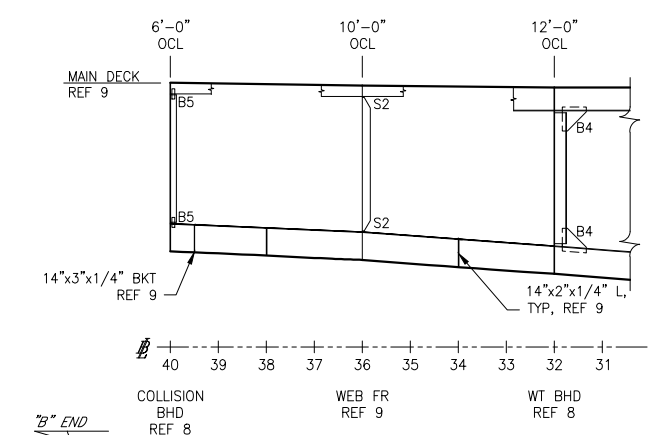
REVISION HISTORY				
REV	ZONE	DESCRIPTION	DWN	DATE



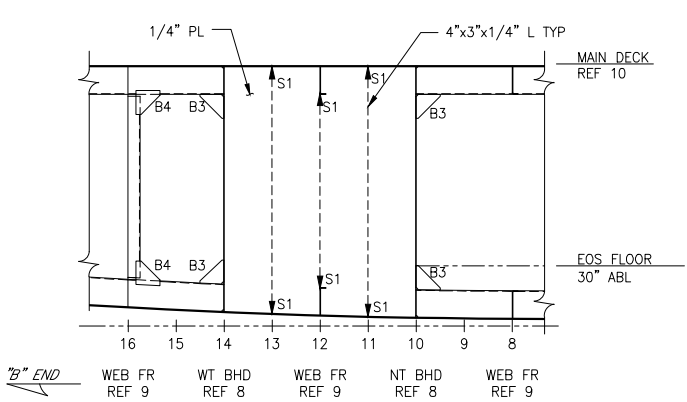
ELEVATION 1-4C
 12'-0" OCL (P)
 'B' END SHOWN, LOOKING TO PORT
 STBD SIM., OPP., EXCEPT AS SHOWN IN 1-3A



ELEVATION 1-4B
 12'-0" OCL PORT
 'A' END SHOWN, LOOKING TO PORT
 STBD SIMILAR OPPOSITE



ELEVATION 1-5A
 12'-0" TO 6'-0" OCL (P)
 'B' END SHOWN, LOOKING TO PORT
 STBD SIM., OPP., 'A' END OPP.



ELEVATION 1-3A
 EOS VESTIBULE BHD 12'-0" OCL STBD
 LOOKING TO PORT
 SCALE: 1/4" = 1'-0"

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

REFERENCES

- 16101-100-832-1 TECHNICAL SPECIFICATION
- 16101-200-061-1 SCANTLING CALCULATIONS
- 16101-200-100-1 LINES PLAN
- 16101-100-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-110-1 BOTTOM AND SIDE SHELL
- 16101-200-110-2 SKEG
- 16101-200-120-1 MIDSHIP SECTION
- 16101-200-120-3 HULL TRANSVERSE BULKHEADS
- 16101-200-120-4 HULL TRANSVERSE FRAMES
- 16101-200-130-2 MAIN DECK
- 16101-200-180-1 PROPULSION UNIT FOUNDATIONS
- 16101-200-624-1 WINDOW SCHEDULE
- 16101-200-624-2 DOOR SCHEDULE

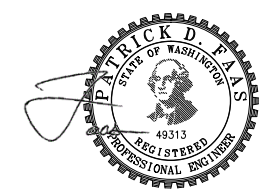


Elliott Bay Design Group
 North Carolina, PLLC

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

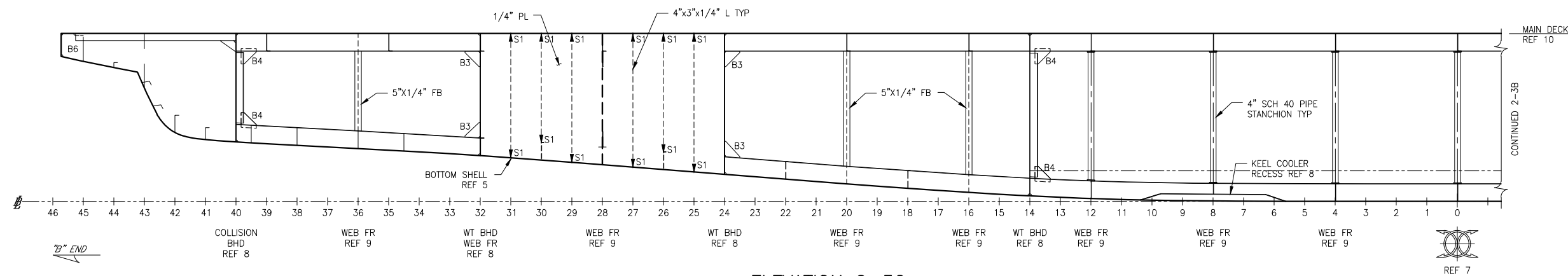
TITLE: HULL LONGITUDINAL BULKHEADS AND GIRDERS

SIZE: D	DWG NO.: 16101-200-120-5	REV: -
SCALE: 1/4" = 1'-0"	FILE NAME: 16101-200-120-5-	SHEET 1 OF 3
DWN: JPC	MOD: DKG/ZDL	OKD: PDF
APVD: PDF	APVD DATE: 7/27/2017	

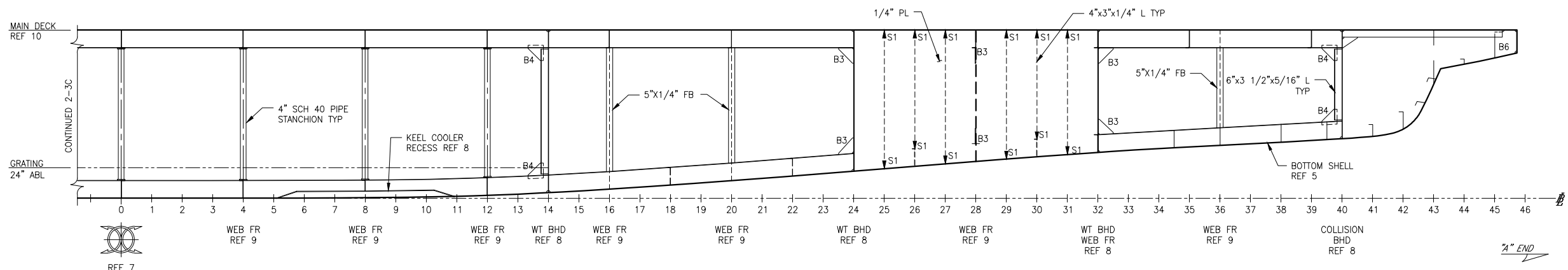


Patrick

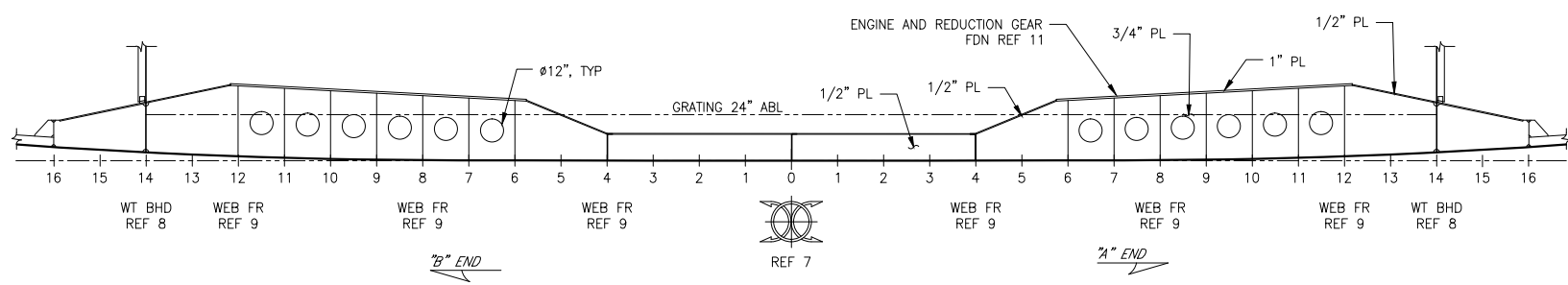
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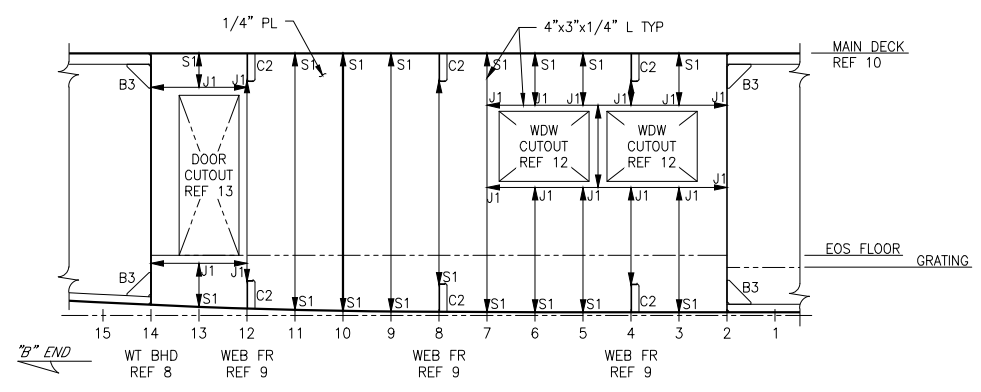
ELEVATION 2-3C
 5'-0" OCL PORT
 'B' END SHOWN LOOKING TO PORT
 STBD SIMILAR OPPOSITE



ELEVATION 2-3B
 5'-0" OCL PORT
 'A' END SHOWN LOOKING TO PORT
 STBD SIMILAR OPPOSITE



ELEVATION 2-5A
 MAIN ENGINE GIRDER 1'-0" OCL P/S

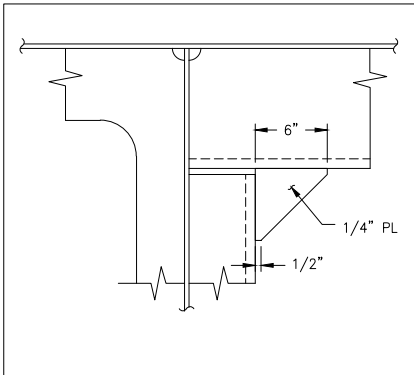


ELEVATION 2-2A
 EOS BHD 8'-0" OCL STBD
 'B' END SHOWN, LOOKING TO PORT

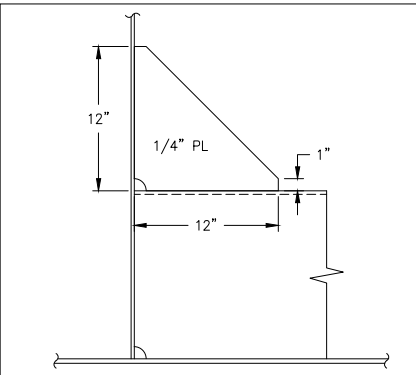
Patrick D. Patis
 PATRICK D. PATIS
 STATE OF WASHINGTON
 49313
 REGISTERED
 PROFESSIONAL ENGINEER

SIZE	DWG NO.	REV
D	16101-200-120-5	-
SCALE	FILE NAME	SHEET
1/4" = 1'-0"	16101-200-120-5-	2 OF 3

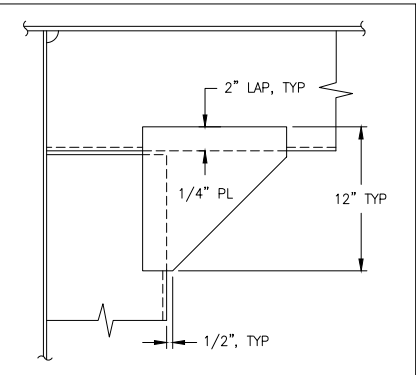
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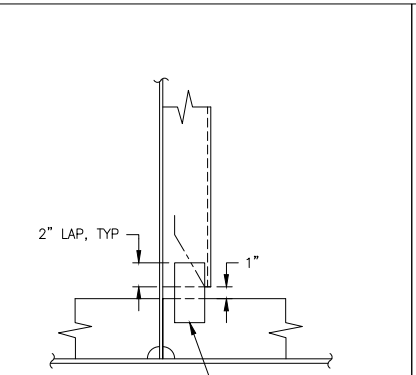
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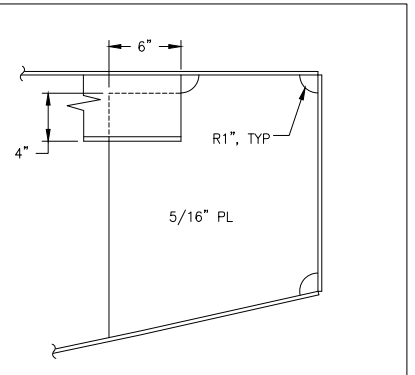
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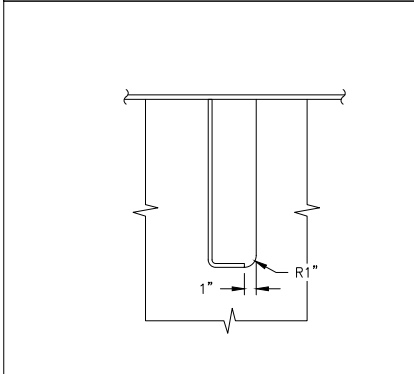
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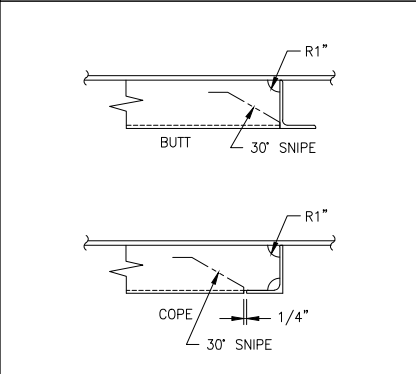
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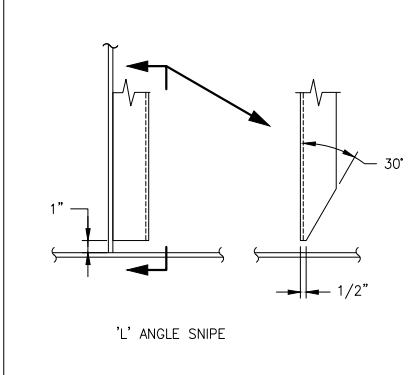
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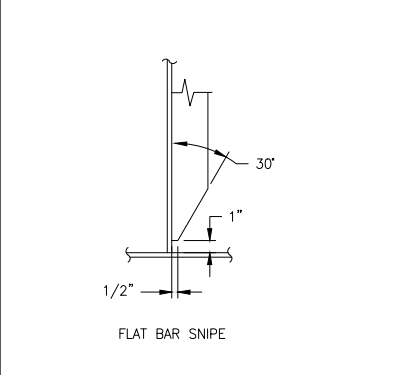
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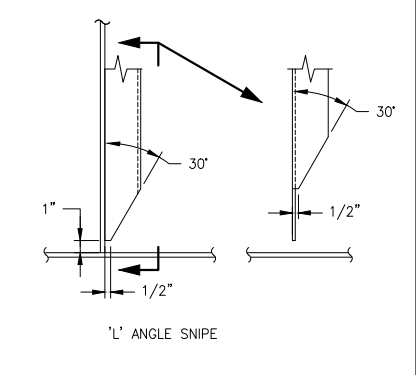
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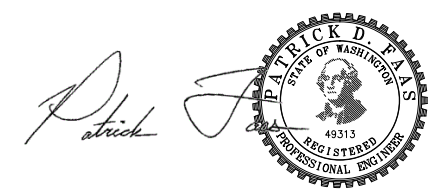
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S2



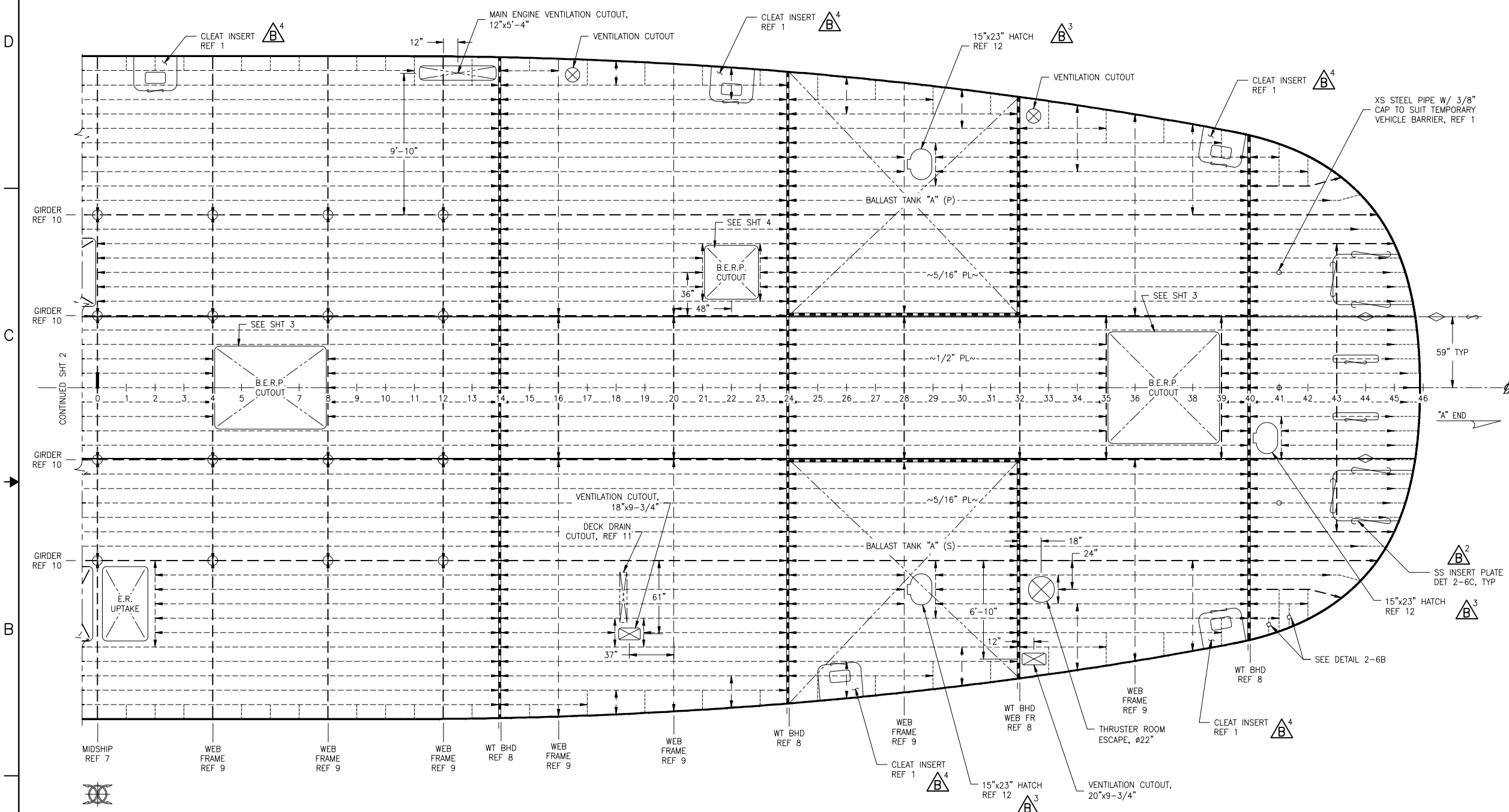
S3



7/27/2017 8:00:28 PM

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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-4A 2-3A	1. CORRECTED DECK PLATE THICKNESS	PDF	7/28/17	PDF
B	1-2B 2-5C 2-6C 1-4A 2-3A 1-4A 2-3A	1. UPDATED PE STAMP FOR REV B. 2. UPDATED MATERIAL DESCRIPTION OF INSERT PLATES AT ENDS TO STAINLESS STEEL. 3. ADDED MANHOLES AND HATCHES 4. UPDATED LOCATIONS OF CLEAT INSERTS	DKG	8/31/17	KAJ



GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24".
- TOP SURFACE OF MAIN DECK TO BE FLUSH THROUGHOUT, SEE REF 1.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-061-1 SCANTLING CALCULATIONS
- 16101-200-100-1 LINES PLAN
- 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-110-1 BOTTOM AND SIDE SHELL
- 16101-200-110-2 SKEG
- 16101-200-120-1 MIDSHIP SECTION
- 16101-200-120-3 HULL TRANSVERSE BULKHEADS
- 16101-200-120-4 HULL TRANSVERSE FRAMES
- 16101-200-120-5 HULL LONGITUDINAL BULKHEADS AND GIRDERS
- 16101-200-526-1 DECK DRAIN PIPING SYSTEM
- 16101-200-624-3 HATCH SCHEDULE

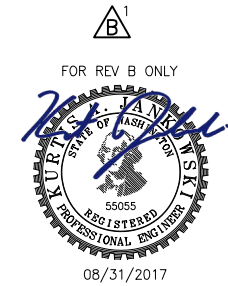
PLAN 1-4A
MAIN DECK - 'A' END

LEGEND

	BULKHEAD
	LONG GIRDER/ WEB FRAME
	ORDINARY STIFFENER
	BRACKET
	PLATE SEAM
	KNUCKLE
	TONNAGE FRAME
	STANCHION UNDER DECK

MAIN DECK PL - CENTER: 1/2" TYP U.N.O.
 MAIN DECK PL - OUTBD: 5/16" TYP U.N.O.
 MAIN DECK STIFFENERS: HP140x8 TYP U.N.O.
 MAIN DECK GIRDERS & WEBS: 14"x3"x5/16" L TYP U.N.O.
 STANCHIONS: 4" SCH 40 TYP U.N.O.

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: A
 ENGR: PATRICK D. FAAS
 DATED: 07/28/2017
 STATE: WA
 REG NO: 49313

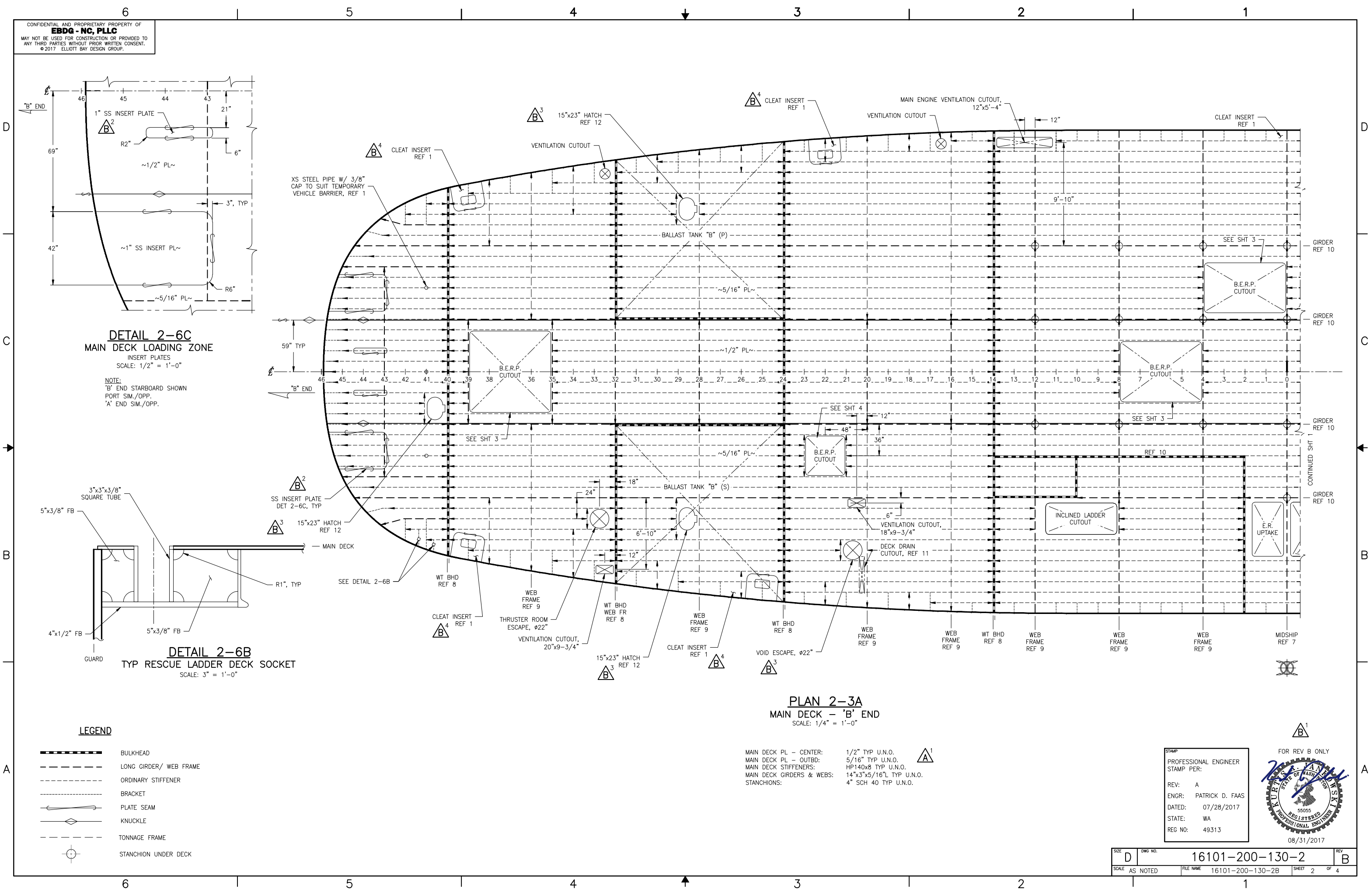


Elliott Bay Design Group
 North Carolina, PLLC
 CLIENT: NORTH CAROLINA D.O.T.
 PROJECT: RALEIGH, NORTH CAROLINA
 TITLE: NEW RIVER CLASS FERRY

MAIN DECK

SIZE	D	DWG NO.	16101-200-130-2	REV	B
SCALE	1/4"=1'-0"	FILE NAME	16101-200-130-2B	SHEET	1 OF 4
DWN	JPC	MOD	MWR/ZDL	CKD	PDF
APVD	KAJ	APVD DATE	7/27/2017		

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DETAIL 2-6C
 MAIN DECK LOADING ZONE
 INSERT PLATES
 SCALE: 1/2" = 1'-0"

NOTE:
 'B' END STARBOARD SHOWN
 PORT SIM./OPP.
 'A' END SIM./OPP.

DETAIL 2-6B
 TYP RESCUE LADDER DECK SOCKET
 SCALE: 3" = 1'-0"

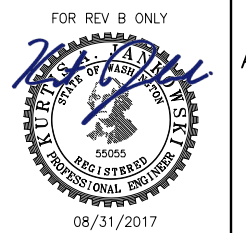
PLAN 2-3A
 MAIN DECK - 'B' END
 SCALE: 1/4" = 1'-0"

LEGEND

- BULKHEAD
- LONG GIRDER/ WEB FRAME
- ORDINARY STIFFENER
- BRACKET
- PLATE SEAM
- KNUCKLE
- TONNAGE FRAME
- STANCHION UNDER DECK

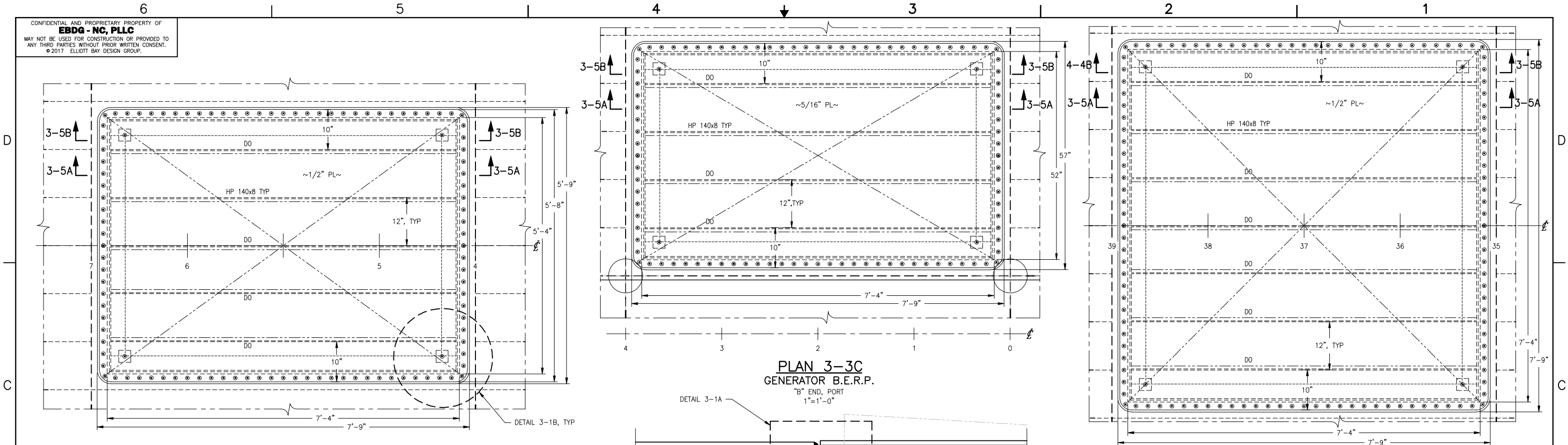
- MAIN DECK PL - CENTER: 1/2" TYP U.N.O.
- MAIN DECK PL - OUTBD: 5/16" TYP U.N.O.
- MAIN DECK STIFFENERS: HP140x8 TYP U.N.O.
- MAIN DECK GIRDERS & WEBS: 14"x3"x5/16"L TYP U.N.O.
- STANCHIONS: 4" SCH 40 TYP U.N.O.

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 PROFESSIONAL ENGINEER
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 REV: A
 ENGR: PATRICK D. FAAS
 DATED: 07/28/2017
 STATE: WA
 REG NO: 49313



SIZE	D	OWG NO.	16101-200-130-2	REV	B
SCALE	AS NOTED	FILE NAME	16101-200-130-2B	SHEET	2 OF 4

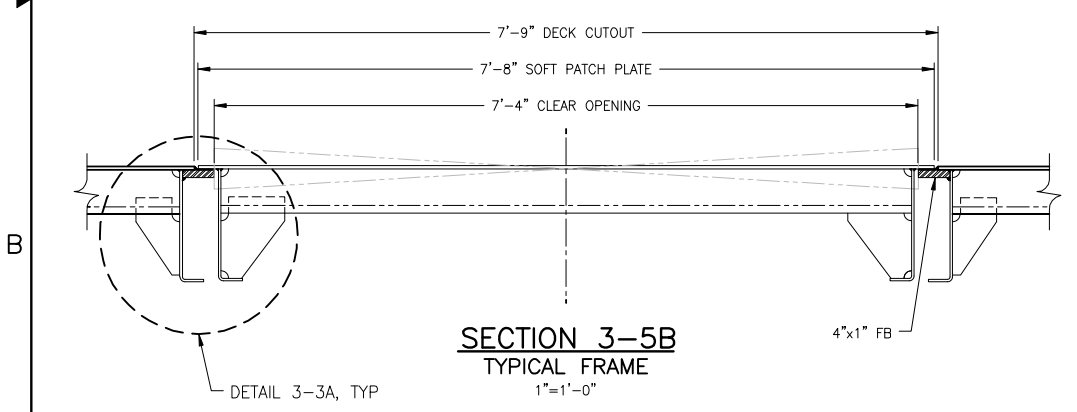
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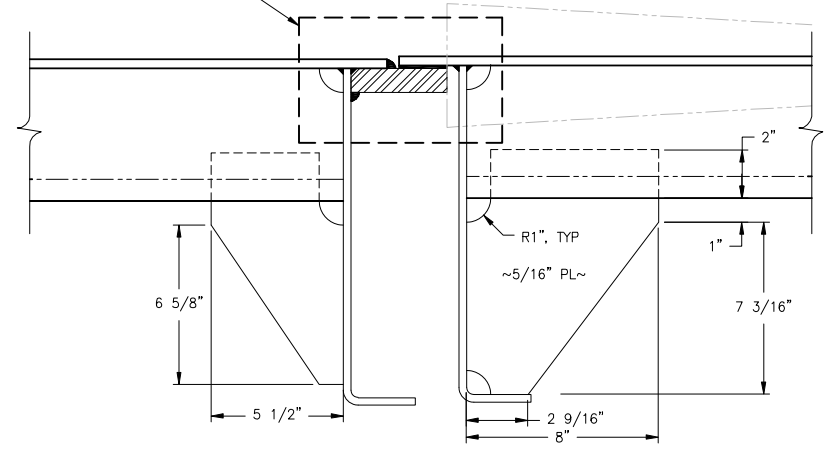
PLAN 3-5C
 MAIN ENGINE B.E.R.P.
 "B" END SHOWN; "A" END MIRRORED ABOUT MIDSHIP
 1"=1'-0"

PLAN 3-3C
 GENERATOR B.E.R.P.
 "B" END, PORT
 1"=1'-0"

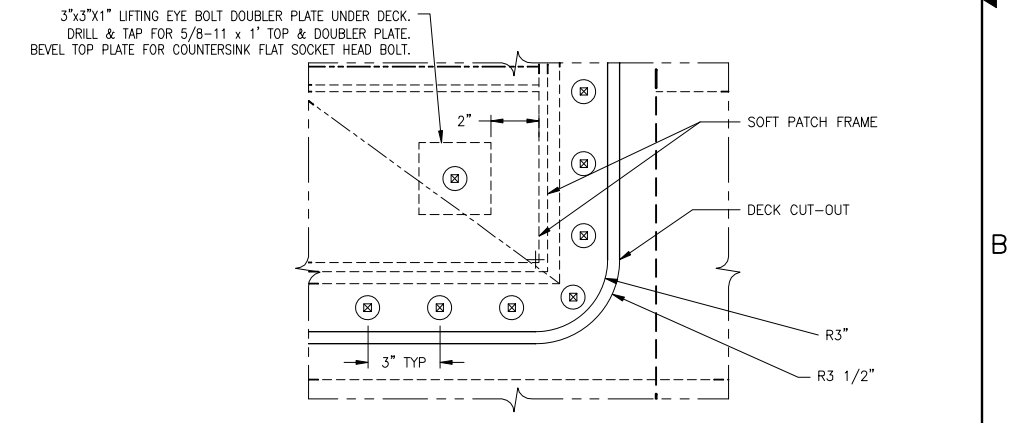
PLAN 3-1C
 VSP B.E.R.P.
 "B" END SHOWN; "A" END MIRRORED ABOUT MIDSHIP
 1"=1'-0"



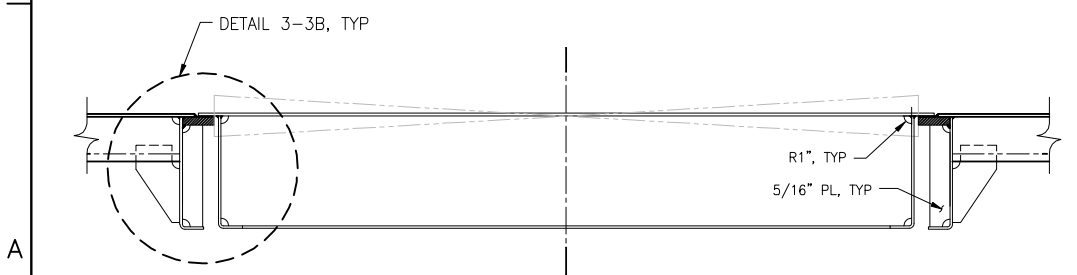
SECTION 3-5B
 TYPICAL FRAME
 1"=1'-0"



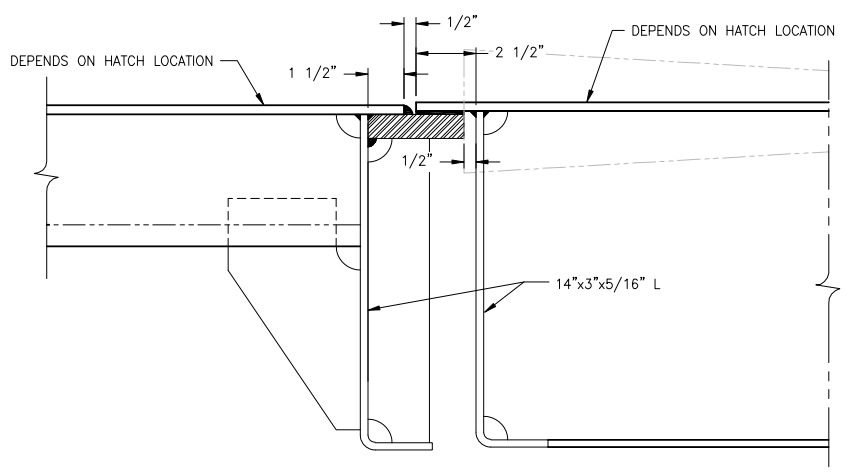
DETAIL 3-3A
 TYPICAL BRACKET DETAIL
 3"=1'-0"



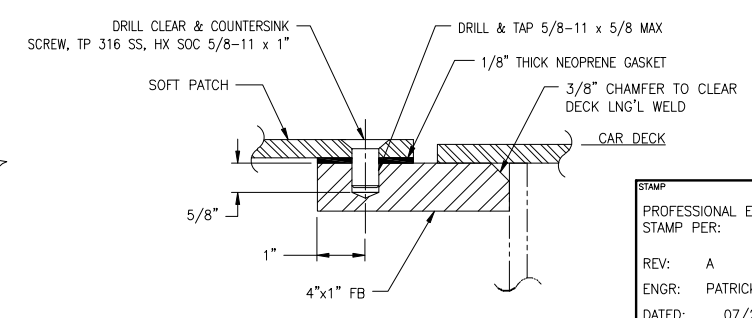
DETAIL 3-1B
 TYPICAL HATCH CORNER
 3"=1'-0"



SECTION 3-5A
 B.E.R.P. END BEAM
 1"=1'-0"

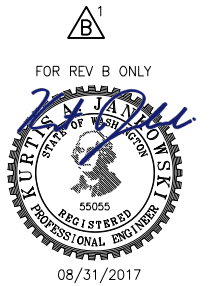


DETAIL 3-3B
 TYPICAL HATCH SUPPORT
 3"=1'-0"



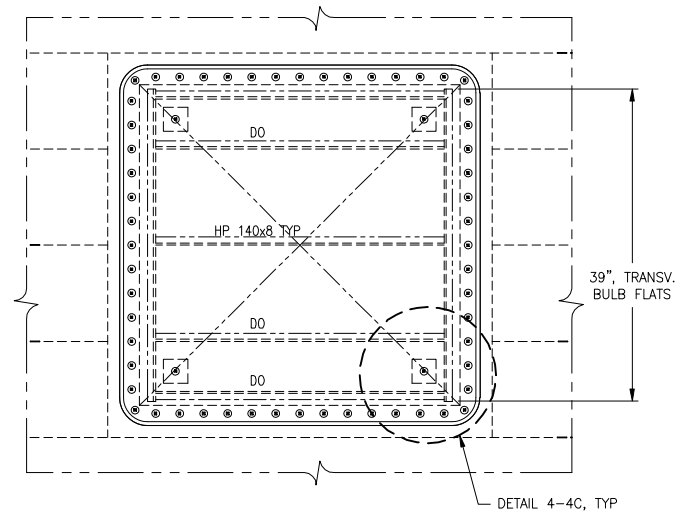
DETAIL 3-1A
 6"=1'-0"

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 ENGR: PATRICK D. FAAS
 DATED: 07/28/2017
 STATE: WA
 REG NO: 49313

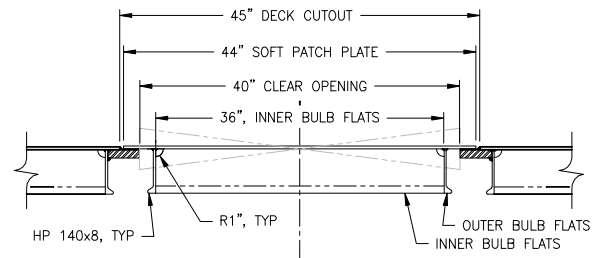


SIZE	D	OWG NO.	16101-200-130-2	REV	B
SCALE	AS NOTED	FILE NAME	16101-200-130-2B	SHEET	3 OF 4

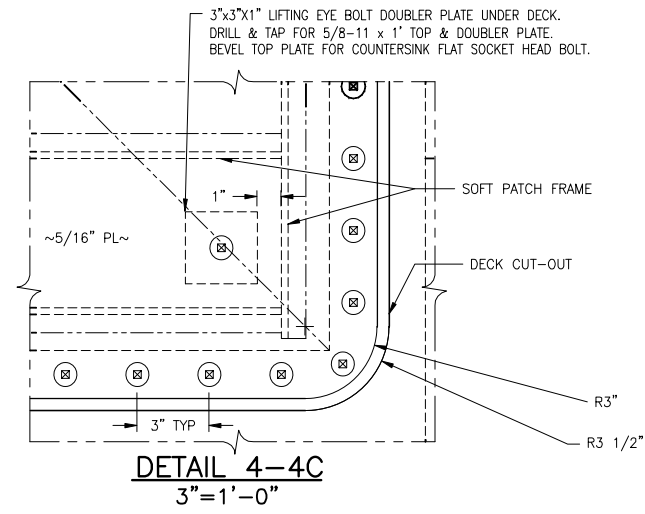
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PLAN 4-6C
 SMALL EQUIPMENT REMOVAL B.E.R.P.
 SIDE B SHOWN; SIDE A ROTATE 180 ABOUT FR 0
 1"=1'-0"

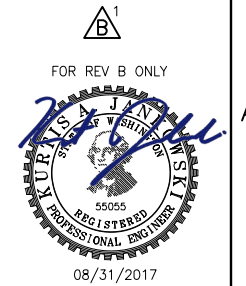


SECTION 4-6B
 TYPICAL FRAME
 1"=1'-0"



DETAIL 4-4C
 3"=1'-0"

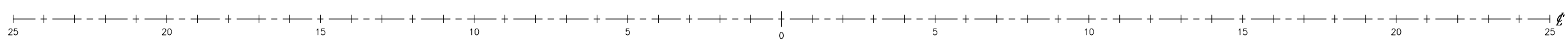
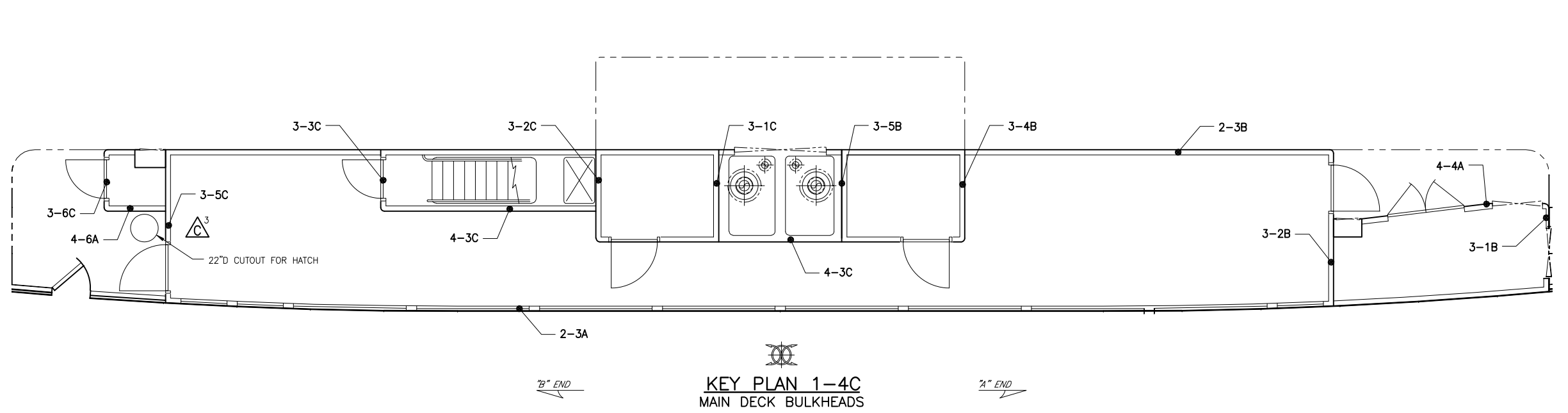
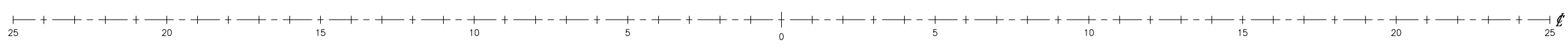
STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: A
 ENGR: PATRICK D. FAAS
 DATED: 07/28/2017
 STATE: WA
 REG NO: 49313



SIZE	D	DWG NO.	16101-200-130-2	REV	B
SCALE	AS NOTED	FILE NAME	16101-200-130-2B	SHEET	4 OF 4

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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-4A 2-3A 2-4D 1-4A	1. ADDED RESCUE BOAT DAVIT FOUNDATION DETAILS AND DETAIL VIEW. 2. ADDED MAST INSERT PLATE DETAILS.	PDF	7/28/17	PDF
B	3-1B 4-4A	1. UPDATED EMERGENCY GENERATOR ROOM BULKHEADS AND LOUVER CUTOUTS.	PDF	8/10/17	PDF
C	1-2B 1-6B 1-6C 4-5C	1. UPDATED PE STAMP FOR REV C. 2. UPDATED LOCATION OF MAST SUPPORT STRUCTURE A AND B END. 3. ADDED HATCH CUTOUT. 4. ADDED LOUVER DESCRIPTION.	DKG	8/31/17	KAJ

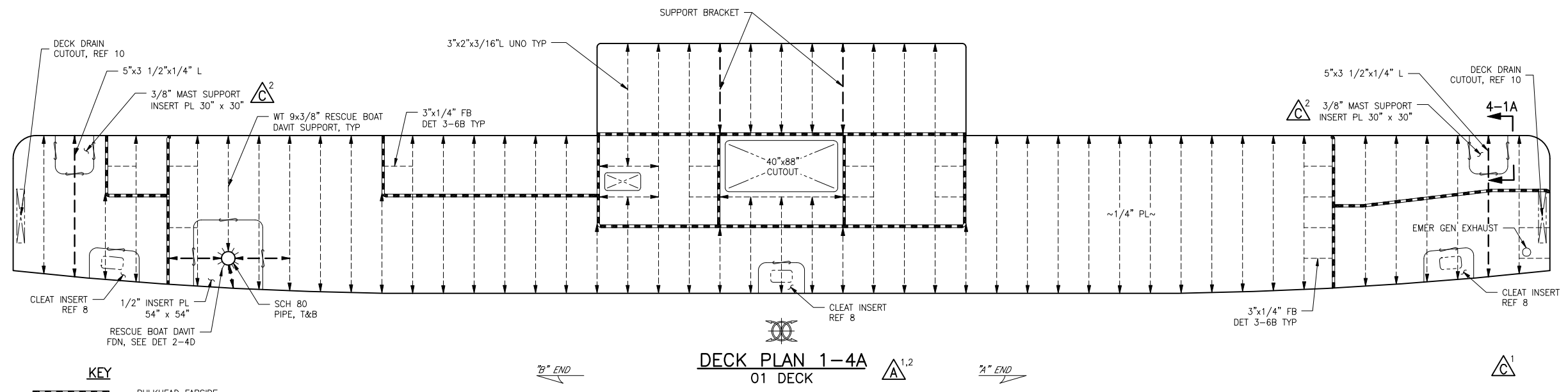


GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24".
3. TRANSVERSE BULKHEAD STIFFENER SPACING = 24" UNO
4. MAIN DECK CURTAIN PLATE 5/16" PLATE UNO STIFFENERS 3"x3"x1/4" L THROUGHOUT UNO
5. CONTRACTOR SHALL VERIFY STRUCTURE FOR ALL FOUNDATIONS PRIOR TO CONSTRUCTION. SEE REF 8.

REFERENCES

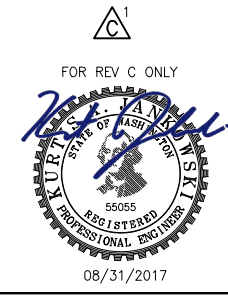
1. 16101-200-061-1 SCANTLING CALCULATIONS
2. 16101-200-101-0 PROFILES AND DECK ARRANGEMENTS
3. 16101-200-120-1 MIDSHIP SECTION
4. 16101-200-130-2 MAIN DECK
5. 16101-200-150-2 SUPERSTRUCTURE 01 DECK TO PILOT HOUSE TOP
6. 16101-200-150-3 MAIN DECK BULKHEADS
7. 16101-200-513-1 MACHINERY VENTILATION ARRANGEMENT
8. 16101-200-832-1 TECHNICAL SPECIFICATION
9. 16101-200-170-1 MASTS
10. 16101-200-526-1 DECK DRAIN PIPING SYSTEM



KEY

	BULKHEAD FAR SIDE
	BULKHEAD NEAR SIDE
	GIRDER FAR SIDE
	GIRDER NEAR SIDE
	ORDINARY STIFFENER FAR SIDE
	ORDINARY STIFFENER NEAR SIDE
	KNUCKLE

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: B
 ENGR: PATRICK D. FAAS
 DATED: 08/10/2017
 STATE: WA
 REG NO: 49313



Elliott Bay Design Group
 North Carolina, PLLC

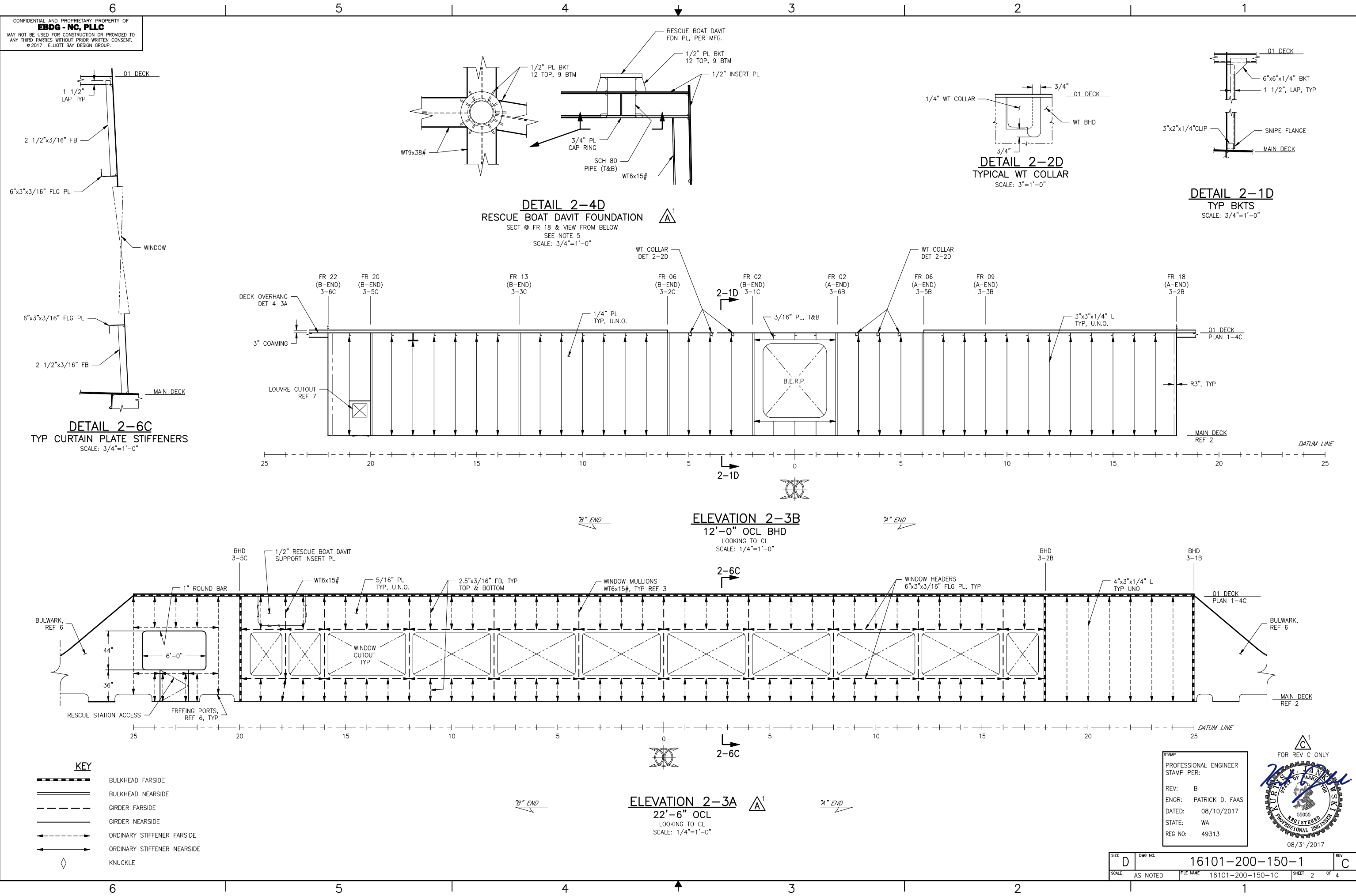
CLIENT: NORTH CAROLINA D.O.T.
 RALEIGH, NORTH CAROLINA

PROJECT: NEW RIVER CLASS FERRY

**SUPERSTRUCTURE
 MAIN DECK TO 01 DECK**

SIZE: D	DWG NO: 16101-200-150-1	REV: C
SCALE: 1/4"=1'-0"	FILE NAME: 16101-200-150-1C	SHEET 1 OF 4
DWN: JPC	MOD: DKG/ZDL	CD: PDF
APVD: KAJ	APVD DATE: 7/27/2017	

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KEY

	BULKHEAD FAR SIDE
	BULKHEAD NEAR SIDE
	GIRDER FAR SIDE
	GIRDER NEAR SIDE
	ORDINARY STIFFENER FAR SIDE
	ORDINARY STIFFENER NEAR SIDE
	KNUCKLE

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: B
 ENGR: PATRICK D. FAAS
 DATED: 08/10/2017
 STATE: WA
 REG NO: 49313



SIZE	D	OWG NO.	16101-200-150-1	REV	C
SCALE	AS NOTED	FILE NAME	16101-200-150-1C	SHEET	2 OF 4

6

5

4

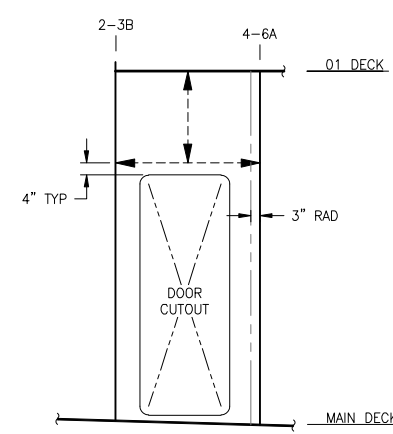
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2

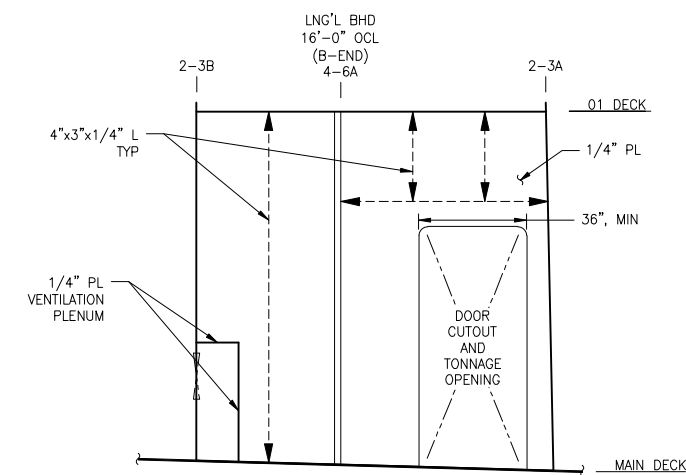
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D

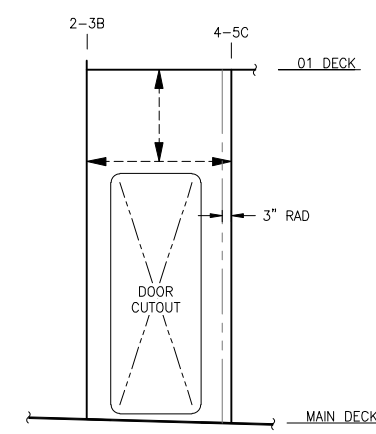
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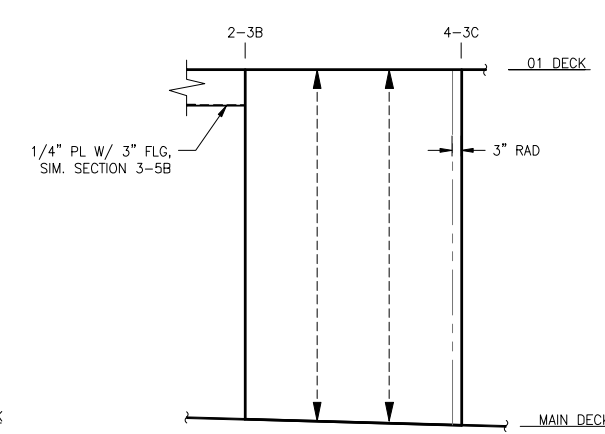
SECTION 3-6C
 FR 22, B-END
 LOOKING TO A-END
 3/8"=1'-0"



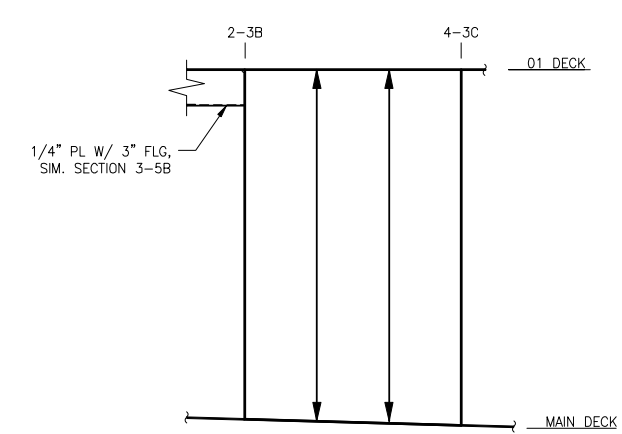
SECTION 3-5C
 FR 20, B-END
 LOOKING TO A-END
 3/8"=1'-0"



SECTION 3-3C
 FR 13, B-END
 LOOKING TO A-END
 3/8"=1'-0"



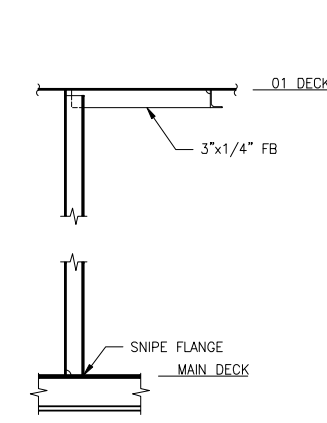
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 FR 06, B-END
 LOOKING TO A-END
 3/8"=1'-0"



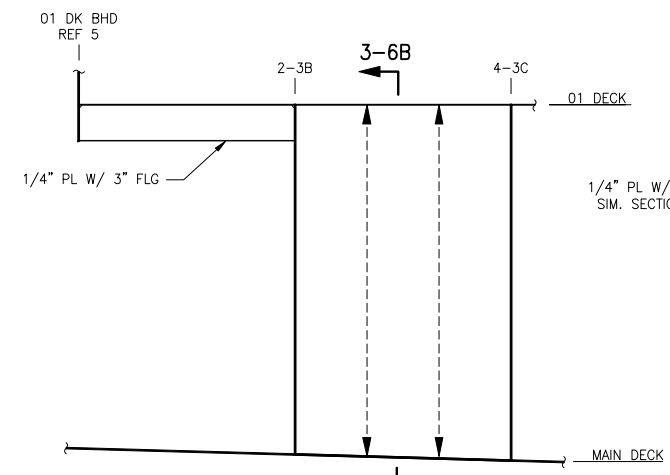
SECTION 3-1C
 FR 02, B-END
 LOOKING TO A-END
 3/8"=1'-0"

C

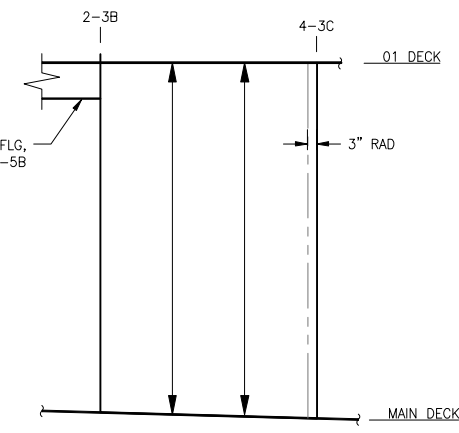
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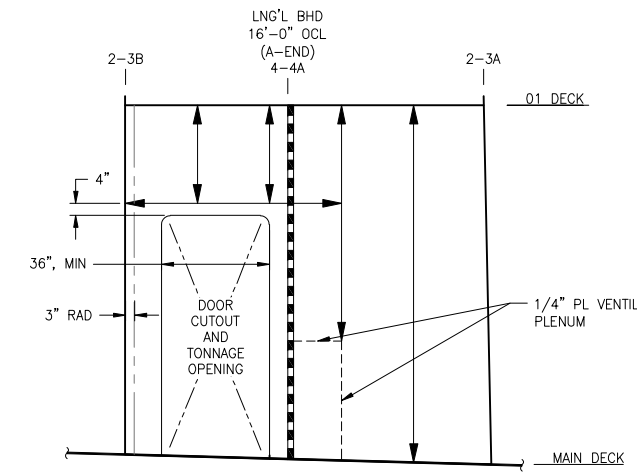
DETAIL 3-6B
 TYPICAL TRANSVERSE BHD STIFFENER
 SCALE: 3/4"=1'-0"



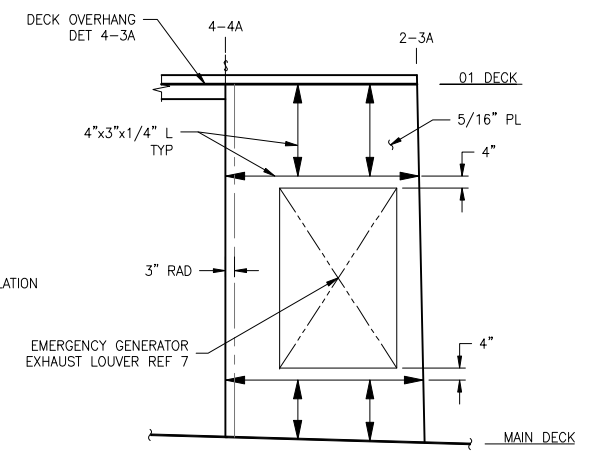
SECTION 3-6B
 FR 02, A-END
 LOOKING TO A-END
 3/8"=1'-0"



SECTION 3-4B
 FR 06, A-END
 LOOKING TO A-END
 3/8"=1'-0"



SECTION 3-2B
 FR 18, A-END
 LOOKING TO A-END
 3/8"=1'-0"



SECTION 3-1B
 FR 25, A-END
 LOOKING TO A-END
 3/8"=1'-0"

B

B

A

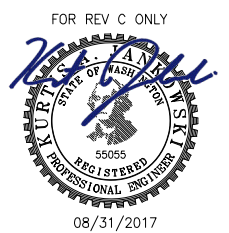
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KEY

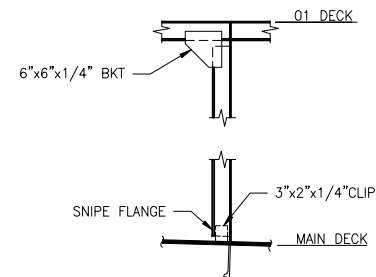
	BULKHEAD FAR SIDE
	BULKHEAD NEAR SIDE
	GIRDER FAR SIDE
	GIRDER NEAR SIDE
	ORDINARY STIFFENER FAR SIDE
	ORDINARY STIFFENER NEAR SIDE
	KNUCKLE

NOTE:
 BHD PLATE 1/4"
 STIFFENERS 3"x3"x1/4" L UNO

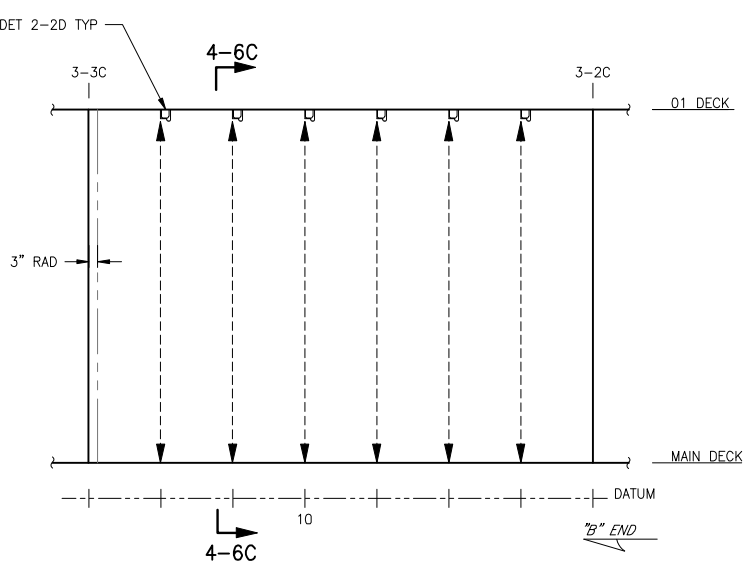
STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: B
 ENGR: PATRICK D. FAAS
 DATED: 08/10/2017
 STATE: WA
 REG NO: 49313



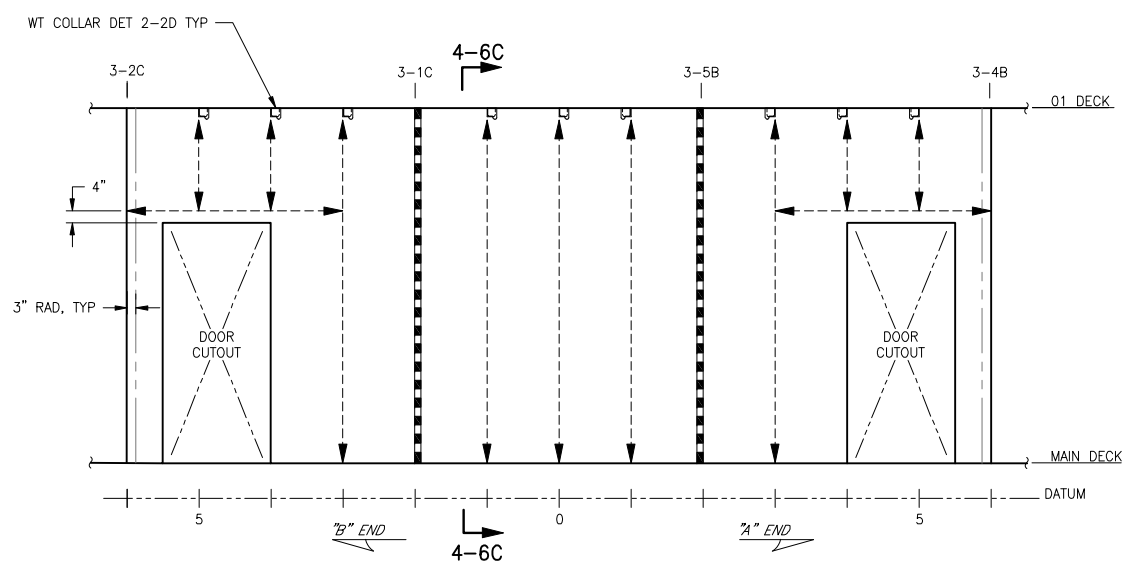
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SCALE	AS NOTED	FILE NAME	16101-200-150-1C	SHEET	3 OF 4



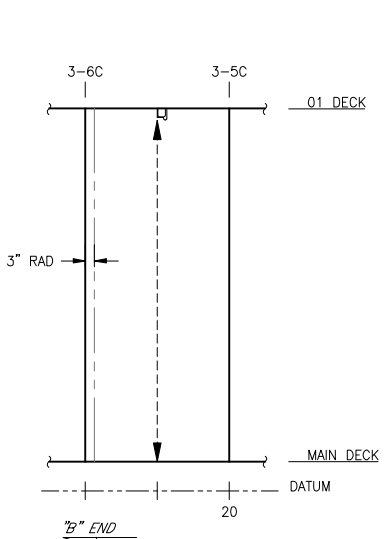
DETAIL 4-6C
 TYP BKTS
 SCALE: 3/4"=1'-0"



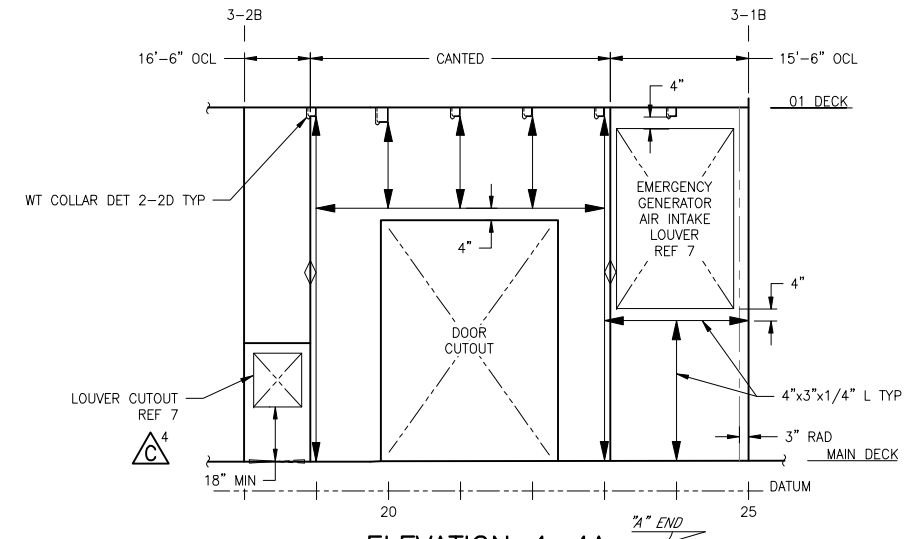
ELEVATION 4-5C
 16'-0" OCL BHD
 LOOKING TO CL
 SCALE: 3/8"=1'-0"



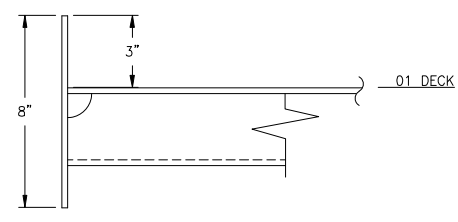
ELEVATION 4-3C
 18'-0" OCL BHD
 LOOKING TO CL
 SCALE: 3/8"=1'-0"



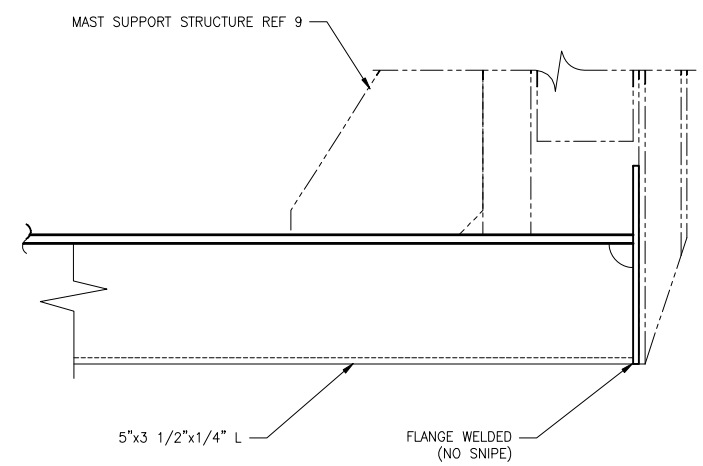
ELEVATION 4-6A
 16'-0" OCL BHD
 LOOKING TO CL
 SCALE: 3/8"=1'-0"



ELEVATION 4-4A
 16'-6" TO 15'-6" OCL BHD
 LOOKING TO CL
 SCALE: 3/8"=1'-0"



DETAIL 4-3A
 DECK EDGE AT OVERHANGS
 SCALE: 3"=1'-0"



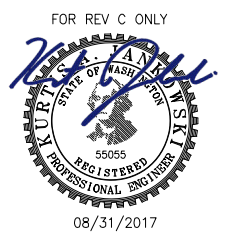
DETAIL 4-1A
 MAST SUPPORT STIFFENER
 FRAME 23 A,B-END
 SCALE: 3"=1'-0"

KEY

	BULKHEAD FAR SIDE
	BULKHEAD NEAR SIDE
	GIRDER FAR SIDE
	GIRDER NEAR SIDE
	ORDINARY STIFFENER FAR SIDE
	ORDINARY STIFFENER NEAR SIDE
	KNUCKLE

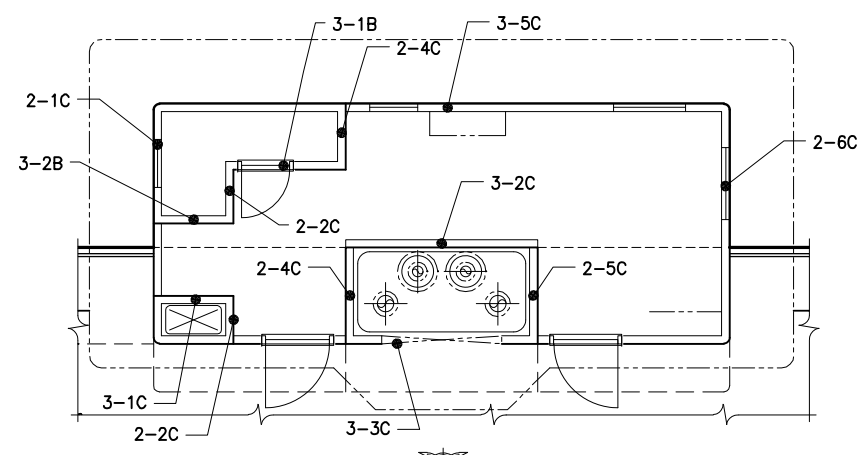
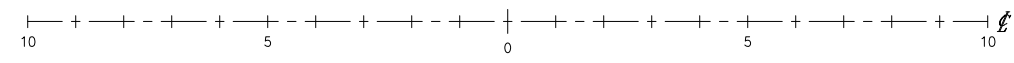
NOTE:
 BHD PLATE 1/4"
 STIFFENERS 3"x3"x1/4" L UNO

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: B
 ENGR: PATRICK D. FAAS
 DATED: 08/10/2017
 STATE: WA
 REG NO: 49313

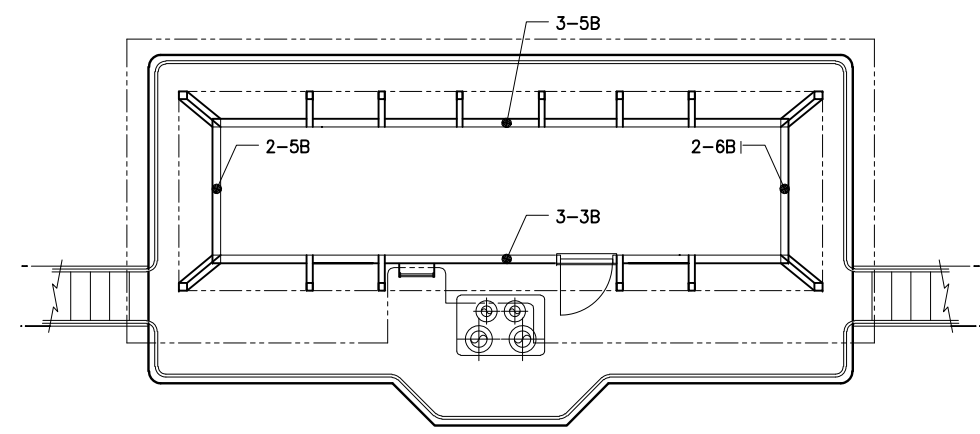
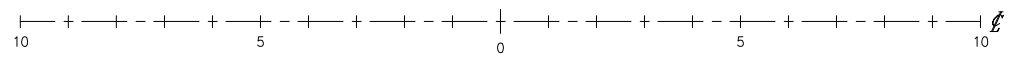


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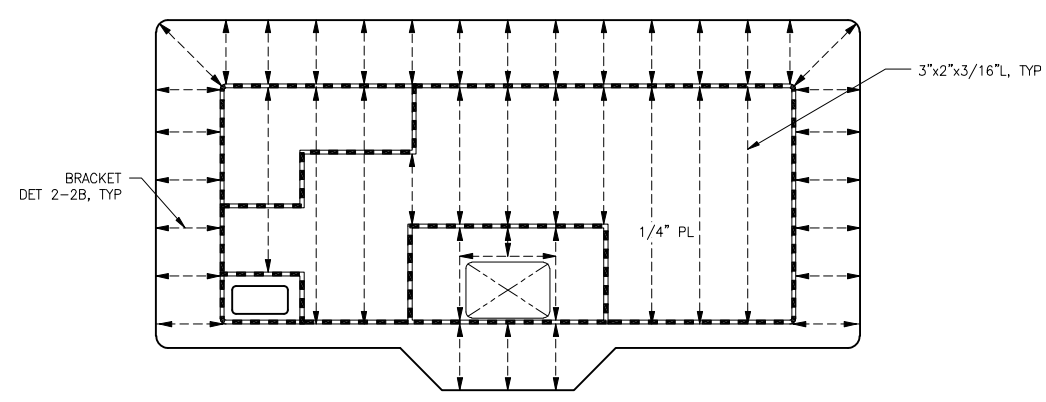
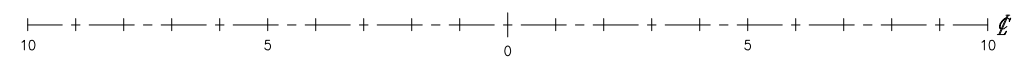
REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-3B	1. ADDED INSERT PLATE FOR LIGHT MAST ON PILOT HOUSE TOP	WHL	7/28/17	PDF



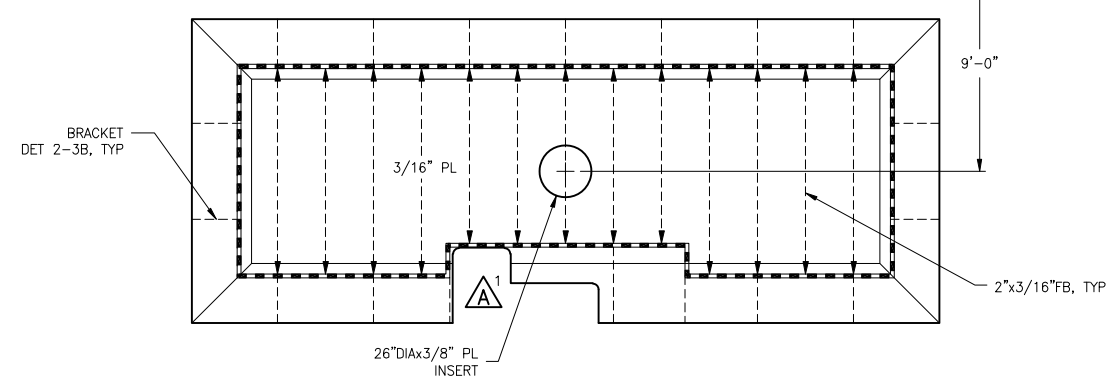
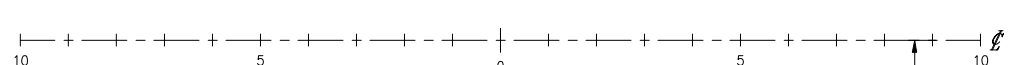
KEY PLAN 1-5C
01 DECK BULKHEADS



KEY PLAN 1-3C
PILOT HOUSE BULKHEADS



PLAN 1-5A
BRIDGE DECK



PLAN 1-3A
PILOT HOUSE TOP

KEY

	BULKHEAD FAR SIDE
	BULKHEAD NEAR SIDE
	GIRDER FAR SIDE
	GIRDER NEAR SIDE
	ORDINARY STIFFENER FAR SIDE
	ORDINARY STIFFENER NEAR SIDE

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24".
- TRANSVERSE BULKHEAD STIFFENER SPACING = 24" U.N.O.
- CONTRACTOR SHALL VERIFY STRUCTURE FOR ALL FOUNDATIONS PRIOR TO CONSTRUCTION. SEE REF 7.

REFERENCES

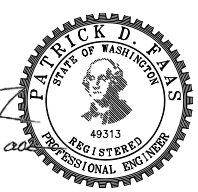
- 16101-200-061-1 SCANTLING CALCULATIONS
- 16101-200-101-0 PROFILES AND DECK ARRANGEMENTS
- 16101-200-120-1 MIDSHIP SECTION
- 16101-200-130-2 MAIN DECK
- 16101-200-150-1 SUPERSTRUCTURE MAIN DECK TO 01 DECK
- 16101-200-150-3 MAIN DECK BULKWARKS
- 16101-200-832-1 TECHNICAL SPECIFICATION



Elliott Bay Design Group
North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY

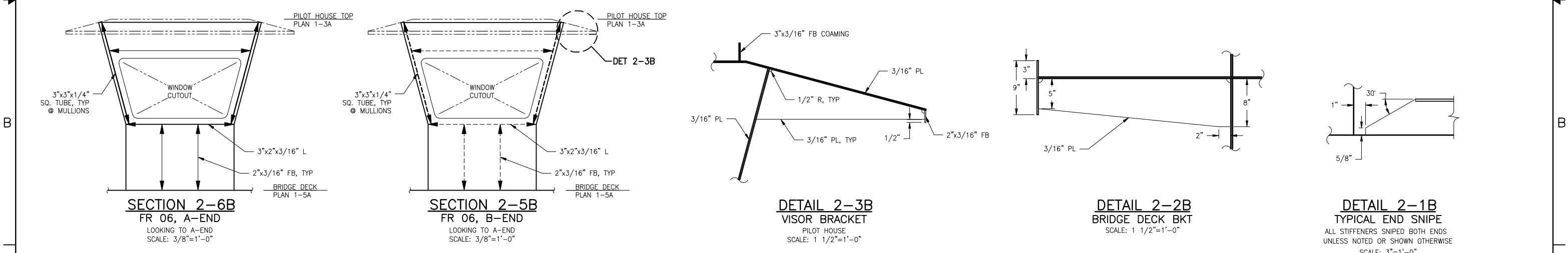
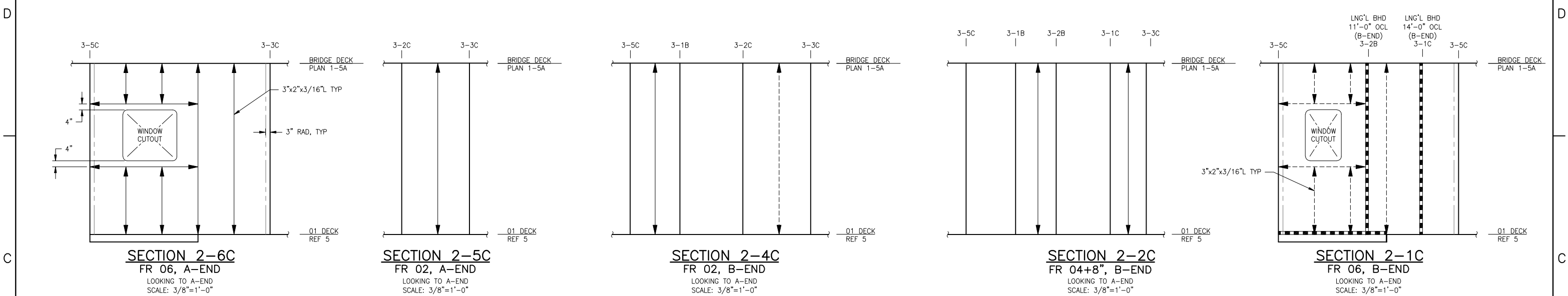


Patrick J. Adams

SUPERSTRUCTURE
01 DECK TO PILOT HOUSE TOP

SIZE	DWG NO.	REV
D	16101-200-150-2	A
SCALE	FILE NAME	SHEET
1/4"=1'-0"	16101-200-150-2A	1 OF 3
DWN	MOD	APVD
JPC	DKG	PDF
		APVD DATE
		7/27/2017

6 5 4 3 2 1

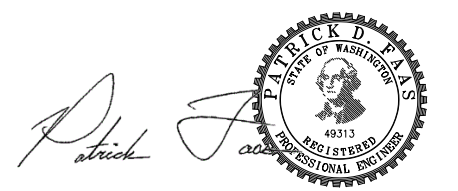


KEY

	BULKHEAD FAR SIDE
	BULKHEAD NEAR SIDE
	GIRDER FAR SIDE
	GIRDER NEAR SIDE
	ORDINARY STIFFENER FAR SIDE
	ORDINARY STIFFENER NEAR SIDE

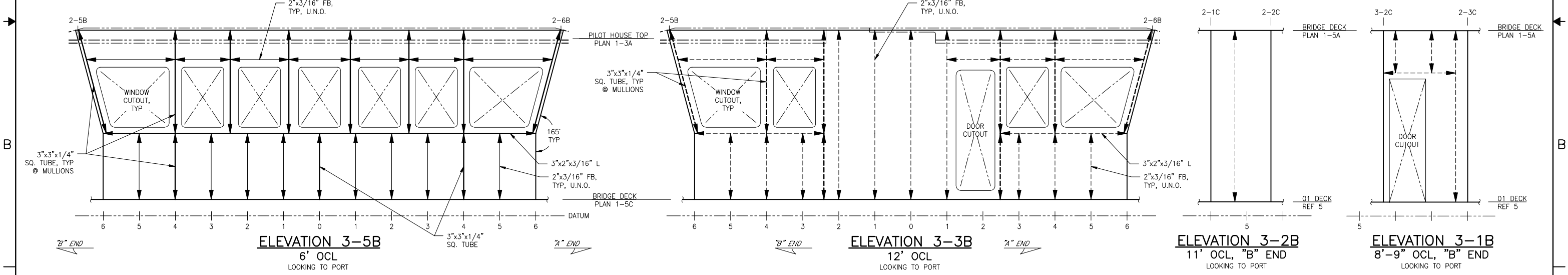
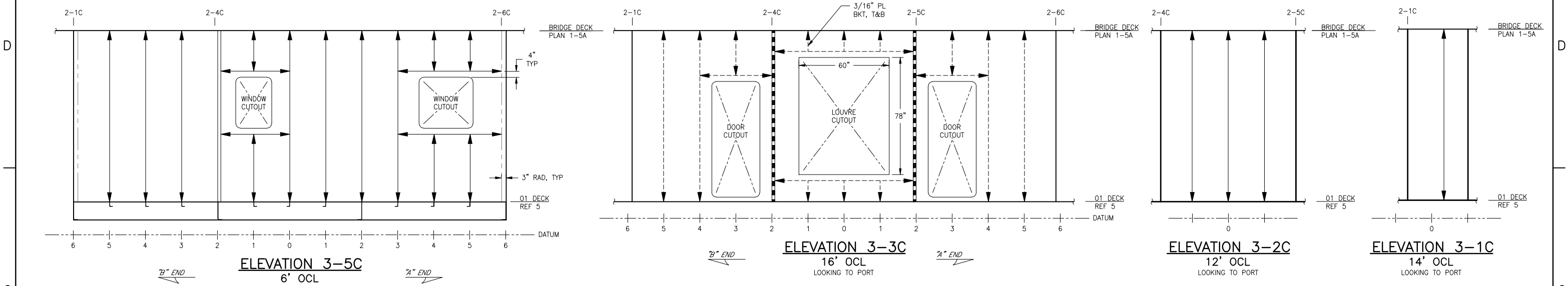
NOTE:
 01 DECK BULKHEADS 1/4" PLATE UNO.
 PILOT HOUSE BULKHEADS 3/16" PLATE UNO.
 STIFFENERS 3"x2"x3/16" L THROUGHOUT UNO.
 SNIPE ENDS PER DETAIL 2-1B

NOTE:
 LONGITUDINAL BULKHEAD STIFFENER SPACING = 24" U.N.O.



6 5 4 3 2 1

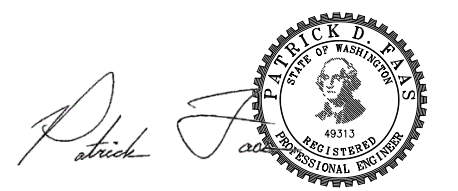
6 5 4 3 2 1



- KEY**
- BULKHEAD FAR SIDE
 - BULKHEAD NEAR SIDE
 - GIRDER FAR SIDE
 - GIRDER NEAR SIDE
 - ORDINARY STIFFENER FAR SIDE
 - ORDINARY STIFFENER NEAR SIDE

NOTE:
 BRIDGE DECK BULKHEADS 1/4" PLATE UNO.
 PILOT HOUSE BULKHEADS 3/16" PLATE UNO.
 STIFFENERS 3"x2"x3/16" L THROUGHOUT UNO.
 SNIPE ENDS PER DETAIL 2-1B

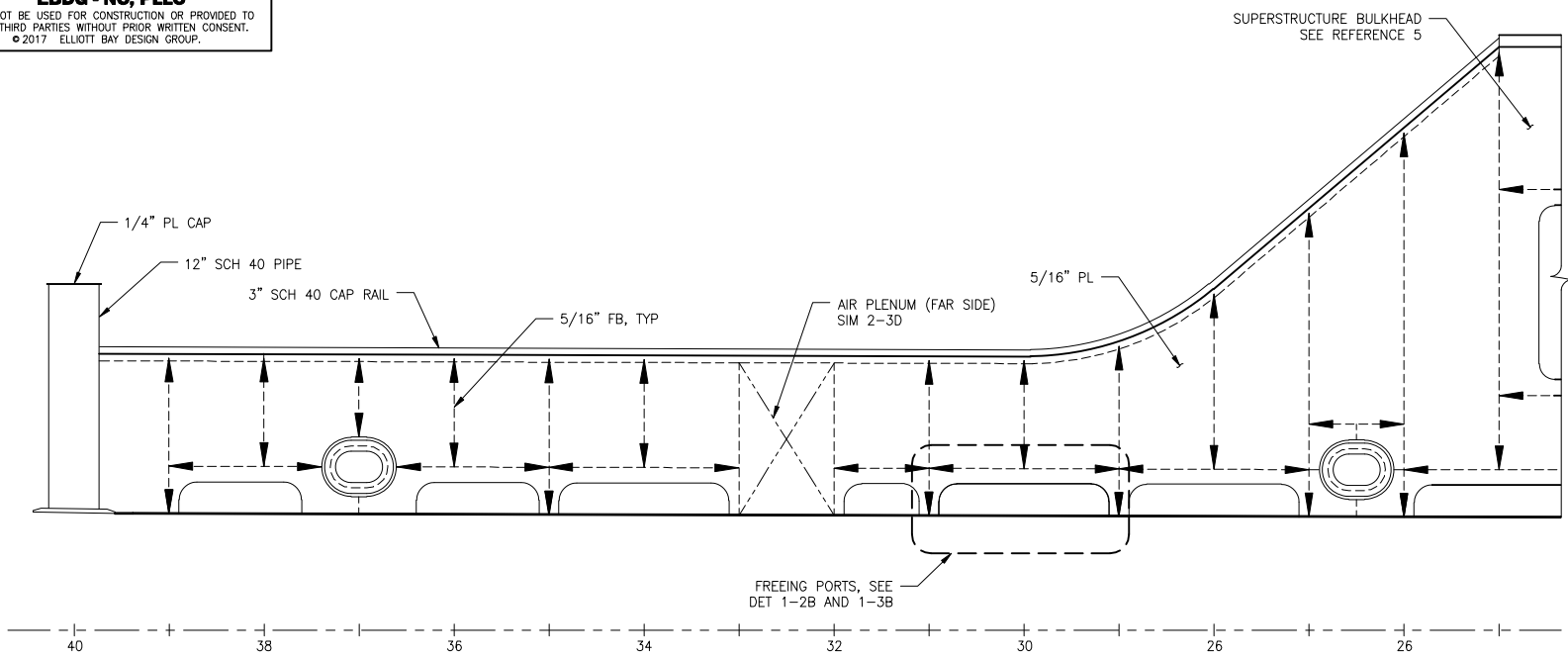
NOTE:
 TRANSVERSE BULKHEAD STIFFENER SPACING = 24" U.N.O.



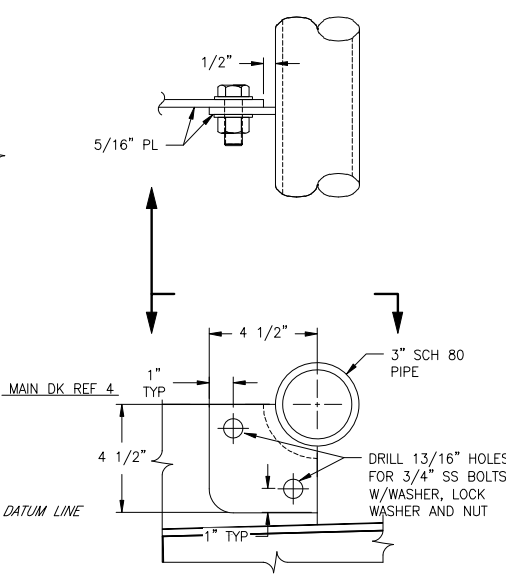
6 5 4 3 2 1

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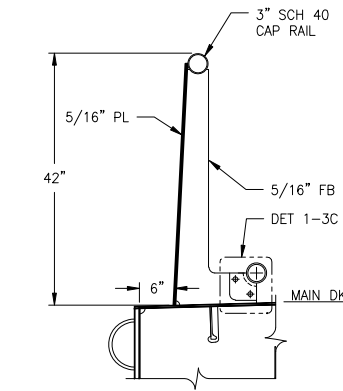
REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-3C	1. UPDATED PE STAMP FOR REV A. 2. ADDED DETAILS FOR BULWARK CONNECTION TO RUB RAIL.	DKG	08/31/17	KAJ



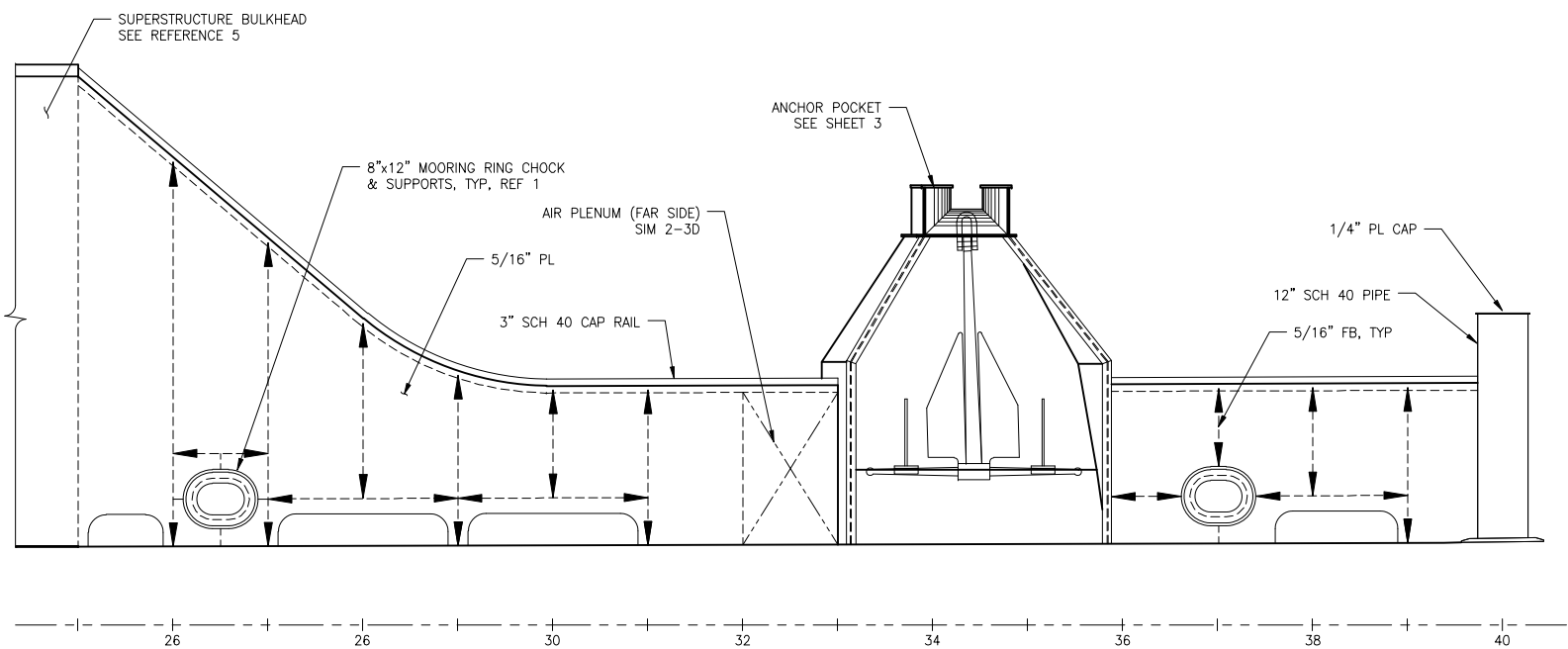
LONGITUDINAL ELEVATION 1-5C
 STARBOARD BULWARK - B END
 LOOKING TO CENTERLINE
 SCALE: 1/2"=1'-0"



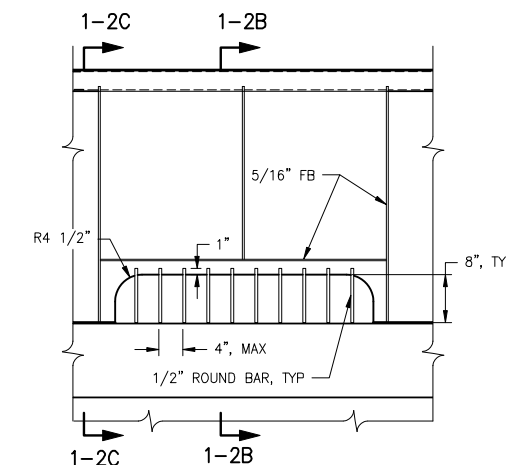
DETAIL 1-3C
 TYPICAL RUB RAIL ATTACHEMENT
 SCALE: 3/4"=1'-0"



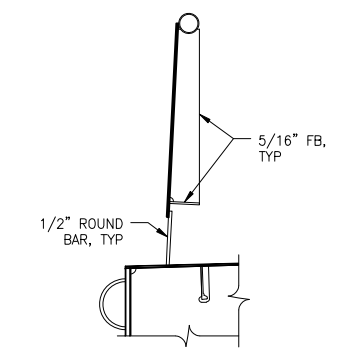
SECTION 1-2C
 TYPICAL BULWARK STRUCTURE
 SCALE: 3/4"=1'-0"



LONGITUDINAL ELEVATION 1-5A
 STARBOARD BULWARK - A END
 LOOKING TO CENTERLINE
 SCALE: 1/2"=1'-0"



DETAIL 1-3B
 TYPICAL FREEING PORT DETAIL
 LOOKING OUTBOARD
 SCALE: 3/4"=1'-0"



DETAIL 1-2B
 TYPICAL FREEING PORT DETAIL
 LONGITUDINAL SECTION
 SCALE: 3/4"=1'-0"

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24".
- CONTRACTOR SHALL VERIFY STRUCTURE FOR ALL FOUNDATIONS PRIOR TO CONSTRUCTION. SEE REF 1.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-101-0 PROFILES AND DECK ARRANGEMENTS
- 16101-200-120-1 MIDSHIP SECTION
- 16101-200-130-1 MAIN DECK
- 16101-200-150-1 SUPERSTRUCTURE, MAIN DECK TO 01 DECK
- 16101-200-513-1 MACHINERY VENTILATION ARRANGEMENT

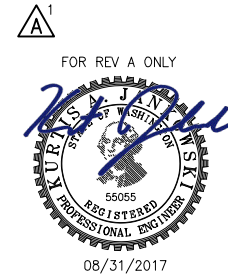


Elliott Bay Design Group
 North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313

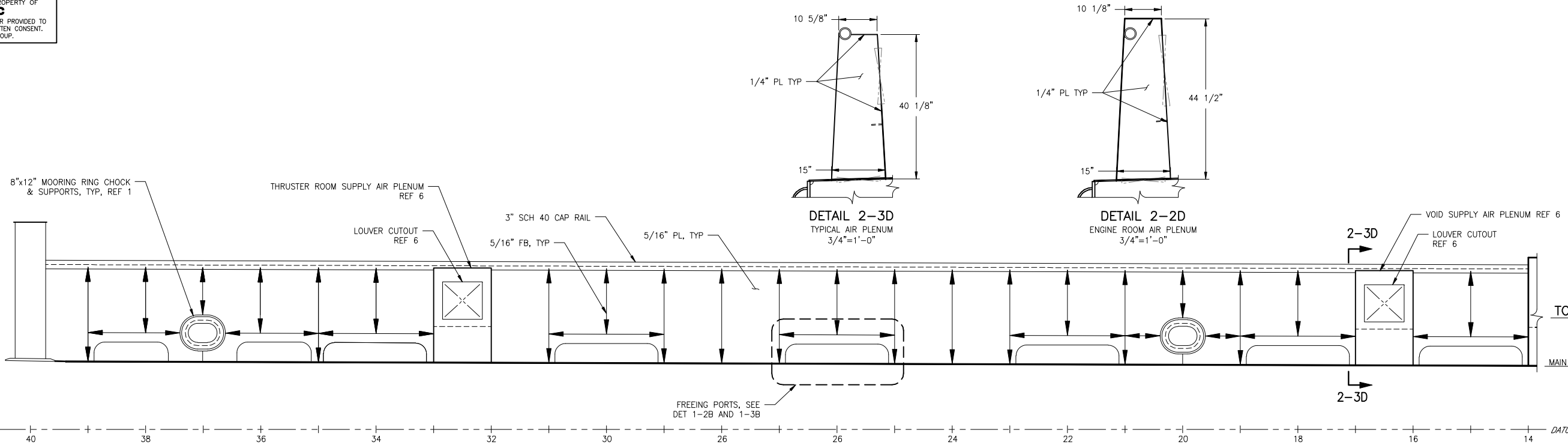


MAIN DECK BULWARKS

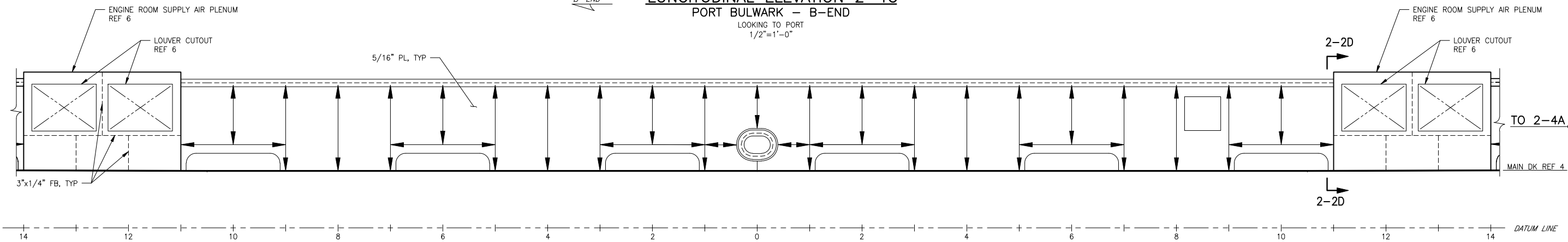
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SCALE	AS NOTED	FILE NAME	16101-200-150-3A	SHEET	1 OF 3
DWN	JPC	MOD	DKG	CHK	PDF
APVD	KAJ	APVD DATE	7/27/2017		

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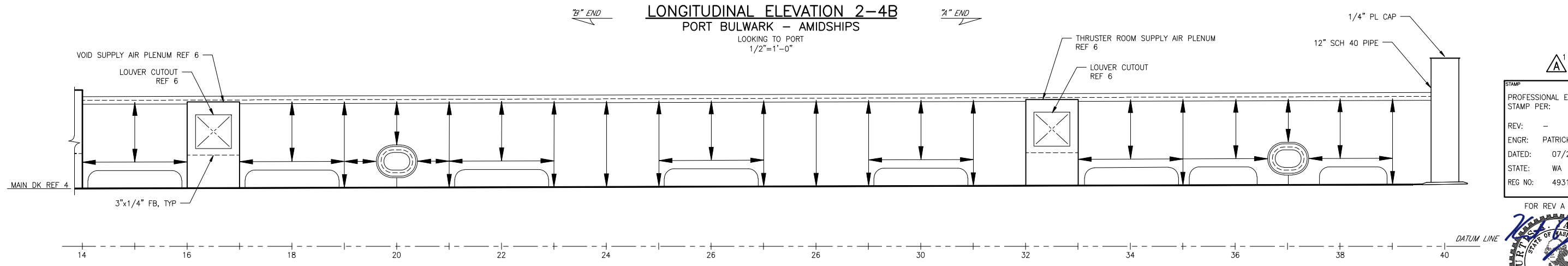
6 5 4 3 2 1



LONGITUDINAL ELEVATION 2-4C
 PORT BULWARK - B-END
 LOOKING TO PORT
 1/2"=1'-0"



LONGITUDINAL ELEVATION 2-4B
 PORT BULWARK - AMIDSHIPS
 LOOKING TO PORT
 1/2"=1'-0"



LONGITUDINAL ELEVATION 2-4A
 PORT BULWARK - A-END
 LOOKING TO PORT
 1/2"=1'-0"

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313

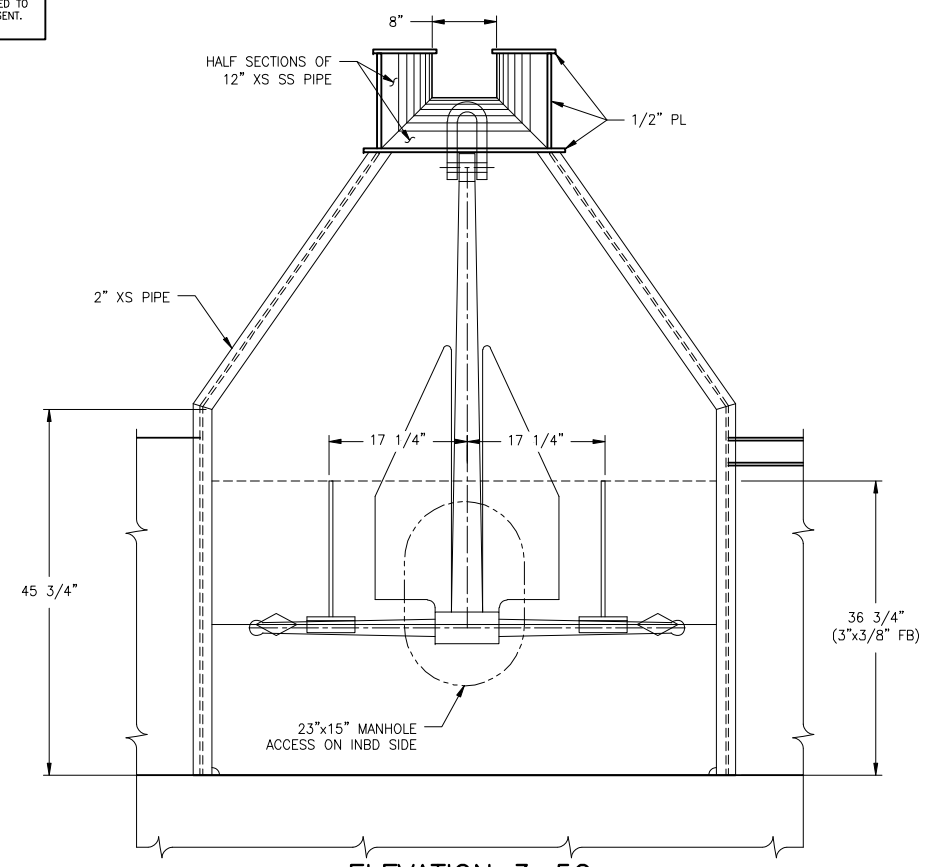
FOR REV A ONLY

 08/31/2017

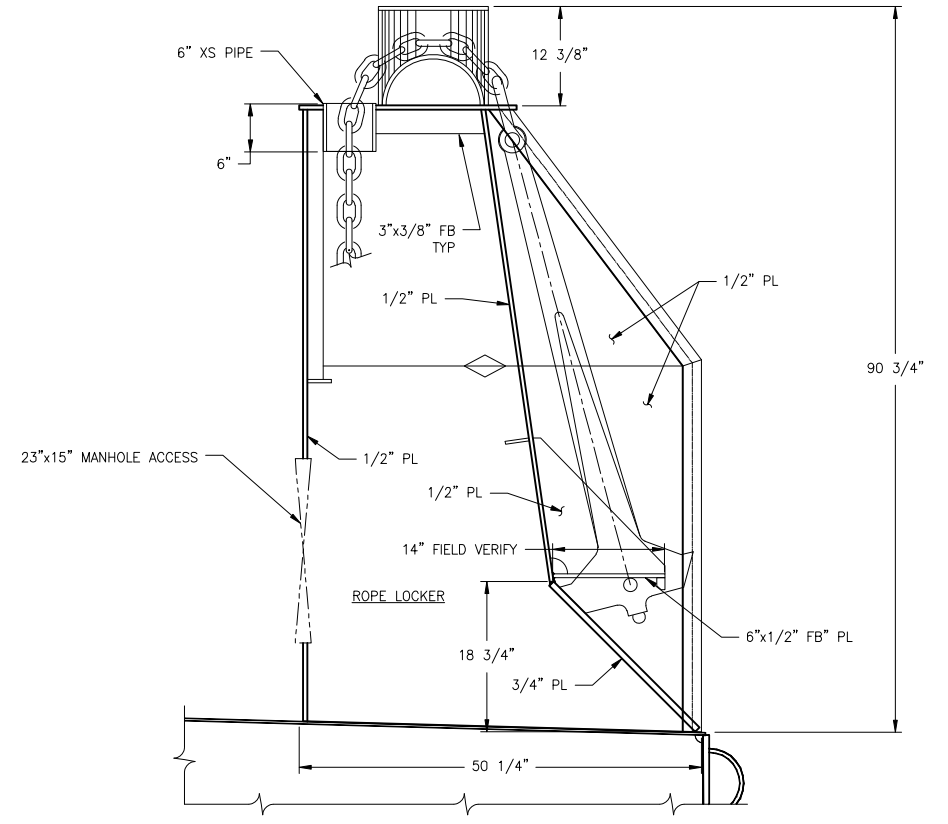
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SCALE	FILE NAME	SHEET
AS NOTED	16101-200-150-3A	2 OF 3

6 5 4 3 2 1

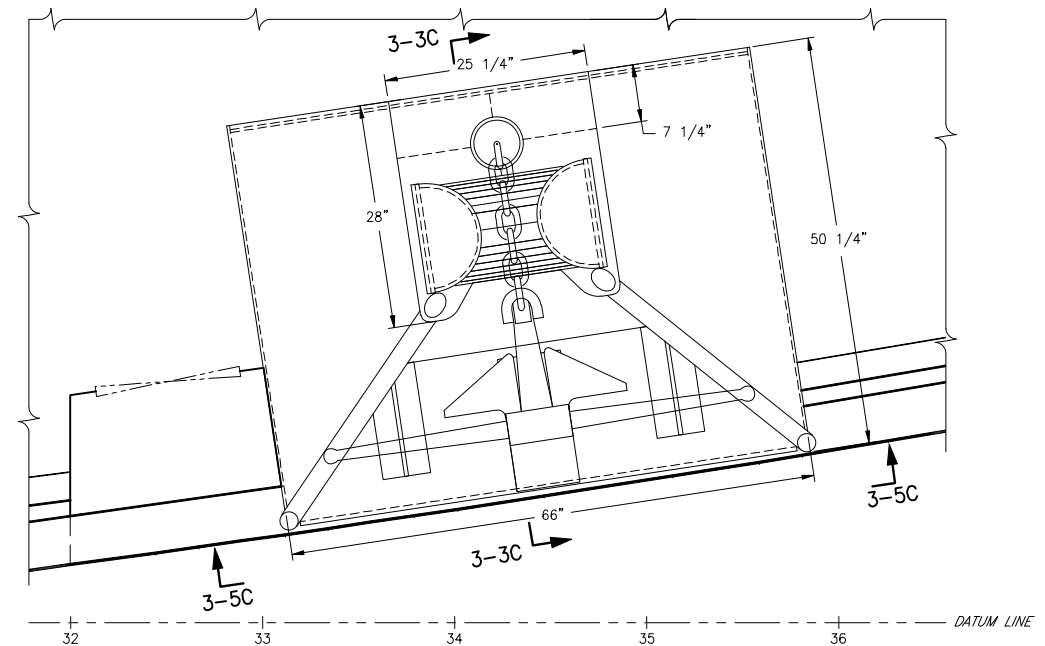
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ELEVATION 3-5C
 ANCHOR POCKET LOOKING INBD
 SCALE: 1"=1'-0"

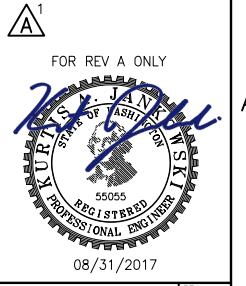


SECT 3-3C
 ANCHOR POCKET LOOKING FWD
 SCALE: 1"=1'-0"



PLAN 3-4A
 ANCHOR POCKET
 SCALE: 1"=1'-0"

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313

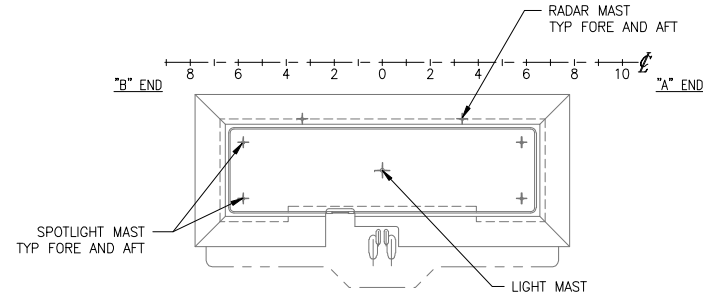


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SCALE	AS NOTED	FILE NAME	16101-200-150-3A	SHEET	3 OF 3

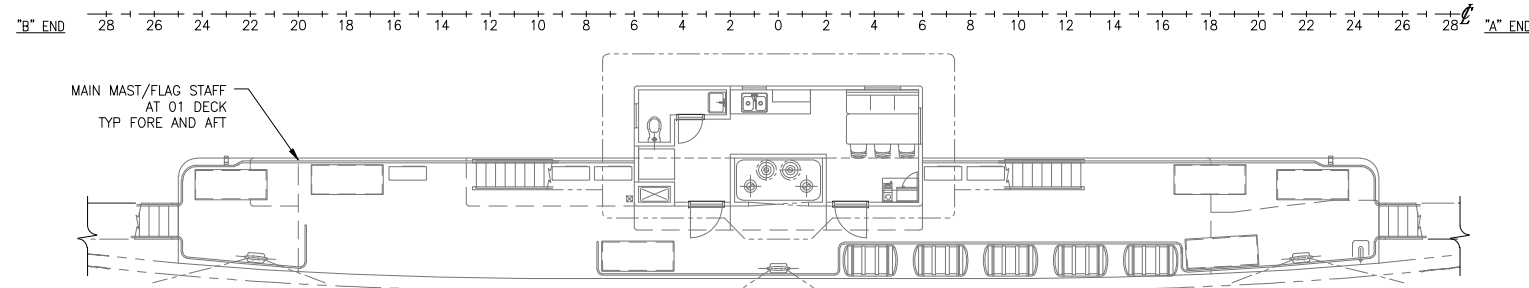
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REVISION HISTORY

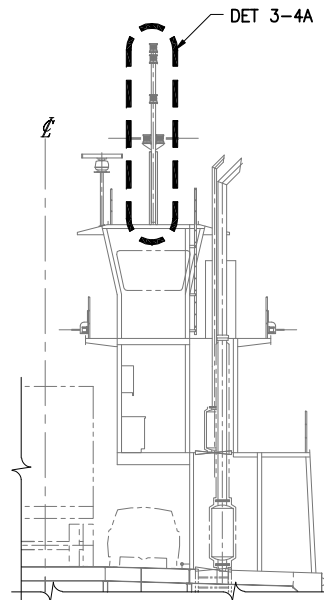
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
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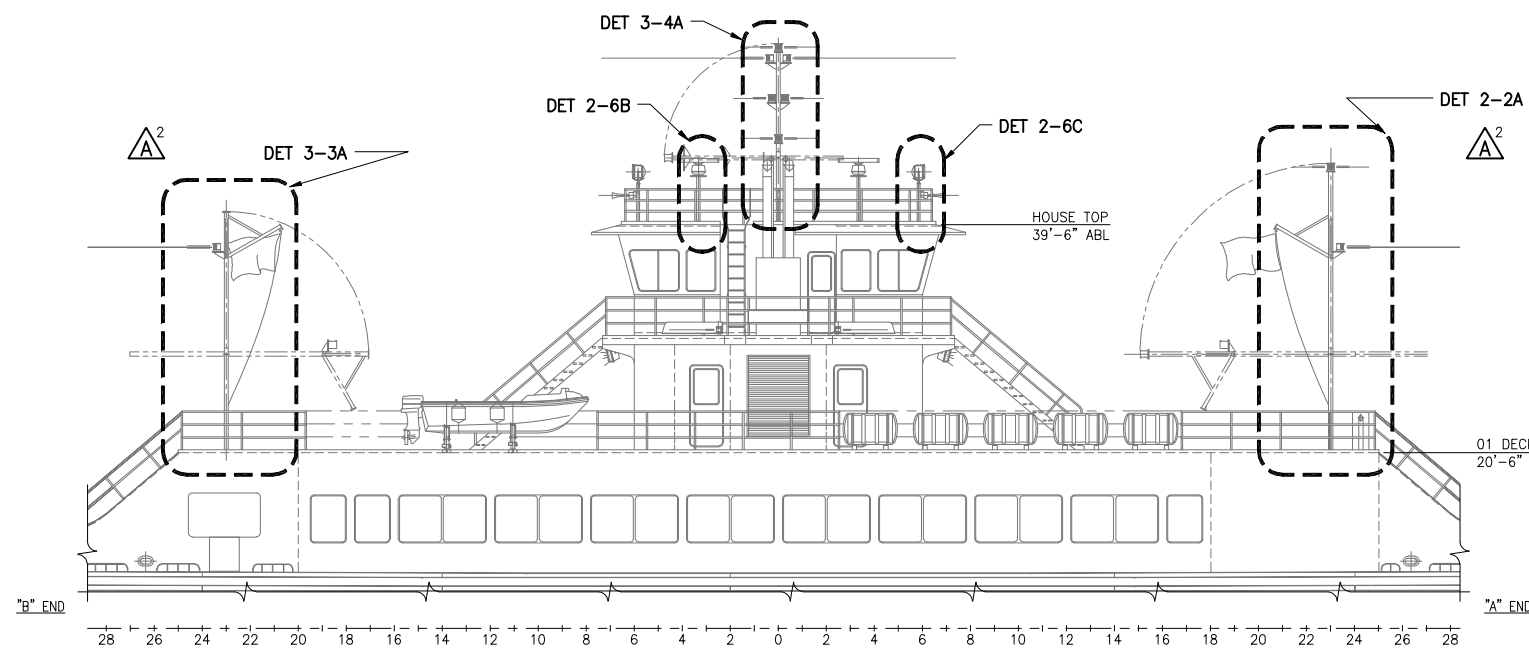
PLAN 1-4D
PILOT HOUSE TOP



PLAN 1-4B
01 DECK

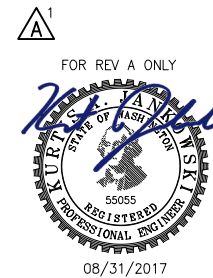


SECTION 1-6A
MIDSHIP LOOKING FORWARD



ELEVATION 1-4A
OUTBOARD PROFILE

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313



GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL VERIFY STRUCTURE AND FOUNDATIONS FOR ALL MASTS PRIOR TO CONSTRUCTION. SEE REFERENCE 1.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-061-1 SCANTLING CALCULATIONS
- 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-120-1 MIDSHIP SECTION
- 16101-200-150-1 SUPERSTRUCTURE MAIN DECK TO 01 DECK
- 16101-200-150-2 SUPERSTRUCTURE 01 DECK TO PILOT HOUSE TOP
- 16101-200-422-1 NAVIGATION LIGHT ARR AND BLOCK DIAGRAM



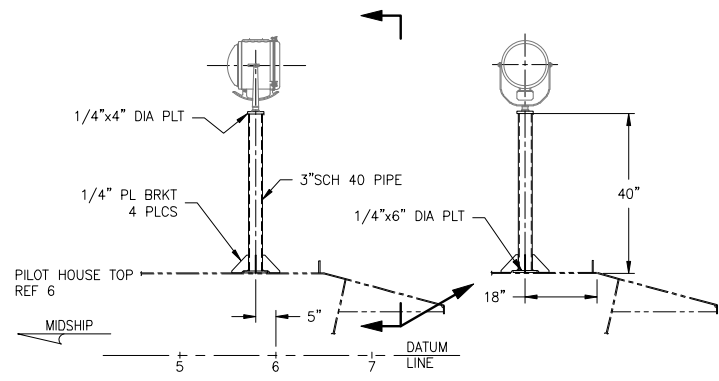
Elliott Bay Design Group
 North Carolina, PLLC

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

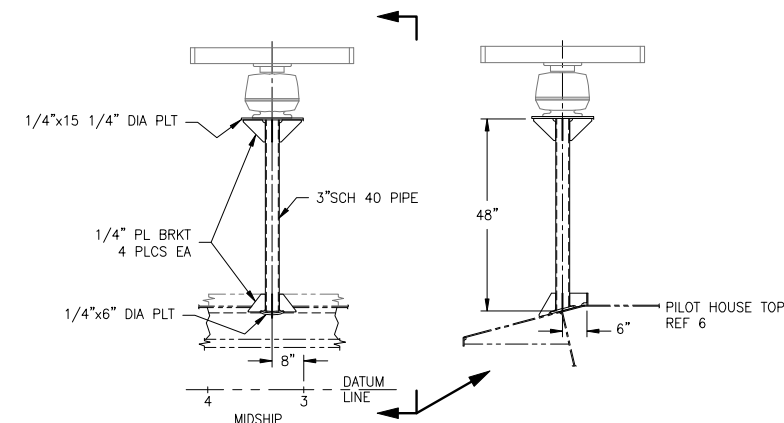
MASTS

SIZE	D	DWG NO.	16101-200-170-1	REV	A
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DWN	ZDL	MOD	WHL	CKD	PDF
APVD	KAJ	APVD DATE	7/27/2017		

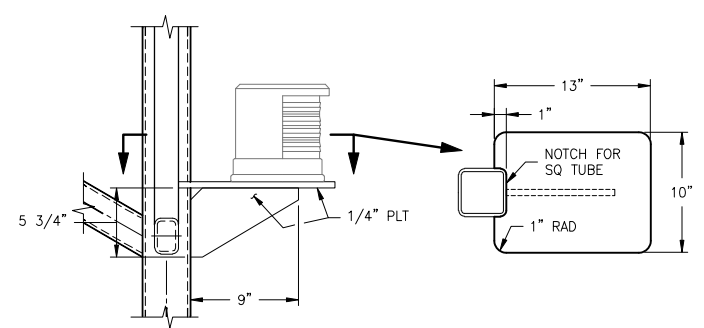
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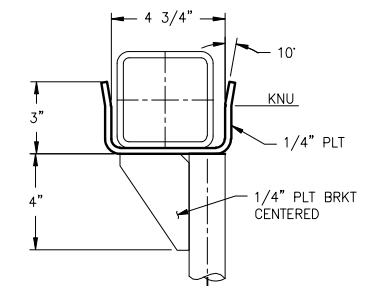
DETAIL 2-6C
SPOTLIGHT MAST
 'A' END SHOWN, 'B' END SIM, OPP
 4 REQUIRED, 2 AT EACH END



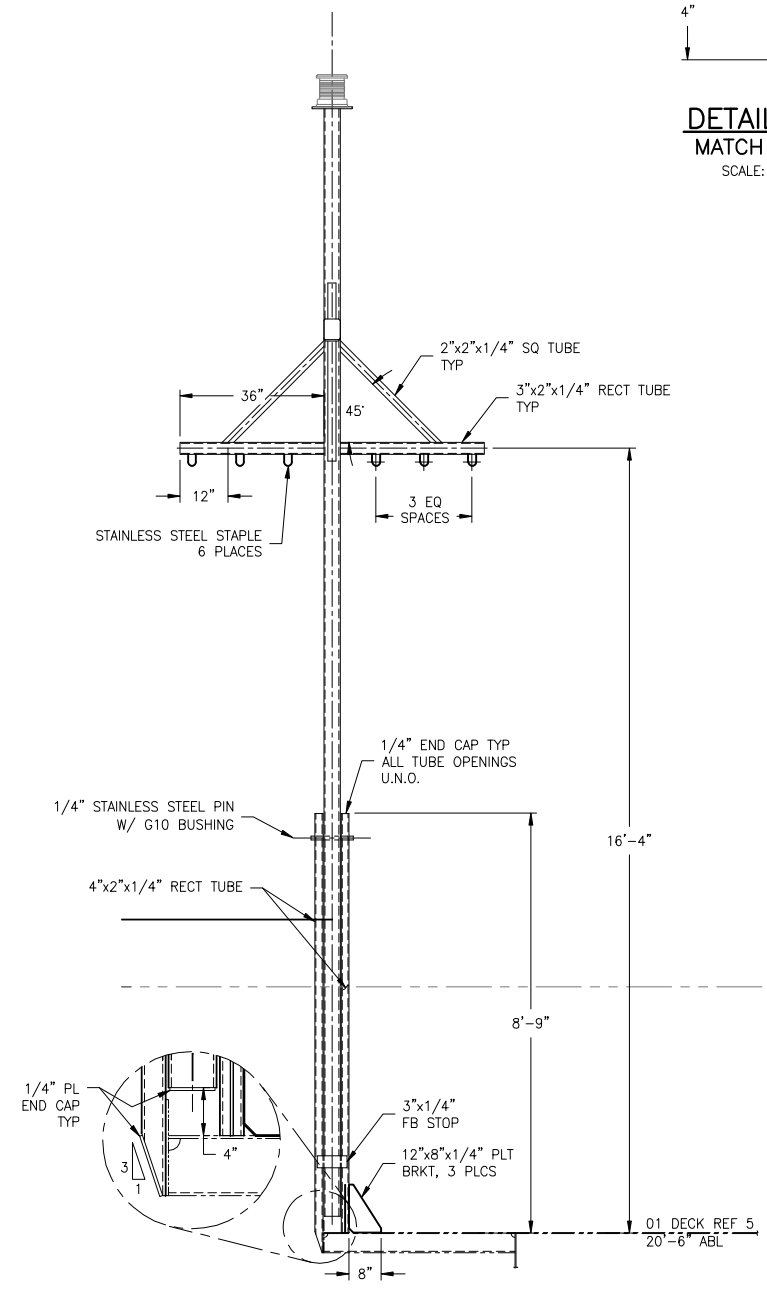
DETAIL 2-6B
RADAR MAST
 'B' END SHOWN, 'A' END SIM, OPP
 2 REQUIRED, 1 AT EACH END



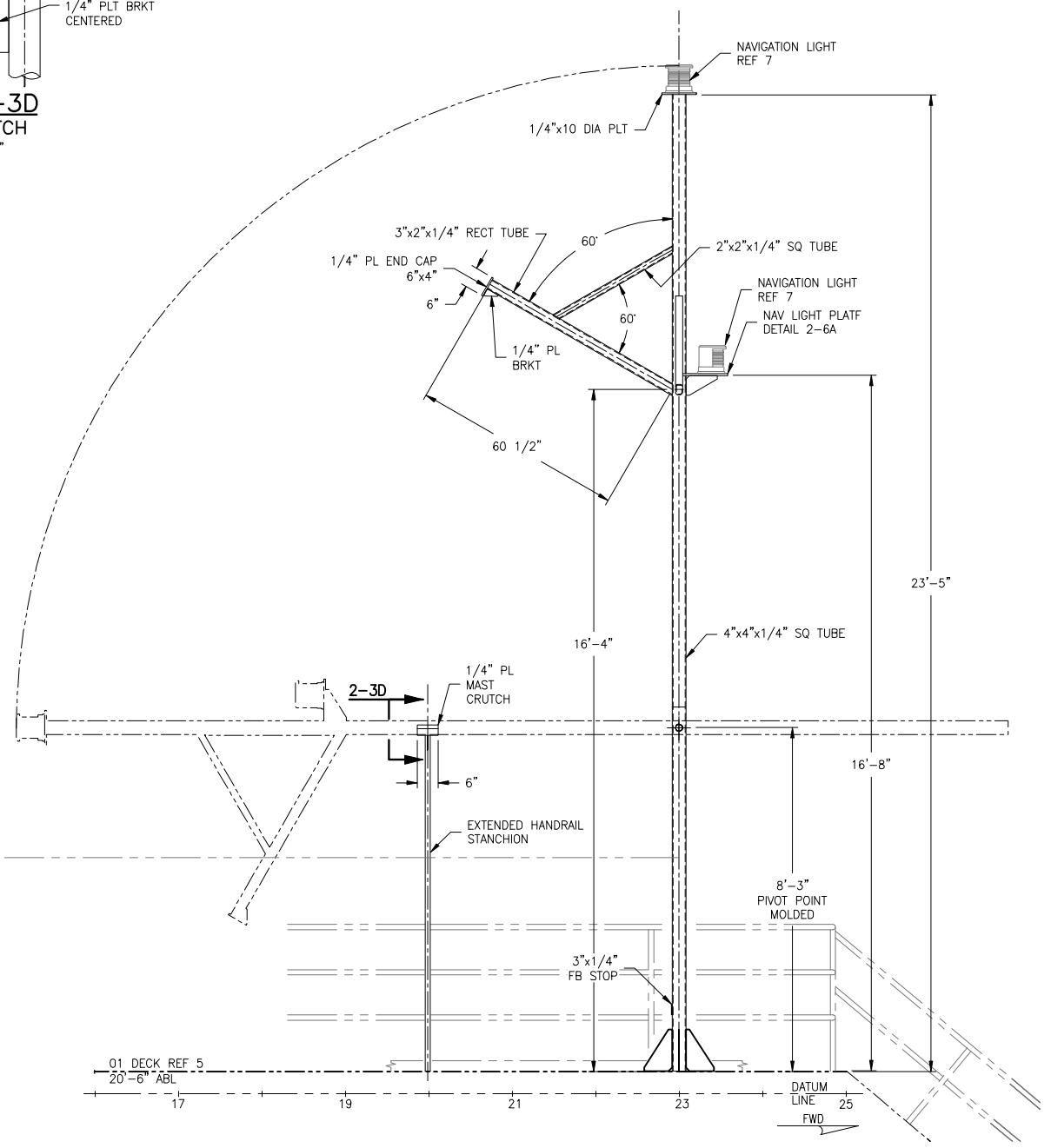
DETAIL 2-6A
TYP NAV LIGHT PLATF
 SCALE: 1 1/4"=1'-0"



DETAIL 2-3D
MATCH CRUTCH
 SCALE: 3"=1'-0"

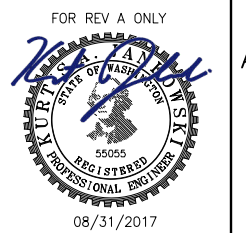


SECTION 2-4A
FRAME 23 LKG FWD



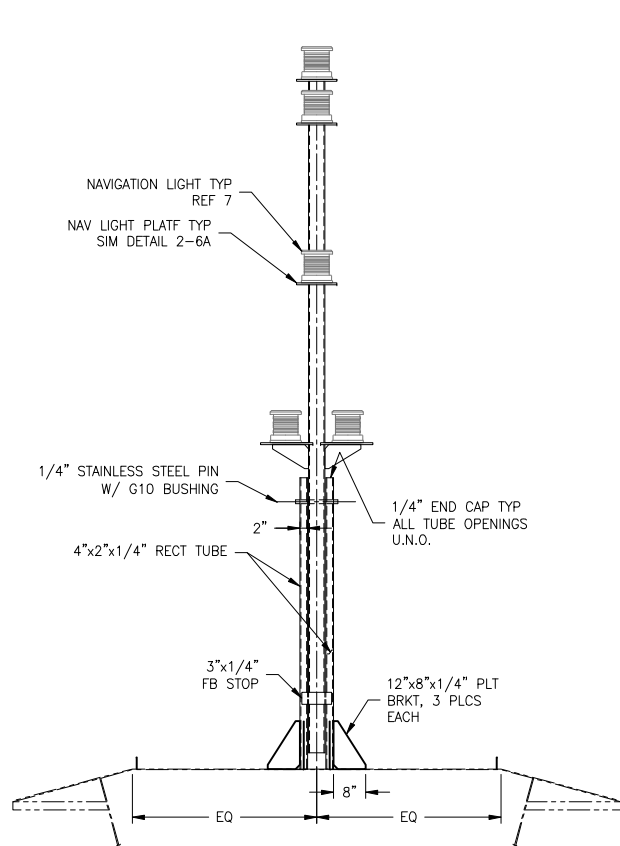
ELEVATION 2-2A
MAIN MAST
 'A' END LKG PORT

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313

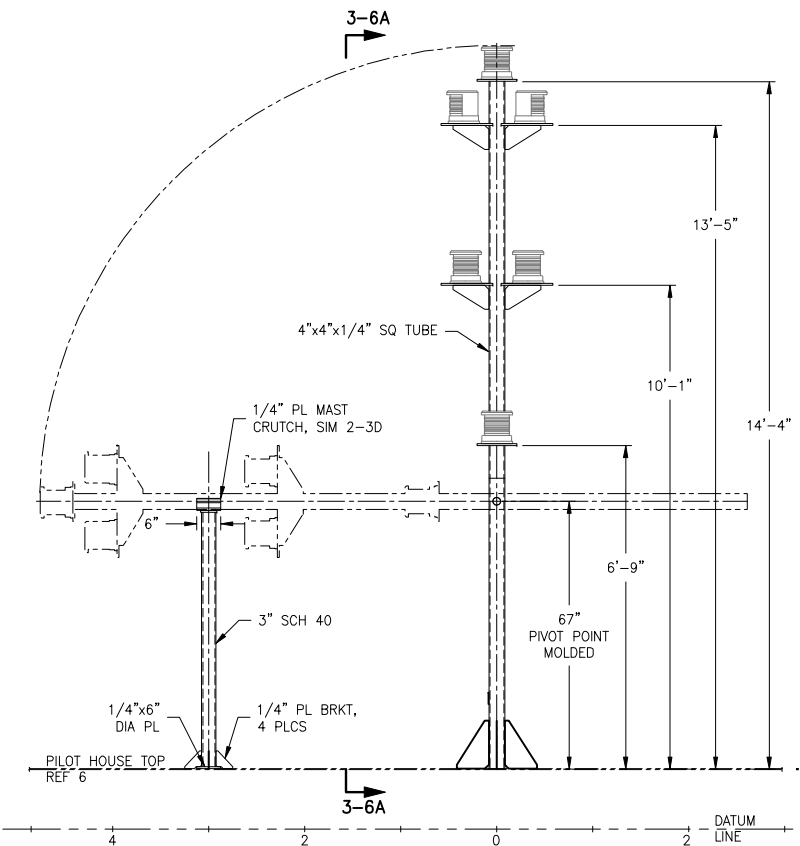


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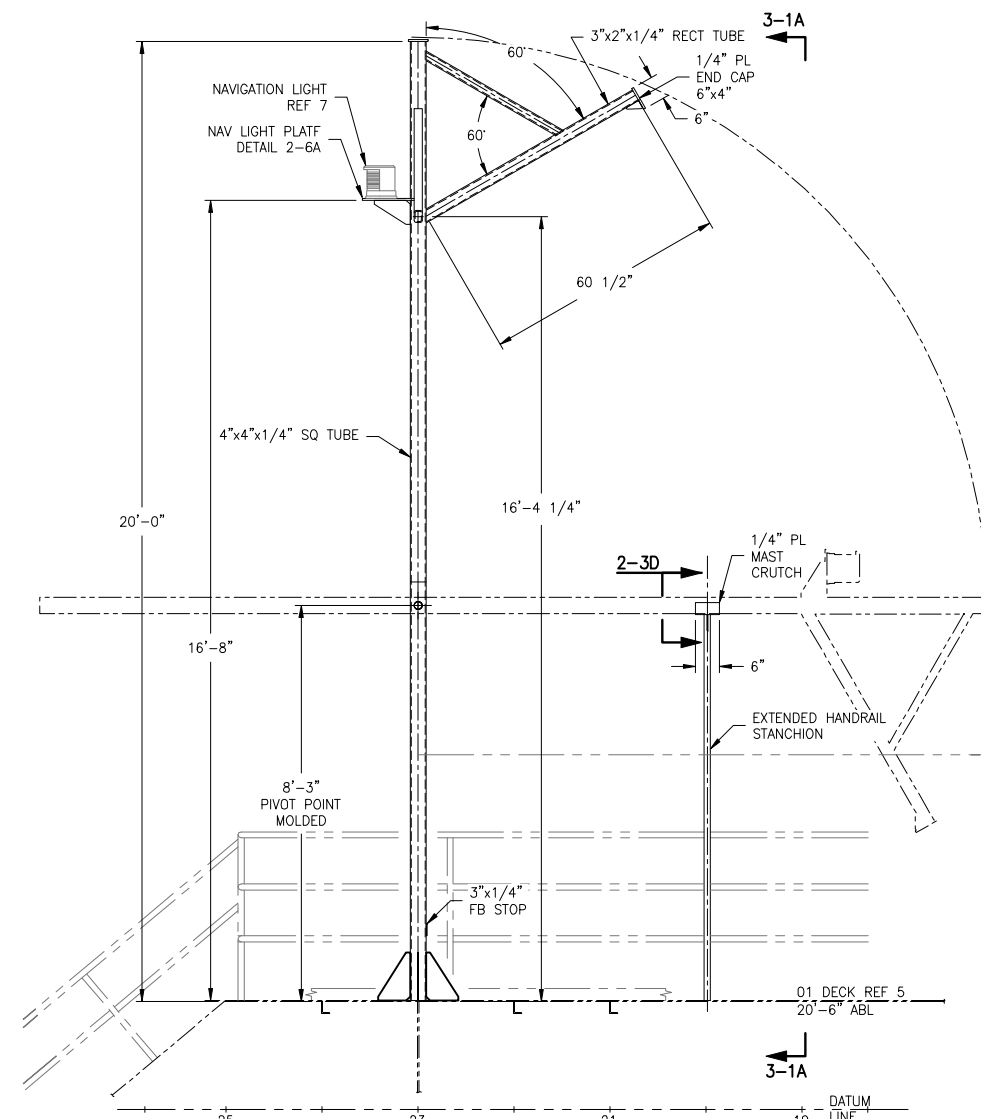
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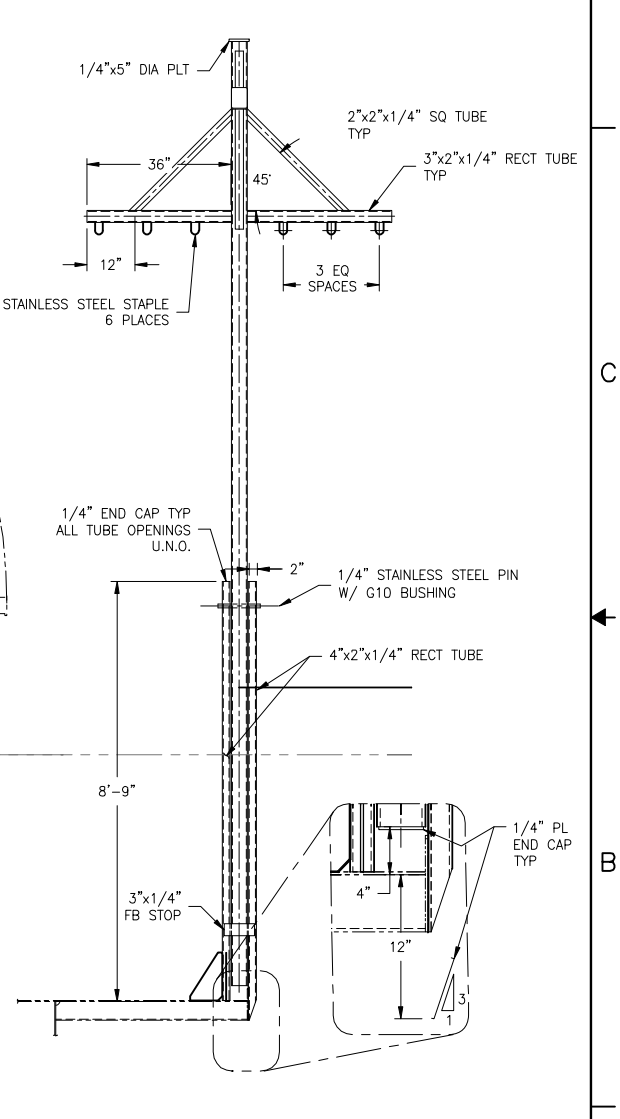
SECTION 3-6A
 FRAME 0, LKG FWD



ELEVATION 3-4A
 LIGHT MAST
 MIDSHIP

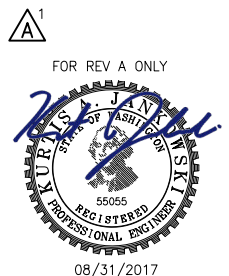


ELEVATION 3-3A
 MAIN MAST
 'B' END LKG PORT



SECTION 3-1A
 FRAME 23 LKG AFT

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313

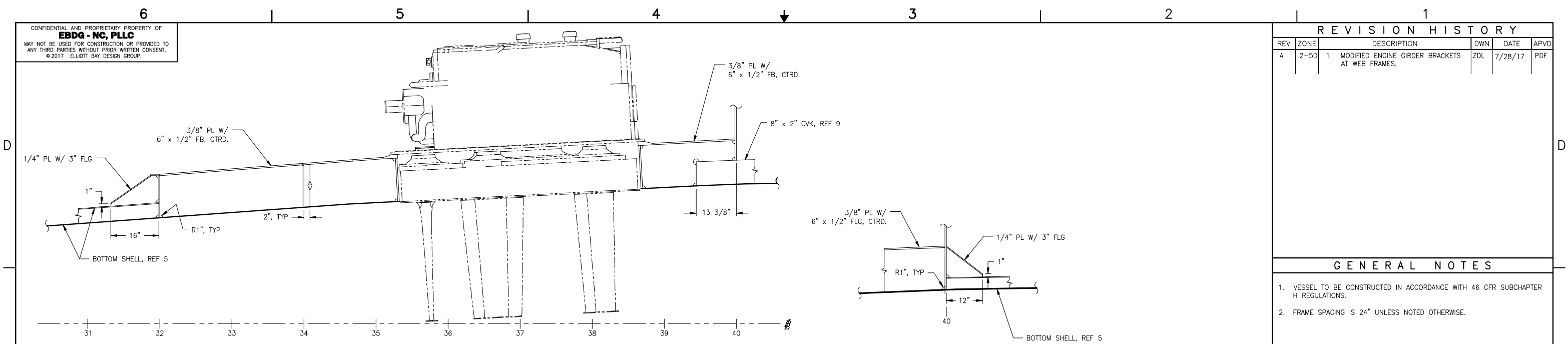


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REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
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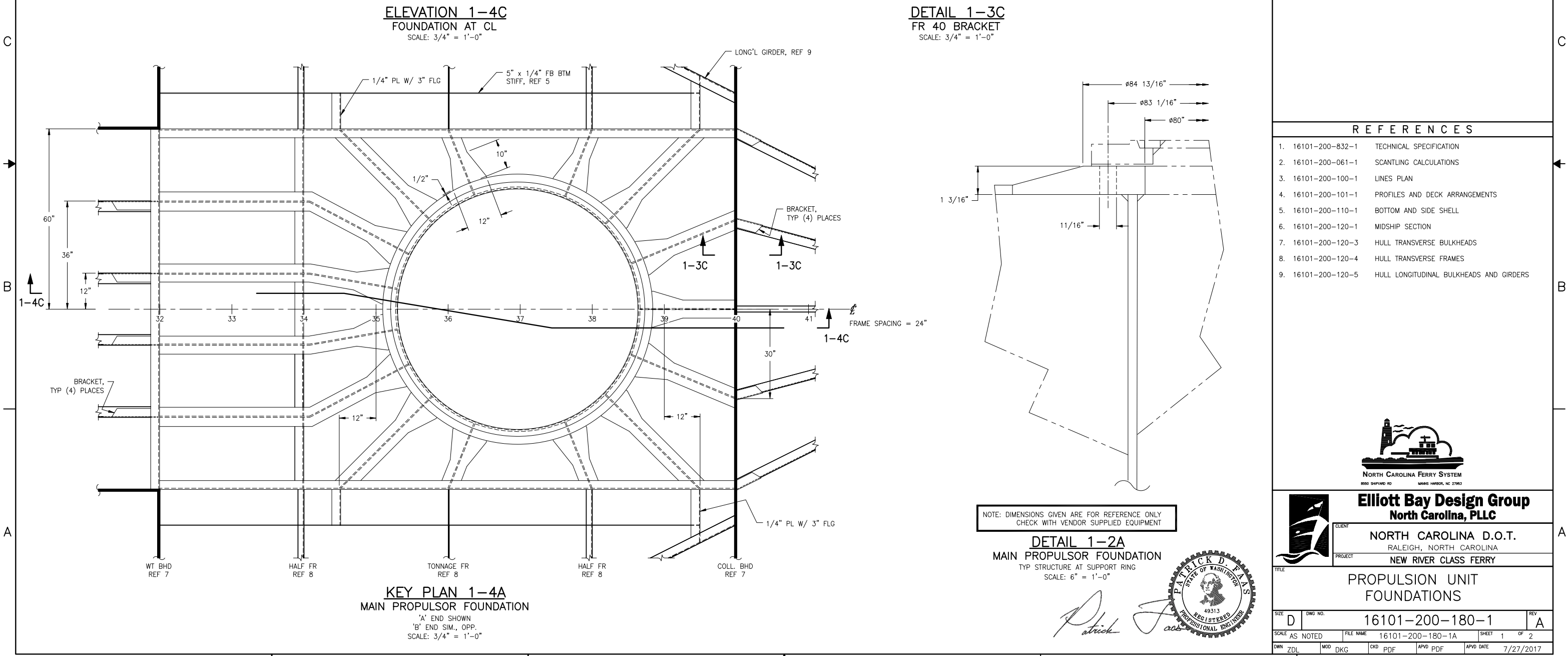


GENERAL NOTES

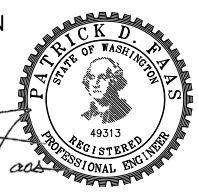
1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.

REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION
2. 16101-200-061-1 SCANTLING CALCULATIONS
3. 16101-200-100-1 LINES PLAN
4. 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
5. 16101-200-110-1 BOTTOM AND SIDE SHELL
6. 16101-200-120-1 MIDSHIP SECTION
7. 16101-200-120-3 HULL TRANSVERSE BULKHEADS
8. 16101-200-120-4 HULL TRANSVERSE FRAMES
9. 16101-200-120-5 HULL LONGITUDINAL BULKHEADS AND GIRDERS



NOTE: DIMENSIONS GIVEN ARE FOR REFERENCE ONLY
 CHECK WITH VENDOR SUPPLIED EQUIPMENT



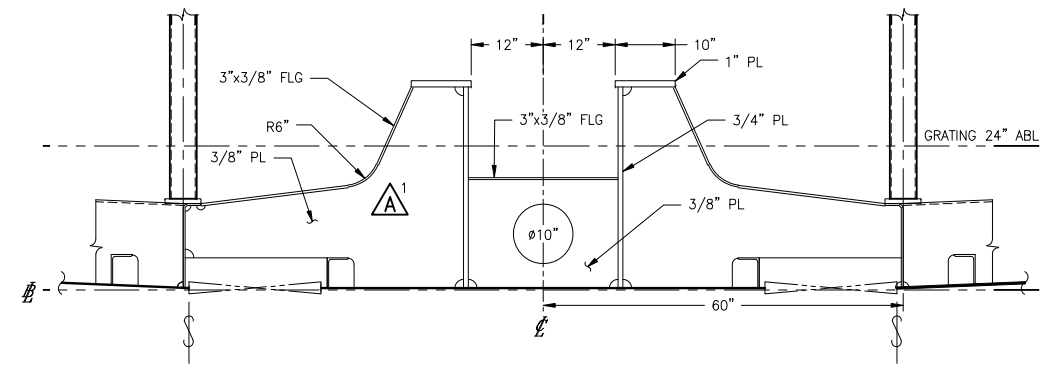
Elliott Bay Design Group
 North Carolina, PLLC

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

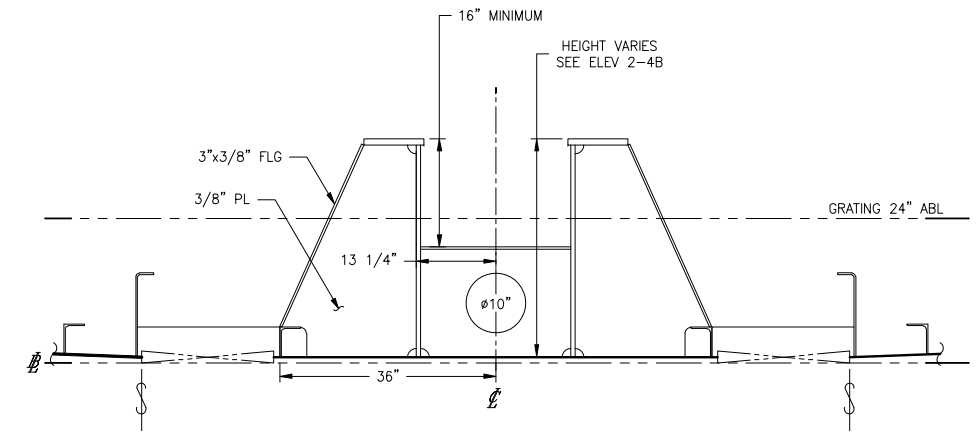
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DWN	ZDL	MOD	DKG	CKD	PDF
APVD	PDF	APVD DATE	7/27/2017		

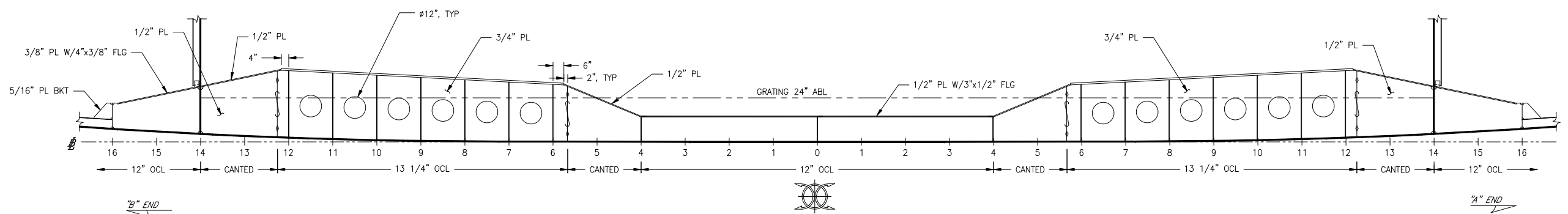
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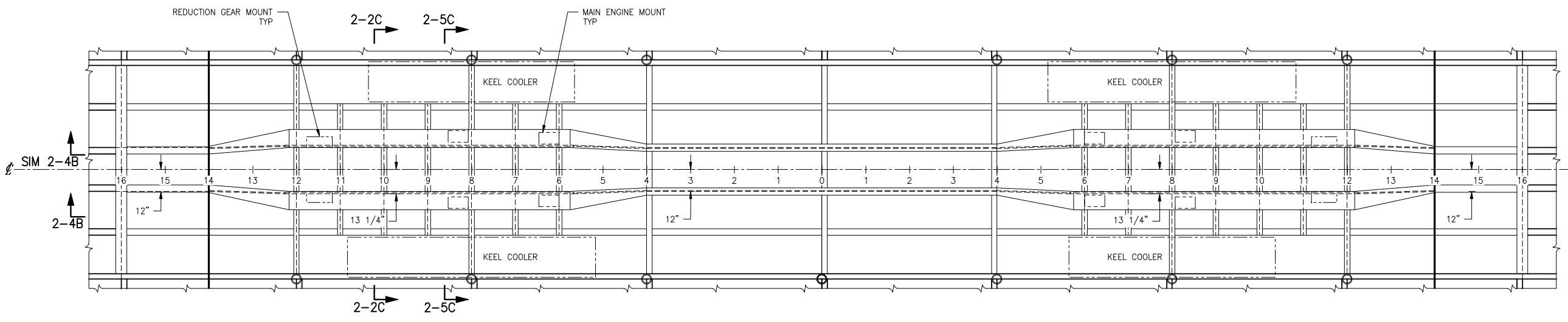
SECTION 2-5C
 FRAME 8, 'B' END, LOOKING FWD
 TYP WEB FRAME FDN STRUCTURE
 SCALE: 3/4" = 1'-0"



SECTION 2-2C
 FRAME 10, 'B' END, LOOKING FWD
 TYP ORDINARY FRAME FDN STRUCTURE
 SCALE: 3/4" = 1'-0"

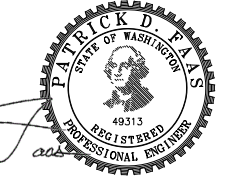


ELEVATION 2-4B
 MAIN ENGINE FOUNDATIONS
 12" OCL STBD, LOOKING INBD
 SCALE: 3/8" = 1'-0"



KEY PLAN 2-4A
 MAIN ENGINE FOUNDATIONS
 SCALE: 3/8" = 1'-0"

↑ "A" END
 ↑ 2-4B
 ↑ SIM 2-4B
 ↑ 2-4B
 ↑ "B" END



SIZE	D	OWG NO.	16101-200-180-1	REV	A
SCALE	AS NOTED	FILE NAME	16101-200-180-1A	SHEET	2 OF 2

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EQUIPMENT LIST			
ITEM#	QTY	DESCRIPTION	COMMENT
01	2	MAIN ENGINE	
02	2	FLUID COUPLING	
03	2	REDUCTION GEAR	
04	2	FIRE PUMP	
05	2	FIRE PUMP STRAINER	
06	2	BALLAST PUMP	
07	2	BALLAST PUMP STRAINER	
08	1	BALLAST MANIFOLD	
09	2	BILGE PUMP	
10	2	BILGE PUMP STRAINER	
11	2	SHIP SERVICE DIESEL GENERATOR (SSDG)	
12	1	MSD	
13	2	ZERO DISCHARGE PUMP	
14	2	ZERO DISCHARGE HOLDING TANK	500 GAL
15	2	SEA CHEST	
16	1	WORK BENCH	
17	1	6" HEAVY VICE	
18	1	WASTE OIL PUMP	
19	1	WASTE OIL TANK	60 GAL
20	1	LUBE OIL TANK	60 GAL
21	1	EOS CONSOLE	
22	1	SWITCHBOARD	
23	2	SSDG SILENCER	
24	2	MAIN ENGINE SILENCER	
25	2	SUPPLY FAN - ENGINE ROOM	
26	2	MN ENGINE JACKET WATER KEEL COOLER	
27	2	MN ENGINE SCAC KEEL COOLER	
28	2	SSDG JACKET WATER KEEL COOLER	
29	2	SSDG SCAC KEEL COOLER	
30	1	BILGE MANIFOLD "A"	
31	1	BILGE MANIFOLD "B"	
32	2	AIR COMPRESSOR WITH RECEIVER	
33	2	POTABLE WATER PUMP	
34	1	POTABLE WATER PUMP STRAINER	
35	1	POTABLE WATER PRESSURE TANK	
36	2	CYCLOIDAL PROPELLER	
37	2	CYCLOIDAL PROPELLER OIL COOLER	
38	2	CYCLOIDAL PROPELLER OIL HEAD TANK	
39	1	EMERGENCY GENERATOR (EGEN)	
40	1	EGEN FO TANK	50 GAL
41	1	EMERGENCY SWITCHBOARD	
42	1	EGEN SILENCER	
43	1	EGEN START BATTERY BANK	
44	2	ENGINE START BATTERY BANK	
45	2	CYCLOIDAL PROPELLER CONTROL CABINET	
46	4	MAIN ENGINE COOLANT EXPANSION TANK	
47	2	SSDG EXPANSION TANK	
48	3	ENGINE RM & EOS FIRE SUPPRESSION BOTTLES	
49	2	SUPPLY FAN - VOID	
50	2	SUPPLY FAN - THRUSTER ROOM	
51	1	FUEL OIL TRANSFER PUMP	
52	1	WASTE OIL HOSE REEL	
53	1	EGEN FIRE SUPPRESSION BOTTLE	

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24"
- EQUIPMENT LAYOUT IS PRELIMINARY. FINAL EQUIPMENT POSITION IS SUBJECT TO DESIGN DEVELOPMENT AND OWNER APPROVAL.
- EQUIPMENT INSTALLATION SHALL PERMIT FREE PASSAGE ALONG WALKWAYS AND LADDERWAYS, FREE ACCESS TO ALL DOORS, ESCAPE HATCHES, AND ACCESS OPENINGS, AND SHALL BE FREE OF ALL INTERFERENCES FOR THE DISASSEMBLY, INSPECTION, AND REPAIR OF VITAL EQUIPMENT AND MACHINERY.
- REMOVABLE GUARDS SHALL BE INSTALLED OVER EXPOSED ROTATING COMPONENTS.

REFERENCES

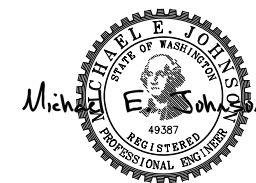
- 16101-100-832-1 TECHNICAL SPECIFICATION
- 16101-100-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-100-243-1 SHAFT ARRANGEMENT
- 16101-100-256-1 COOLING SYSTEM SCHEMATIC
- 16101-100-259-1 EXHAUST ARRANGEMENT
- 16101-100-261-1 FUEL OIL PIPING SCHEMATIC
- 16101-100-320-1 AC AND DC ELECTRICAL ONE LINE DIAGRAM
- 16101-100-513-1 MACHINERY VENTILATION ARRANGEMENT
- 16101-100-521-1 FIRE MAIN SYSTEM SCHEMATIC
- 16101-100-528-1 SANITARY DRAINS SCHEMATIC
- 16101-100-529-1 BILGE AND BALLAST SCHEMATIC
- 16101-100-529-2 LUBE OIL AND WASTE OIL PIPING SCHEMATIC
- 16101-100-533-1 POTABLE AND SANITARY WATER PIPING SCHEMATIC
- 16101-100-551-1 COMPRESSED AIR PIPING SCHEMATIC



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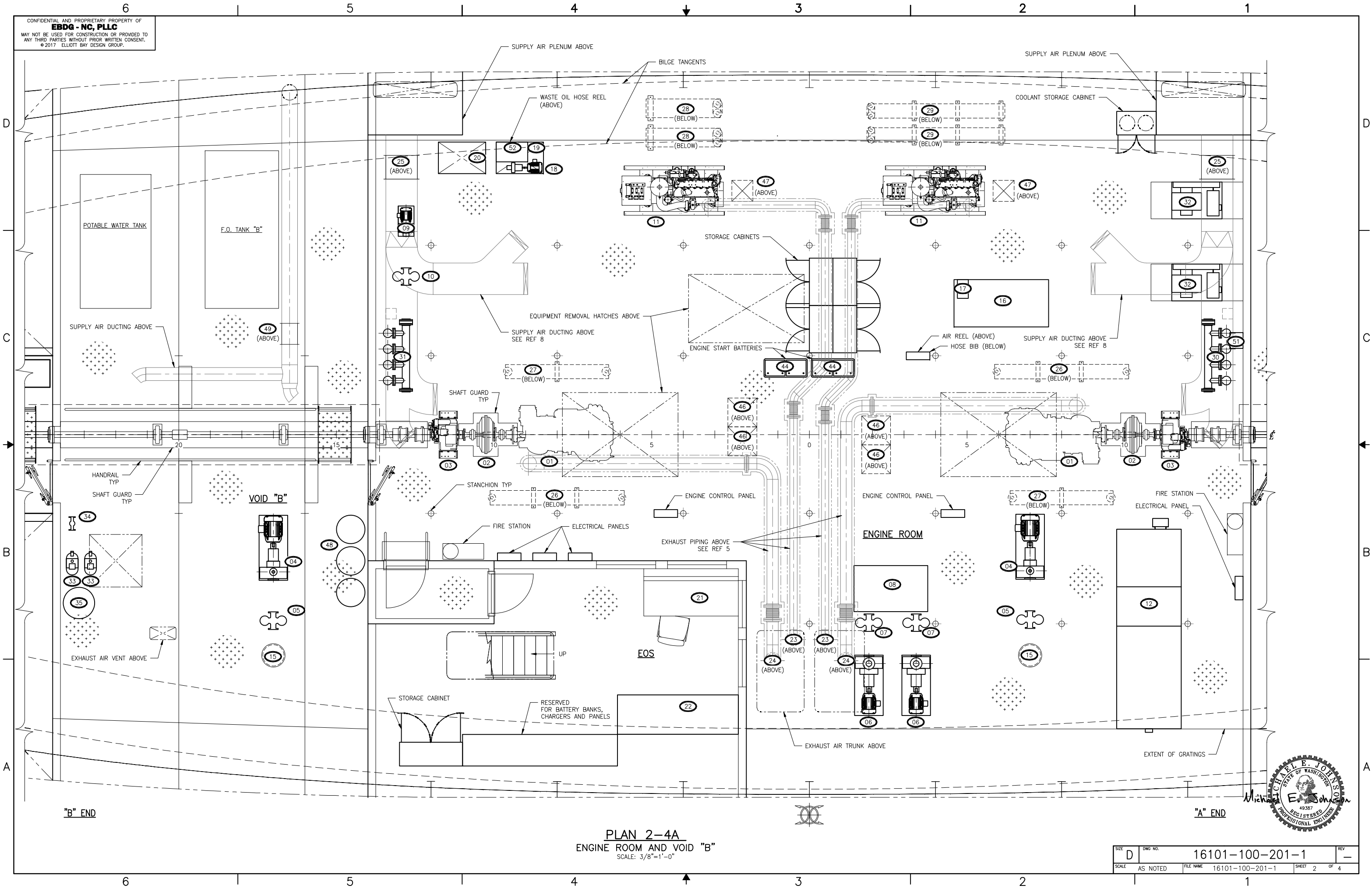
PROJECT: NEW RIVER CLASS FERRY



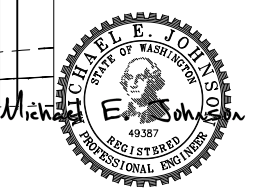
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SCALE	NONE	FILE NAME	16101-200-201-1-	SHEET	1 OF 4
DWN	JEH	MOD	CDJ	APVD	MEJ
				APVD DATE	7/28/17

7/28/2017 4:59:16 PM

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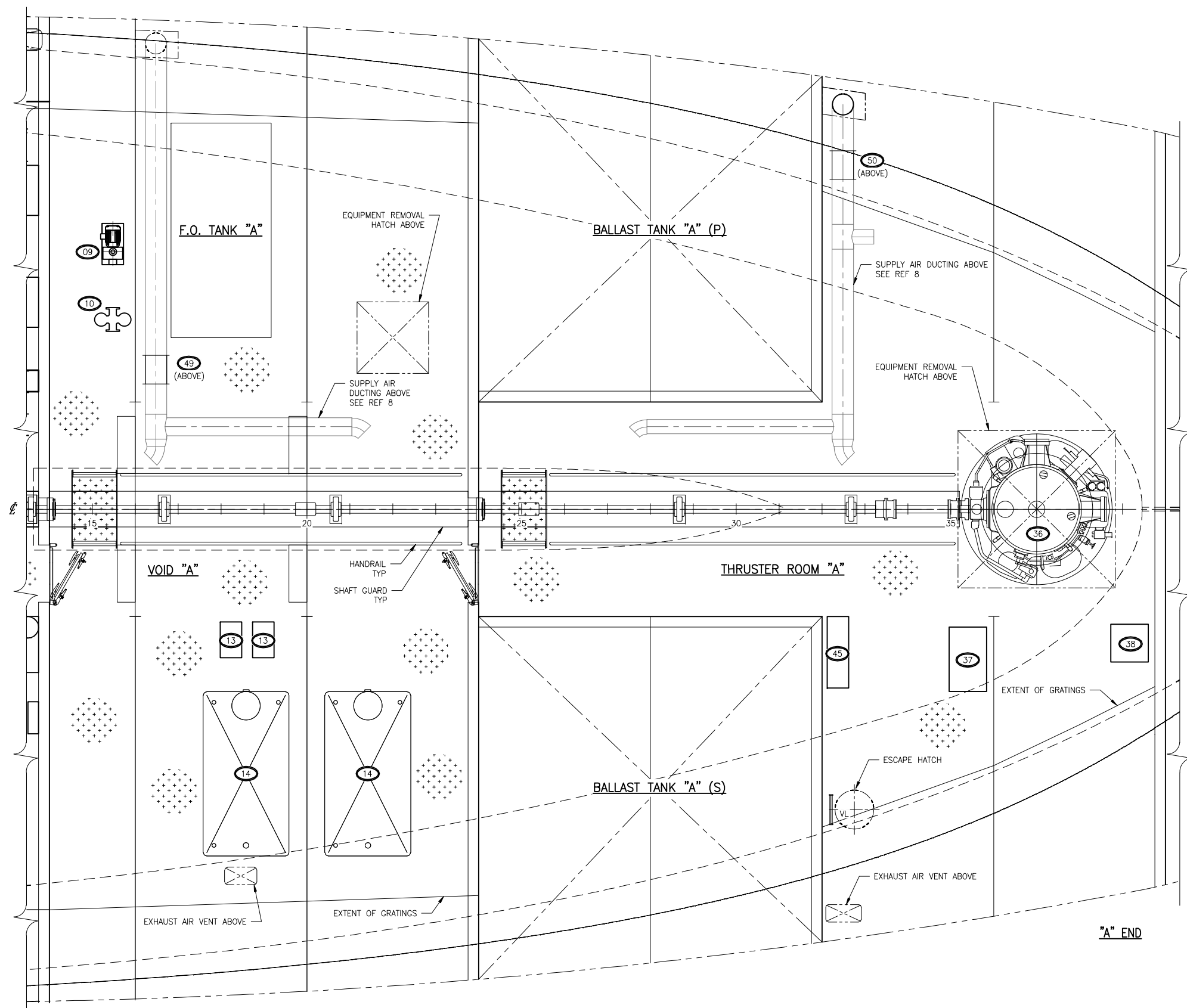
PLAN 2-4A
 ENGINE ROOM AND VOID "B"
 SCALE: 3/8"=1'-0"



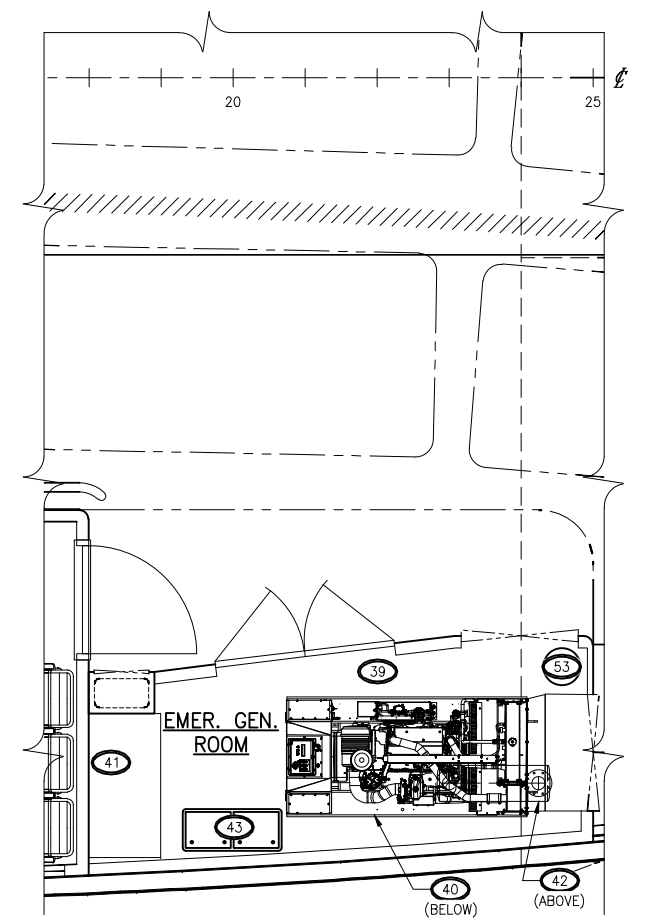
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PLAN 3-4A
 VOID "A" AND THRUSTER ROOM "A"
 THRUSTER ROOM "B" OPP SIM
 SCALE: 3/8"=1'-0"



PLAN 3-1B
 EMERGENCY GENERATOR ROOM
 SCALE: 3/8"=1'-0"



SIZE	DWG NO.	REV
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SCALE	FILE NAME	SHEET
AS NOTED	16101-100-201-1-	3 OF 4

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6

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1

D

D

C

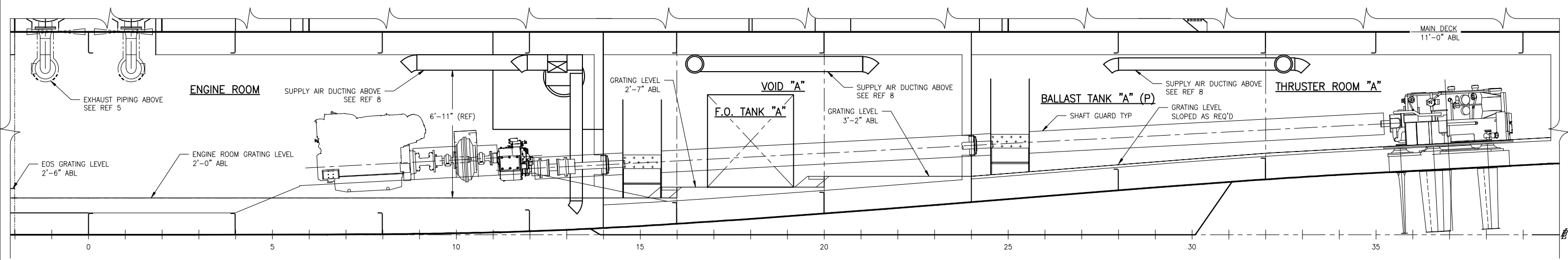
C

B

B

A

A



ELEVATION 4-4A
 INBOARD PROFILE
 CENTERLINE LOOKING PORT
 END "A" SHOWN - END "B" SIM
 SCALE: 3/8"=1'-0"



SIZE	D	DWG NO.	16101-100-201-1	REV	-
SCALE	AS NOTED	FILE NAME	16101-100-201-1-	SHEET	4 OF 4

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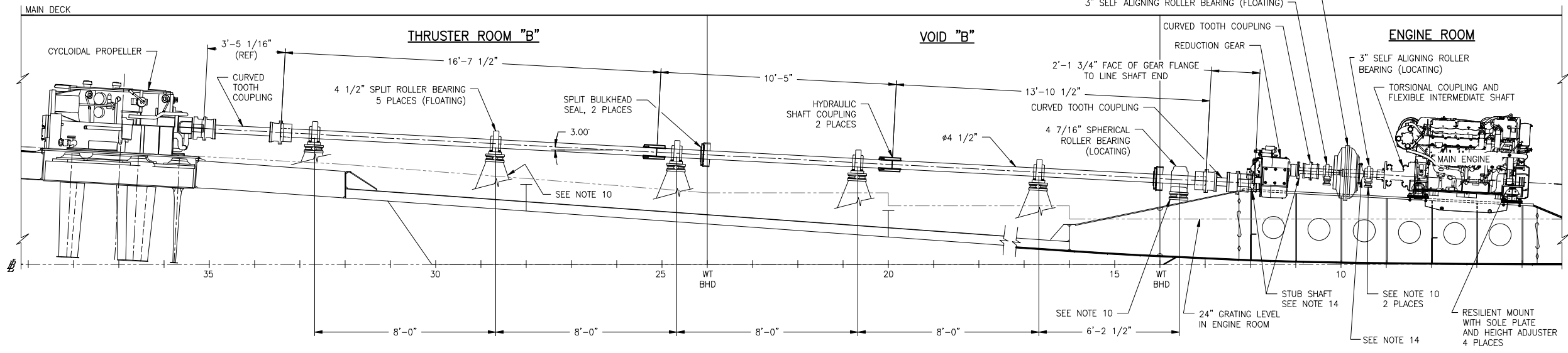
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REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD



ELEVATION 1-4C
PROPULSION SHAFTING
 "B" END SHOWN - "A" END SIM
 SCALE: 3/8"=1'-0"

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING SHOWN IS 24"
- DIMENSIONS PROVIDED ARE FOR CONTRACT GUIDANCE AND REFERENCE ONLY PENDING FINAL COMPONENT SELECTION, DETAILED SHAFTING DESIGN, AND BUILDER'S VIBRATION ANALYSIS. SEE REF 1.
- ALL SECTIONS OF SHAFTING SHALL BE STRAIGHT WITH RESPECT TO THE CENTERLINE WITHIN A TOLERANCE OF 0.005 INCHES IN 48 INCHES.
- DETAILED PLANS WITH FINAL EQUIPMENT SELECTIONS, MACHINING DETAILS, AND MATERIAL SPECIFICATIONS FOR PROPULSION SHAFTING, COUPLINGS, AND COUPLING BOLTS SHALL BE SUBMITTED TO OWNER AND USCG FOR APPROVAL.
- INSTALL AND ALIGN ENGINES, GEARS, BEARINGS, PROPELLERS, AND COUPLINGS IN STRICT ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
- RTD TYPE BEARING TEMPERATURE DETECTORS SHALL BE INSTALLED FOR ENGINE ROOM READING OF SHAFT SEAL AND LINE SHAFT BEARING TEMPERATURES. SEE REF 1.
- SHAFTING SHALL BE FABRICATED FROM ASTM 1045 TGP SHAFT STOCK.
- DESIGN AND PROVIDE BEARING FOUNDATIONS TO PERMIT SHAFT ALIGNMENT AND RIGIDLY SUPPORT BEARINGS.
- FABRICATE ALUMINUM SAFETY GUARDS OVER SHAFTING FOR PERSONNEL PROTECTION AND TO PREVENT DAMAGE TO SHAFTING PER REF 1.
- GEARS, HYDRODYNAMIC FLUID COUPLINGS, AND BEARINGS SHALL BE MOUNTED ON ADJUSTABLE STEEL CHOCKS.
- BED RESILIENT ENGINE MOUNTS USING AN APPROVED POURABLE CHOCKING COMPOUND. ARRANGEMENT AND INSTALLATION PROCEDURE IS TO BE IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS TO THE SATISFACTION OF THE ATTENDING SURVEYOR.
- CONTRACTOR SHALL DESIGN AND PROVIDE FLANGED STUB SHAFTS MATCHING GEAR FLANGES AND STUB SHAFTS WITH ADAPTING FLANGES TO SUPPORT HYDRODYNAMIC FLUID COUPLING TO SUIT FINAL EQUIPMENT.
- CONTRACTOR SHALL FABRICATE A PROTECTIVE COVER OVER, AND AN OIL CATCH BELOW, EACH HYDRODYNAMIC FLUID COUPLING. ARRANGE TO MEET COUPLING MANUFACTURER'S REQUIREMENTS. OIL CATCH SHALL HAVE A VOLUME GREATER THAN THE FLUID COUPLING OIL CAPACITY.

MACHINERY DATA

MAIN ENGINES:	600 HP @ 1800 RPM
REDUCTION GEARS:	VERTICAL OFFSET, 2.5:1 RATIO
CYCLOIDAL PROPELLERS:	470 KW @ 670 RPM, 5 X 1000MM BLADES

REFERENCES

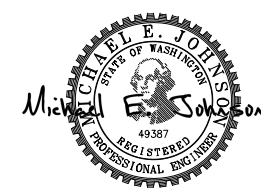
- 16101-200-832-1 TECHNICAL SPECIFICATIONS
- 16101-200-201-1 MACHINERY ARRANGEMENT
- 16101-200-180-1 PROPULSION UNIT FOUNDATIONS



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

PROJECT: NEW RIVER CLASS FERRY



SHAFT ARRANGEMENT

SIZE	D	DWG NO.	16101-200-243-1	REV	-
SCALE	AS NOTED	FILE NAME	16101-200-243-1-	SHEET	1 OF 1
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MATERIAL SCHEDULE										
SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			VALVES		FITTINGS	FLEXIBLE CONNECTIONS	COMMENTS
			MATERIAL	GASKETS	BOLTING	BODY	TRIM			
FW COOLING MAWP: 35 PSIG MAX TEMP: 230 F	2 1/2" & ABOVE	CARBON STEEL ASTM A53 OR A106, GRADE B SEAMLESS ANSI B36.10 SCH 40 SCH 80 SHALL BE USED AT HULL PENETRATIONS	FLANGE CARBON STEEL ASTM A105 ANSI B16.5 150# SLIP-ON OR WELD NECK	INORGANIC FIBERS WITH A NITRILE BINDER ABS FIRE-SAFE TYPE APPROVED	BOLTS: CARBON STEEL ASTM A307 GRADE B ANSI B18.2.1 NUTS: CARBON STEEL ASTM A563 GRADE A ANSI B18.2.2	BUTTERFLY: DUCTILE IRON, ASTM A395, MSS-SP-67 150#, LUG TYPE SEE NOTE 13	BUTTERFLY: SS DISC BUNA-N SEATS	CARBON STEEL ASTM A234, GR WPB ANSI B16.9 SCH 40 BUTT WELD LONG RADIUS	FLANGED EXPANSION JOINT ASTM F1123	-
	2" & UNDER		UNION CARBON STEEL ASTM A105 ANSI B16.11 SOCKET WELD	-	-	BALL: CARBON STEEL ASTM A216 GR WCB THREADED 1500 PSI SEE NOTE 13	BALL: CHROME PLATED CARBON STEEL BALL RPTFE SEATS	CARBON STEEL ASTM A105 ANSI B16.11 3000# SOCKET WELD	FLEX HOSE MEETING SAE J1942 AND J1475 FOR COOLANT SERVICE	

- GENERAL NOTES (CONT.)**
- MAIN ENGINES SHALL BE PROVIDED WITH AN ENGINE MOUNTED, FULL FLOW, GEAR OIL COOLER IN THE AFTER COOLER CIRCUIT. CONTRACTOR SHALL CONFIRM COOLING REQUIREMENTS OF THE REDUCTION GEAR.
 - KEEL COOLER GUARDS SHALL BE INSTALLED TO PROTECT THE KEEL COOLERS FROM FLOATING DEBRIS, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. KEEL COOLERS SHALL BE RECESSED IN POCKETS AS SHOWN ON REFERENCES 2 AND 3.
 - EACH EXPANSION TANK TO HAVE PRESSURE CAP OR OPEN VENT AS REQUIRED BY ENGINE MANUFACTURER.
 - KEEL COOLER ISOLATION VALVES TO BE CATEGORY A FIRE RATED. BUTTERFLY OR BALL VALVES MEETING API 607 ARE ACCEPTABLE.
 - EACH EXPANSION TANK SHALL BE EQUIPPED WITH A LOW LEVEL SWITCH INTEGRATED INTO THE ALARM AND MONITORING SYSTEM. SEE REF 1.
 - ALL COOLING PIPING ROUTED ABOVE THE GRATING SHALL BE INSULATED.
 - KEEL COOLERS SHALL BE EQUIPPED WITH BONDING STRAPS TO THE HULL TO PREVENT GALVANIC CORROSION.
 - EXPANSION TANKS SHALL BE SIZED IN ACCORDANCE WITH THE ENGINE MANUFACTURER'S REQUIREMENTS.

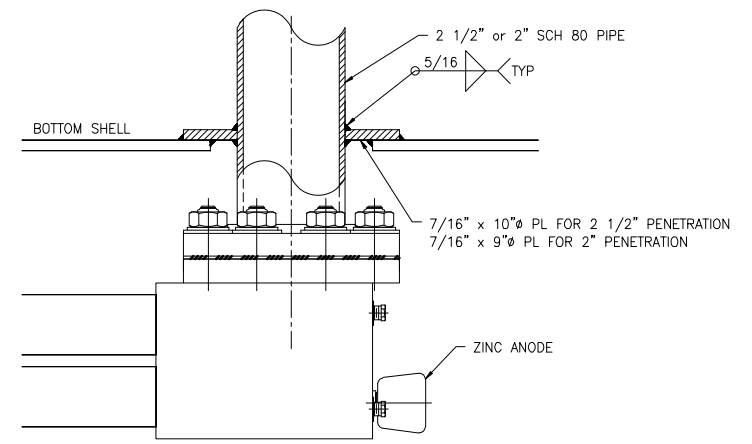
REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD

SYMBOLS LIST	
	PIPE
	BUTTERFLY VALVE
	BALL VALVE
	BALL VALVE WITH THREADED PLUG
	REDUCER
	FLEXIBLE CONNECTION
	THERMOMETER (IN THERMOWELL)
	LEVEL SWITCH

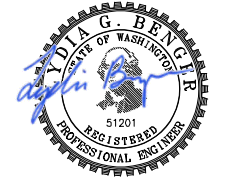
EQUIPMENT LIST						
QTY	SERVICE	TYPE	MODEL	CAPACITY	DRIVE	NOTES
2	MAIN ENGINE SCAC KEEL COOLER	KEEL COOLER	-	6,887 BTU/MIN 97 GPM	-	SEE NOTE 9
2	MAIN ENGINE J/W KEEL COOLER	KEEL COOLER	-	16,300 BTU/MIN 78 GPM	-	SEE NOTE 9
2	SSDG J/W KEEL COOLER	KEEL COOLER	-	6,711 BTU/MIN 86 GPM	-	SEE NOTE 9
2	SSDG SCAC KEEL COOLER	KEEL COOLER	-	2,112 BTU/MIN 40 GPM	-	SEE NOTE 9

- GENERAL NOTES**
- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
 - THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURERS' CERTIFIED DRAWINGS AS APPROPRIATE.
 - PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
 - PROVIDE GAUGE PIPING ASSEMBLIES AND MATERIALS FOR GAUGES AND INSTRUMENTS CONFIGURED IN ACCORDANCE WITH ASTM F721. VALVES, TUBING, AND FITTINGS SHALL BE 316 STAINLESS STEEL.
 - AVOID POCKETS IN THE PIPE LINES. LOW POINT DRAINS AND HIGH POINT VENTS SHALL BE FITTED TO ENABLE DRAINING AND VENTING OF PIPES WHERE POCKETS DO OCCUR. PROVIDE A 1" VALVED DRAIN WITH PLUG AT THE LOWEST POINT OF EACH COOLING CIRCUIT. PROVIDE 1/2" BOSSES WITH PLUGS AT ALL HIGH POINTS.
 - THE PIPING SYSTEM SHALL BE PRESSURE TESTED, CLEANED, AND FLUSHED PRIOR TO BEING PLACED IN SERVICE. PER MANUFACTURER, DO NOT EXCEED 35 PSI WHEN TESTING THE KEEL COOLERS.
 - PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO THE BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES.
 - KEEL COOLER INLET AND OUTLET VALVES SHALL BE LOCATED CLEAR OF OBSTRUCTIONS, AND WITHIN EASY REACH FOR OPERATION. ALL VALVES SHALL BE PROVIDED WITH VISUAL POSITION INDICATION.
 - MAIN ENGINE KEEL COOLERS SHALL BE SELECTED FOR A MAXIMUM SEA WATER TEMPERATURE OF 86F AND A SPEED OF 3 KNOTS. GENERATOR KEEL COOLERS SHALL BE SELECTED FOR A MAXIMUM SEA WATER TEMPERATURE OF 86F AND 0 KNOTS. THE CONTRACTOR SHALL VERIFY ENGINE REQUIREMENTS PRIOR TO SELECTING KEEL COOLERS.

- REFERENCES**
- 16101-200-832-1 TECHNICAL SPECIFICATIONS
 - 16101-200-110-1 BOTTOM AND SIDE SHELL
 - 16101-200-120-4 HULL TRANSVERSE FRAMES



**DETAIL 1-3A
HULL PENETRATION**



NORTH CAROLINA FERRY SYSTEM
 8500 SHIPYARD RD WAREHOUSES, NC 27683

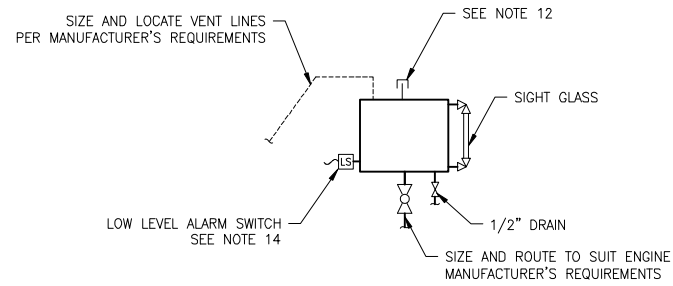
Elliott Bay Design Group
 North Carolina, PLLC

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

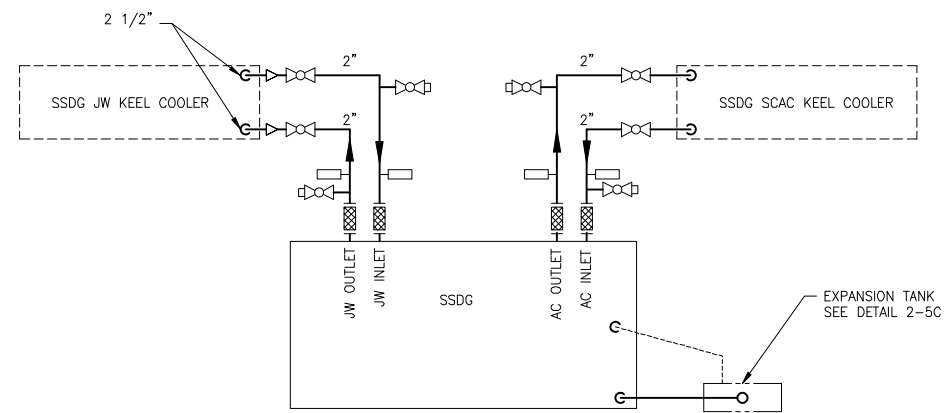
PROJECT: **NEW RIVER CLASS FERRY**

COOLING SYSTEM SCHEMATIC						
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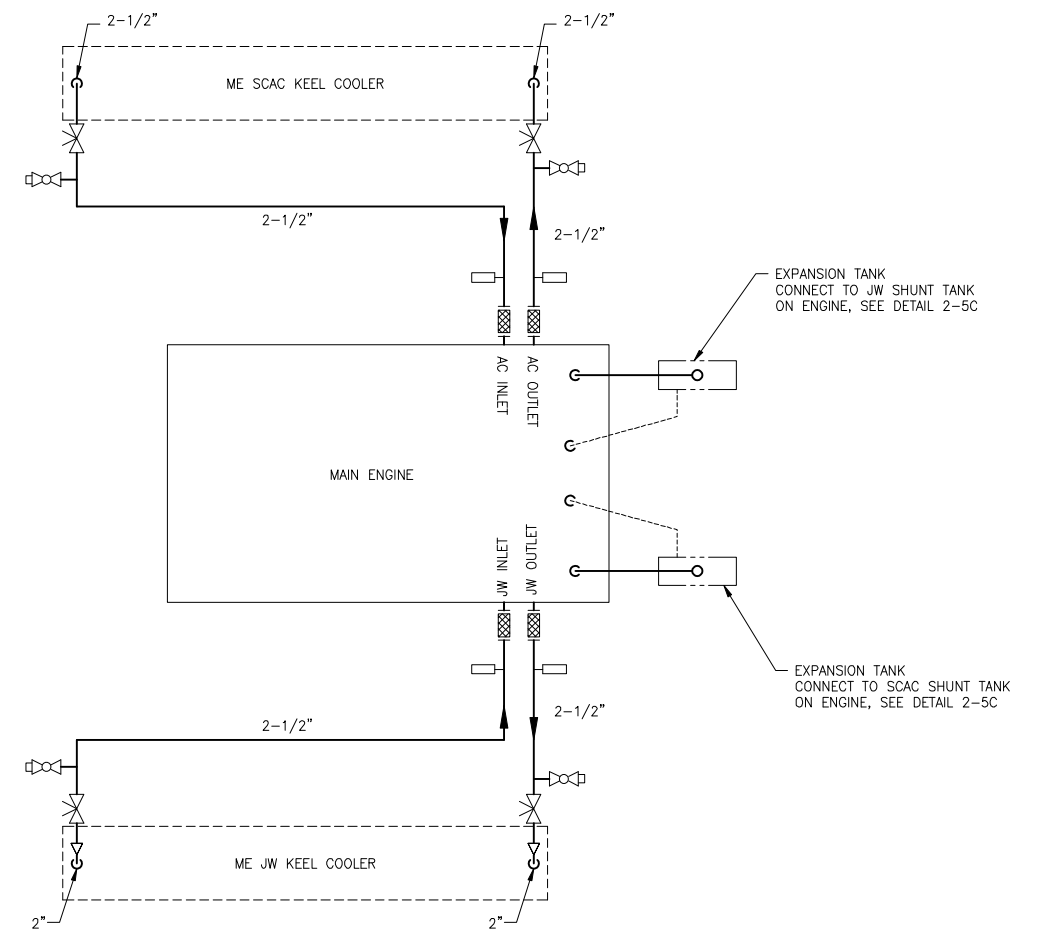
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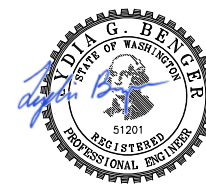
DETAIL 2-5C
 TYPICAL EXPANSION TANK



PLAN 2-5A
 SSDG COOLING PIPING DIAGRAM



PLAN 2-2A
 MAIN ENGINE COOLING PIPING DIAGRAM



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SCALE	NONE	FILE NAME	16101-200-256-1-	SHEET	2 OF 2

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REVISION HISTORY

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MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			FITTINGS	VALVES		REMARKS
			MATERIAL	GASKETS	BOLTING		BODY	TRIM	
DIESEL ENGINE EXHAUST MAX TEMP: 800°F	6" & BELOW	CARBON STEEL, ASTM A53 OR A106, GR B, SEAMLESS OR ERW SCH 40 ANSI B36.10	3/4" PLATE FLANGE, CARBON STEEL ASTM A105, 150# ANSI B16.5, FFSO	304L SS SPIRAL WOUND METALLIC W/ FLEXIBLE GRAPHITE FILLER	BOLTS OR STUDS: ASTM A193, GR B7 ANSI B18.2.1 NUTS: ASTM A194 GR 2H ANSI B18.2.2	CARBON STEEL ASTM A234, SCH 40 BUTT WELD ANSI B16.9 CARBON STEEL ASTM A234, SCH 20 BUTT WELD ANSI B16.9	DRAIN VALVES (GATE): FORGED STEEL ASTM A105 800# THREADED OR SOCKET WELD	DRAIN VALVES: STAINLESS STEEL	
	8" TO 12"	CARBON STEEL, ASTM A53 OR A106, GR B, SEAMLESS OR ERW SCH 40 ANSI B36.10							
EXHAUST EXPOSED TO WEATHER	ALL	STAINLESS STEEL ASTM A312, GR TP316L ANSI B36.10 SCH 40 6" & BELOW SCH 20 8"-12"							

GENERAL NOTES

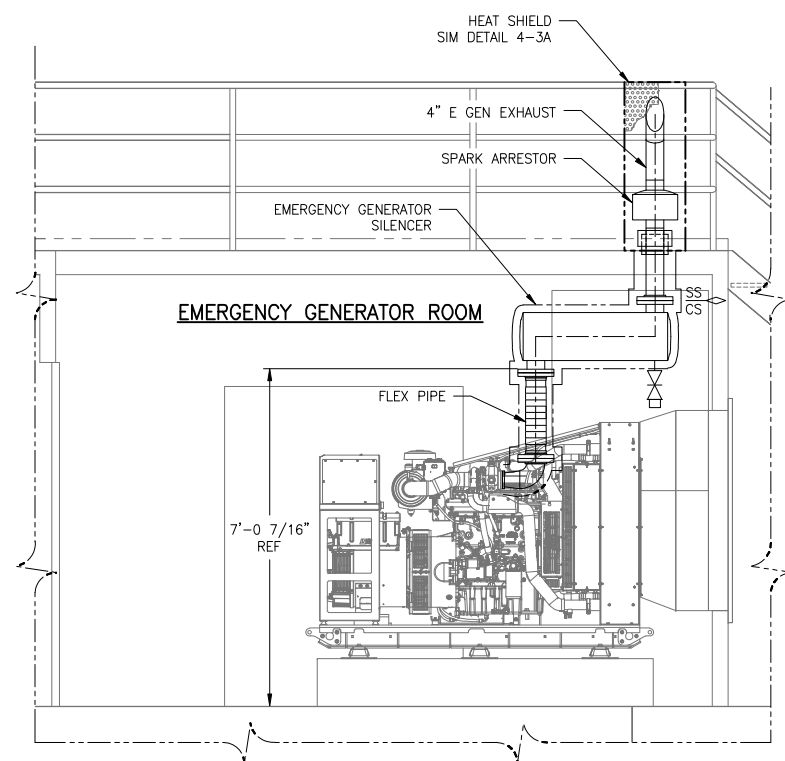
- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.
- PIPING SHALL BE ROUTED AS DIRECTLY AS POSSIBLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS.
- PRIOR TO FABRICATION OF MATING PIPE ASSEMBLIES, VERIFY EQUIPMENT CONNECTIONS FOR SIZE, LOCATION AND TYPE IN ACCORDANCE WITH MANUFACTURER CERTIFIED DRAWINGS, OR DIRECTLY FROM THE EQUIPMENT. TEMPLATE BOLTING PATTERNS AND CONNECTIONS AS REQUIRED.
- ALL BOLTED FLANGES ARE TO BE MATED UP FREE OF STRAIN.
- WEIGHT TRANSMITTED TO THE ENGINE CONNECTION IS NOT TO EXCEED THE MANUFACTURERS' RECOMMENDATIONS IN HOT AND COLD CONDITIONS.
- EXHAUST PIPING AND SILENCERS SHALL BE RESILIENTLY SUPPORTED TO REDUCE NOISE TRANSMISSION.
- EACH EXPANSION JOINT SHALL BE MULTI-PLY TY321 CONVOLUTED STAINLESS STEEL, WITH A FIXED FLANGE AT ONE END AND A FLOATING FLANGE AT THE OTHER. A FLOW DIRECTION ARROW SHALL BE PERMANENTLY MARKED ON EACH EXPANSION JOINT.
- EXHAUST PIPING, SILENCERS, AND COMPONENTS SHALL BE INSULATED WITH REMOVABLE INSULATION BLANKETS THROUGHOUT THE MACHINERY SPACES AND STACKS. EXHAUST BLANKETS SHALL BE FABRICATED FROM NEEDLED OR WOVEN GLASS MAT WITH A STAINLESS STEEL MESH INTERIOR LINER, SILICONE IMPREGNATED GLASS CLOTH EXTERIOR LINER, AND FASTENED USING STAINLESS STEEL HOOKS AND LACING.
- DRAIN VALVES SHALL BE PROVIDED NEAR THE BOTTOM OF VERTICAL EXHAUST RUNS AND AT LOW POINTS WHERE MOISTURE MAY ACCUMULATE.
- 1/4" PIPE TAPS SHALL BE INSTALLED ON ENGINE EXHAUST OUTLET PIPING FOR BACK PRESSURE MEASUREMENT.
- PIPE, RAIN HAT, HEAT SHIELD, FASTENERS & HANGERS EXPOSED TO WEATHER SHALL BE TYPE 316L STAINLESS STEEL. PIPE MATERIAL TRANSITIONS TO SS SHALL OCCUR 12" BELOW THE DECK PENETRATION.
- FINAL DIMENSIONING AND HANGER DETAILS SHALL BE COMPLETED BY CONTRACTOR AND ARE SUBJECT TO OWNER APPROVAL.
- FINAL EXPANSION JOINT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DEPENDING ON THE EXHAUST HANGER LOCATIONS.
- EXHAUST PIPE SHALL BE ROUTED AS HIGH IN THE OVERHEAD AS PRACTICABLE. MAINTAIN OVERHEAD HEIGHT OF 6'-8" WHEREVER POSSIBLE.

SYMBOLS LIST

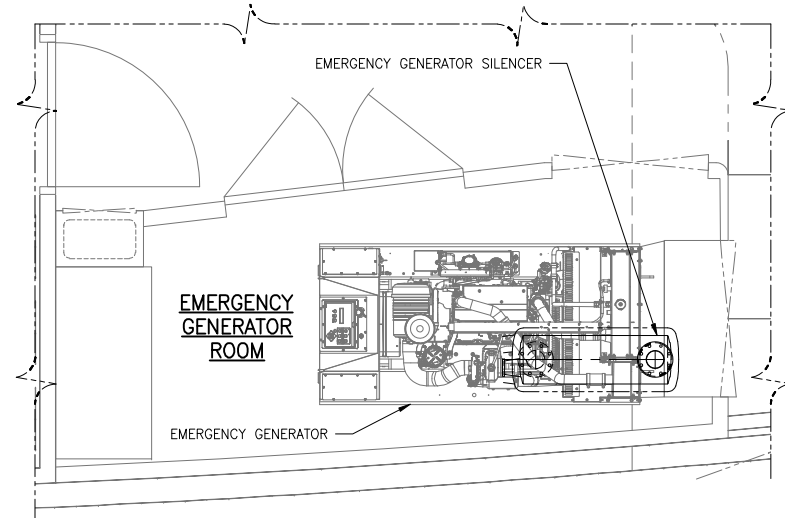
	GATE VALVE W/ SCREWED PLUG
	MATERIAL TRANSITION

EQUIPMENT SCHEDULE

QTY	SERVICE	SIZE	CAPACITY/REMARKS
2	MAIN ENGINE SILENCER	8" END IN/END OUT	CRITICAL GRADE SPARK ARRESTING
2	SHIP SERVICE DIESEL GENERATOR SILENCER	5" END IN/END OUT	CRITICAL GRADE SPARK ARRESTING
1	EMERGENCY GENSET SILENCER	4" SIDE IN/SIDE OUT	CRITICAL GRADE
1	EMERGENCY GENSET SPARK ARRESTOR	4"	316 SS
2	MAIN ENGINE TURBO OUTLET EXPANSION JOINT	ENGINE VENDOR SUPPLY	SEE NOTE 6
4	ANSI FLANGED EXPANSION JOINT (MAIN ENGINE EXHAUST)	8"	SEE NOTE 6
2	GENSET TURBO OUTLET EXPANSION JOINT	ENGINE VENDOR SUPPLY	SEE NOTE 6
6	ANSI FLANGED EXPANSION JOINT (GENSET EXHAUST)	5"	SEE NOTE 6



ELEVATION 1-2B
 EMERGENCY GENERATOR EXHAUST
 LOOKING INBOARD
 SCALE: 1/2"=1'-0"



PLAN 1-2A
 EMERGENCY GENERATOR EXHAUST
 SCALE: 1/2"=1'-0"

REFERENCES

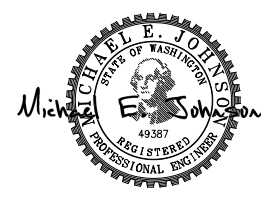
- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-201-1 MACHINERY ARRANGEMENT
- 16101-200-513-1 MACHINERY VENTILATION ARRANGEMENT



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PROJECT: NEW RIVER CLASS FERRY

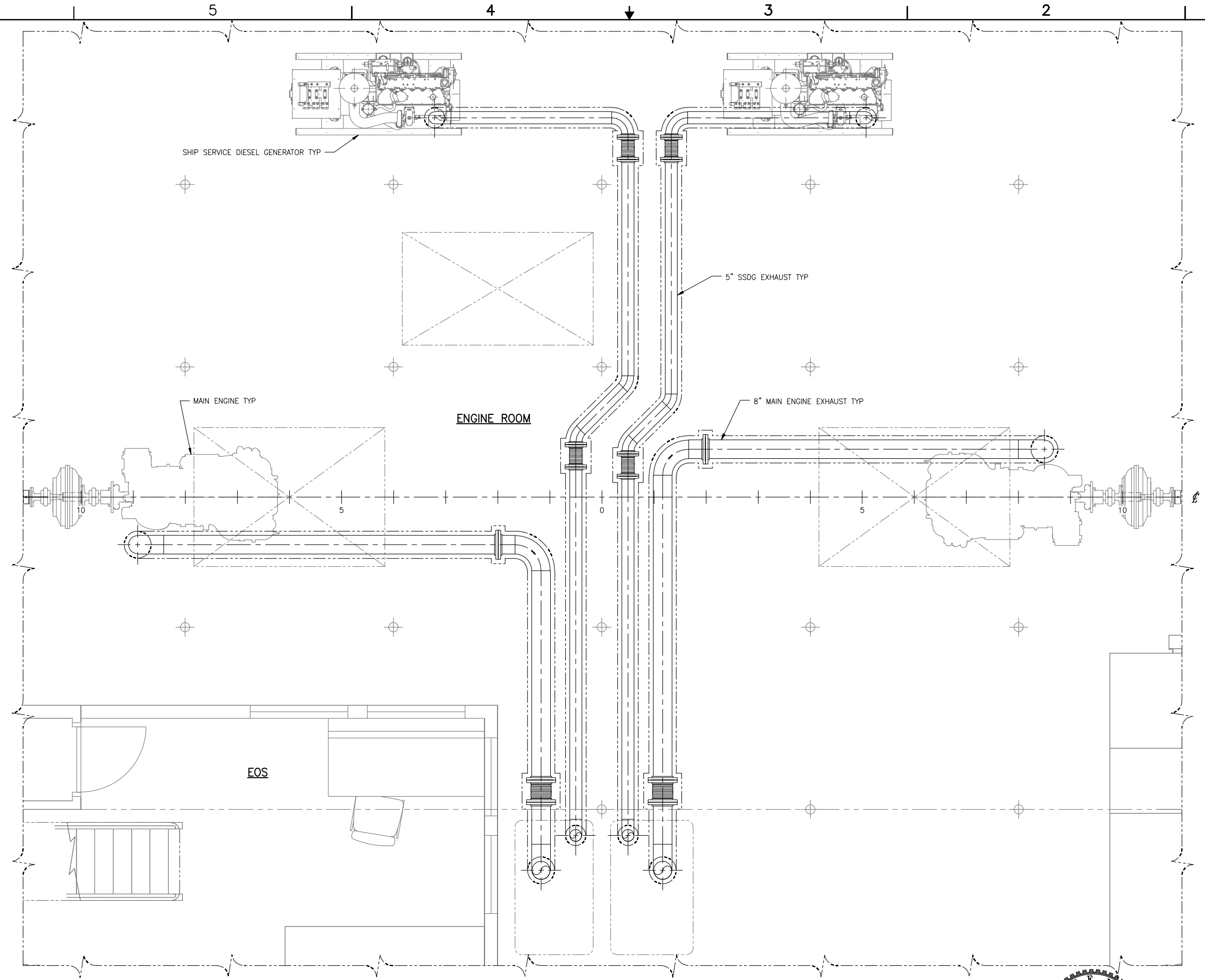


EXHAUST ARRANGEMENT

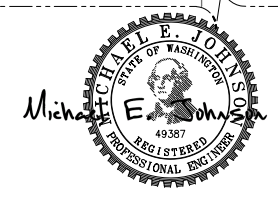
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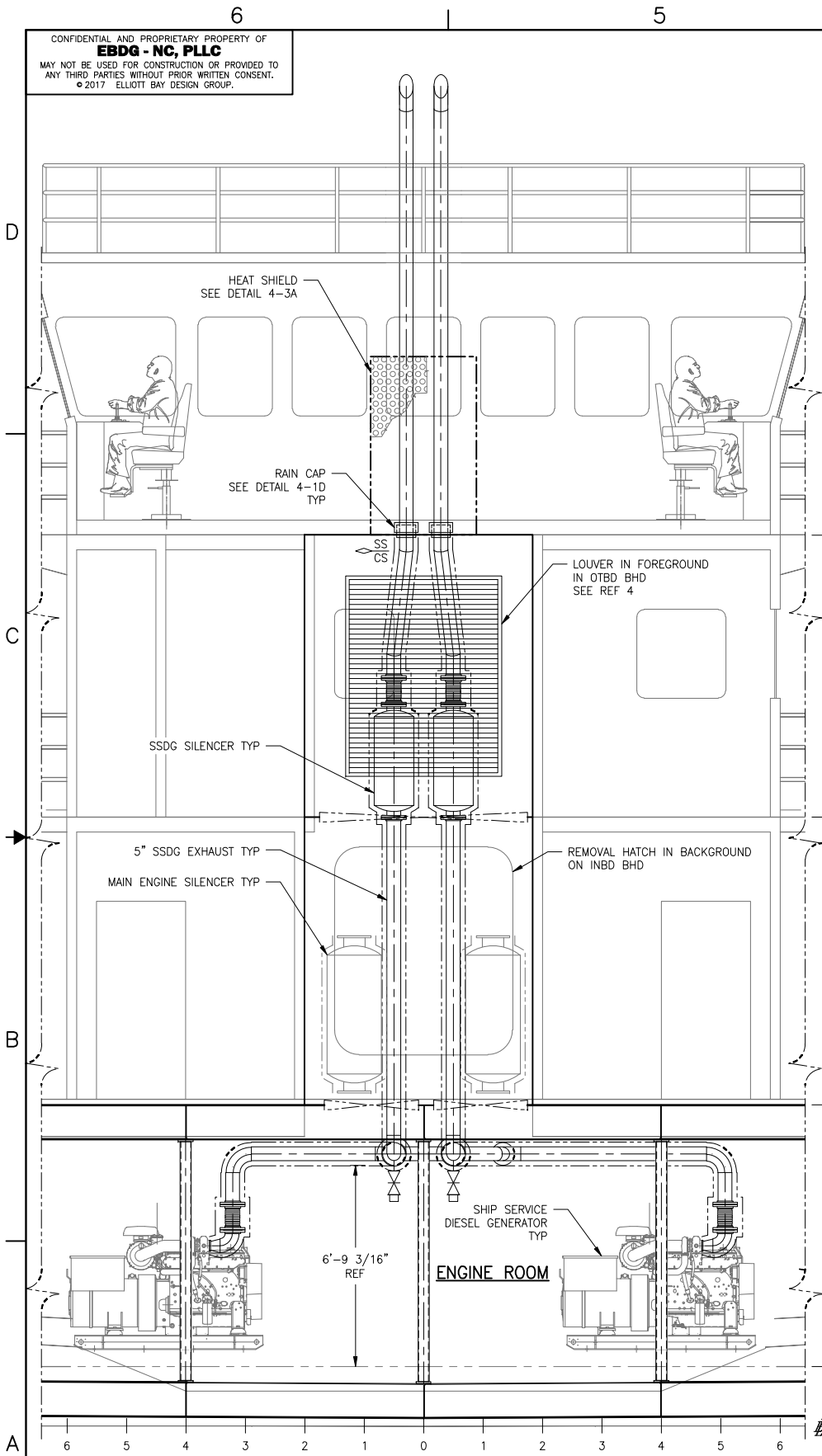
PLAN 2-4A
 MAIN ENGINE AND SSDG EXHAUST
 SCALE: 1/2"=1'-0"



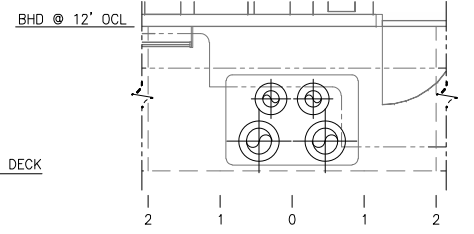
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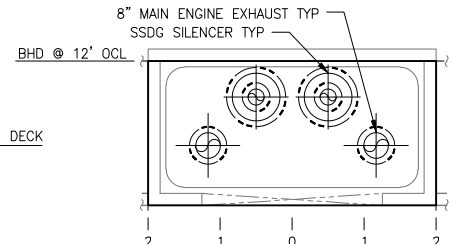
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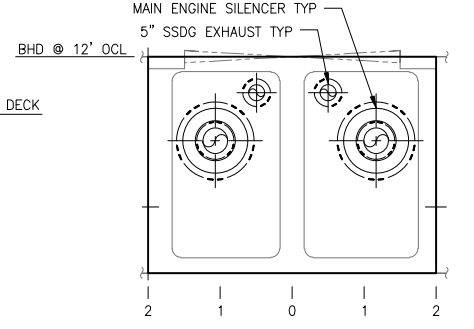
ELEVATION 3-6A
 SHIP SERVICE GENERATOR EXHAUST
 12' OCL SHOWN WITH BACKGROUND
 LOOKING PORT
 SCALE: 3/8"=1'-0"



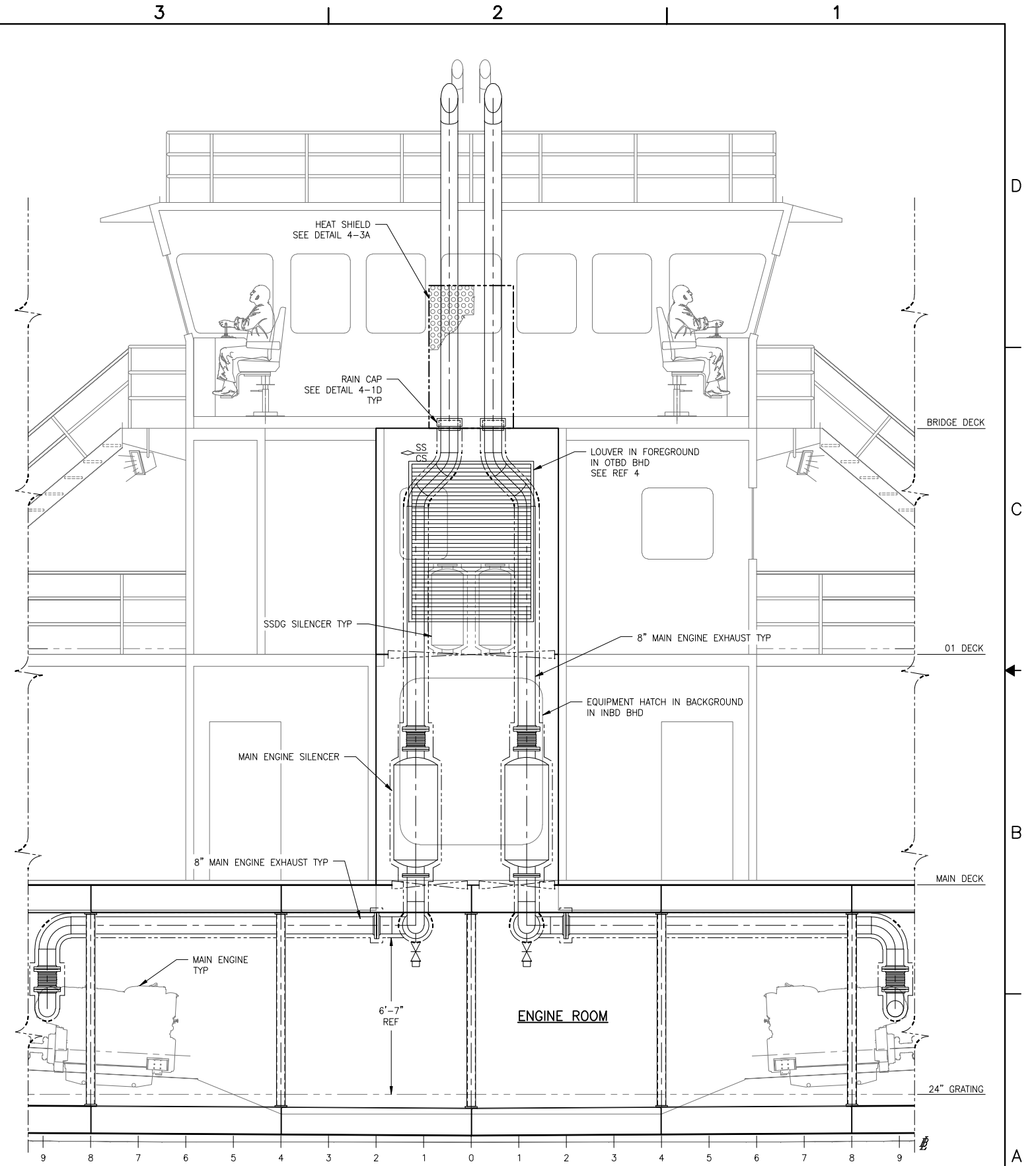
PLAN 3-4C
 EXHAUST PIPING AT BRIDGE DECK
 SCALE: 3/8"=1'-0"



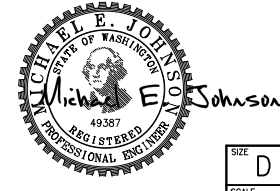
PLAN 3-4B
 EXHAUST PIPING AT 01 DECK
 SCALE: 3/8"=1'-0"



PLAN 3-4A
 EXHAUST PIPING AT MAIN DECK
 SCALE: 3/8"=1'-0"

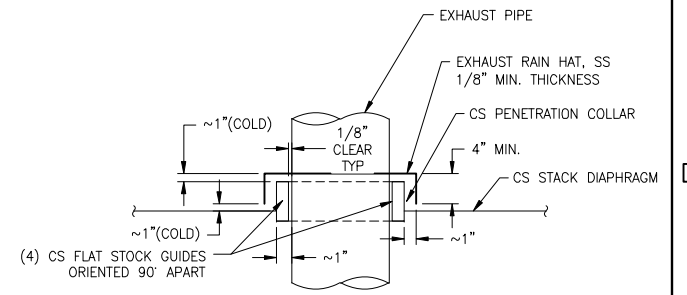


ELEVATION 3-2A
 MAIN ENGINE EXHAUST
 12' OCL SHOWN WITH BACKGROUND
 LOOKING PORT
 SCALE: 3/8"=1'-0"

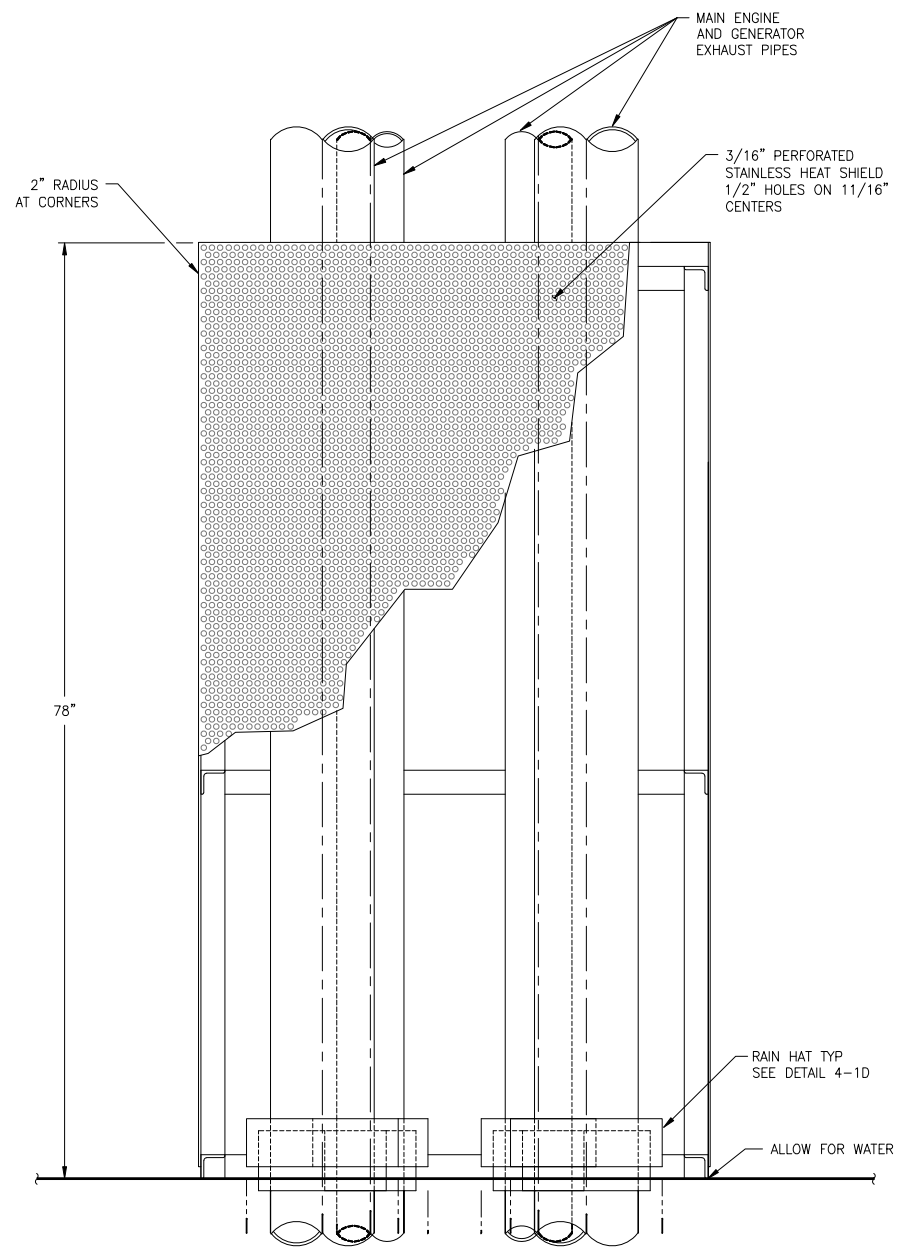


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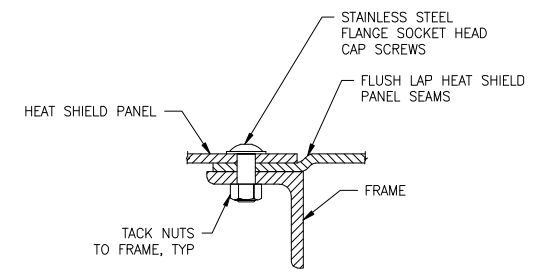
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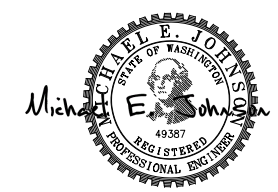
DETAIL 4-1D
 TYP RAIN CAP
 NO SCALE



DETAIL 4-3A
 HEAT SHIELD
 SCALE: 1-1/2"=1'-0"



DETAIL 4-1C
 HEAT SHIELD PANEL SEAM
 SCALE: 6"=1'-0"



SIZE	D	DWG NO.	16101-200-259-1	REV	-
SCALE	AS NOTED	FILE NAME	16101-200-259-1-	SHEET	4 OF 4

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MATERIAL SCHEDULE

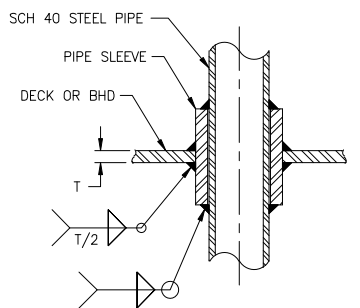
SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			VALVES		FITTINGS	FLEXIBLE CONNECTIONS
			MATERIAL	GASKETS	BOLTING	BODY	TRIM		
FUEL OIL MAWP: 15 PSIG MAX TEMP: 120°F	ALL	CARBON STEEL ASTM A53 OR A106, GRADE B SEAMLESS ANSI B36.10 SCH 40	UNION GROUND JOINT CARBON STEEL ASTM A105 ANSI B16.11 SOCKET WELD	-	-	BALL: CARBON STEEL ASTM A216 GR WCB SOCKET WELD 3-PIECE 1500 PSI SWING CHECK: CARBON STEEL ASTM A216 GR WCB 150#, SOCKET WELD GATE VALVE: CARBON STEEL ASTM A216 GR WCB FLANGED SEE NOTES 12&14	BALL: CHROME PLATED CARBON STEEL BALL RPTFE SEATS SWING CHECK: STAINLESS STEEL GATE VALVE: STAINLESS STEEL	CARBON STEEL ASTM A105 ANSI B16.11 3000# SOCKET WELD	SAE J1942 COMPLIANT HOSE SEE NOTE 6

EQUIPMENT & PUMP LIST

QTY	SERVICE	TYPE	MODEL	CAPACITY	REMARKS
1	FUEL OIL TRANSFER PUMP	HAND OPERATED ROTARY VANE	-	10 GAL/ 115 REV	INLINE INSTALLATION
2	MAIN ENGINE FUEL OIL FILTER	TURBINE FILTER 2 ELEMENT	-	6 GPM 10 MICRON	ASTM F1201
2	SSDG FUEL OIL FILTER	TURBINE FILTER 1 ELEMENT	-	3 GPM 10 MICRON	ASTM F1201
1	EDG FUEL OIL FILTER	TURBINE FILTER 1 ELEMENT	-	3 GPM 10 MICRON	ASTM F1201
1	SIGHT FLOW INDICATOR	VISUAL	-	-	-

SYMBOLS LIST

	SUPPLY PIPE
	RETURN PIPE
	PIPE UP
	PIPE DOWN
	BULKHEAD PENETRATION
	REDUCER
	PLUG
	REMOTE ACTUATED VALVE
	BALL VALVE
	SWING CHECK VALVE
	SIMPLEX FILTER
	FLEXIBLE CONNECTION
	DUPLEX FILTER
	SPILL CONTAINMENT/DRIP PAN
	MANUALLY OPERATED PUMP
	SIGHT FLOW INDICATOR
	LEVEL SENSOR



DETAIL 1-6A
 TYP DECK/BHD PENETRATION

GENERAL NOTES (CONT)

- ALL VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL CLOSURE STATUS.
- PIPE THREAD SEALING TAPE, GALVANIZED PIPE, OR FITTINGS SHALL NOT BE USED.
- VALVES CONSTRUCTED OF DUCTILE IRON, ASTM A395, MAY BE SUBSTITUTED WHERE PERMITTED BY ABS AND USCG REQUIREMENTS.
- PIPE BENDS MAY BE USED IN LIEU OF ELBOWS WHERE PRACTICABLE. BENDS SHALL HAVE A BEND RADIUS OF FIVE TIMES NOMINAL DIAMETER WHEREVER PRACTICAL, WITH A MINIMUM RADIUS OF THREE TIMES NOMINAL DIAMETER.
- TANK SHUT-OFF VALVES SHALL BE POSITIVE SHUTOFF AND HAVE FIRE SAFE METALLIC SEATS.
- EACH FUEL OIL TANK SHALL BE FITTED WITH A LEVEL SENSOR. EACH SENSOR SHALL BE INSTALLED THROUGH THE TOP OF THE TANK AND INTERFACED WITH THE SHIP'S ALARM AND MONITORING SYSTEM. CONFIGURE TO PROVIDE CONTINUOUS LEVEL INDICATION, LOW & HIGH LEVEL ALARMS. SEE REF 1.
- PIPING SHALL BE CLEANED AND TESTED IN ACCORDANCE WITH USCG REQUIREMENTS. SEE REF 1.
- ARRANGE LEVEL INDICATOR TO PROVIDE INDICATION THROUGH THE GREATEST RANGE OF TANK LEVEL AS PRACTICABLE.

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	SHT 2 2-3A	1. REMOVED PROPRIETARY DETAILS 2. ADDED EGEN FUEL TANK VENT.	MWR	7/28/17	LGB
B	2-3B	1. INCREASED SIZE OF SUPPLY CROSS CONNECT FROM 2". 2. REMOVED TANK PENETRATIONS FROM RETURN LINES.	LGB	8/30/17	LGB

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURERS' CERTIFIED DRAWINGS AS APPROPRIATE.
- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
- PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO THE BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES.
- WHERE PIPES PENETRATE TANK BOUNDARIES, BULKHEADS, OR DECKS HEAVY WEIGHT SPOOL PIECES OR REINFORCING PENETRATION FITTINGS SHALL BE USED. SEE DETAIL 1-6A.
- FLEXIBLE HOSE SECTIONS BETWEEN THE ENGINE ATTACHED CONNECTIONS AND VESSEL PIPING SHALL BE 3/4" 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.
- 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°F OR GREATER.
- FUEL OIL SUCTION BELLMOUTH AREA SHALL BE AT LEAST 1 1/2 TIMES THE SUCTION PIPE INTERNAL AREA.
- DRIP PANS WITH UP-TURNED, SEALED, FLANGED EDGES SHALL BE PROVIDED BENEATH ALL FILTERS, PUMPS, STRAINERS, AND ANY OTHER EQUIPMENT THAT CONTAINS OIL AND REQUIRES PERIODIC MAINTENANCE. DRIP PANS SHALL BE PROVIDED WITH DRAIN VALVES.

REFERENCES

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



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 RALEIGH, NORTH CAROLINA

PROJECT: NEW RIVER CLASS FERRY

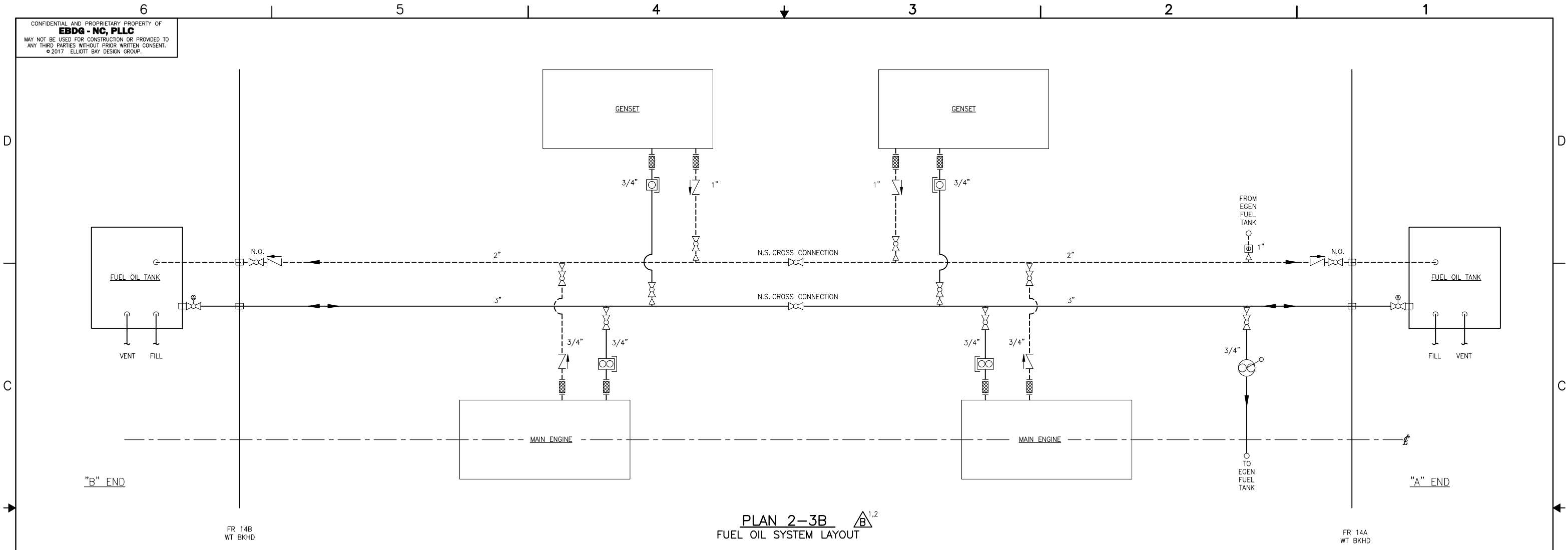


FUEL OIL PIPING SCHEMATIC

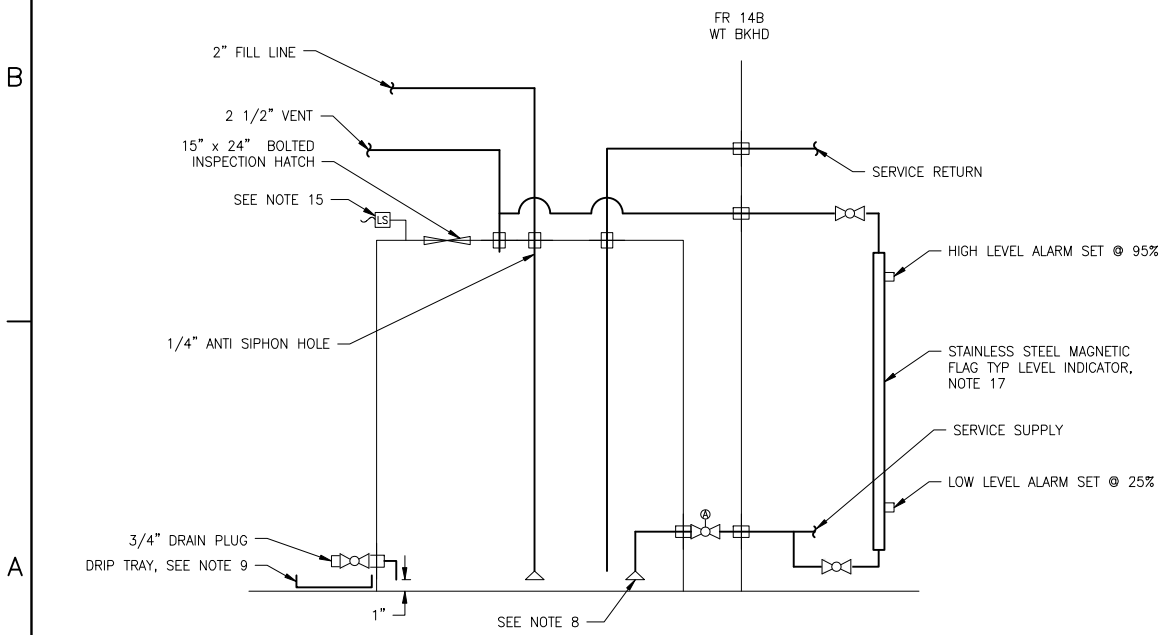
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				APVD DATE	7/21/17

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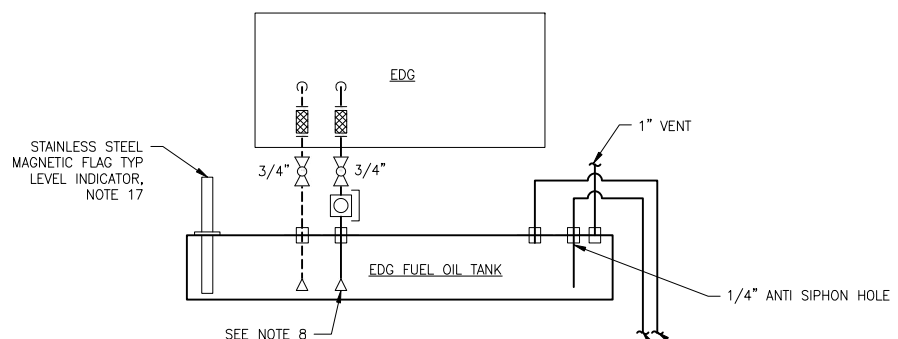
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PLAN 2-3B $\Delta^{1.2}$
 FUEL OIL SYSTEM LAYOUT



DETAIL 2-5A
 TYP STORAGE TANK
 "B" END SHOWN, "A" SIMILAR



DETAIL 2-3A Δ^2
 EGEN FUEL OIL SYSTEM



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SCALE	NONE	FILE NAME	16101-200-261-1B	SHEET	2 OF 2

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1	GENERAL NOTES, SYMBOLS, REVISIONS
2	SHIP SERVICE & EMERGENCY SWITCHBOARD
3	208/120V PANELS – ENGINE ROOM A & B
4	208/120V PANELS – PILOT HOUSE & HOLD VENTILATION
5	208/120V PANELS – HVAC 1 & HVAC 2
6	EMERGENCY 208/120V PANELS – ENGINE ROOM & PILOT HOUSE
7	DC PANELS – ENGINE ROOM & EOS
8	DC PANELS – PILOT HOUSE

SYMBOLS LIST	
	TRANSFER SWITCH (NORMAL CONNECTION SHOWN) ABT – AUTOMATIC BUS TRANSFER MBT – MANUAL BUS TRANSFER X – PWR AVAILABLE INDICATION (LED)
	CIRCUIT BREAKER X – NUMBER OF POLES Y – CIRCUIT BREAKER FRAME SIZE Z – CIRCUIT BREAKER TRIP SETTING
	CIRCUIT BREAKER W/ TRIP DEVICE ST – SHUNT TRIP UV – UNDER VOLTAGE TRIP
	GENERATOR
	RS – RUN, STOP HOA – HAND, OFF, AUTO HLS – HIGH, LOW, STOP FOR – FORWARD, OFF, REVERSE LVP – LOW VOLTAGE PROTECTION LVR – LOW VOLTAGE RELEASE FNVR – FULL VOLTAGE NON-REVERSING SS – SOFT START RVNR – REDUCED VOLTAGE NON-REVERSING FVR – FULL VOLTAGE REVERSING VFD – VARIABLE FREQUENCY DRIVE NEMA SIZE COMBINATION STARTER
	CONTROL DEVICES/FUNCTIONS PB – PUSH-BUTTON PB/IL – PUSH-BUTTON, ILLUMINATED PS – PRESSURE SWITCH LS – LEVEL SWITCH FR – FIRE SHUTDOWN RELAY FS – FLOW SWITCH DS – DISCONNECT SWITCH TH – THERMOSTAT SC – SPEED CONTROL
	DEM CONTROLLER SUPPLIED/INTEGRAL WITH EQUIPMENT
	CONTROLLER, LOW-VOLTAGE RELEASE EFFECT MOUNTED ADJACENT TO EQUIPMENT
	INDICATOR LIGHTS
	MOTOR
	SWITCH NORMALLY CLOSED
	SWITCH NORMALLY OPEN
	EQUIPMENT
	LIGHTING
	DUPLEX RECEPTACLE
	SHORE POWER RECEPTACLE
	JUNCTION BOX
	DC POWER SUPPLY
	SWITCHBOARD INSTRUMENT
	MOMENTARY SWITCH NORMALLY CLOSED
	SELECTION SWITCH

- GENERAL NOTES – CONT'D**
- AVAILABLE FAULT CURRENT IS ESTIMATED AS 10 TIMES THE COMBINED MAXIMUM GENERATOR CURRENT PLUS 4 TIMES THE CONNECTED MOTOR LOAD.
 GENERATOR CURRENT (1x150KW) 10 x 521A = 5210A
 MOTOR CURRENT (EST 100KW) 4 x 246A = 984A
 AVAILABLE FAULT CURRENT 6194A
 - CABLES HAVE BEEN DERATED FOR DOUBLE BANKING, HOWEVER, CABLES SHALL BE SINGLE BANKED WHEREVER PRACTICAL.
 - GROUND DETECTION AND INDICATION SHALL BE PROVIDED IN COMPLIANCE WITH SUBCHAPTER J REGULATIONS.
 - CABLES SHALL BE LABELED WITH PERMANENTLY PRINTED POLYOLEFIN OR EMBOSSED ALUMINUM CABLE TAGS PERMANENTLY ATTACHED TO THE CABLE BY BANDING. CABLES SHALL BE LABELED ON EACH SIDE OF EACH BULKHEAD AND DECK PENETRATION, AND AT EACH ELECTRICAL ENCLOSURE.
 - ALL NON-CURRENT CARRYING METAL EQUIPMENT SHALL BE EFFECTIVELY GROUNDED TO SHIP STRUCTURE. GROUNDING CONDUCTORS SHALL BE ADDED IN WAY OF ISOLATION MOUNTS, POURED CHOCKS, AND OTHER INSULATING FOUNDATIONS.
 - CONVENIENCE RECEPTACLES IN HEADS, CLEANING GEAR LOCKERS, THE VEHICLE SPACE, EXTERIOR, CREW GALLEY, MECHANICAL SPACES, AND OTHER SPACES PRESCRIBED BY USCG SHALL INCLUDE GROUND FAULT CIRCUIT INTERRUPTION PROTECTION.
 - THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING A CIRCUIT BREAKER COORDINATION STUDY, AND ADJUSTING CIRCUIT BREAKER TRIP RATINGS AS NECESSARY TO FACILITATE COORDINATION.
 - SINGLE CONDUCTOR CABLE SHALL NOT BE USED FOR AC POWER DISTRIBUTION.
 - CABLES SHOWN ARE SIZED PER IEEE-45 (2002) TABLE 25. CABLE SIZING IS BASED UPON 90 DEGREE C CONDUCTOR TEMPERATURE, 45 DEGREE C AMBIENT TEMPERATURE OUTSIDE OF CLASS A MACHINERY SPACES, AND 50 DEGREE C AMBIENT TEMPERATURE WITHIN CLASS A MACHINERY SPACES.
 - PANEL P205 TO BE PROVIDED WITH SHUNT TRIP FOR VENTILATION SHUTDOWN. ONE MANUAL ACTIVATION SWITCH IS TO BE LOCATED IN THE PILOT HOUSE AND ONE AUTOMATIC SWITCH IS TO BE CONNECTED TO THE ENGINE ROOM FIRE SUPPRESSION SYSTEM.

REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD

- GENERAL NOTES**
- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS AND IEEE-45 (2002).
 - SWITCHBOARD INTERLOCKS SHALL PREVENT PARALLELING OF POWER SUPPLIES.
 - PENETRATIONS AT WATERTIGHT AND FIRE RATED BULKHEADS AND DECKS, AND AT ELECTRICAL ENCLOSURES, SHALL BE SEALED WITH APPROVED STUFFING TUBES OR MULTI-CABLE TRANSITS (MCT). CABLES PASSING THROUGH OTHER PENETRATIONS SHALL BE SECURED AND PROTECTED FROM CHAFING.
 - IN GENERAL, EQUIPMENT SHALL BE RATED AS FOLLOWS:
 MECHANICAL SPACES: 1P22 OR NEMA 12
 FINISHED INTERIORS: 1P20 OR NEMA 1
 EXTERIOR, VEHICLE DK NON-LIGHTING: 1P56 OR NEMA 4X
 EXTERIOR, VEHICLE DK LIGHTING: 1P55 OR NEMA 4X
 - POWER DISTRIBUTION CABLE SHALL MEET THE REQUIREMENTS OF IEEE-1580 (2010). CABLES SHALL USE TYPE LSX OR LSE INSULATION AND TYPE L OR TPO JACKETING, UNLESS REQUIRED BY USCG, CABLE SHALL BE UNARMORED AND UNSHIELDED. CABLE TYPE DESIGNATIONS USE THE FOLLOWING ABBREVIATIONS:
 S – SINGLE CONDUCTOR
 D – TWO CONDUCTOR
 T – THREE CONDUCTOR
 F – FOUR CONDUCTOR
 NUMBERS IN CABLE TYPE DESIGNATION INDICATE CONDUCTOR SIZE IN CIRCULAR MILS. CABLE MEETING THE SPECIFICATIONS OF MIL-C-24643 MAY BE SUBSTITUTED.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-300-1 AC AND DC LOADS ANALYSIS
- 16101-200-422-1 NAVIGATION LIGHT ARR. AND BLOCK DIAGRAM



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PROJECT: NEW RIVER CLASS FERRY



TITLE: AC AND DC ELECTRICAL ONE LINE DIAGRAM

SIZE: D DWG NO.: 16101-200-320-1 REV: -

SCALE: NONE FILE NAME: 16101-200-320-1- SHEET 1 OF 8

DWN: NUB MOD: CD: TMH APVD: TMH APVD DATE: 07/22/17

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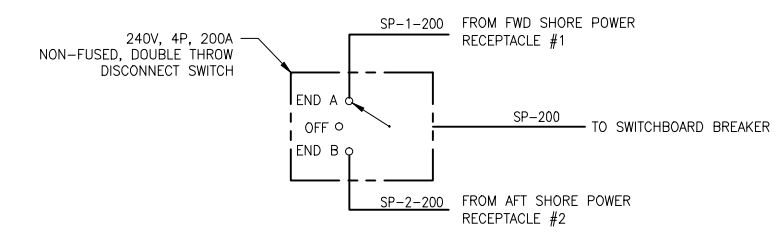
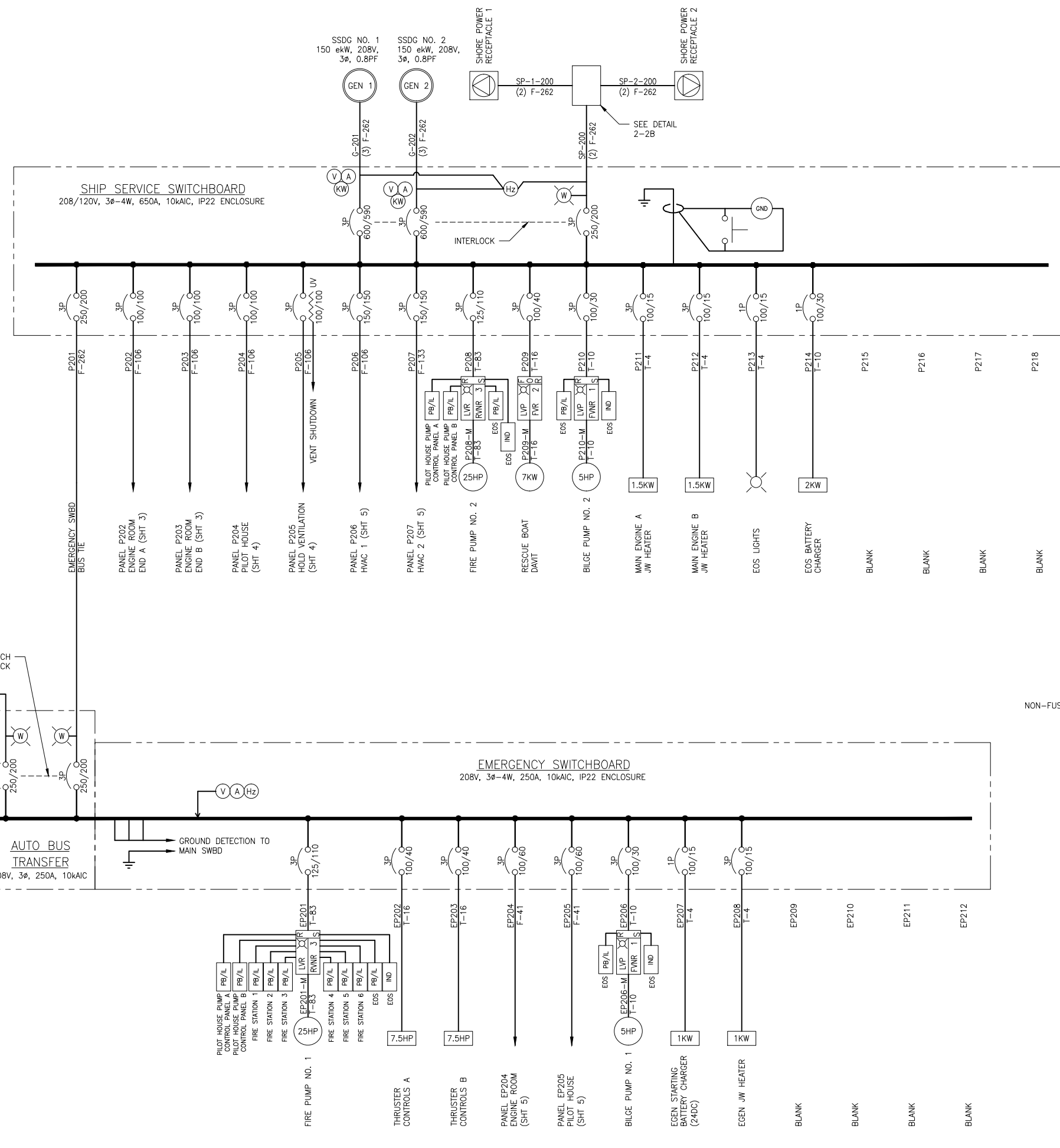
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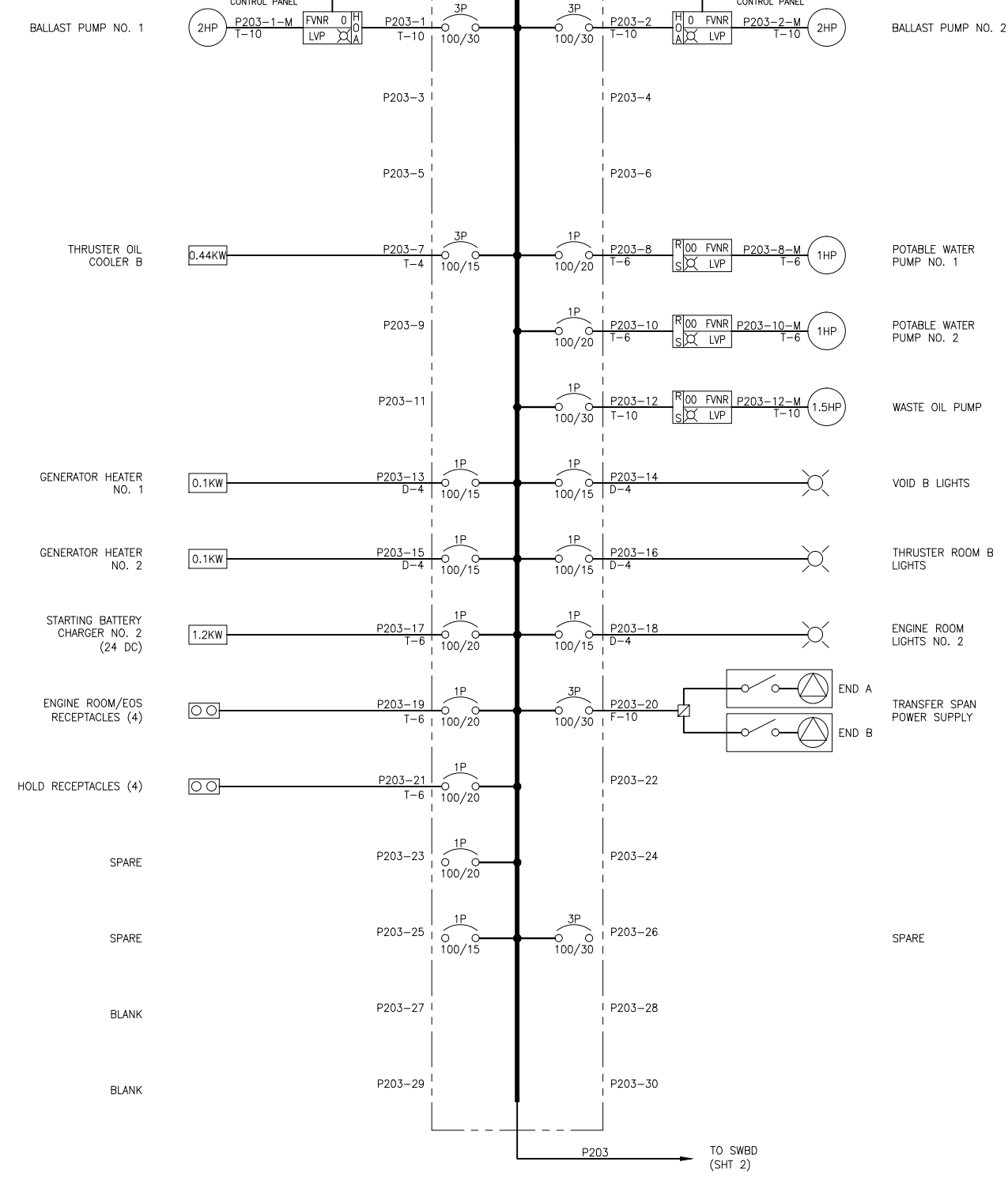
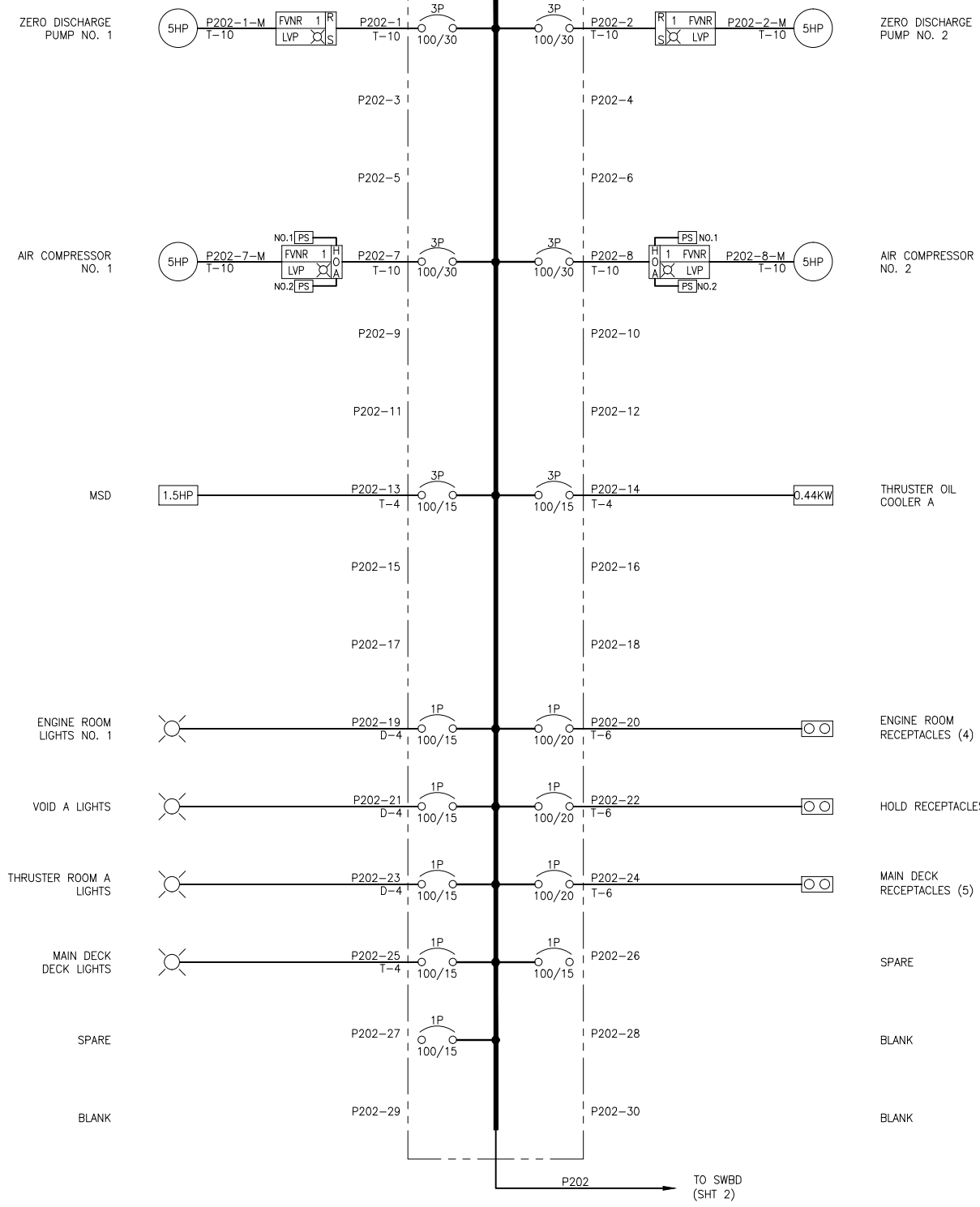
C

B

A

PANEL P202
 ENGINE ROOM END A
 208/120V, 3Ø-4W, 100A, 10KAIC,
 MLO 30 POLE, IP22 ENCLOSURE

PANEL P203
 ENGINE ROOM END B
 208/120V, 3Ø-4W, 100A, 10KAIC,
 MLO 30 POLE, IP22 ENCLOSURE



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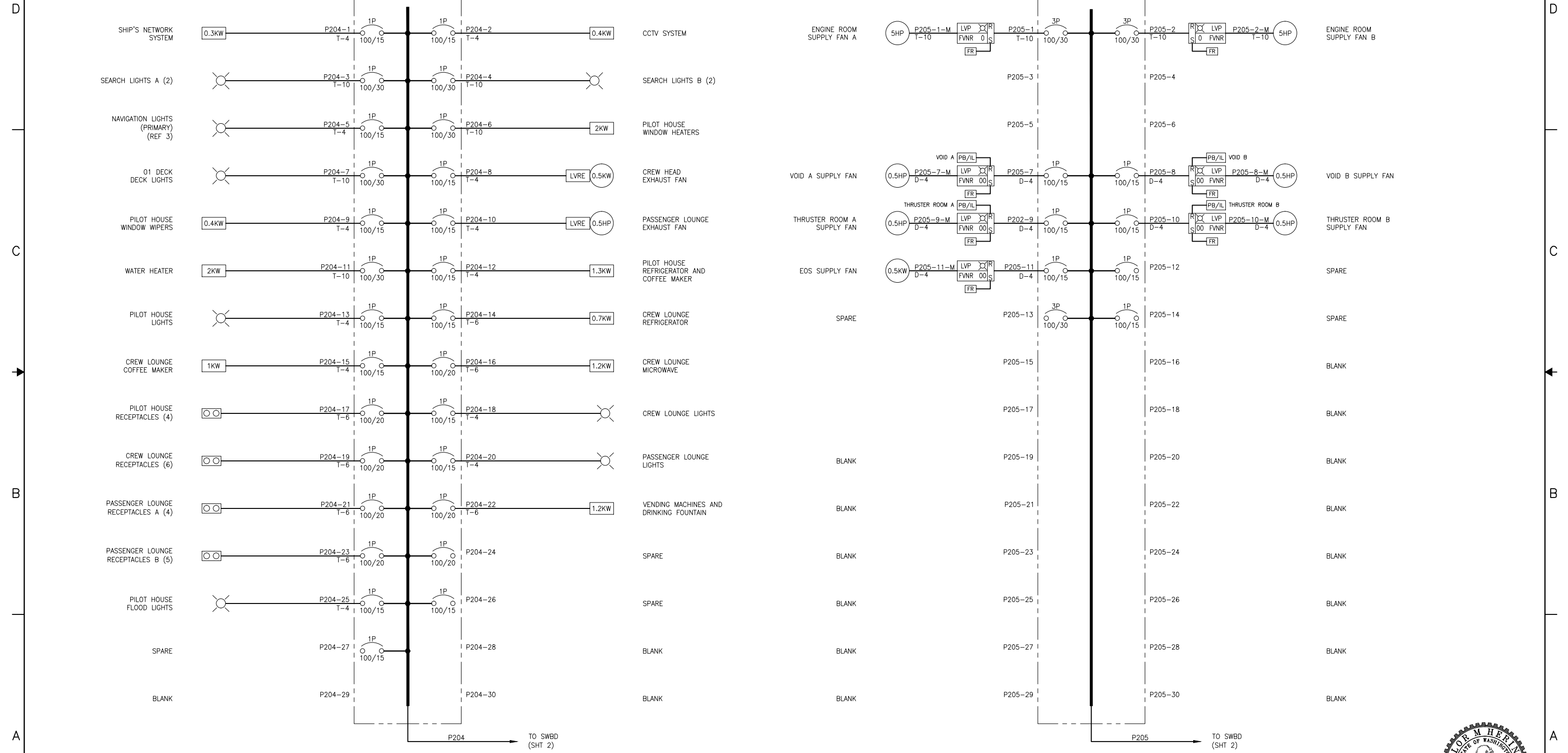
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**PANEL P204
 PILOT HOUSE**

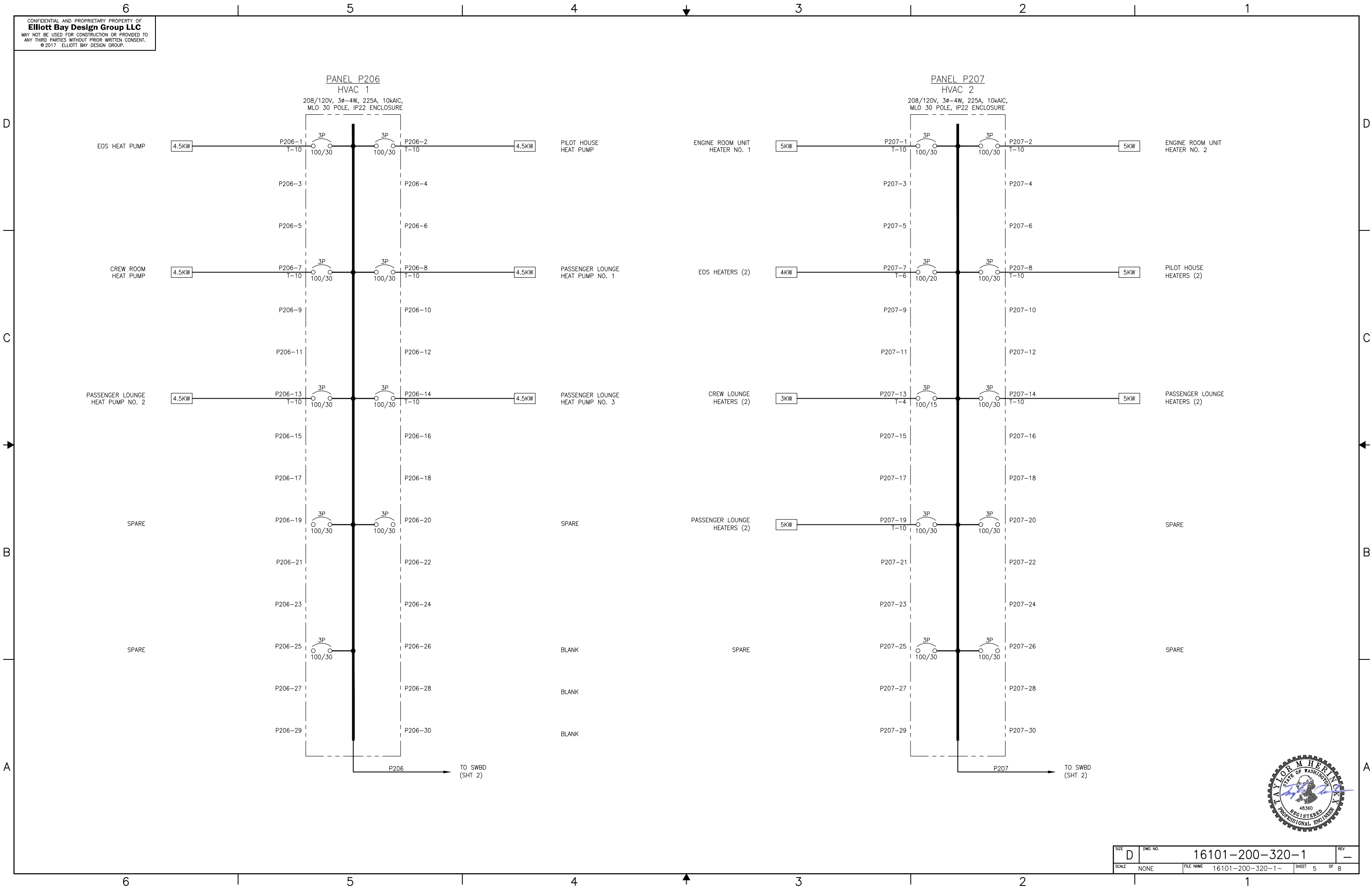
208/120V, 3Ø-4W, 100A, 10kAIC,
 MLO 30 POLE, IP20 ENCLOSURE

**PANEL P205
 HOLD VENTILATION**

208/120V, 3Ø-4W, 100A, 10kAIC,
 MLO 30 POLE, IP22 ENCLOSURE



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SCALE	NONE	FILE NAME	16101-200-320-1-	SHEET	5 OF 8

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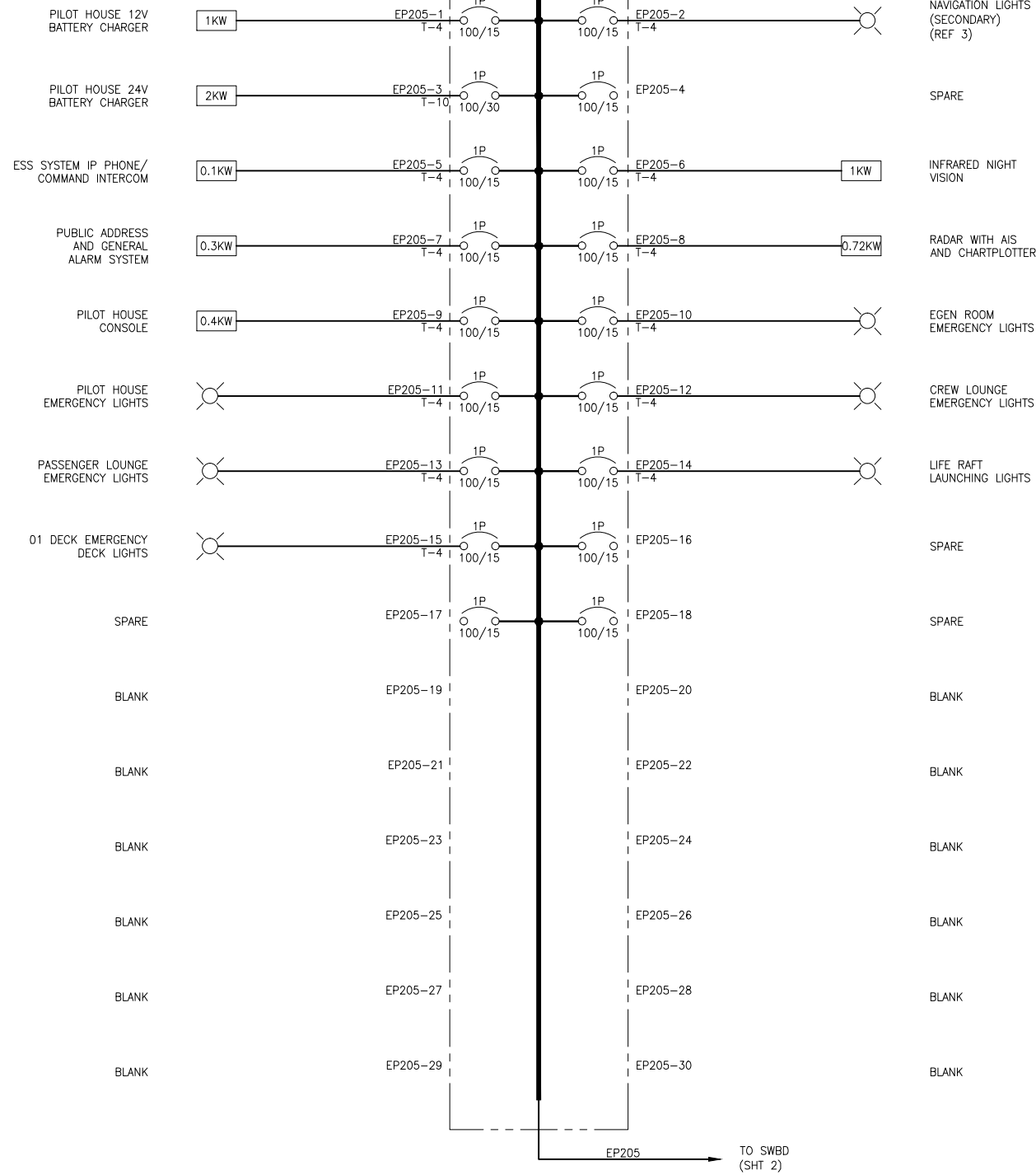
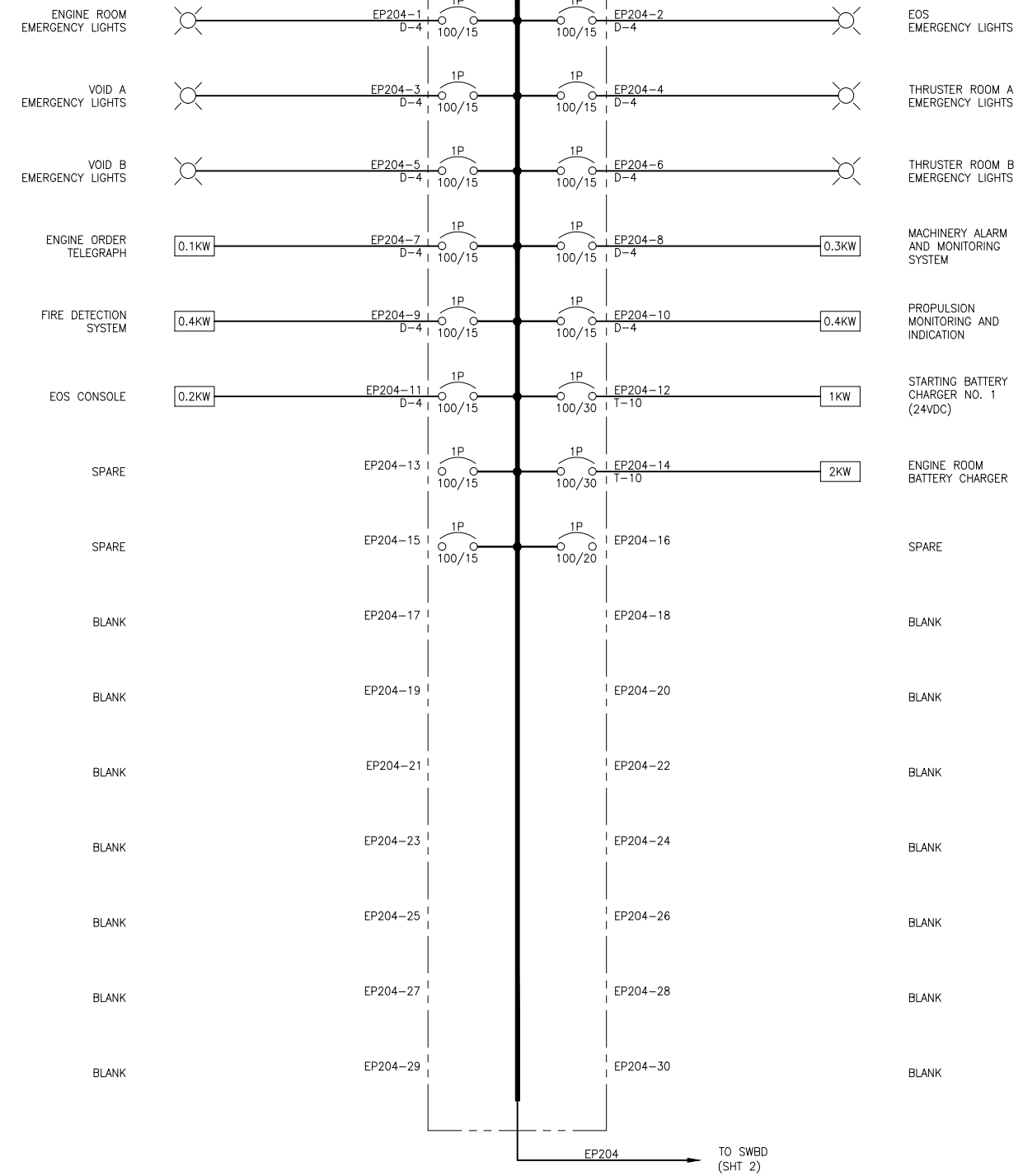
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**PANEL EP204
 ENGINE ROOM**

208/120V, 3Ø-4W, 100A, 10kAIC,
 MLO 30 POLE, IP22 ENCLOSURE

**PANEL EP205
 PILOT HOUSE**

208/120V, 3Ø-4W, 100A, 10kAIC,
 MLO 30 POLE, IP22 ENCLOSURE



EP204 TO SWBD (SHT 2)

EP205 TO SWBD (SHT 2)



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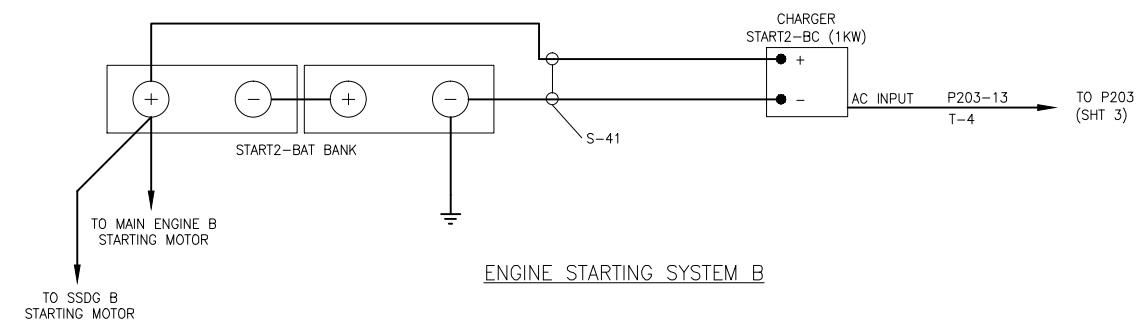
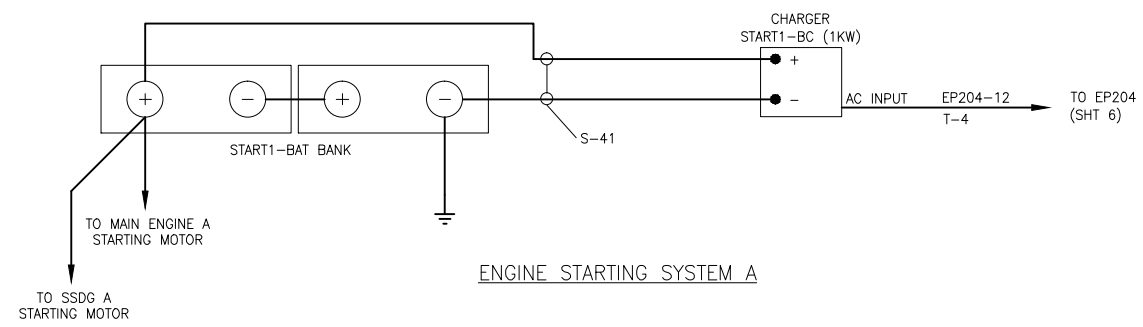
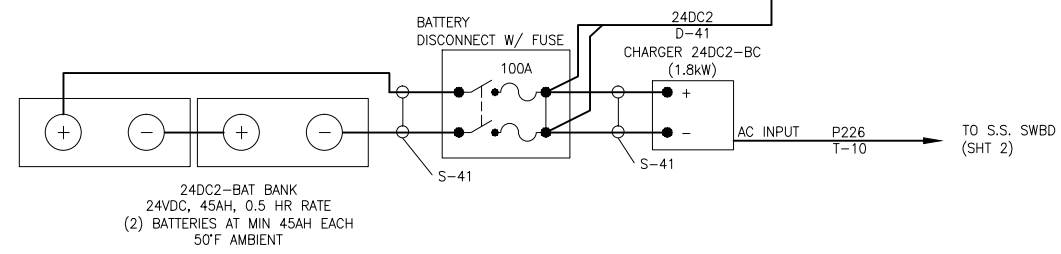
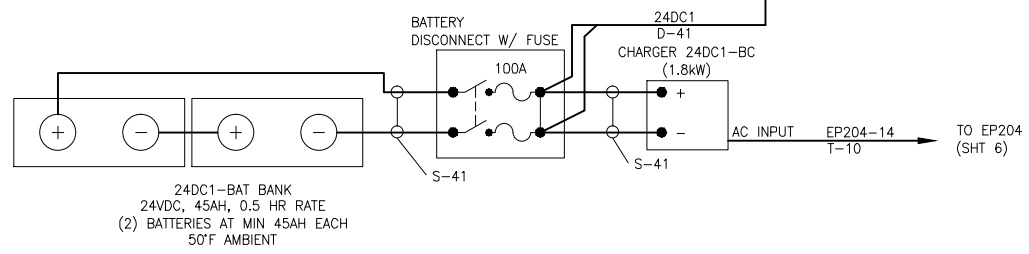
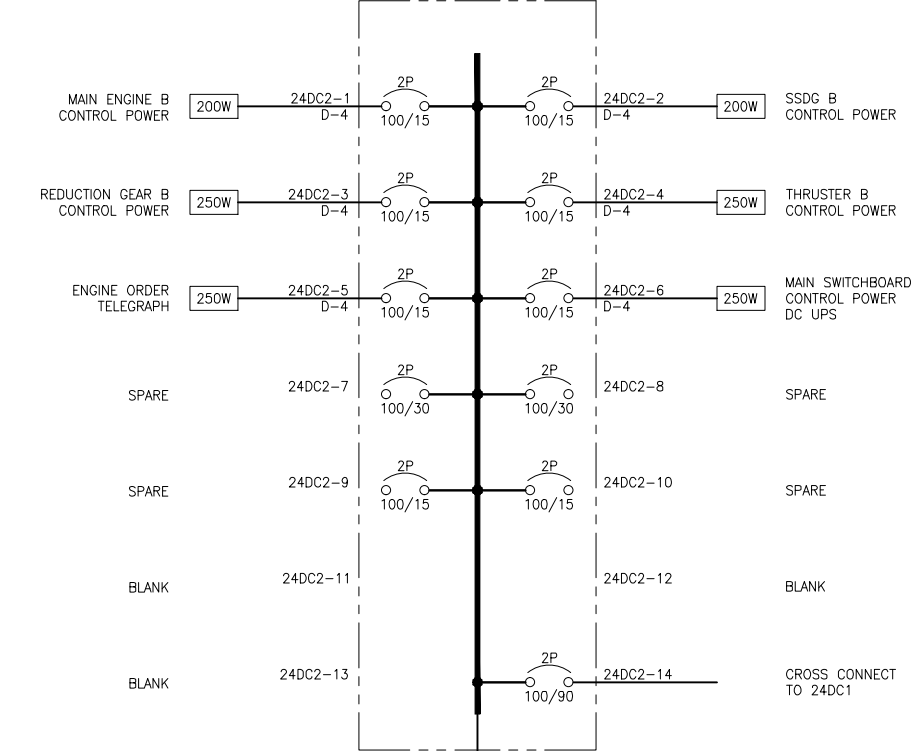
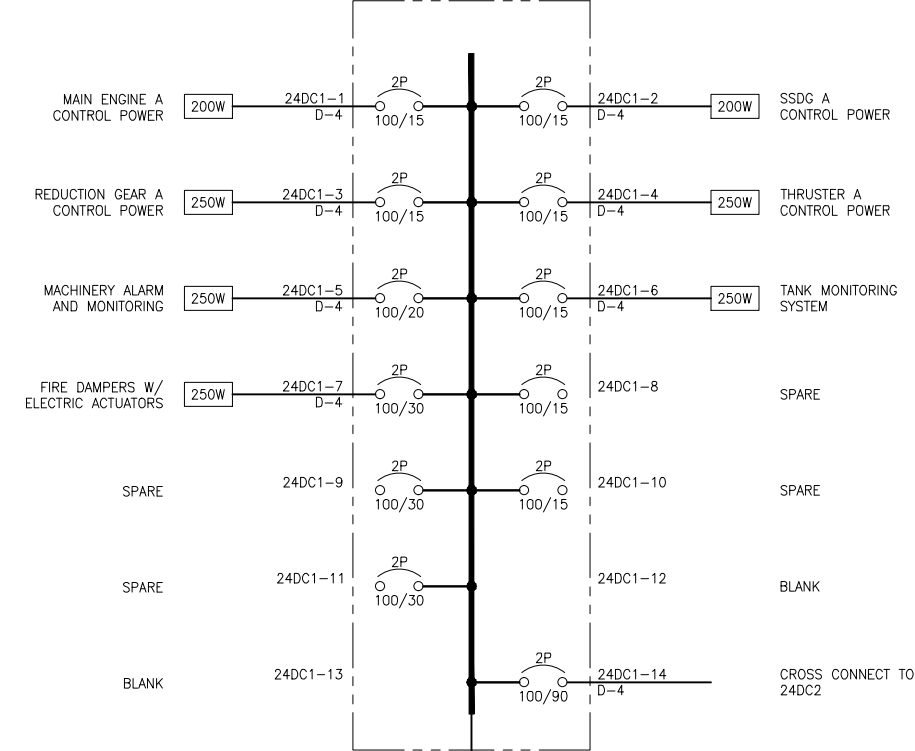
C

B

A

PANEL 24DC1
 24VDC DISTRIBUTION
 ENGINE ROOM
 24VDC, 2W, 100A, 10kAIC, MLO
 30 POLE, NEMA-12 ENCLOSURE

PANEL 24DC2
 24VDC DISTRIBUTION
 EOS
 24VDC, 2W, 100A, 10kAIC, MLO
 30 POLE, NEMA-1 ENCLOSURE



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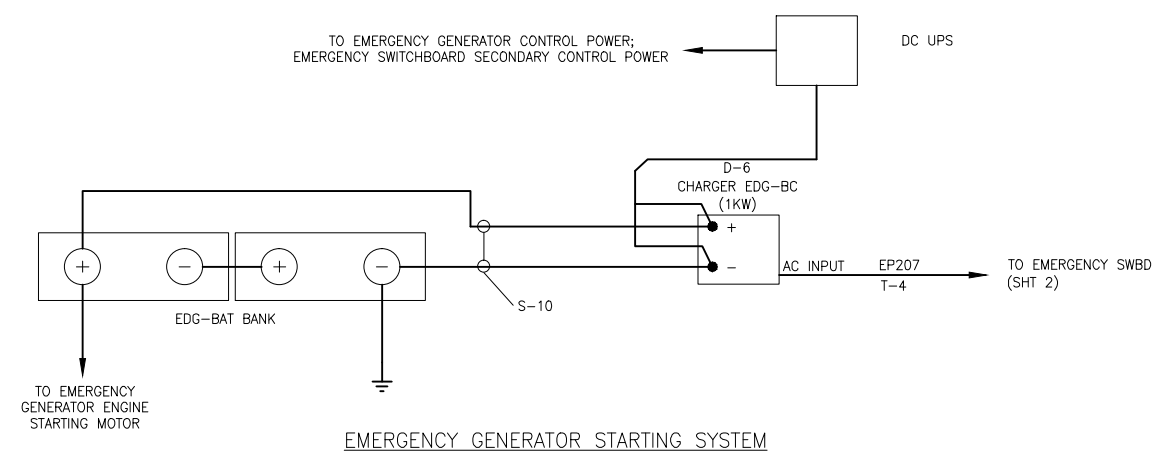
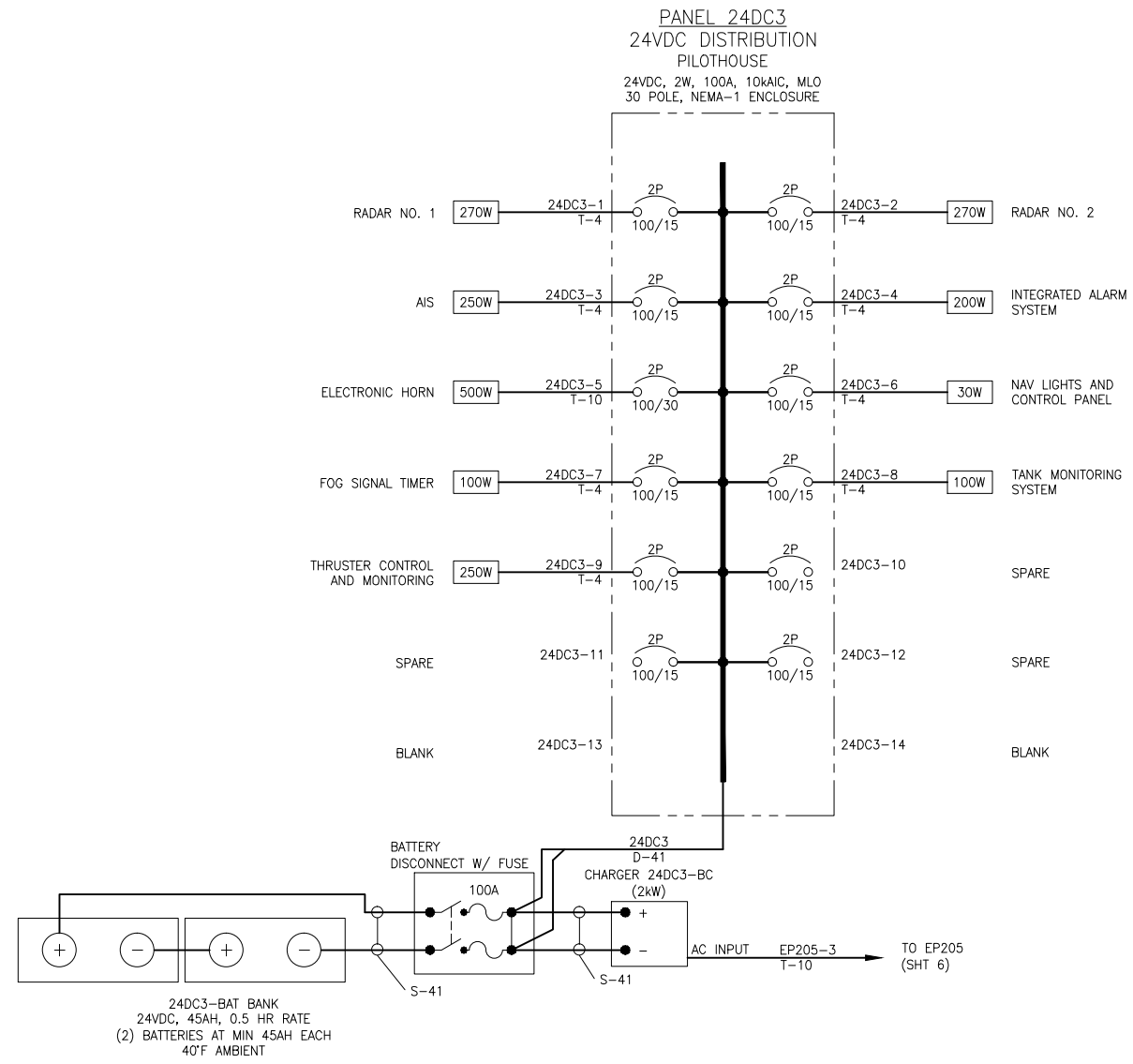
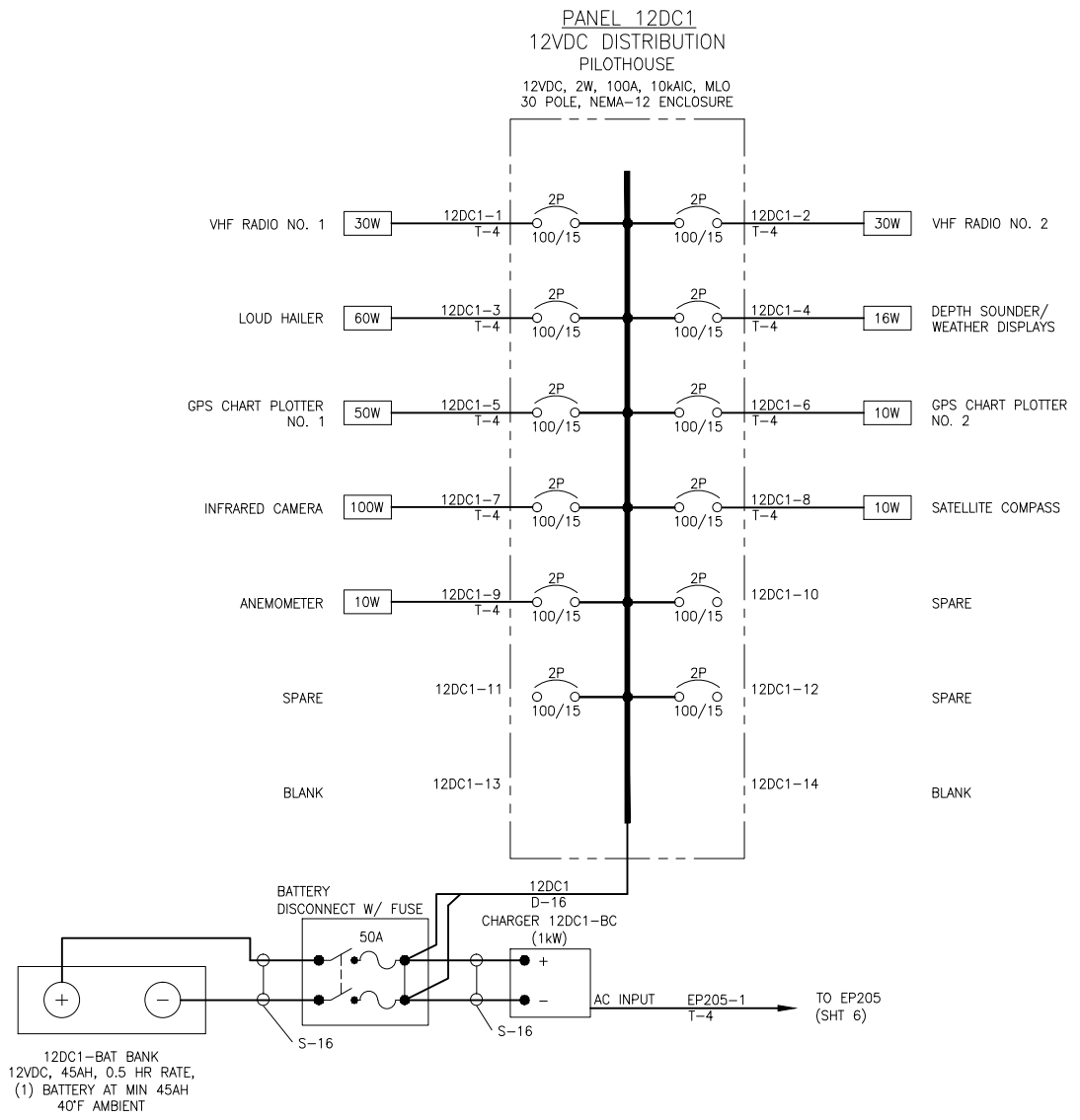
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SYMBOLS LIST

	OVERHEAD 4 FT LIGHT FIXTURE, SURFACE MOUNTED, DRIP PROOF
	OVERHEAD 4 FT LIGHT FIXTURE, SURFACE MOUNTED, DRIP PROOF, W/ EMERGENCY BATTERY BACKUP
	OVERHEAD RECESSED DOWN LIGHT
	OVERHEAD RECESSED DOWN LIGHT, W/RED LENS
	OVERHEAD RECESSED DOWN LIGHT, W/EMERGENCY BATTERY BACKUP
	2FT LIGHT FIXTURE, SURFACE MOUNTED
	2FT LIGHT FIXTURE, SURFACE MOUNTED, W/ EMERGENCY BATTERY BACKUP
	DECK LIGHT, BULKHEAD MOUNT
	EMERGENCY DECK LIGHT, BULKHEAD MOUNT
	JUNCTION BOX, 4x4, WATERTIGHT, DEPENDING ON LOCATION
	SWITCH, SPST, 120V/20A, WATERTIGHT, DEPENDING ON LOCATION
	LINES PASS THROUGH, NOT JOINED OR SPLICED
	ILLUMINATED EXIT SIGN
	FLOODLIGHT
	FLOODLIGHT, FOR EMERGENCY SERVICE
	DUPLEX RECEPTACLE, SURFACE OR RECESS MOUNTED DEPENDING ON LOCATION
	SHORE POWER RECEPTACLE
	SEARCHLIGHT, 1000W

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2	HOLD LIGHTING AND RECEPTACLES
3	MAIN DECK RECEPTACLES
4	MAIN DECK LIGHTING
5	O1 DECK LIGHTING AND RECEPTACLES
6	BRIDGE DECK LIGHTING AND RECEPTACLES, PILOT HOUSE TOP LIGHTING

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS AND IEEE-45 (2002).
- UNLESS NOTED OTHERWISE, ALL CABLING IS DEFINED IN REFERENCE 2. CABLE TYPE SPECIFICATION IS SHOWN IN REFERENCE 2.
- LIGHT FIXTURES LABELED WITH AN 'E' ARE SUPPLIED BY THE EMERGENCY BUS. FIXTURES EQUIPPED WITH INTERNAL BACKUP BATTERIES SHALL BE CAPABLE OF POWERING THE FIXTURE FOR AT LEAST 30 MINUTES.
- LIGHT FIXTURES SHALL BE INSTALLED IN THE OVERHEAD SPACE OF THE DECK SHOWN.
- ALL LIGHT FIXTURES SHALL BE LED TYPE WITH THE EXCEPTION OF THE FOUR (4) SEARCHLIGHTS ON THE PILOT HOUSE TOP.
- LIGHT LOCATIONS ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE FINAL LOCATION AND ORIENTATION TO PROVIDE OPTIMAL ILLUMINATION AND TO AVOID INTERFERENCES.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATIONS
- 16101-200-330-1 AC AND DC ELECTRICAL ONE LINE DIAGRAM



Elliott Bay Design Group
 North Carolina, PLLC

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

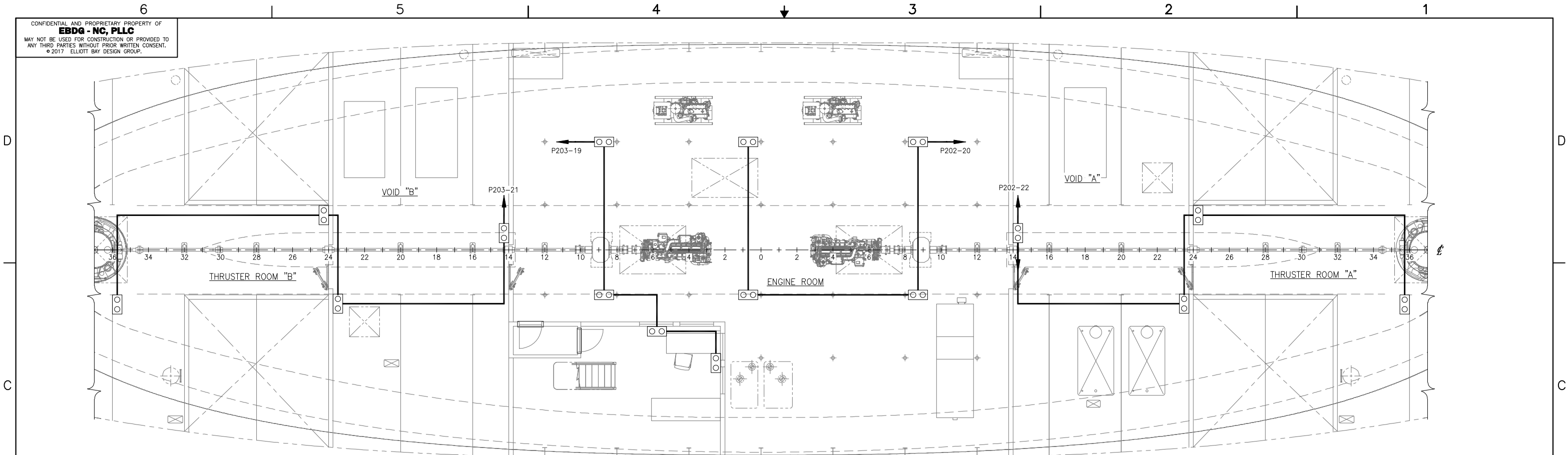
PROJECT: NEW RIVER CLASS FERRY



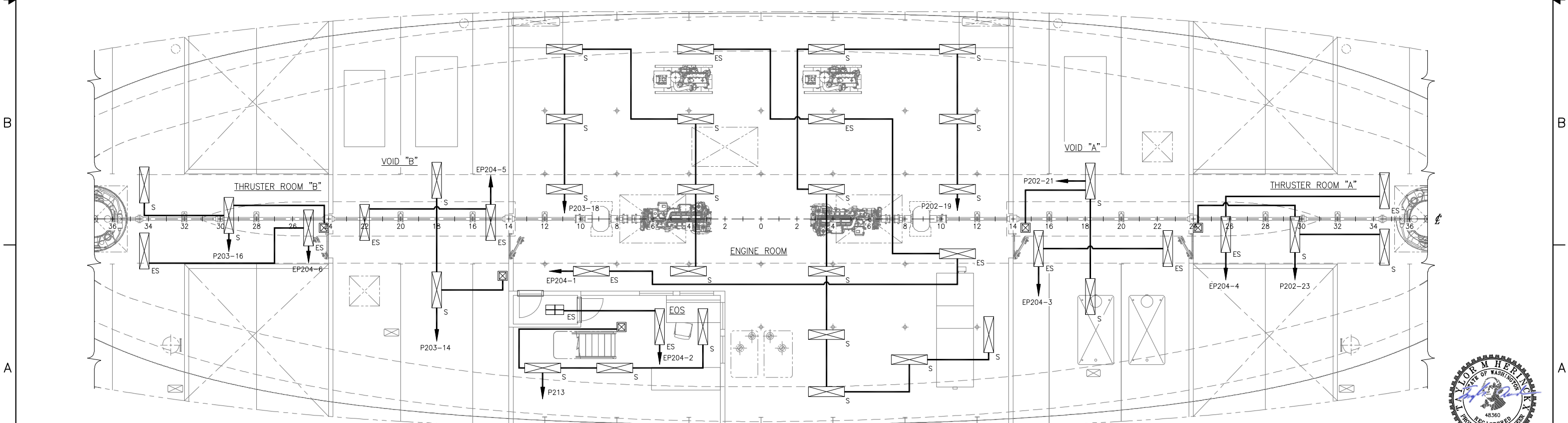
POWER AND LIGHTING PLAN

SIZE	D	DWG NO.	16101-200-330-1	REV	-
SCALE	NONE	FILE NAME	16101-200-330-1-	SHEET	1 OF 6
DWN	NJB	MOD		CKD	TMH
				APVD	TMH
				APVD DATE	07/24/17

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PLAN 2-4C
 HOLD RECEPTACLES
 SCALE: 3/16"=1'-0"



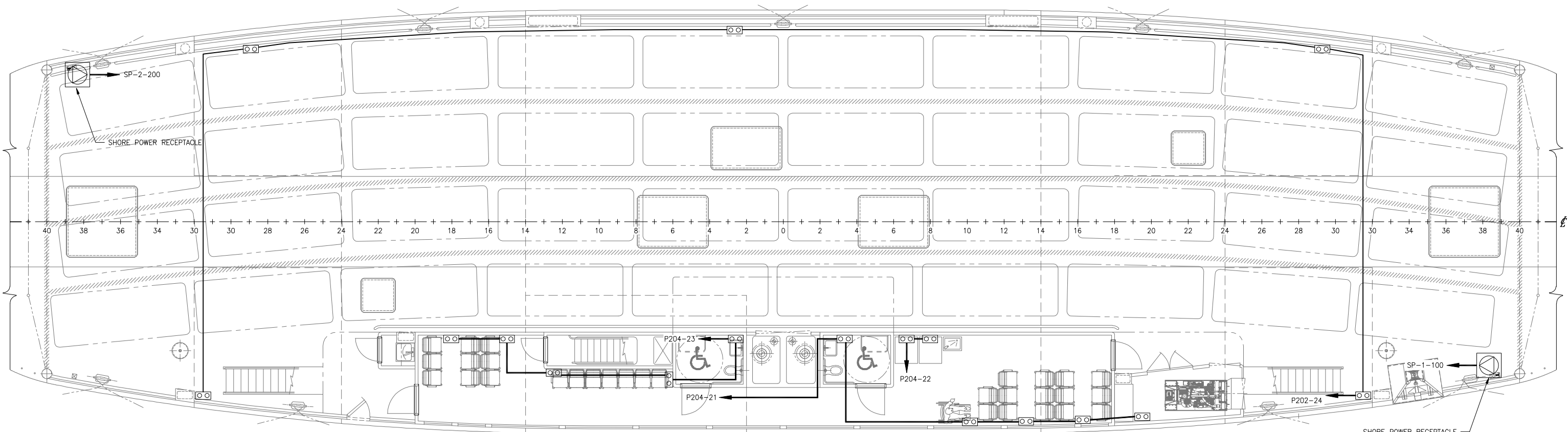
PLAN 2-4A
 HOLD LIGHTING
 SCALE: 3/16"=1'-0"



SIZE	D	OWG NO.	16101-200-330-1	REV	-
SCALE	AS NOTED	FILE NAME	16101-200-330-1-	SHEET	2 OF 6

7/24/2017 11:25:12 AM

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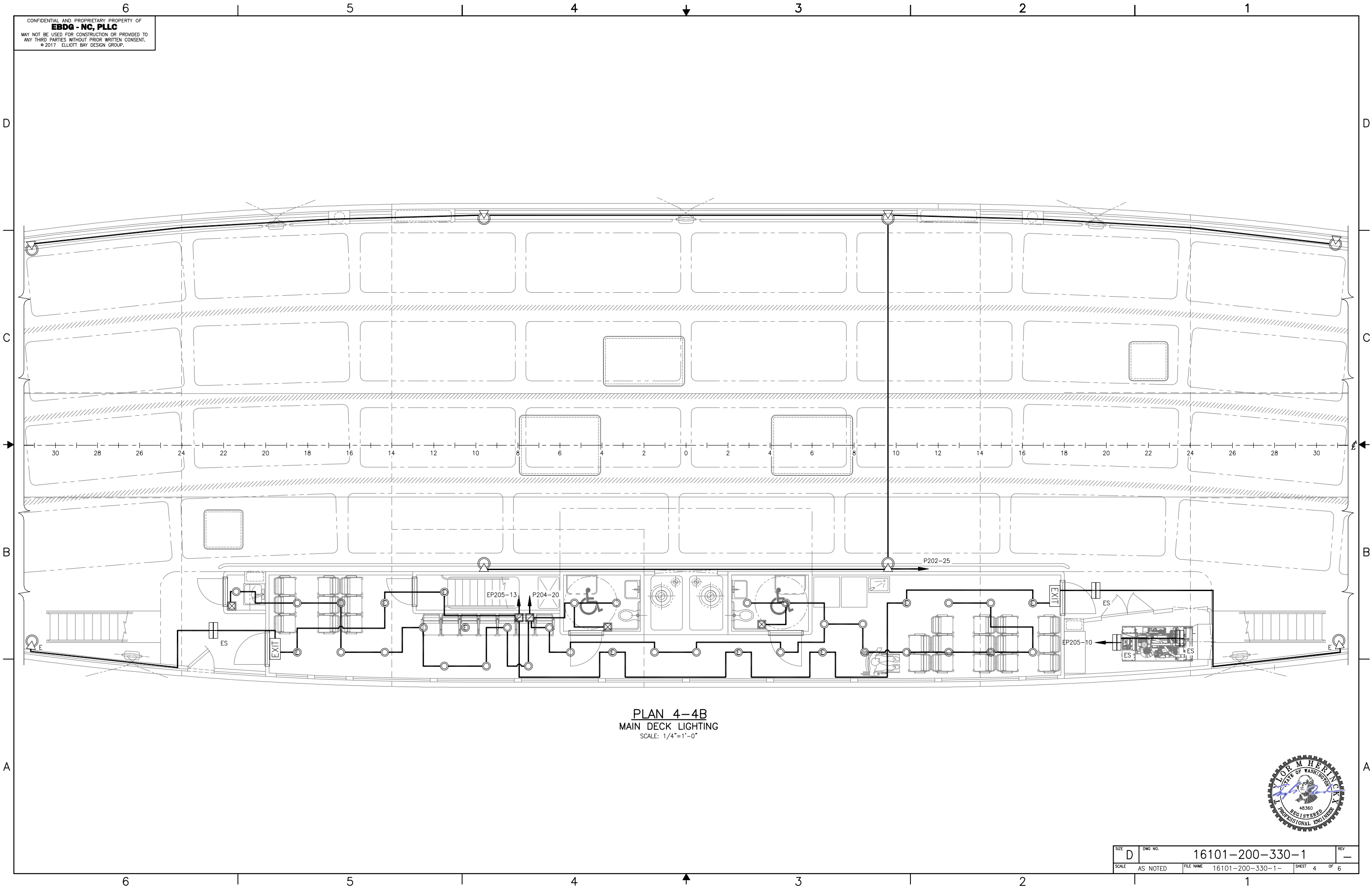
PLAN 3-4B
 MAIN DECK RECEPTACLES
 SCALE: 3/16"=1'-0"



SIZE	D	DWG NO.	16101-200-330-1	REV	-
SCALE	AS NOTED	FILE NAME	16101-200-330-1-	SHEET	3 OF 6

7/24/2017 11:25:21 AM

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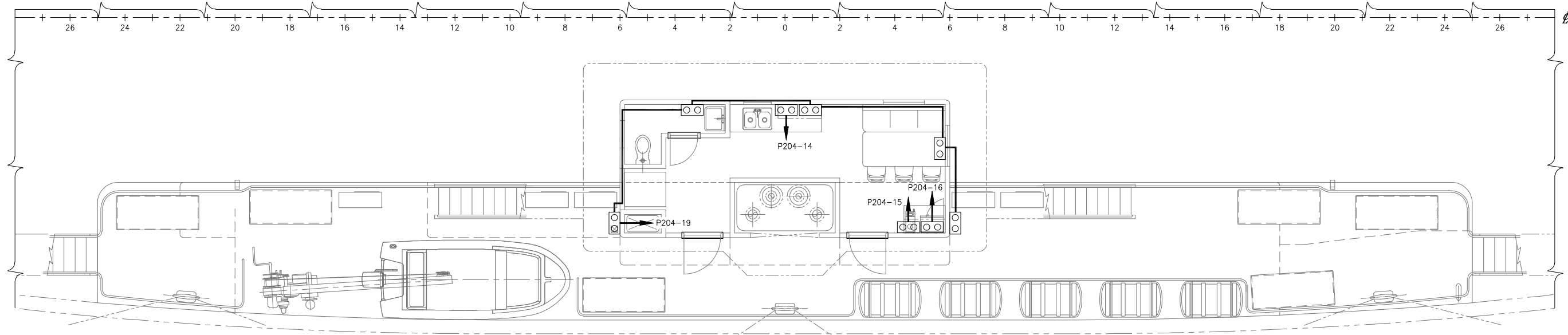
PLAN 4-4B
MAIN DECK LIGHTING
 SCALE: 1/4"=1'-0"



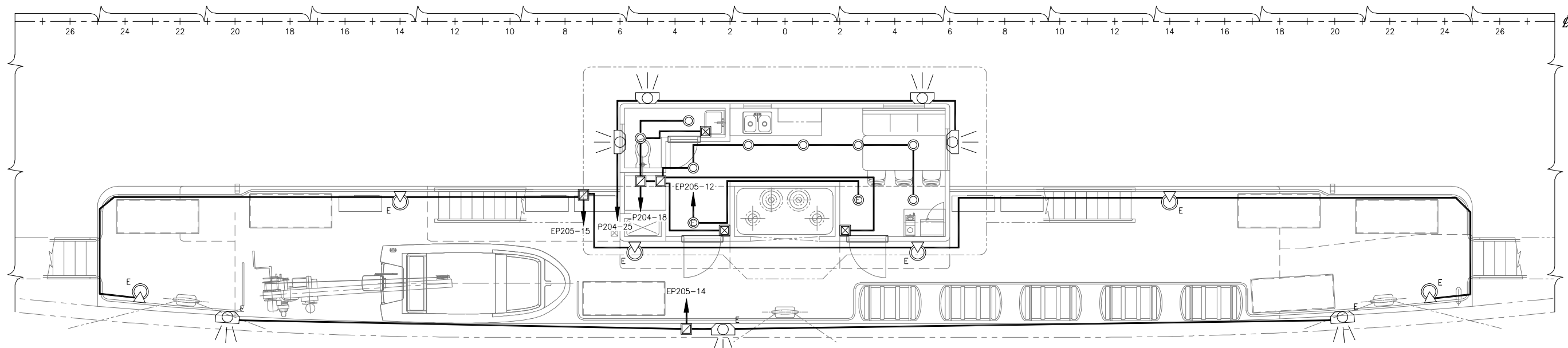
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SCALE	AS NOTED	FILE NAME	16101-200-330-1-	SHEET	4 OF 6

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PLAN 5-3C
 01 DECK RECEPTACLES
 SCALE: 1/4"=1'-0"



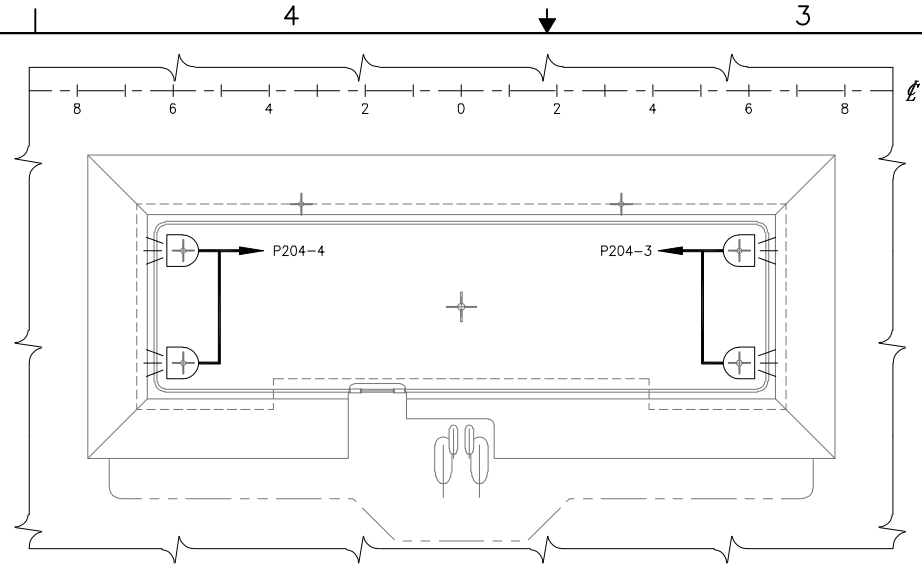
PLAN 5-3A
 01 DECK LIGHTING
 SCALE: 1/4"=1'-0"



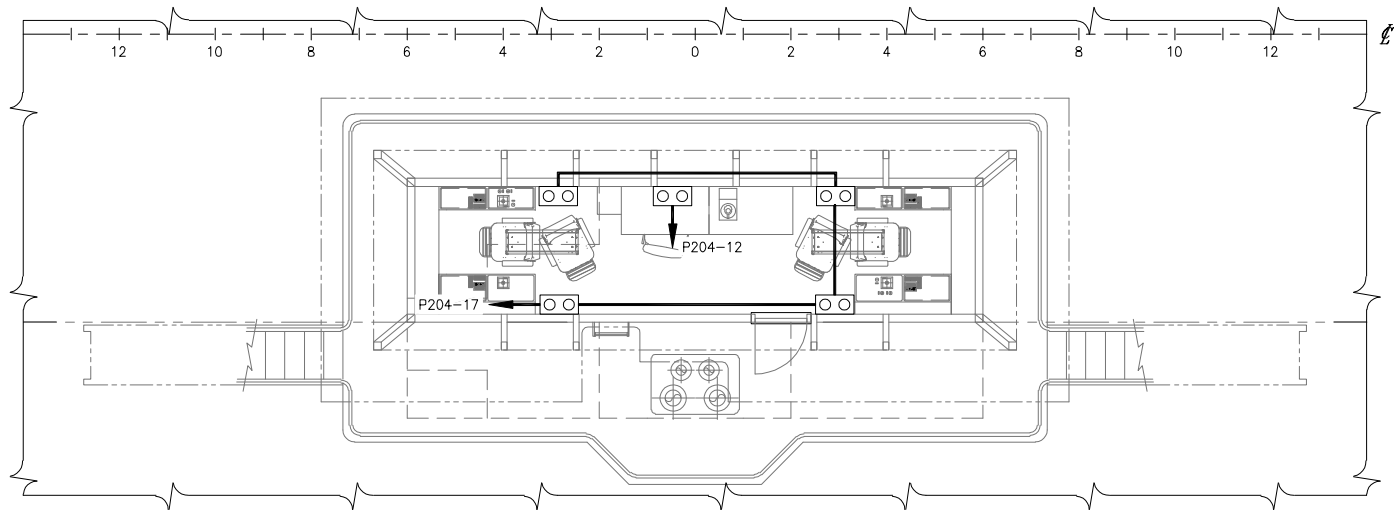
SIZE	D	DWG NO.	16101-200-330-1	REV	-
SCALE	AS NOTED	FILE NAME	16101-200-330-1-	SHEET	5 OF 6

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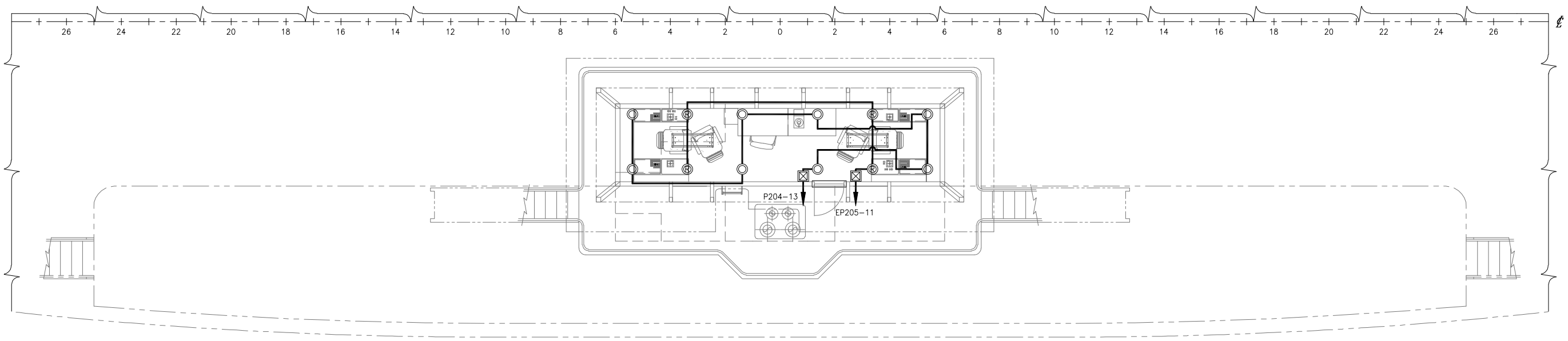
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PLAN 6-4D
 PILOT HOUSE TOP LIGHTING
 SCALE: 1/4"=1'-0"



PLAN 6-4B
 BRIDGE DECK RECEPTACLES
 SCALE: 1/4"=1'-0"



PLAN 6-4A
 BRIDGE DECK LIGHTING
 SCALE: 1/4"=1'-0"



SIZE	D	DWG. NO.	16101-200-330-1	REV	-
SCALE	AS NOTED	FILE NAME	16101-200-330-1-	SHEET	6 OF 6

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LIST OF NAVIGATION LIGHTS	
LIGHT	QUANTITY
FWD MASTHEAD LIGHT (WHITE)	2
STERN LIGHT (WHITE)	2
AFT MASTHEAD LIGHT (WHITE)	2
ANCHOR LIGHT (WHITE)	2
NOT UNDER COMMAND (RED)	4
RUNNING LIGHT (RED)	2
RUNNING LIGHT (GREEN)	2
MORSE LIGHT (WHITE)	1

REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	2-3B	1. UPDATED PE STAMP FOR REV A. 2. RELOCATED MASTS TO FRAME 23.	DKG	08/31/17	KAJ

- GENERAL NOTES**
- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
 - ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS AND IEEE-45 (2002).
 - POWER DISTRIBUTION CABLE SHALL MEET THE REQUIREMENTS OF IEEE-1580 (2001). CABLES SHALL USE 90 DEGREE C TYPE LSX OR LSE INSULATION AND TYPE L OR TPO JACKETING. UNLESS REQUIRED BY USCG, CABLE SHALL BE UNARMORED AND UNSHIELDED. CABLE TYPE DESIGNATIONS USE THE FOLLOWING ABBREVIATIONS.
 S- SINGLE CONDUCTOR
 D- TWO CONDUCTOR
 T- THREE CONDUCTOR
 F- FOUR CONDUCTOR
 CABLE MEETING THE SPECIFICATIONS OF MIL-C-24643 MAY BE SUBSTITUTED.
 - ALL AROUND WHITE MORSE LIGHT ON CENTER MAST SHALL BE CONFIGURED TO ACTIVATE WITH THE SHIP'S HORN.
 - ALL NAVIGATION LIGHTS SHALL BE LED TYPE WITH RANGE AND DEGREE OF VISIBILITY IN ACCORDANCE WITH 72 COLREGS AND REF 1.
 - THE NAVIGATION LIGHTING CONTROL PANEL SHALL BE CONFIGURED FOR AUTOMATIC TRANSFER BETWEEN "A" END FORWARD AND "B" END FORWARD OPERATION. A SIGNAL FROM THE PROPULSION CONTROL SYSTEM SHALL BE PROVIDED FOR THIS PURPOSE. SEE REF 1.

- REFERENCES**
- 16101-200-832-1 TECHNICAL SPECIFICATION
 - 16101-200-101-0 PROFILES AND DECK ARRANGEMENTS
 - 16101-200-320-1 AC AND DC ELECTRICAL ONE LINE DIAGRAM



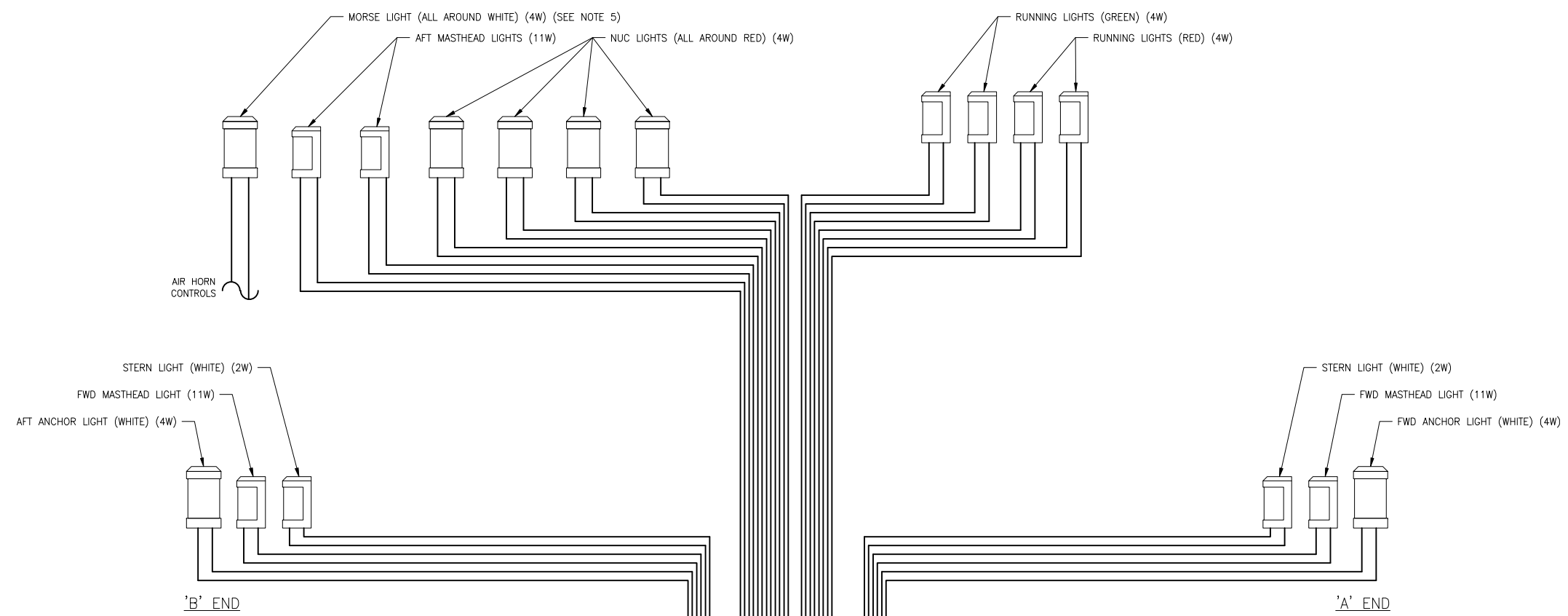
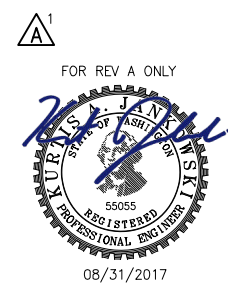
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 RALEIGH, NORTH CAROLINA
 PROJECT: NEW RIVER CLASS FERRY

NAVIGATION LIGHT AND BLOCK DIAGRAM

SIZE: D	DWG NO.: 16101-200-422-1	REV: A
SCALE: NONE	FILE NAME: 16101-200-422-1A	SHEET 1 OF 2
DWN: ZDL	MOD: NUB	CKD: TMH
APVD: KAJ	APVD DATE: 7/27/2017	

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313



SYMBOLS LIST	
	ALL AROUND LIGHT
	DIRECTIONAL LIGHT

DIAGRAM 1-4A
 NAVIGATION LIGHTS BLOCK

P204-5
 REF 3

EP205-2
 REF 3

6 5 4 3 2 1

6 5 4 3 2 1

D

D

C

C

B

B

A

A

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6

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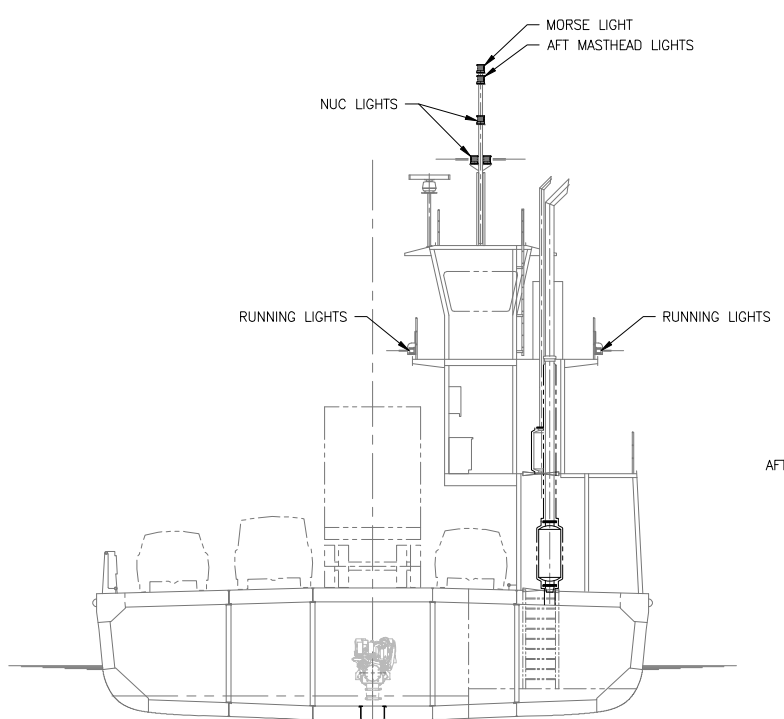
A

D

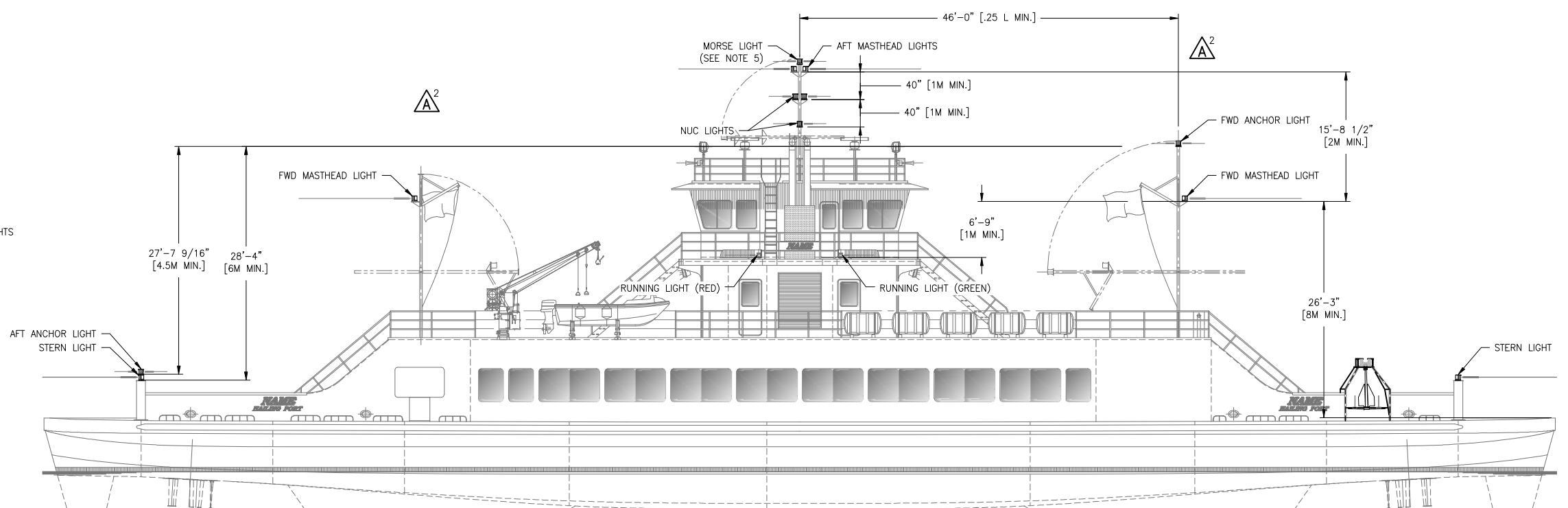
C

B

A

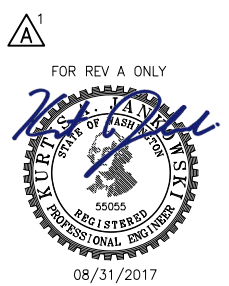


ELEVATION 2-6B
 AFT ELEVATION



ELEVATION 2-3B
 OUTBOARD PROFILE

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313



SIZE	D	OWG NO.	16101-200-422-1	REV	A
SCALE	NTS	FILE NAME	16101-200-422-1A	SHEET	2 OF 2

6

5

4

3

2

1

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MATERIAL SCHEDULE

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

GENERAL NOTES (CONT)

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

REVISION HISTORY

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

GENERAL NOTES

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

REFERENCES

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



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FILLS, VENTS, AND SOUNDS

SCALE: NTS	FILE NAME: 16101-200-506-1A	SHEET: 1 OF 2
DWG NO: 16101-200-506-1	REV: A	APVD DATE: 7/21/17

TABLE 1-5B

FILLS, VENTS & SOUNDING TUBES

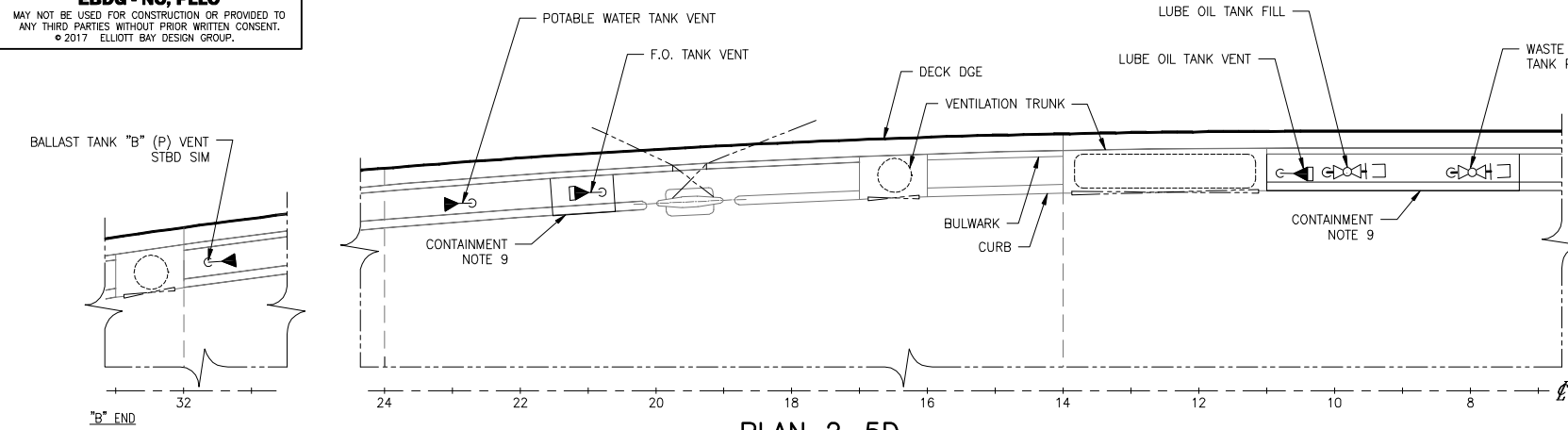
SPACE	QTY.	FILL/PUMP-OFF			VENT		SOUNDING TUBE	
		SIZE	TYPE	VALVE	SIZE	VALVE	SIZE	TYPE
POTABLE WATER TANK	1	1 1/2"	FEMALE CAM-LOCK W/PLUG	BALL	2"	BALLCHECK	NONE	-
FUEL OIL TANKS	2	2"	QUICK DISCONNECT	BALL	2-1/2"	BALLCHECK	1 1/2"	FLUSH
EDG FUEL OIL TANK	1	-	-	-	1"	BALLCHECK	1 1/2"	FLUSH
LUBE OIL TANK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

SYMBOLS LIST

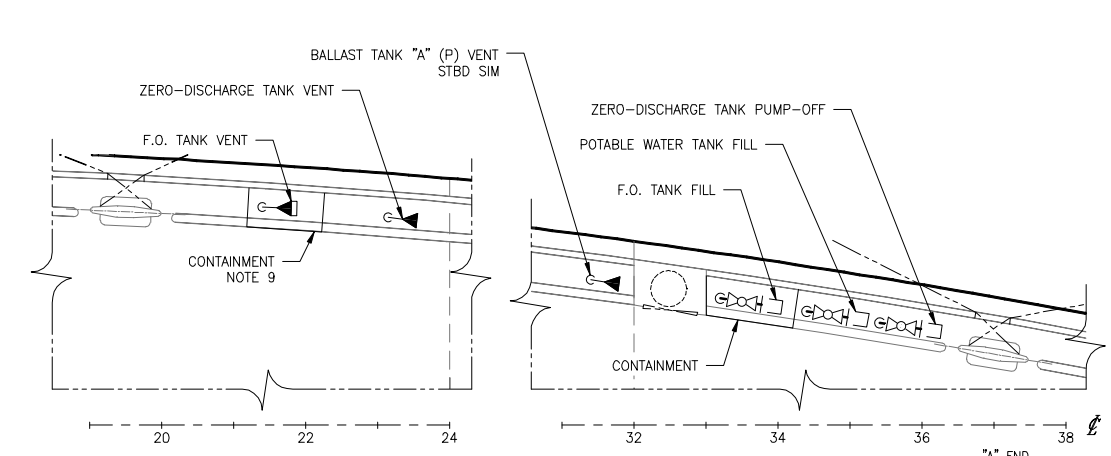
—	FILL/PUMP-OFF PIPING
-----	VENT PIPING
—○ / ○	PIPE UP
—○	PIPE DOWN
⊙	VENT TERMINAL, FLAME SCREEN & BALL CHECK
◇	MATERIAL TRANSITION
●	SOUNDING TUBE TERMINAL
⊕	BULKHEAD PENETRATION
⊗	SELF-CLOSING VALVE
□	CAMLOCK FITTING, TABLE 1-5B
⊗	BALL VALVE
	UNION
⊙	VENT TERMINAL WITH BALL CHECK
	FLANGE

8/31/2017 10:11:27 AM

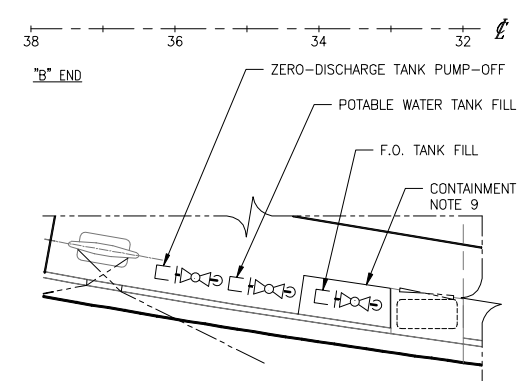
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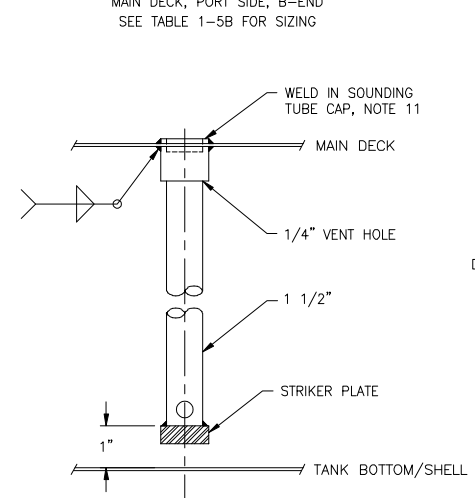
PLAN 2-5D
 VENTS AND FILL/PUMP-OFF CONNECTIONS
 MAIN DECK, PORT SIDE, B-END
 SEE TABLE 1-5B FOR SIZING



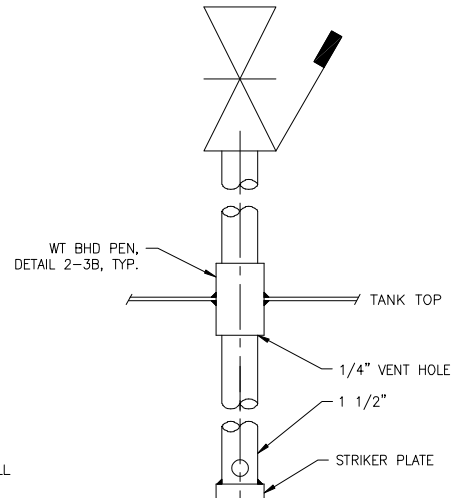
PLAN 2-2D
 VENTS AND FILL/PUMP-OFF CONNECTIONS
 MAIN DECK, PORT SIDE, A-END
 SEE TABLE 1-5B FOR SIZING



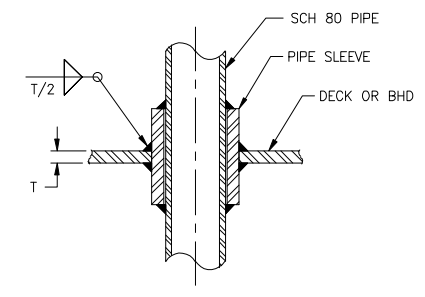
PLAN 2-6B
 VENTS AND FILL/PUMP-OFF CONNECTIONS
 MAIN DECK, STBD SIDE, B-END
 SEE TABLE 1-5B FOR SIZING



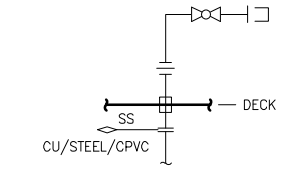
DETAIL 2-5B
 SOUNDING TUBE AT FREEBOARD DECK
 FUEL OIL & BALLAST TANKS



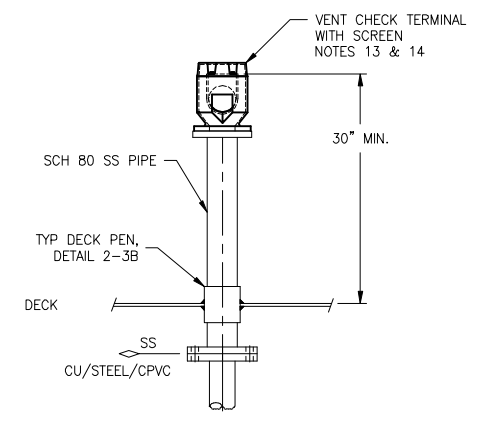
DETAIL 2-4B
 SOUNDING TUBE IN ENGINE ROOM
 WASTE OIL & LUBE OIL TANKS



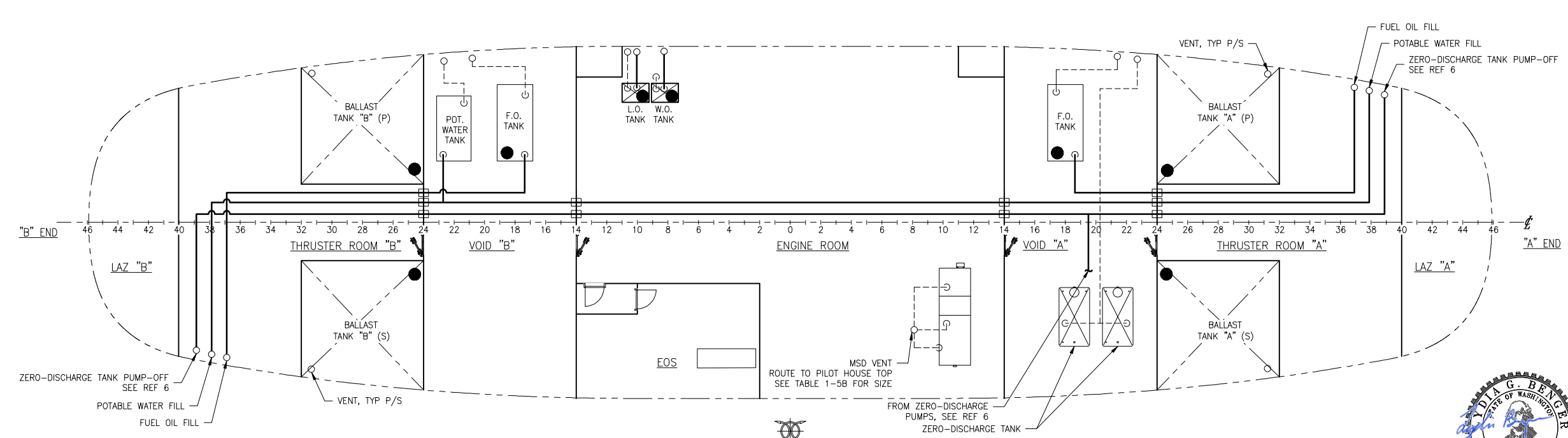
DETAIL 2-3B
 TYP DECK/BHD PENETRATION



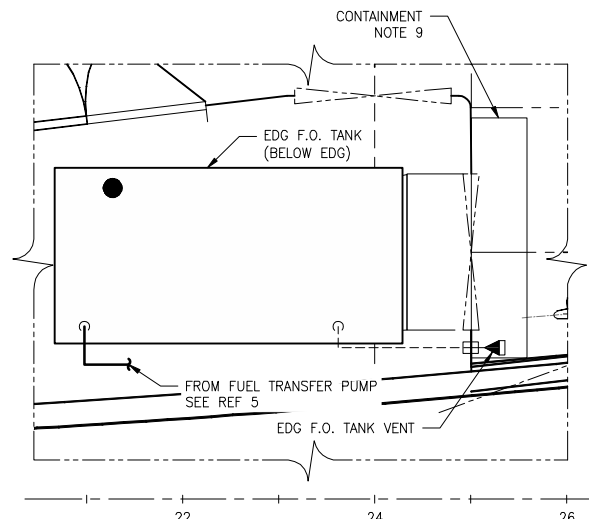
DETAIL 2-2B
 TYPICAL DECK CONNECTION



DETAIL 2-1B
 TYPICAL VENT



PLAN 2-4A
 HOLD



PLAN 2-1A
 EGEN ROOM



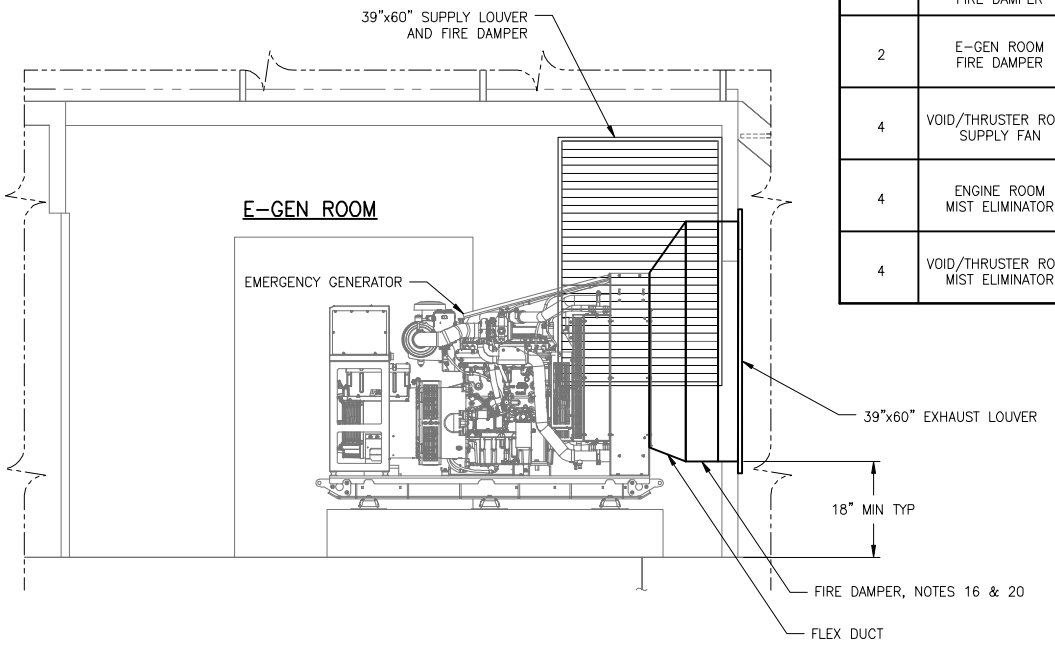
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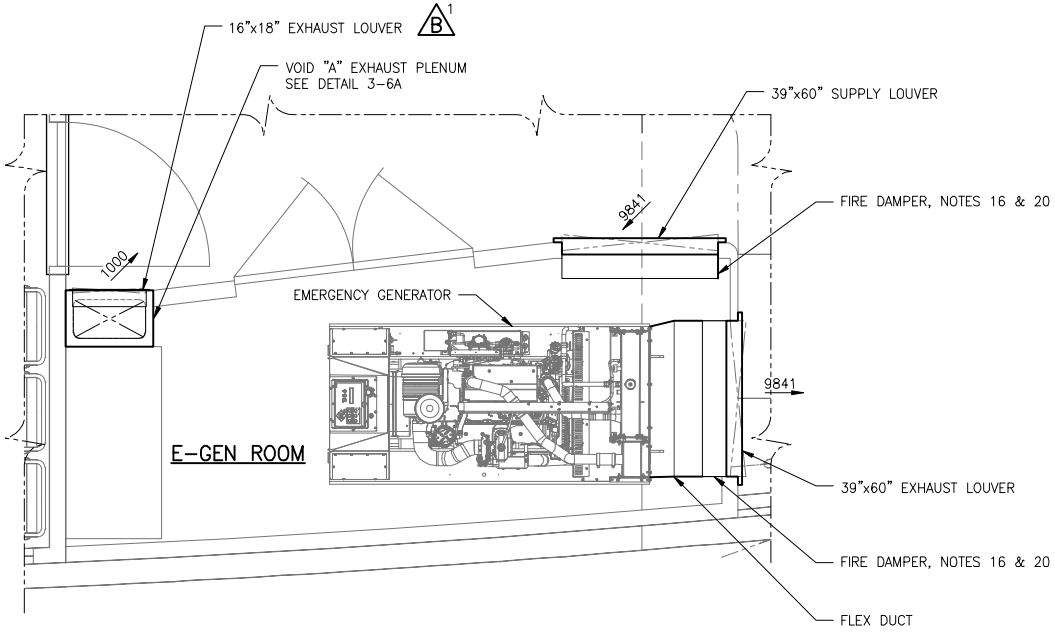
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EQUIPMENT LIST						
QTY.	SERVICE	TYPE	SIZE	CAPACITY	DRIVE	REMARKS
2	ENGINE ROOM SUPPLY FAN	AXIAL FAN	Ø24"	6300 CFM @ 1.8 IN H2O	208V/3Ø/60Hz 5 HP TEAO MOTOR 1740 RPM	-
2	ENGINE ROOM SUPPLY FIRE DAMPER	A-60 ROUND	Ø24"	-	24 VDC ELECTRIC ACTUATOR	316SS CONSTRUCTION USCG APPROVED
1	ENGINE ROOM EXHAUST FIRE DAMPER	A-60 SQUARE	60"x78"	-	24 VDC ELECTRIC ACTUATOR	316SS CONSTRUCTION USCG APPROVED
2	E-GEN ROOM FIRE DAMPER	A-60 SQUARE	39"x50"	-	24 VDC ELECTRIC ACTUATOR	316SS CONSTRUCTION USCG APPROVED
4	VOID/THRUSTER ROOM SUPPLY FAN	AXIAL FAN	Ø12"	1000 CFM @ 1.3 IN H2O	120V/1Ø/60Hz 0.5 HP TEAO MOTOR 3450 RPM	-
4	ENGINE ROOM MIST ELIMINATOR	IMPINGEMENT TYPE	18"x25" OPEN AREA	6300 CFM	-	FACE DRAIN
4	VOID/THRUSTER ROOM MIST ELIMINATOR	IMPINGEMENT TYPE	12"x12" OPEN AREA	1000 CFM	-	FACE DRAIN

SYMBOLS LIST	
	BALL VALVE W/ SCREWED PLUG



ELEVATION 1-6B Δ^1
 E-GEN ROOM VENTILATION
 SCALE: 1/2"=1'-0"



PLAN 1-6A Δ^1
 E-GEN ROOM VENTILATION
 SCALE: 1/2"=1'-0"

GENERAL NOTES CONT.

- VENTILATION FANS SHALL BE MOUNTED USING NOISE/ISOLATION KITS.
- TO THE EXTENT PRACTICABLE, FANS OF THE SAME SIZE SHALL BE INTERCHANGEABLE.
- FANS SHALL BE LABELED WITH NAMEPLATES IDENTIFYING THE UNIT, LISTING THE SYSTEM SERVED BY THE FAN, THE FAN VOLUME IN CUBIC FEET PER MINUTE (CFM), STATIC PRESSURE RATING AT SPECIFIED VOLUME, MOTOR FULL LOAD AMPERAGE, FAN SPEED, AND MOTOR SPEED FOR BELT DRIVEN UNITS, AND MOTOR HORSEPOWER. AIRFLOW DIRECTION SHALL BE IDENTIFIED ON THE FAN EXTERIOR BODY.
- FIRE DAMPERS SHALL BE PROVIDED WHERE REQUIRED BY REGULATION AND WHERE SHOWN IN THIS DIAGRAM.
- FIRE DAMPERS SHALL BE ELECTRICALLY ACTUATED, POWER TO OPEN, SPRING CLOSED ON LOSS OF POWER. IN ADDITION, THEY SHALL HAVE ELECTRICAL THERMAL RELEASE, CLOSE AUTOMATICALLY AT A TEMPERATURE OF 162F, AND BE CAPABLE OF MANUAL OPERATION.
- CLOSURE STATUS OF FIRE DAMPERS SHALL BE VISIBLE OUTSIDE THE DUCT. ACCESS COVERS SHALL BE INSTALLED TO ALLOW SERVICE OF DAMPERS AND ACTUATORS IF REQUIRED.
- ENGINE ROOM VENTILATION FANS SHALL SHUT DOWN AND FIRE DAMPERS SHALL CLOSE AUTOMATICALLY UPON RELEASE OF THE FIRE SUPPRESSION SYSTEM. SEE REFERENCE 1.
- DUCTS SHALL BE ROUTED AS HIGH IN THE OVERHEAD AS PRACTICABLE.
- EMERGENCY GENERATOR FIRE DAMPERS SHALL BE CONFIGURED TO OPEN ON GENERATOR START AND CLOSE ON GENERATOR STOP.
- SLIDING CLOSURE PLATES SHALL BE STORED IN STAINLESS STEEL BRACKETS ADJACENT TO WEATHER LOUVERS AND MIST ELIMINATORS. CLOSURE PLATES SHALL BE STOWED IN A SECURE MANNER WHICH ALSO ALLOWS FOR QUICK INSTALLATION.
- DAMPERS USED AS WEATHER CLOSURES SHALL BE TESTED FOR WEATHER TIGHTNESS IN THE PRESENCE OF A USCG INSPECTOR.
- ADJUST TERMINAL SIZES AND PROVIDE BALANCING DAMPERS AS REQUIRED TO BALANCE SYSTEM WITHIN 10% OF NOTED AIR FLOWS.

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-6A 1-6B	1. REVISED EGEN LOUVERS AND AIRFLOWS, WAS 39X50 AND 10,171	MEJ	8/2/17	MEJ
B	1-6B	1. UPDATED LOUVER DIMENSIONS	DKG	8/30/17	MEJ

GENERAL NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- THIS DRAWING IS DIAGRAMMATIC ONLY AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT AND IS SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURERS' CERTIFIED DRAWINGS AS APPROPRIATE.
- DUCT VELOCITIES SHALL GENERALLY BE LIMITED TO 3000 FPM.
- ALL INSTALLED DUCTWORK SHALL BE AIRTIGHT. DUCTWORK SHALL BE MADE OF HOT-DIPPED GALVANIZED STEEL SHEET METAL, WITH THE MINIMUM THICKNESS AND REINFORCEMENT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND APPLICABLE USCG REGULATIONS, WHICHEVER IS GREATER. BURNED OFF GALVANIZING SHALL BE REPLACED WITH A SPRAY-ON TYPE GALVANIZING COATING. DUCTS SHALL BE SUITABLY SUPPORTED AND STIFFENED ON THE OUTSIDE TO PREVENT PANTING. ALL FASTENING SHALL BE STAINLESS STEEL. SEE REFERENCE 1.
- DUCTING SHALL BE RUN AS DIRECTLY AS POSSIBLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS.
- TAKEDOWN JOINTS SHALL BE PROVIDED AT MAXIMUM 8 FT INTERVALS WHICH ALLOW DISASSEMBLY AND REMOVAL OF DUCTING WITHOUT REMOVAL OR MODIFICATION OF PERMANENT STRUCTURE.
- DUCTS SHALL BE FITTED WITH REMOVABLE ACCESS PANELS FOR CLEANING OF INTERNAL DUCT SURFACES. SUCH PANELS SHALL BE PROVIDED AT INTERVALS OF NOT MORE THAN 30 FEET, AND IMMEDIATELY UPSTREAM OF SPLITTERS OR TURNING VANES.
- DUCTING SHALL BE ADEQUATELY SUPPORTED BY HANGERS SPACED AT REGULAR INTERVALS AND RIGIDLY ATTACHED TO VESSEL STRUCTURE.
- ELBOWS WITH A BEND RADIUS LESS THAN 1 TIMES THE DIAMETER SHALL HAVE SPLITTERS OR TURNING VANES.
- WEATHER LOUVERS SHALL BE ALUMINUM WITH A STAINLESS STEEL BUG SCREEN. WEATHER LOUVERS SHALL BE REMOVABLE AND FASTENED TO SUPERSTRUCTURE WITH STAINLESS STEEL FASTENINGS.
- DRAINS SHALL BE PROVIDED AT LOW POINTS OF ALL VENTILATION DUCTING TO ALLOW COMPLETE DRAINAGE OF ANY WATER TRAPPED IN THE DUCTING SYSTEM.

REFERENCES

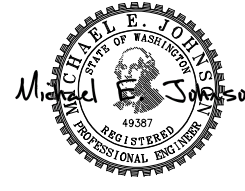
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- 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS
- 16101-200-150-1 SUPERSTRUCTURE MAIN DECK TO 01 DECK
- 16101-200-201-1 MACHINERY ARRANGEMENT
- 16101-200-150-3 MAIN DECK BULKHEADS
- 16101-200-120-3 HULL TRANSVERSE BULKHEADS
- 16101-200-259-1 EXHAUST ARRANGEMENT



Elliott Bay Design Group
 North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY



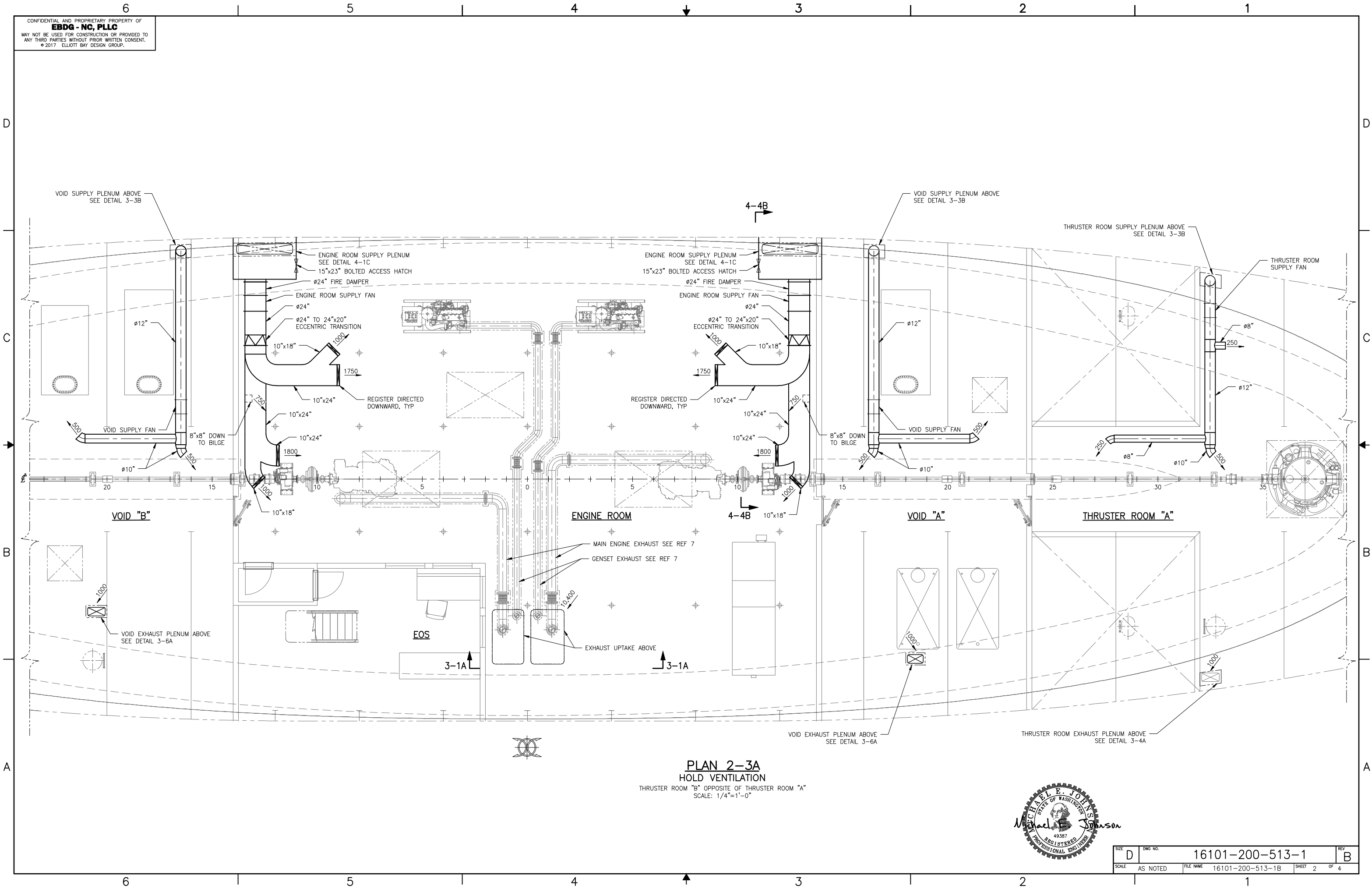
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SCALE: AS NOTED FILE NAME: 16101-200-513-1B SHEET 1 OF 4

DWN: JEH MOD: CKD NUB APVD: MEJ APVD DATE: 7/28/17

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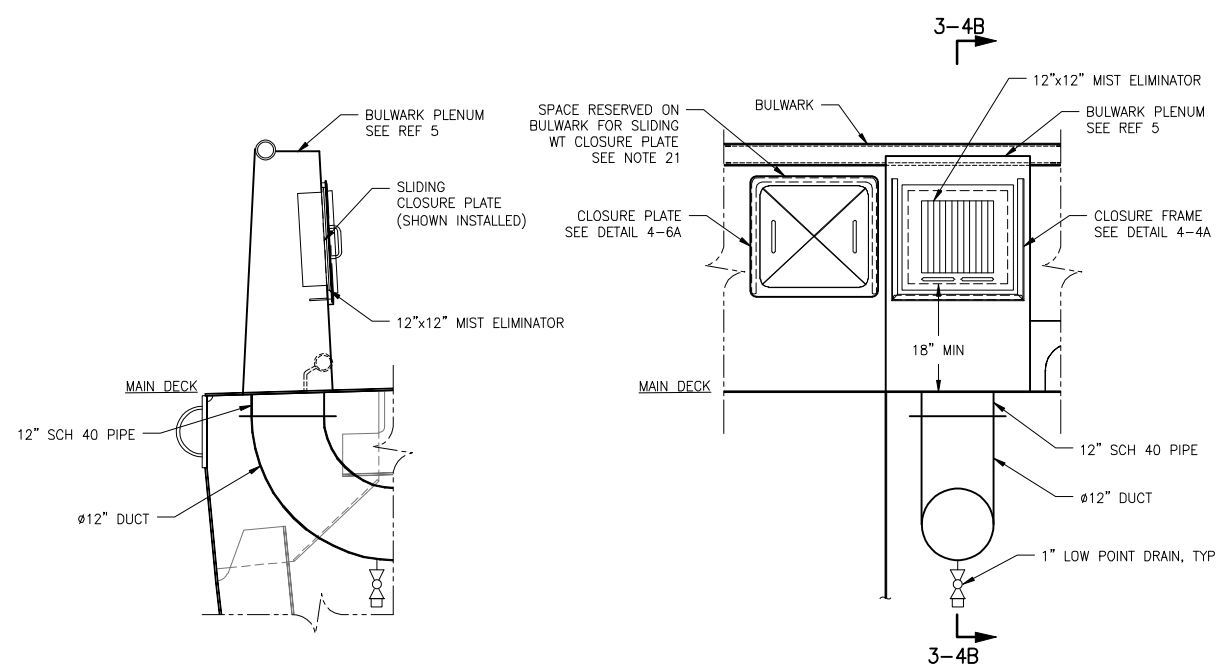


PLAN 2-3A
HOLD VENTILATION
 THRUSTER ROOM "B" OPPOSITE OF THRUSTER ROOM "A"
 SCALE: 1/4"=1'-0"



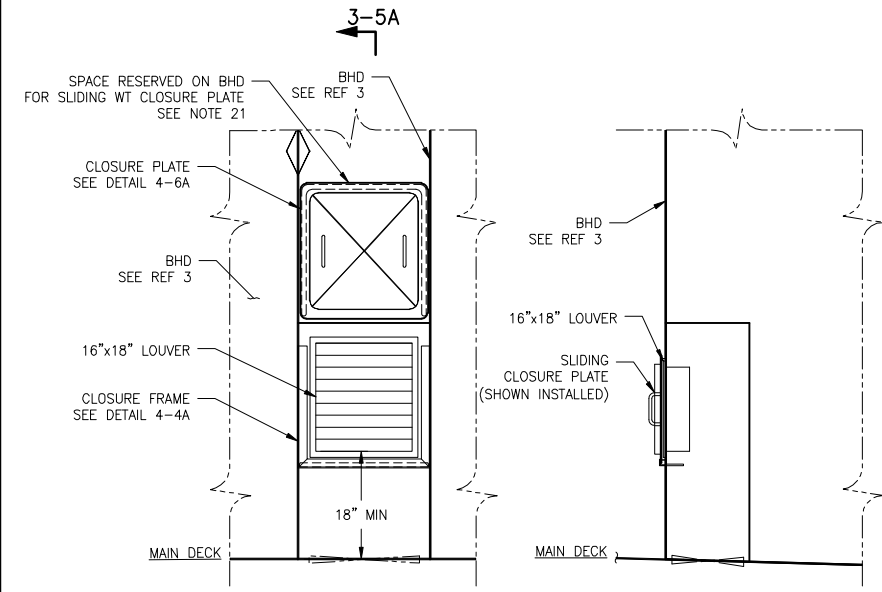
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SCALE	AS NOTED	FILE NAME	16101-200-513-1B	SHEET	2 OF 4

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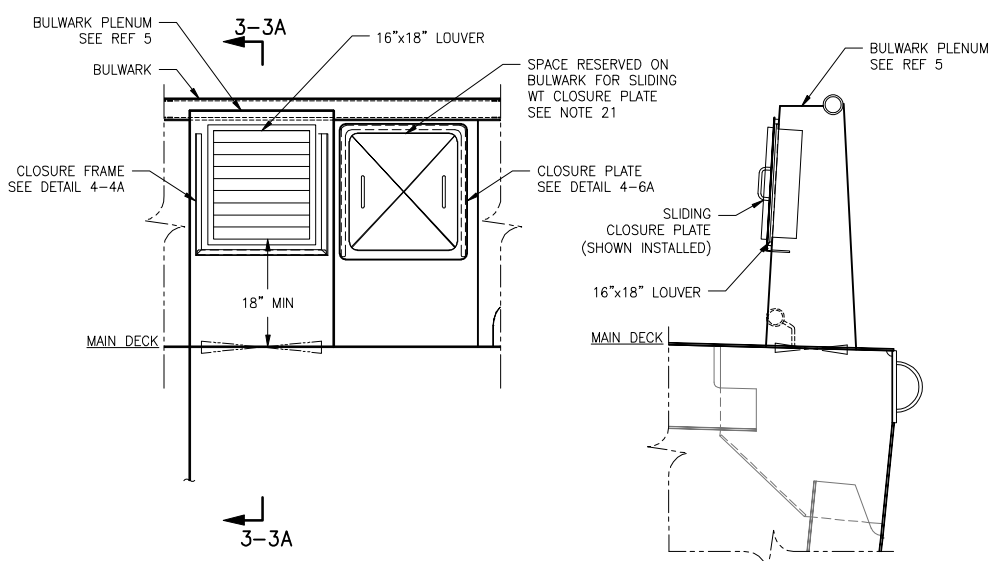
SECTION 3-4B
 VOID AND THRUSTER ROOM SUPPLY PLENUM
 SCALE: 3/4"=1'-0"

ELEVATION 3-3B
 VOID AND THRUSTER ROOM SUPPLY PLENUM
 SCALE: 3/4"=1'-0"



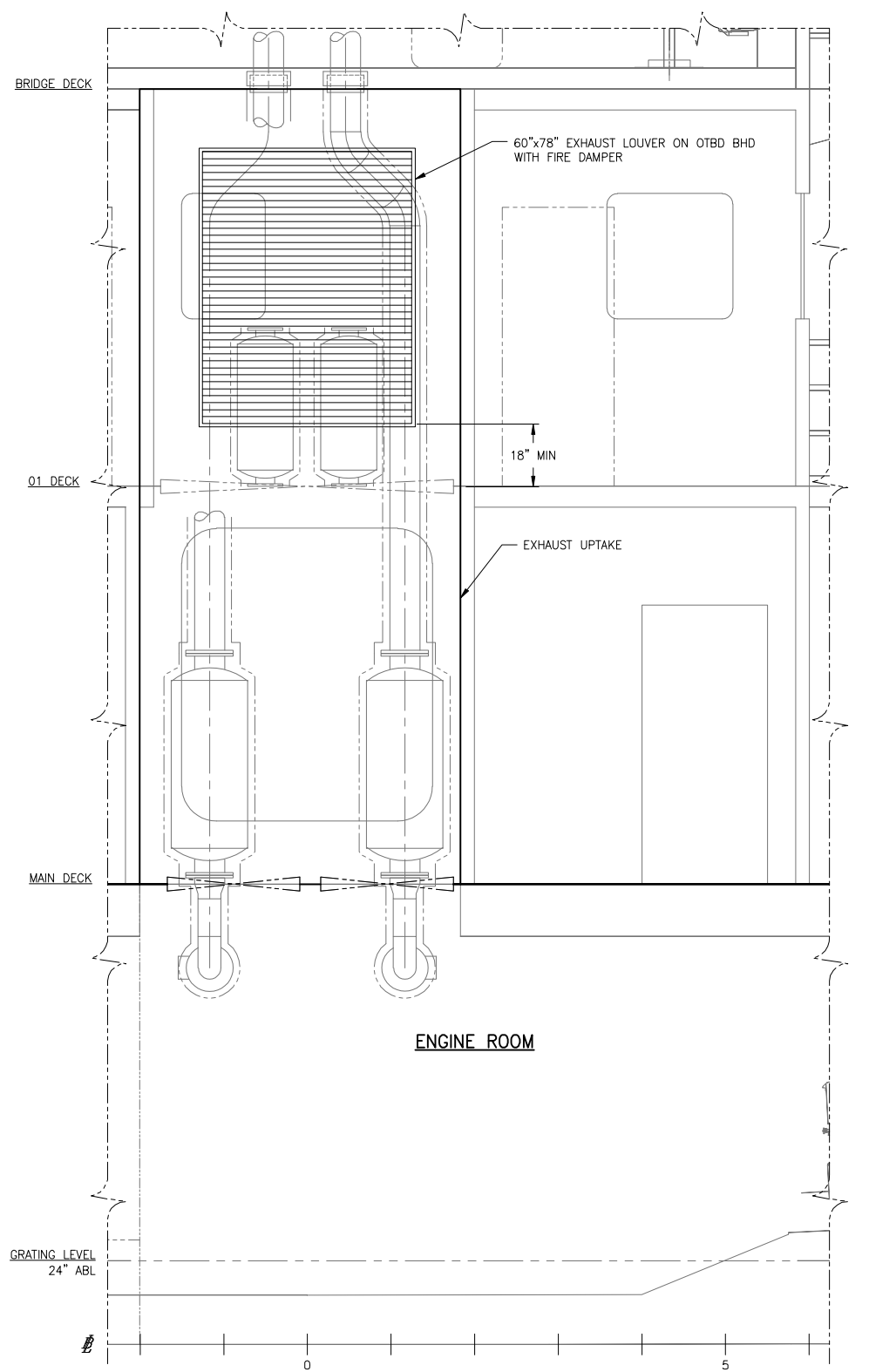
ELEVATION 3-6A
 VOID EXHAUST PLENUM
 "A" END SHOWN - "B" END SIM
 SCALE: 3/4"=1'-0"

SECTION 3-5A
 VOID EXHAUST PLENUM
 SCALE: 3/4"=1'-0"

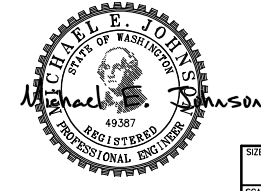


ELEVATION 3-4A
 THRUSTER ROOM EXHAUST PLENUM
 "A" END SHOWN - "B" END SIM
 SCALE: 3/4"=1'-0"

SECTION 3-3A
 THRUSTER ROOM EXHAUST PLENUM
 SCALE: 3/4"=1'-0"



ELEVATION 3-1A
 MACHINERY VENTILATION DUCTING
 LOOKING PORT
 SCALE: 1/2"=1'-0"

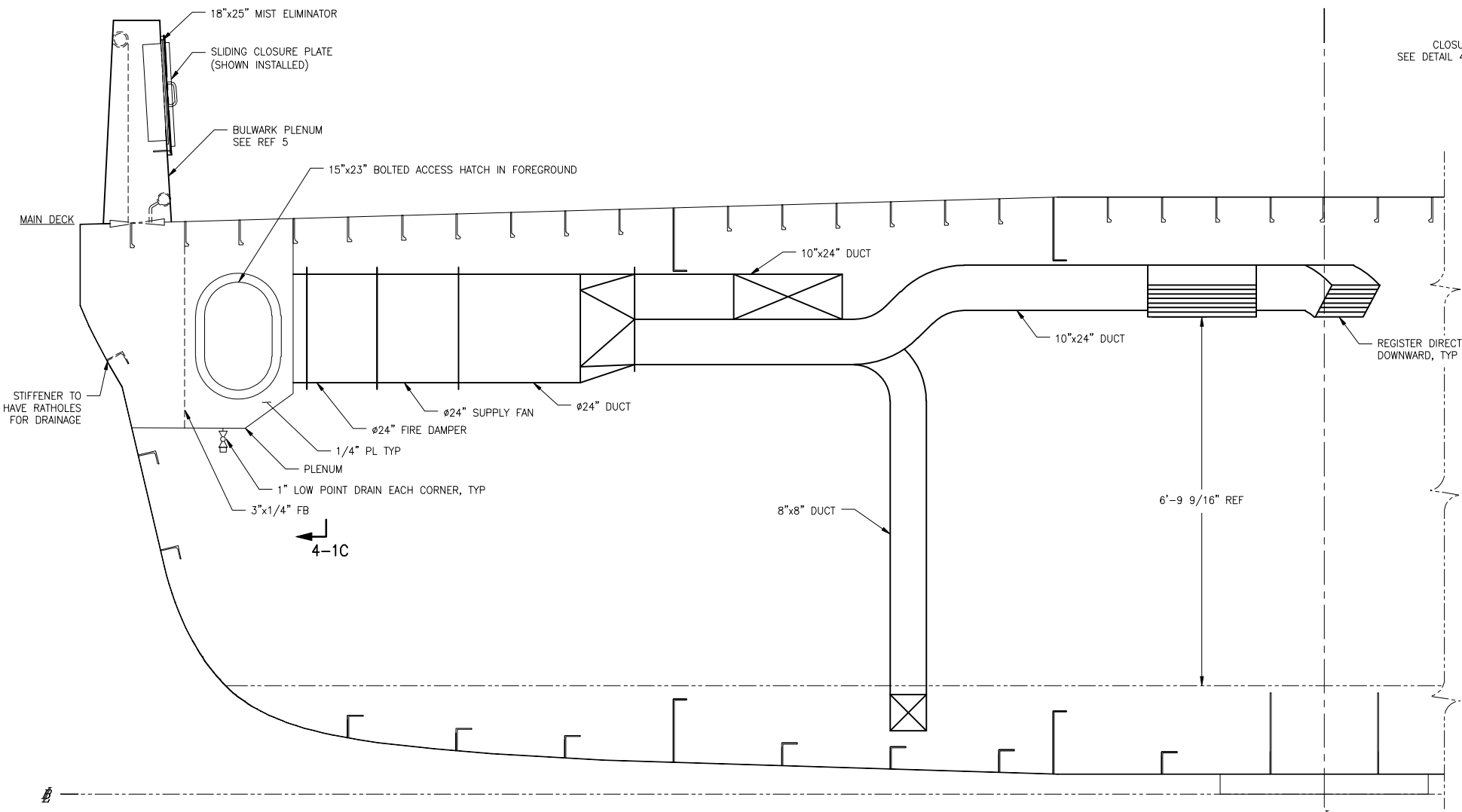


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SCALE	AS NOTED	FILE NAME	16101-200-513-1B	SHEET	3 OF 4

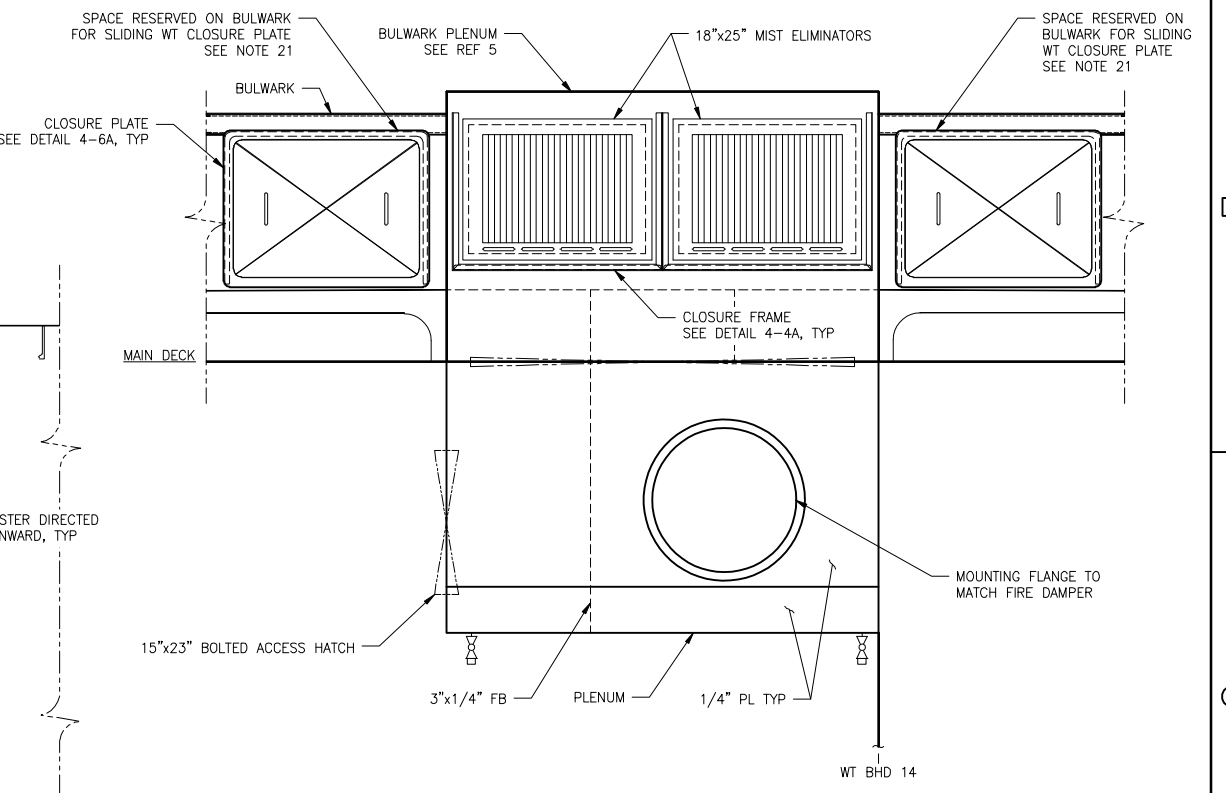
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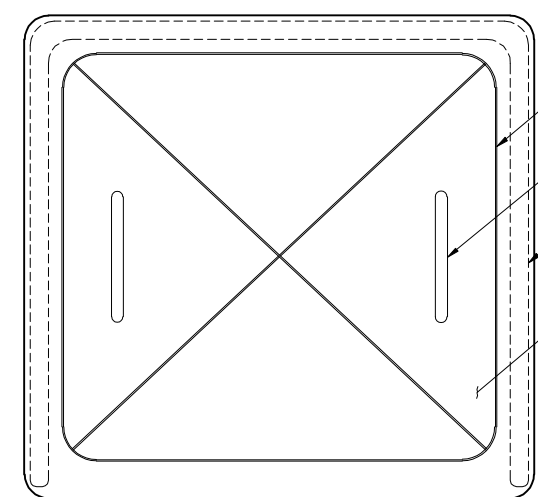
4-1C



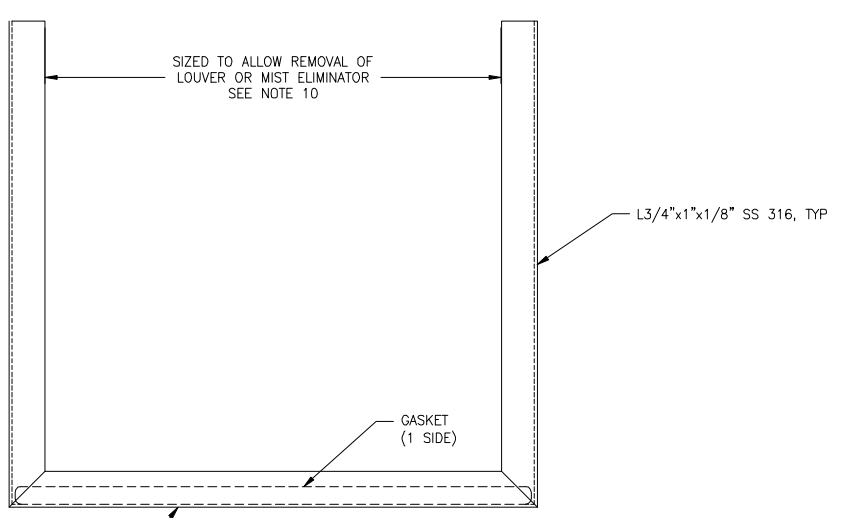
SECTION 4-4B
ENGINE ROOM SUPPLY
 LOOKING FWD TO FR 14
 SCALE: 3/4"=1'-0"



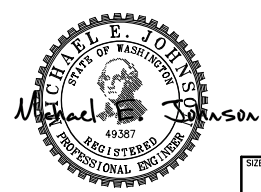
ELEVATION 4-1C
ENGINE ROOM SUPPLY PLENUM
 "A" END SHOWN, "B" END OPPOSITE
 SCALE: 3/4"=1'-0"



DETAIL 4-6A
TYPICAL SLIDING CLOSURE PLATE
 3"=1'-0"



DETAIL 4-4A
TYPICAL SLIDING CLOSURE FRAME
 3"=1'-0"



SIZE	D	DWG NO.	16101-200-513-1	REV	B
SCALE	AS NOTED	FILE NAME	16101-200-513-1B	SHEET	4 OF 4

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GENERAL NOTES (CONT)

11. FIRE STATIONS SHALL HAVE A 1-1/2" HOSE VALVE, AND BE FITTED WITH 50 FEET OF 1-1/2" LINED COMMERCIAL FIRE HOSE CONFORMING TO UL19, HOSE WRENCH, AND A USCG APPROVED COMBINATION FIRE NOZZLE WITH 5/8" ORIFICE. HOSES SHALL BE CONNECTED AND STOWED IN APPROVED ENCLOSED HOSE RACKS.
12. NOTED VALVES ISOLATE EXTERIOR FIRE STATIONS PERIODICALLY EXPOSED TO FREEZING TEMPERATURES. LOCATE EACH VALVE IN AN EASILY ACCESSIBLE LOCATION AS CLOSE AS POSSIBLE TO THE WEATHER BOUNDARY. WHERE LOCATED BEHIND JOINERY, PROVIDE A HINGED ACCESS PLATE.
13. BUTTERFLY VALVES IN THE FIRE SYSTEM SHALL HAVE PASSED A FIRE TEST SUCH AS API 607. THE CONTRACTOR SHALL SUBMIT DOCUMENTATION.
14. APPROVED MECHANICAL FITTING SYSTEMS MAY BE SUBSTITUTED FOR WELDED FITTINGS. FITTINGS SHALL BE ABS AND USCG APPROVED, AND USED IN ACCORDANCE WITH REGULATORY REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS.
15. MATERIAL TRANSITIONS FROM STEEL TO COPPER NICKEL PIPE SHALL BE ACCOMPLISHED VIA FLANGED JOINTS. THE JOINTS SHALL BE FITTED WITH GALVANIC ISOLATION KITS TO PREVENT DIRECT METAL TO METAL CONTACT.
16. FIRE STATIONS SHALL BE EQUIPPED WITH PUSH BUTTONS AND RUNNING LIGHTS FOR REMOTE START OF FIRE PUMP NO. 1. FIRE PUMP NO. 2 SHALL BE CAPABLE OF REMOTE START FROM THE EOS AND THE PILOTHOUSE. THE PILOTHOUSE SHALL HAVE RUNNING LIGHTS AND PRESSURE GAUGES FOR BOTH PUMPS. SEE REF 1.
17. WELDED FITTINGS SHALL BE TIG WELDED. SIL-BRAZING IS NOT ACCEPTABLE.
18. WHERE PIPING PENETRATES BULKHEADS OR DECKS, WELDED SLEEVES OR PENETRATION SLEEVES WITH SLIPSIL SEALING PLUGS (ABS CERT NO. 06-LD182012B/1-PDA) OR RISE/NOFIRNO SEALING (ABS CERT NO 09-LD398300B/1-PDA) MAY BE USED. INSTALL PIPING TRANSITS IN ACCORDANCE WITH REGULATORY REQUIREMENTS AND MANUFACTURER'S APPROVED INSTALLATION DETAILS.
19. LOCATE DRAIN VALVES FOR COMPLETE DRAINAGE OF EXTERIOR FIRE STATIONS.
20. "A" END HOSE STATIONS SHALL BE EQUIPPED WITH ATFF HOSE ENDS WITH (2) FIVE GALLON CONTAINERS IN ENGINE ROOMS.
21. CONTRACTOR SHALL INSTALL PUMPS SUCH THAT FLOODED SUCTIONS ARE MAINTAINED AT OPERATIONAL LIGHTSHIP DRAFT.

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-3C	1. ADDED NOTE 21.	LGB	8/30/17	LGB

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURER'S CERTIFIED DRAWINGS AS APPROPRIATE.
3. PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
4. 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.
5. PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES. ALL COPPER-NICKEL PIPING SHALL BE SUPPORTED USING INSULATED HANGERS.
6. THE PIPING SYSTEM SHALL BE CLEANED AND TESTED IN ACCORDANCE WITH USCG REQUIREMENTS. SEE REF 1.
7. VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL POSITION INDICATION.
8. OVERBOARD SHELL PENETRATIONS SHALL BE LOCATED AS FAR ABOVE BASELINE AS POSSIBLE WHILE STILL BEING UNDER THE GUARDS.
9. TOTAL DYNAMIC HEAD OF PUMPS FOR REQUIRED FLOW ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL PROVIDE PUMPS MEETING THE REQUIRED FLOW WITH THE INSTALLED PIPING SYSTEM. PUMP MOTORS SHALL BE SELECTED TO PREVENT MOTOR OVERLOAD OVER THE ENTIRE PUMP OPERATING RANGE.
10. FIRE STATION HOSE VALVES MAY BE COMMERCIAL SCREWED FIRE HOSE VALVES IN LIEU OF FLANGED.

REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION
2. 16101-200-529-1 BILGE AND BALLAST SCHEMATIC
3. 16101-200-551-1 COMPRESSED AIR PIPING SCHEMATIC



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

PROJECT: NEW RIVER CLASS FERRY



MATERIAL SCHEDULE

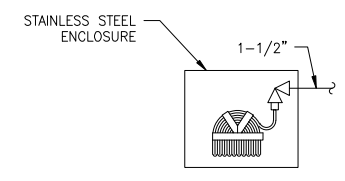
SERVICE	PIPING		TAKEDOWN JOINTS		VALVES		FITTINGS	FLEX CONNECTIONS	REMARKS	
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY				TRIM
FIREMAIN MAWP: 120 PSIG MAX TEMP: AMBIENT	2 1/2" & ABOVE	CU-NI 90/10 ASTM B466 SEAMLESS CLASS 200	FLANGE: CU-NI 90/10 OR BRONZE ASTM B369 ANSI B16.5 SLIP-ON OR WELD NECK, 150#	INORGANIC FIBER WITH NITRILE BINDER ABS FIRE-SAFE TYPE APPROVED	BOLTS: STAINLESS STEEL ASTM A193 GRADE 8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2	BUTTERFLY: BRONZE OR LINED DUCTILE IRON, WAFFER TYPE CHECK: BRONZE, ASTM B61 OR B62, 150#, FLANGED SEE NOTES 10 & 13	BUTTERFLY: BRONZE TRIM, RENEWABLE DISK CHECK: BRONZE DISK, RENEWABLE SEATS & SEALS	CU-NI 90/10 OR BRONZE ASTM B61 OR B62, BUTT WELD	-	-
	2" & BELOW	-	CU-NI 90/10 UNION, SOCKET WELD, ASTM B369, 150#	-	-	BALL: BRONZE ASTM B61 OR B62, THREADED	BALL: CHROME PLATED BRONZE BALL PTFE SEATS	CU-NI 90/10 UNION, SOCKET WELD	-	-
SHELL CONNECTIONS MAWP: 120 PSIG MAX TEMP: AMBIENT	ALL	CARBON STEEL ASTM A53 OR A106, GR B, ANSI B36.10 SCH 80 SEAMLESS	FLANGE CARBON STEEL ASTM A105 ANSI B16.5 SLIP-ON OR WELD NECK, 150#	INORGANIC FIBER WITH NITRILE BINDER ABS FIRE-SAFE TYPE APPROVED	BOLTS: STAINLESS STEEL ASTM A193 GRADE 8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2	GATE: DUCTILE IRON ASTM A395 OR CARBON STEEL ASTM A216 FLANGED, 150#	GATE: STAINLESS STEEL RENEWABLE DISC AND SEAT ASTM A182	CARBON STEEL ASTM A234, GR WPB ANSI B16.9 BUTT WELD SCH 80	-	-

EQUIPMENT LIST

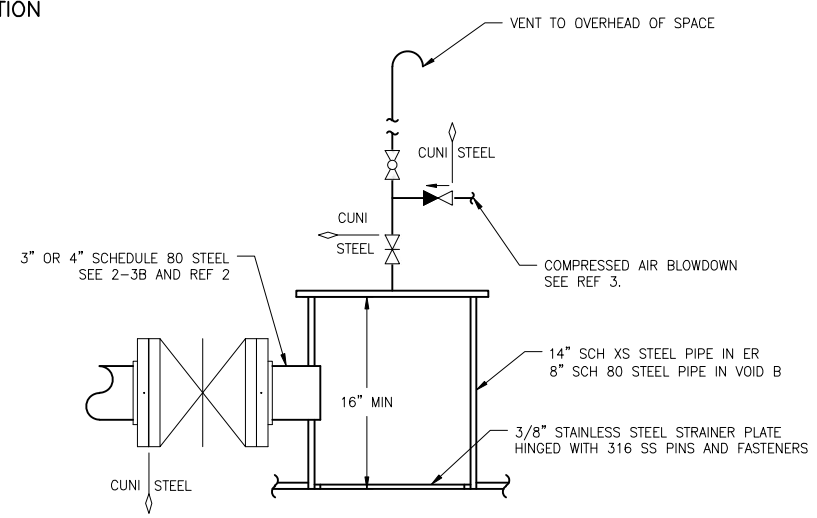
QTY.	SERVICE	TYPE	MODEL	CAPACITY	DRIVE	REMARKS
2	SEA WATER STRAINER 3" NPS	DUPLEX BASKET TYPE	-	-	-	SS BASKET BRONZE BODY
2	FIRE PUMP	HORIZONTAL CENTRIFUGAL	-	170 GPM @ 243' TDH	208V/3φ/60Hz 25 HP TEFC MOTOR 3550 RPM	SS 316 BODY

SYMBOLS LIST

	DIRECTION OF FLOW ARROW
	MATERIAL TRANSITION
	REDUCER
	DECK/BHD PENETRATION
	GATE VALVE
	BALL VALVE
	SWING CHECK VALVE
	BUTTERFLY VALVE
	CENTRIFUGAL PUMP
	PRESSURE GAUGE
	VACUUM PRESSURE GAUGE
	PRESSURE TRANSDUCER
	OVERBOARD DISCHARGE
	FIRE STATION
	DUPLEX STRAINER
	ANGLED GLOBE HOSE VALVE
	STOP CHECK VALVE
	SEA CHEST
	BILGE ROSEBOX SUCTION
	GATE VALVE WITH REACH ROD
	DRAIN PLUG
N.S. / N.O.	NORMALLY SHUT / NORMALLY OPEN



DETAIL 1-6B
TYP FIRE STATION
SEE NOTE 11



DETAIL 1-5A
SEA CHESTS

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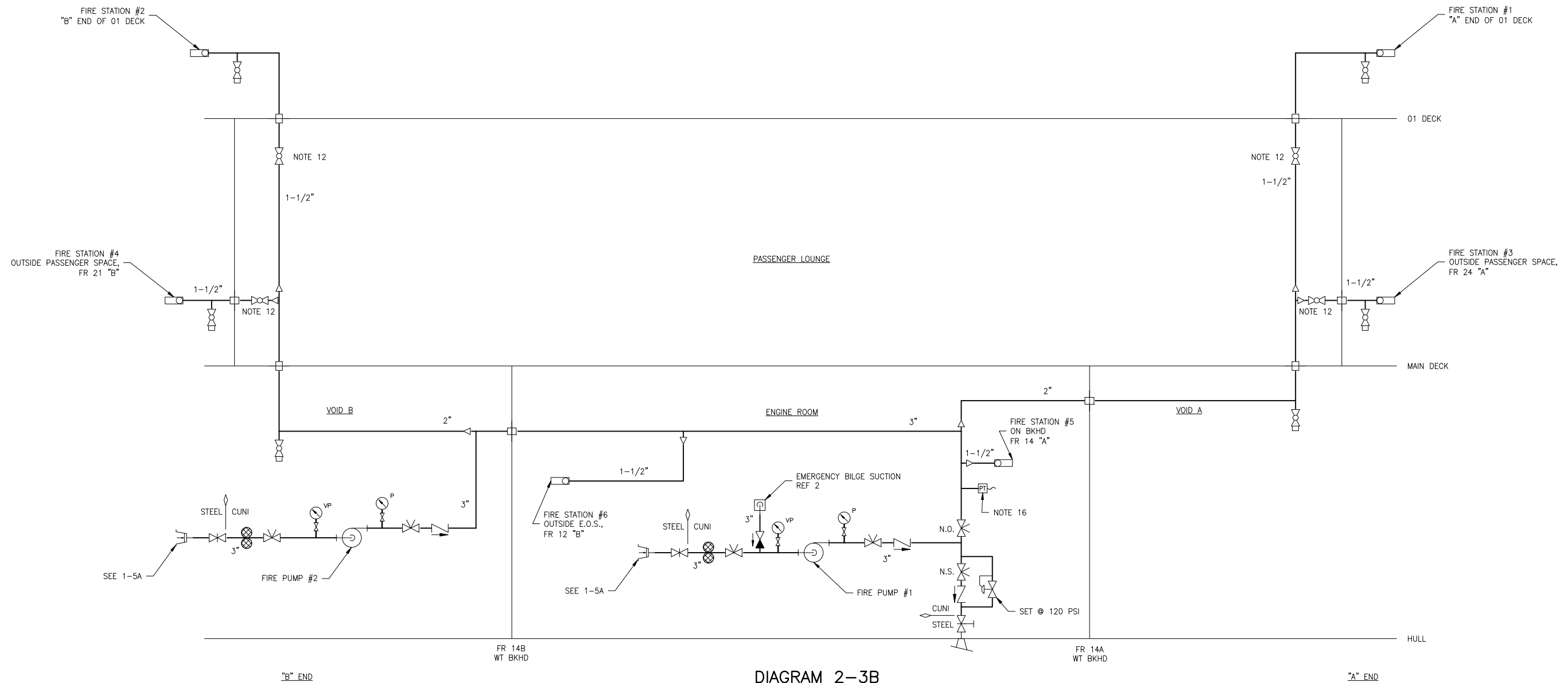
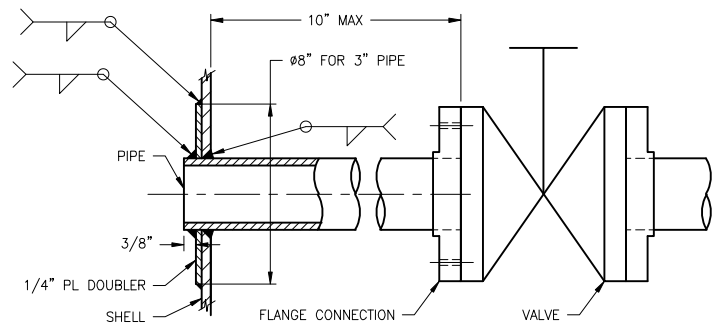


DIAGRAM 2-3B
FIRE MAIN SYSTEM SCHEMATIC
 SCALE: NONE



DETAIL 2-5A
OVERBOARD DISCHARGE
 SCALE: NONE



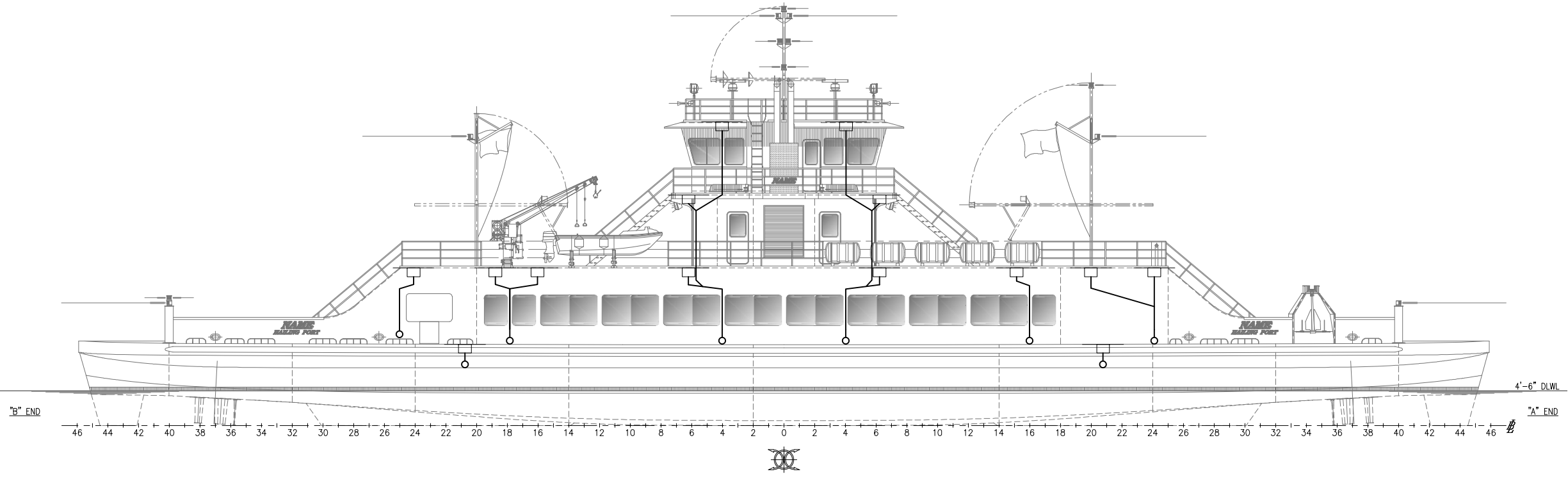
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SERVICE	PIPING		TAKEDOWN JOINTS		VALVES		FITTINGS	FLEX CONNECTIONS	REMARKS	
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY				TRIM
WEATHER DECK DRAIN SYSTEM MAWP: 10 PSIG MAX TEMP: AMBIENT	ALL	STAINLESS STEEL ASTM A312, GRADE TP 316L SEAMLESS ANSI B36.19 SCH 10S	PRESS-FIT STAINLESS STEEL ASTM A351, A743 AND A744, GRADE CF8M TP 316 SCH 10S HNBR SEALS	-	-	-	-	PRESS-FIT STAINLESS STEEL ASTM A351, A743 AND A744, GRADE CF8M TP 316 SCH 10S HNBR SEALS	-	-

SYMBOL LIST	
	PIPE
	PIPE UP
	PIPE DOWN
	VERTICAL PIPE - EXTENDS UP & DOWN
	DECK DRAIN
	DECK DRAIN
	OVERBOARD DISCHARGE



ELEVATION 2-4A
 OUTBOARD PROFILE

REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD

- GENERAL NOTES**
- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
 - THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURER'S CERTIFIED DRAWINGS AS APPROPRIATE.
 - PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
 - PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES. ALL COPPER-NICKEL PIPING SHALL BE SUPPORTED USING INSULATED HANGERS.
 - ALL DRAIN PIPING SHALL BE LED AS DIRECTLY AS PRACTICABLE AND PITCHED NOT LESS THAN 1/8 INCH PER FOOT LONGITUDINALLY OR 1/8 INCH PER FOOT TRANSVERSELY. PIPING SHALL BE PROVIDED WITH SUFFICIENT NUMBER OF ACCESSIBLE CLEANOUT CONNECTIONS, NOT LESS THAN 1 1/2" IPS, FOR CLEARING BY PLUMBER'S SNAKE, COMPRESSED AIR, OR WATER HOSE. CLEANOUT CONNECTIONS AND ACCESS PANELS SHALL BE FITTED FOR EACH DECK.
 - WHERE POSSIBLE, DRAIN PIPES SHALL BE INSTALLED INSIDE THE LINE OF STRUCTURE SO AS TO MINIMIZE INTERFERENCE WITH JOINER SYSTEM, PASSAGEWAYS, ETC.
 - WHERE PIPING PENETRATES BULKHEADS OR DECKS, USE AN APPROVED PENETRATION DETAIL, SEE DETAIL 3-1B.
 - DRAIN ROUTING SHALL NOT OBSTRUCT WINDOWS.
 - ALL DRAINS SHALL TERMINATE WELL ABOVE THE DESIGN LOAD WATERLINE. DRAINS LEADING FROM SUPERSTRUCTURE DECKS SHALL TERMINATE ABOVE THE MAIN DECK.
 - CENTER TROUGH DRAIN IN FRONT OF DOOR OR STAIR. OFFSET CUTOUT THREE INCHES FROM DOOR OR STAIR EDGE.

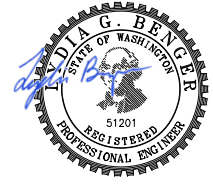
- REFERENCES**
- 16101-200-832-1 TECHNICAL SPECIFICATION
 - 16101-200-101-1 PROFILES AND DECK ARRANGEMENTS



Elliott Bay Design Group
 North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY



TITLE: DECK DRAIN PIPING SCHEMATIC				
SIZE: D	DWG NO.: 16101-200-526-1	REV: -		
SCALE: 1/8" = 1'-0"	FILE NAME: 16101-200-526-1-	SHEET: 1	OF 3	
DWN: MWR	MOD:	CKD: MEJ	APVD: LGB	APVD DATE: 7/28/17

7/28/2017 11:56:37 AM

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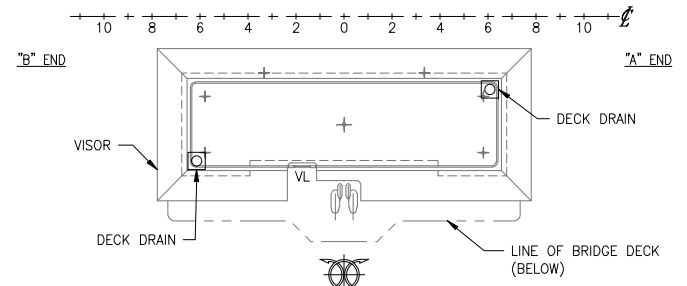
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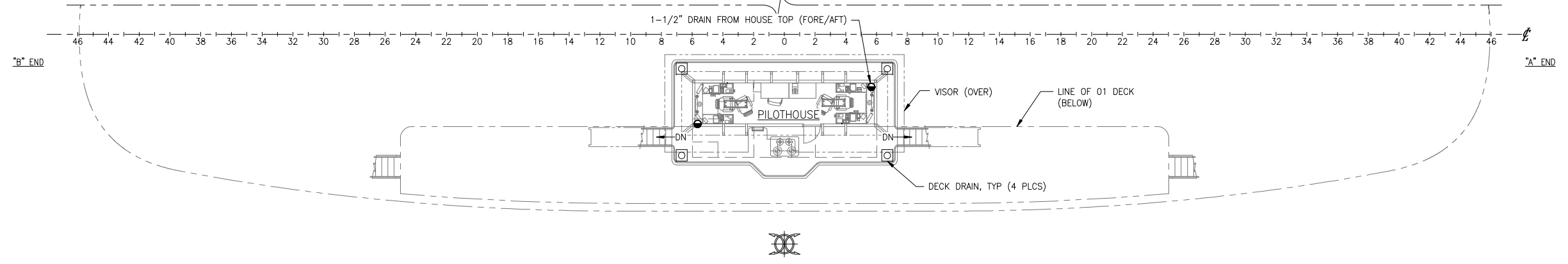
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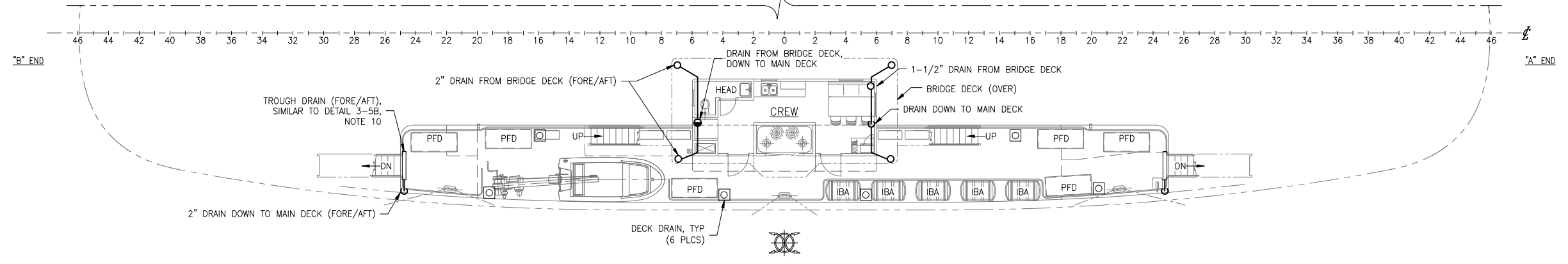
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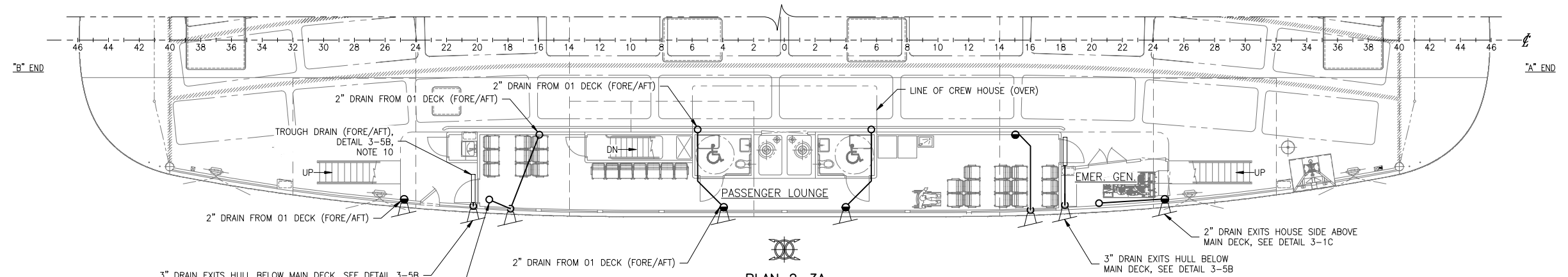
PLAN 2-3D
HOUSE TOP



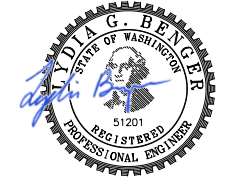
PLAN 2-3C
BRIDGE DECK



PLAN 2-3B
01 DECK



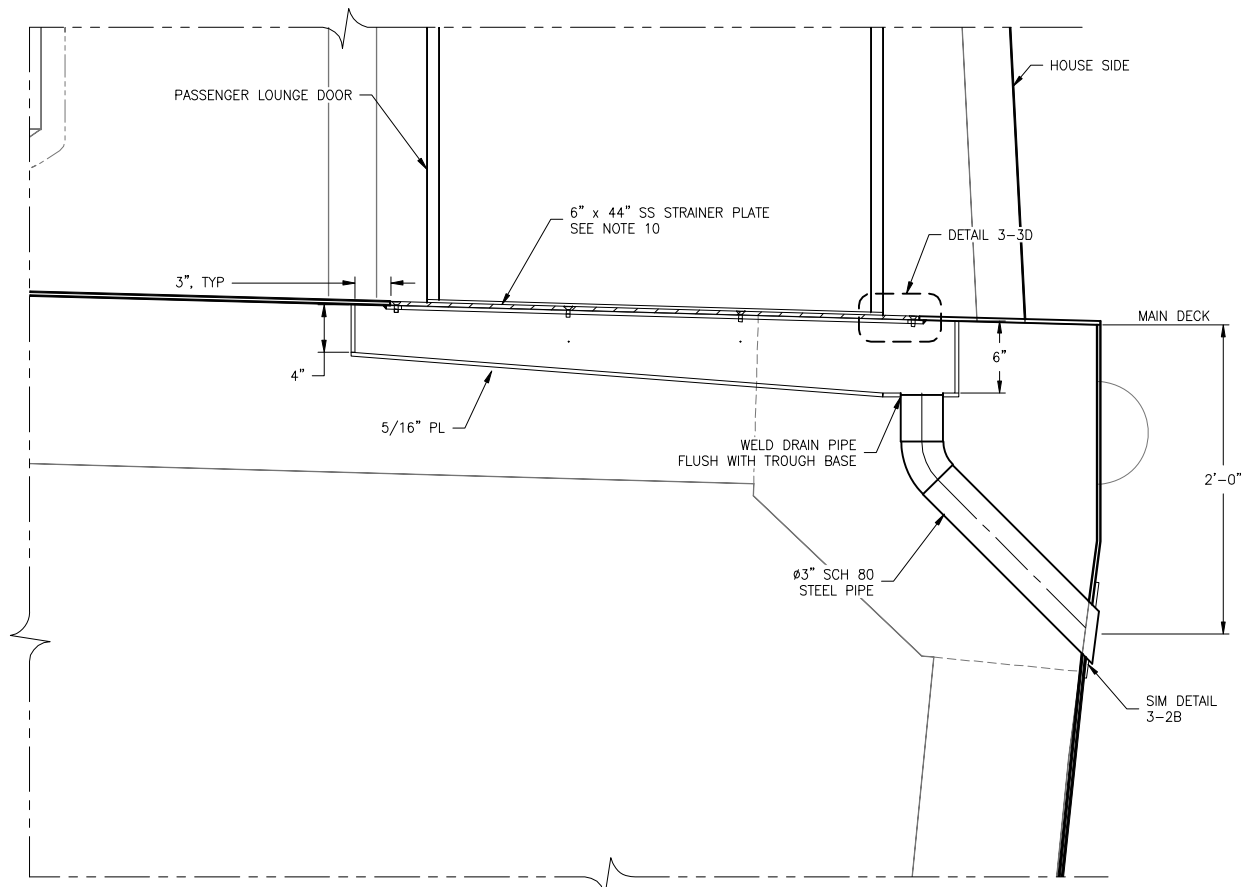
PLAN 2-3A
MAIN DECK



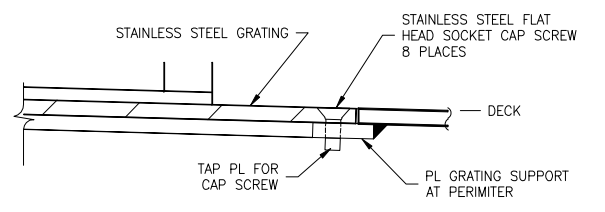
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SCALE	1/8" = 1'-0"	FILE NAME	16101-200-526-1-	SHEET	2 OF 3

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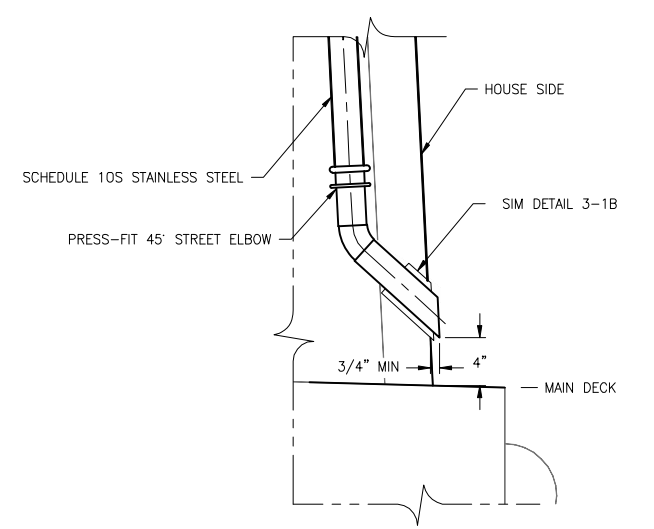
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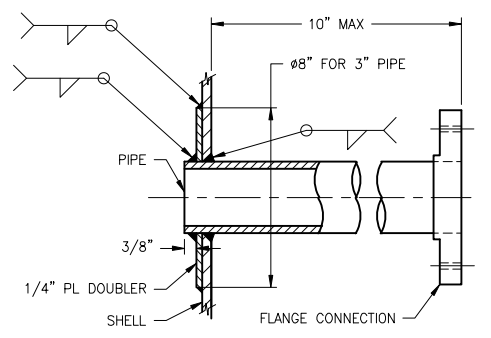
SECTION 3-5B
 TYP. TROUGH DRAIN DETAIL
 MAIN DECK SHOWN, 01 DECK SIMILAR
 SCALE: 1-1/2"=1'-0"



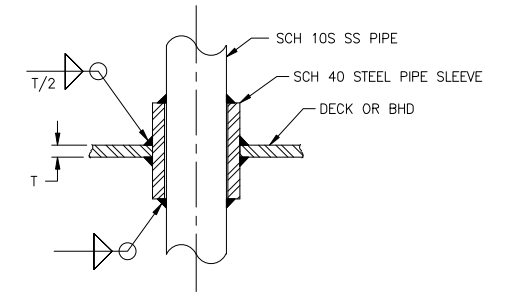
DETAIL 3-3D
 TYPICAL GRATING CLIP DETAIL
 SCALE: 6"=1'-0"



SECTION 3-1C
 TYP. DRAIN TERMINAL
 ABOVE MAIN DECK
 SCALE: 1-1/2"=1'-0"



DETAIL 3-2B
 OVERBOARD DISCHARGE
 SCALE: NONE



DETAIL 3-1B
 TYP. DECK/BHD PENETRATION
 SCALE: NONE



SIZE	D	DWG NO.	16101-200-526-1	REV	-
SCALE	AS NOTED	FILE NAME	16101-200-526-1-	SHEET	3 OF 3

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GENERAL NOTES (CONT)

10. CLEANOUTS CONCEALED IN JOINER BULKHEADS OR SUSPENDED CEILINGS SHALL BE ACCESSIBLE VIA REMOVABLE PANEL. PROVIDE 18" OF CLEAR SPACE IN FRONT OF THE CLEANOUT. ACCESS PANELS SHALL BE CLEARLY LABELED.
11. BLACK AND GRAY WATER WASTE DRAIN PIPING SHALL BE SLOPED DOWNWARD AT NO LESS THAN 1/4" PER FOOT IN TRANSVERSE DIRECTION & 1/8" PER FOOT LONGITUDINALLY.
12. AIR ADMITTANCE VALVES CONCEALED IN JOINER BULKHEADS OR SUSPENDED CEILINGS SHALL BE ACCESSIBLE VIA REMOVABLE PANEL OR CEILING TILE. INSTALL AIR ADMITTANCE VALVES ABOVE FLOOD RIM OF FIXTURE SERVED.
13. THE HOLDING TANKS SHALL BE FITTED WITH LEVEL SENSORS TO INTERFACE WITH THE ALARM AND MONITORING SYSTEM. THE SENSOR SHALL HAVE A HIGH LEVEL ALARM AT 75% FULL. SEE REF 1.
14. MSD AND HOLDING TANK VENTS SHOWN ON REFERENCE 2.
15. CPVC PIPE AND FITTINGS SHALL HAVE A USCG CERTIFICATE OF APPROVAL THAT STATES CPVC PIPE AND FITTINGS MEET LOW FLAME SPREAD, AND TOXICITY REQUIREMENTS OF THE FTP CODE ANNEX 1, PARTS 2 AND 5. INSTALL PIPING IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION GUIDELINES.
16. WHERE PLASTIC PIPING PENETRATES BULKHEADS OR DECKS, STEEL PENETRATION SLEEVES WITH USCG APPROVED SEALANT AND CRUSHING SLEEVES SHALL BE USED. SEALANT AND SLEEVES SHALL BE RATED FOR WATERTIGHT AND A-60 APPLICATIONS. INSTALL PIPING TRANSITS IN ACCORDANCE WITH MANUFACTURER'S APPROVED INSTALLATION DETAILS.
17. PROVIDE A STAINLESS STEEL DRIP TRAY BELOW ZERO DISCHARGE PUMPS.

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURER'S CERTIFIED DRAWINGS AS APPROPRIATE.
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4. PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES.
5. TDH OF PUMP FOR REQUIRED FLOW IS APPROXIMATE ONLY. THE CONTRACTOR SHALL PROVIDE A PUMP MEETING THE REQUIRED FLOW WITH THE INSTALLED PIPING SYSTEM. PUMP MOTORS SHALL BE SELECTED TO PREVENT MOTOR OVERLOAD OVER THE ENTIRE PUMP OPERATING RANGE.
6. SANITARY DRAIN PIPING IN THE ACCOMMODATIONS AREAS SHALL BE CONCEALED BEHIND JOINER BULKHEADS OR SUSPENDED CEILINGS.
7. CHANGES OF DIRECTION IN HORIZONTAL DRAIN PIPING SHALL BE MADE WITH WYE'S OR BENDS OF 45° OR LESS. INTERSECTIONS BETWEEN BRANCHES OF DRAIN PIPING SHALL BE ACCOMPLISHED WITH THE USE OF LATERALS WYES OR SWEEP TEES. IN NO CASE SHALL TWO PIPES INTERSECT AT 90°.
8. HORIZONTAL DRAINAGE LINES WHICH CONNECT DIRECTLY WITH A VERTICAL STACK, SHALL ENTER THROUGH 45° WYE, 60° WYE, COMBINATION WYE AND 45° BEND, SANITARY TEE OR BRANCHES OF EQUIVALENT SWEEP.
9. CLEANOUTS WITH PLUGS SHALL BE FITTED AT THE UPPER TERMINAL OF EACH HORIZONTAL RUN, AT INTERVALS OF NO LESS THAN 1 PER 50 LINEAR FEET OF PIPE IN STRAIGHT RUNS, AND WHEREVER THE AGGREGATE HORIZONTAL CHANGE IN DIRECTION OF HORIZONTAL PIPING EXCEEDS 135°.

REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION
2. 16101-200-506-1 FILLS, VENTS, AND SOUNDS



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PROJECT: NEW RIVER CLASS FERRY



MATERIAL SCHEDULE

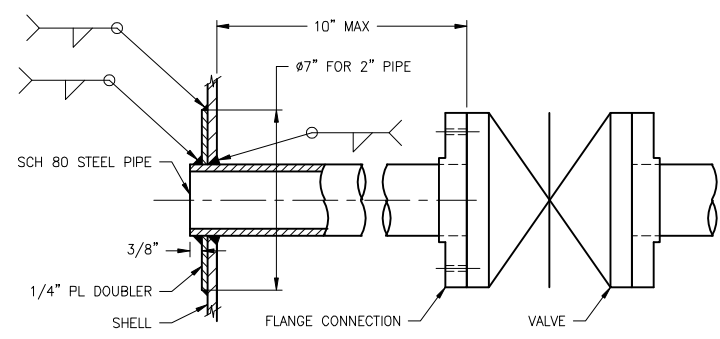
SERVICE	PIPING		TAKEDOWN JOINTS		BOLTING	VALVES		FITTINGS	FLEX CONNECTIONS	REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS		BODY	TRIM			
SANITARY DRAINS MAWP: 50 PSIG TEMP: AMBIENT	ALL	CPVC SCH 80 ASTM D1784 ASTM F441	SOCKET FLANGE CPVC ASTM F439 ANSI B16.3, 150#	EPDM RUBBER ASTM-D-1331 FULL FACE	BOLTS: STAINLESS STEEL ASTM A193 GRADE B8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2	BALL: CPVC, UNION ENDS CHECK: CPVC, UNION ENDS	BALL: CPVC BALL, SS STEM, EPDM SEALS, FULL PORT CHECK: CPVC, EPDM SEAL	CPVC ASTM F439		SEE NOTE 15
SHELL CONNECTIONS MAWP: 50 PSIG MAX TEMP: AMBIENT	ALL	CARBON STEEL ASTM A53 OR A106, GR B, ANSI B36.10 SCH 80 SEAMLESS	FLANGE CARBON STEEL ASTM A105 ANSI B16.5 SLIP-ON OR WELD NECK, 150#	INORGANIC FIBER WITH NITRILE BINDER ABS FIRE-SAFE TYPE APPROVED		GATE: DUCTILE IRON ASTM A395 OR CARBON STEEL ASTM A216 FLANGED, 150#	GATE: STAINLESS STEEL RENEWABLE DISC AND SEAT ASTM A182	CARBON STEEL ASTM A234, GR WPB ANSI B16.9 BUTT WELD SCH 80	-	

SYMBOLS LIST

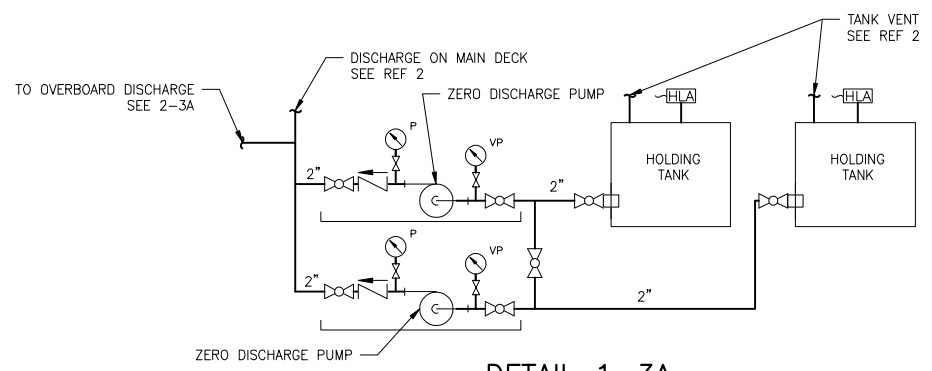
	PIPE
	BALL VALVE
	PIPE CAP
	P-TRAP
	REDUCER
	VACUUM PRESSURE GAUGE
	PRESSURE GAUGE
	CENTRIFUGAL PUMP
	DECK DRAIN
	PIPE FLANGE
	HIGH LEVEL ALARM
	GATE VALVE
	CHECK VALVE
	DRIP TRAY
	OVERBOARD DISCHARGE
	MATERIAL TRANSITION

EQUIPMENT LIST

QTY.	SERVICE	TYPE	MODEL	CAPACITY	DRIVE
2	ZERO DISCHARGE PUMP	SELF-PRIMING CENTRIFUGAL	-	105 GPM @ 75 FT TDH	5 HP 3450 RPM TEFC MOTOR 208V/3P/60HZ
1	MARINE SANITATION DEVICE (MSD)	-	-	-	BLOWER: 1 HP PUMP: 1/2 HP 208V/3P/ 60 HZ



DETAIL 1-5A
OVERBOARD DISCHARGE

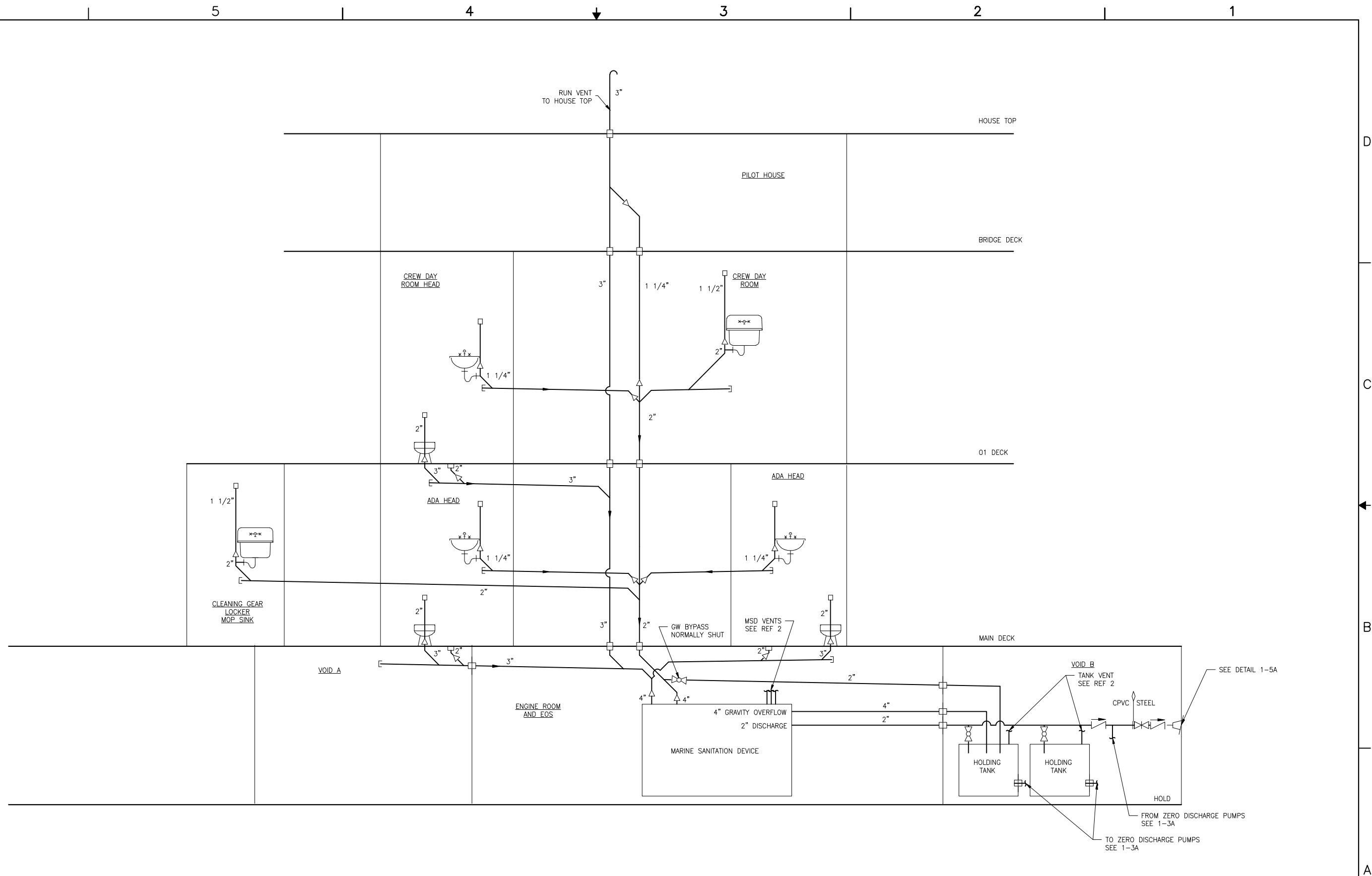


DETAIL 1-3A
ZERO DISCHARGE SYSTEM
TANK FILLS NOT SHOWN, SEE 2-3A

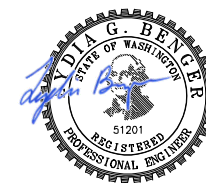
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SCALE	NTS	FILE NAME	16101-200-528-1-	SHEET	1 OF 2
DWN	MWR	MOD	CKD NJB	APVD	LGB
				APVD DATE	7/21/17

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DETAIL 2-3A
 SANITARY DRAIN SYSTEM



SIZE	D	DWG NO.	16101-200-528-1	REV	-
SCALE	NTS	FILE NAME	16101-200-528-1-	SHEET	2 OF 2

7/21/2017 5:47:42 PM

MATERIAL SCHEDULE

SERVICE	PIPING		TAKEDOWN JOINTS		VALVES		FITTINGS	FLEX CONNECTIONS	REMARKS	
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	TRIM				
D BILGE AND SHELL CONNECTIONS MAWP: 55 PSIG TEMP: AMBIENT	2 1/2" & ABOVE	CARBON STEEL ASTM A53 OR A106, GRADE B SEAMLESS ANSI B36.10 SCH 80	FLANGE, CARBON STEEL WELD NECK OR SLIP-ON, 150# ANSI B16.5, ASTM A105	INORGANIC FIBER WITH NITRILE BINDER ABS FIRE-SAFE TYPE APPROVED	BOLTS: STAINLESS STEEL ASTM A193 GRADE B8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2	BUTTERFLY: CARBON STEEL ASTM A216 GR WCB 150#, WAFER TYPE SWING CHECK: CARBON STEEL ASTM A216 GR WCB 150#, FLANGED STOP CHECK: CARBON STEEL ASTM A216 GR WCB 150#, FLANGED GATE: CARBON STEEL ASTM A216 GR WCB 150#, FLANGED	BUTTERFLY: SS DISC AND STEM BUNA SEATS SWING CHECK: CARBON STEEL DISC STOP CHECK: SS RENEWABLE DISC AND SEAT ASTM A276-316 GATE: SS STEM SS RENEWABLE DISC AND SEAT ASTM A182	CARBON STEEL ASTM A234, GR WPB ANSI B16.9 BUTT WELD LONG RADIUS SCH 80		NOTE 14
	2" & BELOW		CARBON STEEL UNION, 300#, SOCKET WELD, GROUND JOINT ANSI B16.11 OR FLANGE, SOCKET WELD OR SLIP-ON, 150#, ANSI B16.5							
C BALLAST MAWP: 15 PSIG TEMP: AMBIENT	ALL	CU-NI 90/10 ASTM B466 SEAMLESS CLASS 200	FLANGE: CU-NI 90/10 OR BRONZE ASTM B369 ANSI B16.5 SLIP-ON OR WELD NECK, 150#			BUTTERFLY: BRONZE OR LINED DUCTILE IRON, WAFER TYPE CHECK: BRONZE, ASTM B61 OR B62, 150#, FLANGED	BUTTERFLY: BRONZE TRIM, RENEWABLE DISK CHECK: BRONZE DISK, RENEWABLE SEATS & SEALS	CU-NI 90/10 OR BRONZE ASTM B61 OR B62, BUTT WELD		NOTE 21

GENERAL NOTES (CONT)

- TOTAL DYNAMIC HEAD OF PUMPS FOR REQUIRED FLOW ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL PROVIDE PUMPS MEETING THE REQUIRED FLOW WITH THE INSTALLED PIPING SYSTEMS. PUMP MOTORS SHALL BE SELECTED TO PREVENT MOTOR OVERLOAD OVER THE ENTIRE PUMP OPERATING RANGE.
- VALVES CONSTRUCTED OF DUCTILE IRON, ASTM A395, MAY BE SUBSTITUTED WHERE APPROVED BY USCG & ABS REQUIREMENTS.
- ALL BILGE LINES SHALL BE ROUTED NO LESS THAN ONE FIFTH OF THE VESSEL BEAM FROM THE SIDE SHELL AND ABOVE THE T/15 LINE IN ACCORDANCE WITH USCG AND ABS REGULATIONS.
- WHERE PIPES PENETRATE TANK BOUNDARIES, BULKHEADS, OR DECK HEAVY WEIGHT SPOOL PIECES SHALL BE USED. SEE DETAIL 2-5A.
- THE BILGE LINES SERVING THE LAZARETTES SHALL BE FITTED WITH AN ISOLATION VALVE OPERABLE FROM THE MAIN DECK. THE REMOTE OPERATOR SHALL BE A FLUSH MOUNTED DECK BOX WITH REACH ROD.
- BALLAST CONTROL VALVES SHALL BE AIR OPERATED VALVES WITH CONTROLS LOCATED IN THE EOS. SEE REF 1 AND 3.
- BALLAST PUMPS SHALL BE CONTROLLED LOCALLY AND FROM THE EOS.
- MATERIAL TRANSITIONS FROM STEEL TO COPPER NICKEL PIPE SHALL BE ACCOMPLISHED VIA FLANGED JOINTS. THE JOINTS SHALL BE FITTED WITH GALVANIC ISOLATION KITS TO PREVENT DIRECT METAL TO METAL CONTACT.
- WELDED CUNI FITTINGS SHALL BE TIG WELDED. SIL-BRAZING IS NOT ACCEPTABLE.
- CONTRACTOR SHALL INSTALL PUMPS SUCH THAT FLOODED SUCTIONS ARE MAINTAINED AT OPERATIONAL LIGHTSHIP DRAFT.

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	3-3A	1. REVISED BALLAST SUCTION LOCATION TO LOW POINTS OF TANKS.	LGB	8/30/17	LGB
	1-3C	2. ADDED NOTE 22.			

GENERAL NOTES

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- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
- AVOID POCKETS IN THE PIPE LINES. BOSSES AND VALVES OR SCREWED PLUGS SHALL BE FITTED TO ENABLE COMPLETE DRAINING OF PIPES WHERE POCKETS DO OCCUR.
- THE PIPING SYSTEM SHALL BE CLEANED AND TESTED TESTED IN ACCORDANCE WITH USCG REQUIREMENTS. SEE REF 1.
- PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES. ALL COPPER-NICKEL PIPING SHALL BE SUPPORTED USING INSULATED HANGERS.
- VALVES LOCATED BELOW THE FLOOR PLATES SHALL BE PROVIDED WITH REACH RODS. ALL VALVES SHALL BE PROVIDED WITH VISUAL POSITION INDICATION.
- BILGE ROSEBOX SCREENS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. SUCTION STRAINERS SHALL HAVE AN OPEN AREA OF AT LEAST THREE TIMES THE AREA OF SUCTION PIPE.
- OVERBOARD PENETRATIONS SHALL BE LOCATED AS FAR ABOVE BASELINE AS POSSIBLE WHILE STILL BEING UNDER THE GUARDS.
- BILGE SUCTIONS SHALL BE LOCATED AT THE COMPARTMENT LOW POINT.
- BILGE PUMPS SHALL BE CONTROLLED LOCALLY AND FROM THE EOS.
- EMERGENCY BILGE SUCTION IS LOCATED ON THE FIRE MAIN SYSTEM. SEE REF 2.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-521-1 FIRE MAIN SYSTEM SCHEMATIC
- 16101-200-551-1 COMPRESSED AIR PIPING SCHEMATIC



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PROJECT: NEW RIVER CLASS FERRY



SYMBOLS LIST

	PIPE
	REDUCER
	DECK/BULKHEAD PENETRATION
	MANIFOLD, STOP CHECK VALVES
	MATERIAL TRANSITION
	BUTTERFLY VALVE
	GATE VALVE
	BUTTERFLY VALVE, ACTUATED
	GATE VALVE WITH REACH ROD
	SWING CHECK VALVE
	ANGLE STOP CHECK VALVE
	BILGE ROSEBOX SUCTION
	PRESSURE GAUGE
	VACUUM PRESSURE GAUGE
	FLANGE
	DIFFERENTIAL PRESSURE GAUGE
	DUPLEX STRAINER
	CENTRIFUGAL PUMP
	OVERBOARD DISCHARGE
	SEA CHEST
	BALLAST SUCTION

EQUIPMENT LIST

QTY.	SERVICE	TYPE	MODEL	CAPACITY	DRIVE	REMARKS
2	BILGE PUMP	CENTRIFUGAL SELF-PRIMING	-	149 GPM @ 40' TDH	208V/3φ/60HZ 5 HP TEFC MOTOR 3450 RPM	BRONZE BODY
2	BILGE PUMP STRAINER 3" NPS	DUPLEX BASKET TYPE	-	-	-	SS BASKET BRONZE BODY
2	BALLAST PUMP	CENTRIFUGAL	-	200 GPM @ 20' TDH	208V/3φ/60HZ 2 HP TEFC MOTOR 1165 RPM	SS BODY
2	BALLAST PUMP STRAINER 4" NPS	DUPLEX BASKET TYPE	-	-	-	SS BASKET BRONZE BODY

CALCULATIONS

BILGE SYSTEM (PER 46 CFR 56.50-50)

DATA:
 L=180.5 FT
 B=46 FT
 D=10.5 FT
 C=COMPARTMENT LENGTH (FT)

BILGE MAIN $d = 1 + \sqrt{\frac{L(B+D)}{2500}} = 3.02$ (USE 3" SCH 80 PIPE)

BRANCH SUCTION $d = 1 + \sqrt{\frac{C(B+D)}{1500}}$

COMPARTMENT	C	d	NOMINAL PIPE SIZE (MINIMUM)	ID
LAZARETTE A	11.8	2.000	2"	1.939
THRUSTER ROOM A	32.0	2.098	2"	1.939
VOID A	20.0	2.000	2"	1.939
ENGINE ROOM	56.0	2.452	2 1/2"	2.323
VOID B	20.0	2.000	2"	1.939
THRUSTER ROOM B	32.0	2.098	2"	1.939
LAZARETTE B	11.8	2.000	2"	1.939

PUMP CAPACITY TO DEVELOP A SUCTION VELOCITY OF 400 FPM
 $Q = 16.32 \times d^2$, WHERE d IS THE BILGE MAIN DIAMETER
 $Q = 149$ GPM

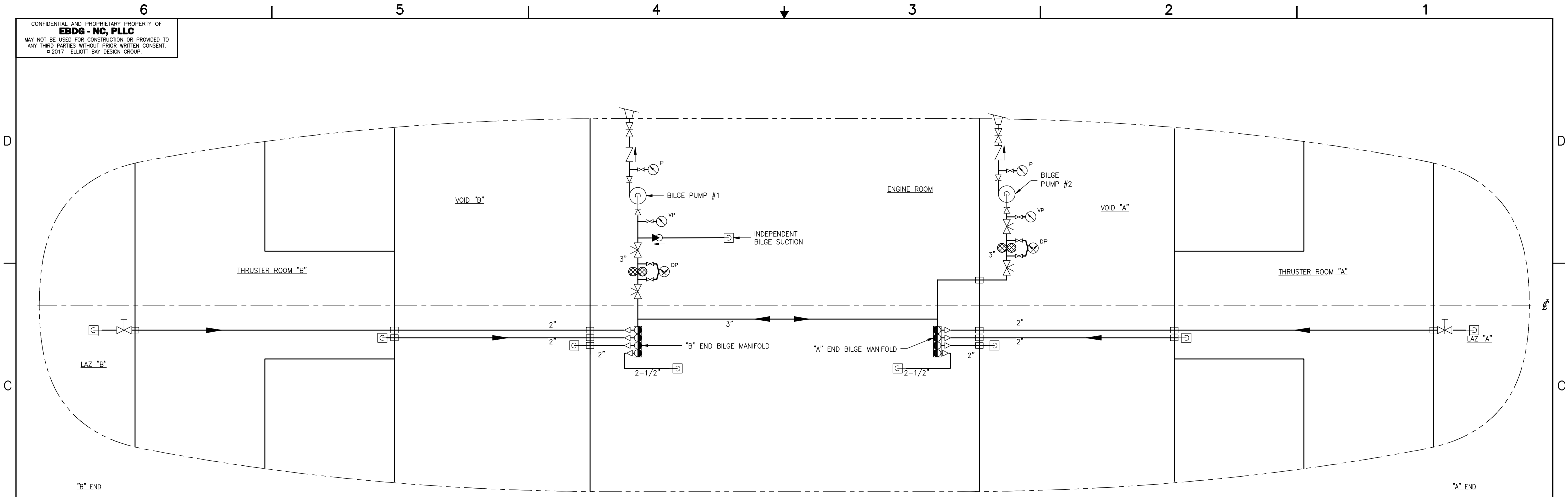
BILGE AND BALLAST SCHEMATIC

SIZE	DWG NO.	REV
D	16101-200-529-1	A

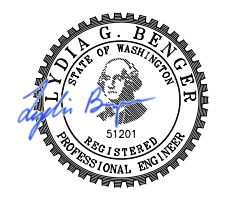
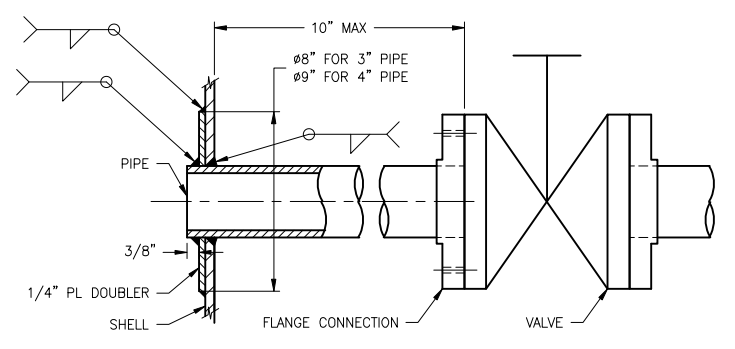
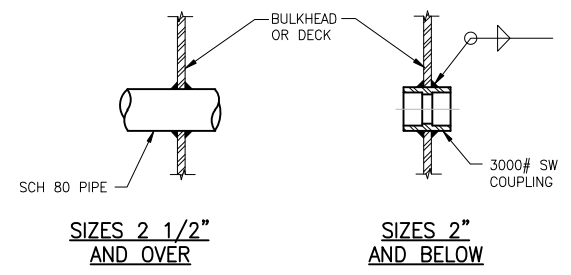
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NTS	16101-200-529-1A	1	3

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

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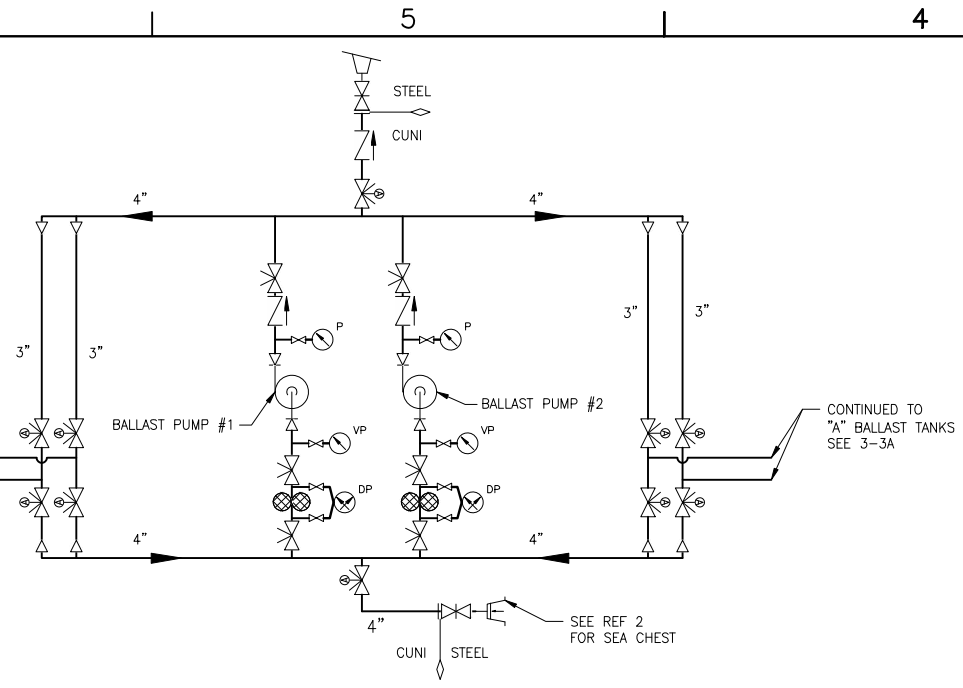
PLAN 2-3B
 BILGE SYSTEM DIAGRAM



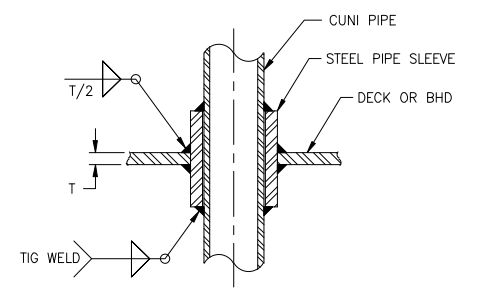
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SCALE	NTS	FILE NAME	16101-200-529-1A	SHEET	2 OF 3

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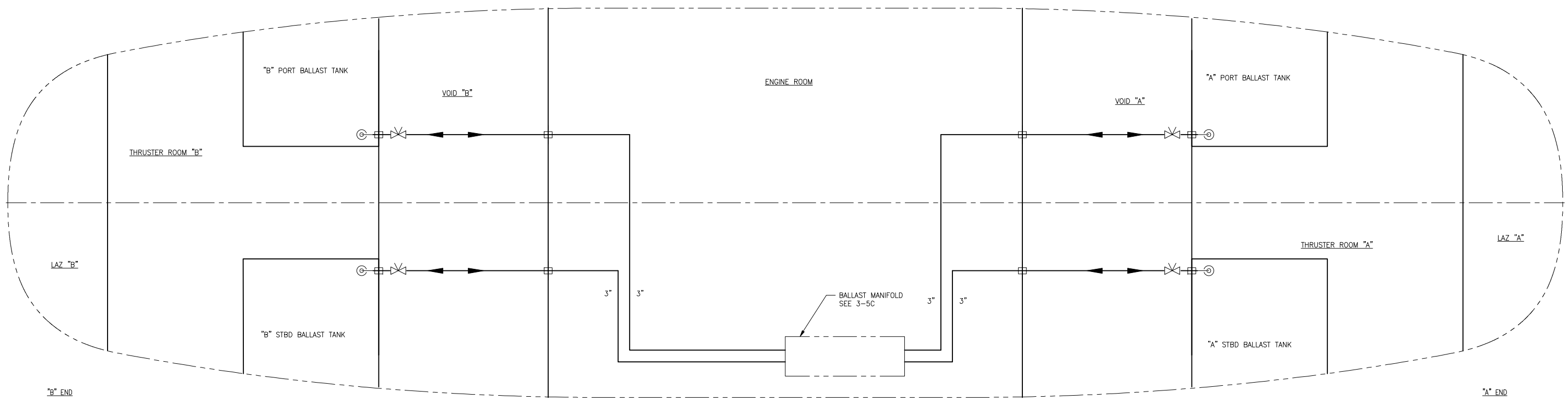
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PLAN 3-5C
 BALLAST MANIFOLD



DETAIL 3-1C
 TYP DECK/BHD PENETRATION
 CUNI PIPING



PLAN 3-3A
 BALLAST SYSTEM DIAGRAM



SIZE	D	DWG NO.	16101-200-529-1	REV	A
SCALE	NTS	FILE NAME	16101-200-529-1A	SHEET	3 OF 3

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MATERIAL SCHEDULE

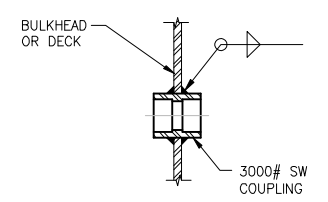
SERVICE	SIZE	PIPE	COMPONENTS				VALVES		BOLTING		REMARKS
			TAKEDOWN JOINTS	FITTINGS	FLEX CONNECT	GASKETS	BODY	TRIM	BOLTS/STUDS	NUTS/WASHERS	
WASTE OIL MAWP: 40 PSIG MAWT: 120°F	ALL	CARBON STEEL, SCH 80, SEAMLESS OR ERW, ASTM A53 OR ASTM A106, GRADE B, ANSI B36.10	FLANGE #150, SOCKET WELD CARBON STEEL,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

SYMBOLS LIST

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

EQUIPMENT & PUMP LIST

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



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

2
GENERAL NOTES (CONT.)

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

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

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

1
REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	SHT 2	1. REMOVED PROPRIETARY DETAILS	MWR	7/26/17	LGB

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION. TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURERS' CERTIFIED DRAWINGS.
- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
- PROVIDE GAUGE PIPING ASSEMBLIES AND MATERIALS FOR GAUGES AND INSTRUMENTS CONFIGURED IN ACCORDANCE WITH ASTM F721. VALVES, TUBING, AND FITTINGS SHALL BE 316 STAINLESS STEEL.
- WHERE PIPES PENETRATE TANK BOUNDARIES, BULKHEADS, OR DECKS, HEAVY WEIGHT SPOOL PIECES OR REINFORCING PENETRATION FITTINGS SHALL BE USED. SEE DETAIL 1-4A.
- PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE ATTACHED BY WELDING DIRECTLY TO PIPES.
- ARRANGE LEVEL INDICATOR TO PROVIDE INDICATION THROUGH THE GREATEST RANGE OF TANK LEVEL AS PRACTICABLE.
- LUBE OIL PIPING SHALL NOT BE ROUTED NEAR ELECTRICAL DEVICES OR EQUIPMENT. LUBE OIL PIPING SHALL BE AT LEAST 18 INCHES AWAY FROM ANY SURFACE THAT NORMALLY HAS AN OPERATING TEMPERATURE OF 450°F OR GREATER.
- GALVANIZED PIPE, FITTINGS, COMPONENTS, ETC. SHALL NOT BE USED.
- DRIP PANS WITH UP-TURNED, SEALED, FLANGED EDGES SHALL BE PROVIDED BENEATH ALL FILTERS, PUMPS, STRAINERS, HOSE REELS AND ANY OTHER EQUIPMENT THAT CONTAINS OIL AND REQUIRES PERIODIC MAINTENANCE. DRIP PANS SHALL BE PROVIDED WITH DRAIN VALVES.
- FIT EACH MAIN ENGINE, GENERATOR, AND REDUCTION GEAR SUMP WITH A LOCKING DRAIN VALVE, 1" FEMALE CAMLOCK, AND DUST PLUG. TETHER DUST PLUG TO DRAIN LINE WITH A STAINLESS STEEL CHAIN OR CABLE.

REFERENCES

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



Elliott Bay Design Group
North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY



**LUBE OIL AND
WASTE OIL PIPING SCHEMATIC**

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

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

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

7/27/2017 7:29:18 AM

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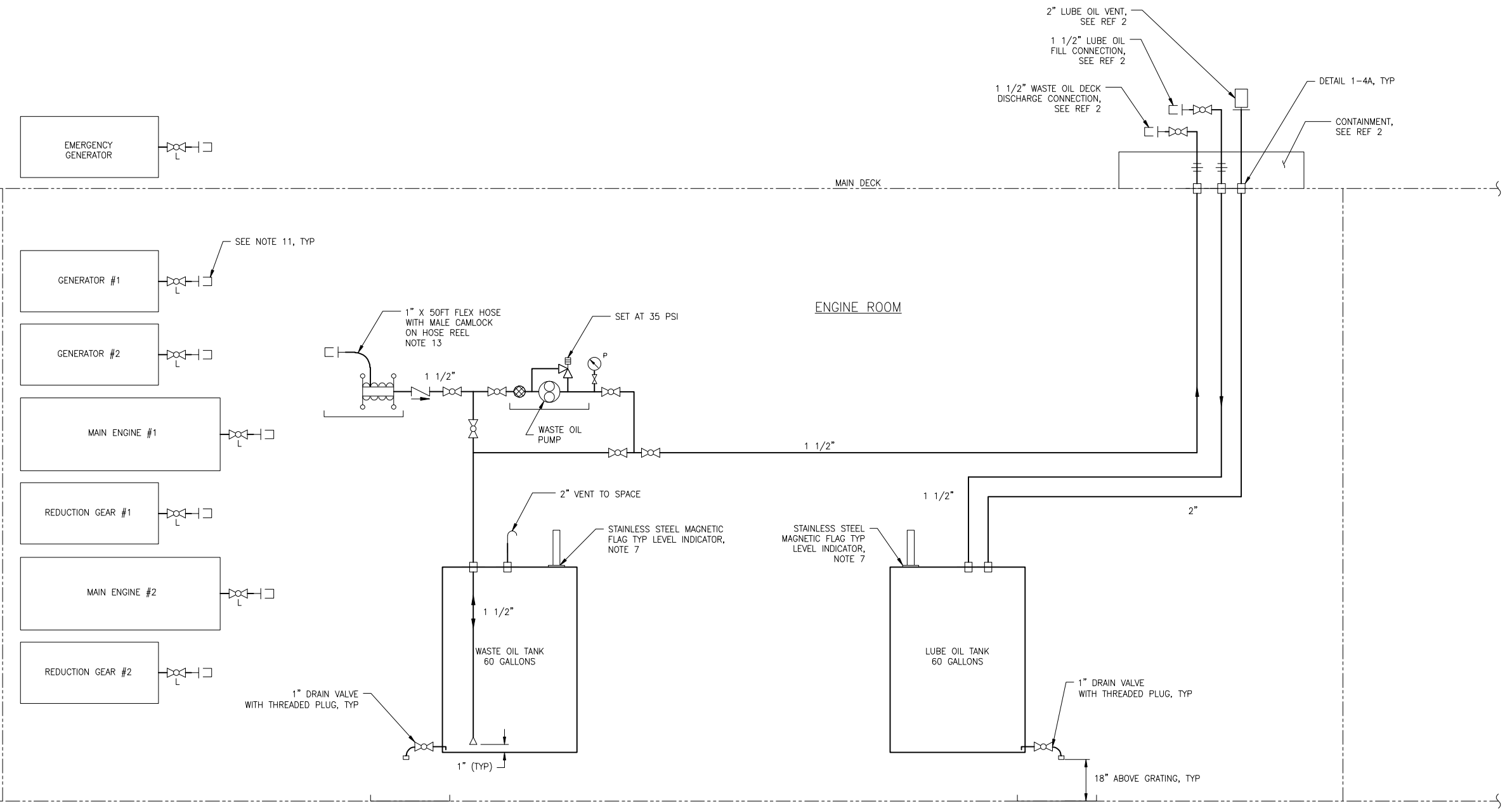


DIAGRAM 2-4A
 LUBE OIL AND WASTE OIL SYSTEM



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

A¹

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MATERIAL SCHEDULE

SERVICE	PIPING		TAKEDOWN JOINTS		VALVES		FITTINGS	FLEX CONNECTIONS	REMARKS	
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY				TRIM
HOT & COLD POTABLE WATER SUPPLY MAWP: 80 PSIG MAX TEMP: 170°F	ALL	COPPER, SEAMLESS HARD DRAWN, ASTM B88, TYPE K	UNION ANSI B16.22, MSS-SP104 FLANGE, 150#, ANSI B16.24, SOLDER JOINT, COPPER	ARAMID FIBERS WITH A NEOPRENE BINDER	BOLTS: STAINLESS STEEL ASTM A193 GRADE B8M ANSI B18.2.1 NUTS: STAINLESS STEEL ASTM A194 GRADE 8M ANSI B18.2.2	BALL: BRONZE 150# THREADED OR SOLDER ENDS, ASTM B62 MSS-SP-72 (AT TANK 150# FLANGED, ANSI B16.24)	CHROME PLATED BALL, PTFE SEATS	WROT COPPER, ANSI B16.22, ASTM B75	-	

PIPING SYMBOLS

	PIPE - COLD WATER
	PIPE - HOT WATER
	REDUCER
	BHD PENETRATION
	FLANGE
	BALL VALVE
	SWING CHECK VALVE
	CENTRIFUGAL PUMP
	SIMPLEX STRAINER
	RELIEF VALVE
	PRESSURE GAUGE
	MATERIAL TRANSITION
	HOSE BIB
	WINDOW SPRAY NOZZLE
	SOLENOID VALVE
	TEMPERING / ANTI-SCALD VALVE

EQUIPMENT LIST

QTY.	DESCRIPTION	TYPE	MODEL	CAPACITY	DRIVE	REMARKS
2	POTABLE WATER SUPPLY PUMP SYSTEM	MULTI-STAGE CENTRIFUGAL	-	8 GPM @ 50 PSIG	1 HP 115V/1P/60Hz	SEE NOTES 8 & 9
1	POTABLE WATER PRESSURE TANK	ASME RATED	-	68 GAL 125 PSI	-	-
1	WATER HEATER	ELECTRIC	-	20 GALLONS	208V/1P/60Hz 2 kW	-
1	THERMAL EXPANSION TANK	ASME RATED	-	2 GAL	-	150 PSI MAX 200°F MAX
1	STRAINER 1 1/2" NPS	SIMPLEX BASKET TYPE	-	-	-	BRONZE BODY

GENERAL NOTES (CONT)

- WATER HAMMER ARRESTORS SHALL BE PROVIDED AND INSTALLED IN SUPPLY LINES TO ANY UNIT WHERE SLOW-CLOSING VALVES ARE NOT USED.
- ISOLATION VALVES LOCATED BEHIND LININGS SHALL BE PROVIDED WITH LABELED ACCESS OPENINGS.
- ISOLATION VALVES AND DRAINS SHALL BE PROVIDED FOR ALL PIPING EXPOSED TO WEATHER OR ROUTED THROUGH UNHEATED SPACES. SERVICE SINK FAUCETS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKER AND SPIGOT WITH 1/2" THREADED HOSE END.
- INTEGRATE TANK LEVEL ALARMS WITH SHIP'S ALARM AND MONITORING SYSTEM.
- THE POTABLE WATER PRESSURE TANK SHALL BE FITTED WITH AN 80 PSIG SAFETY RELIEF VALVE. THE HOT WATER HEATER SHALL BE FITTED WITH TEMPERATURE/PRESSURE RELIEF VALVE.
- WHERE COPPER PIPING PENETRATES BULKHEADS OR DECKS, STEEL PENETRATION SLEEVES WITH USCG APPROVED SEALANT AND CRUSHING SLEEVES SHALL BE USED. SEALANT AND SLEEVES SHALL BE RATED FOR WATERTIGHT AND A-60 APPLICATIONS. INSTALL PIPING TRANSITS IN ACCORDANCE WITH MANUFACTURER'S APPROVED INSTALLATION DETAILS.
- MECHANICAL FITTINGS MAY BE SUBSTITUTED FOR WELDED FITTINGS. FITTINGS SHALL BE USCG APPROVED, AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- TOILETS SHALL BE 1.28 GPF AND SHALL BE EQUIPPED WITH FLUSH-O-METER VALVE WITH INTEGRAL VACUUM BREAKER AND CONTROL STOP VALVE. SEE REF 1.
- LEVEL INDICATOR TO PROVIDE INDICATION THROUGH GREATEST RANGE OF TANK LEVEL POSSIBLE.
- MATERIAL TRANSITIONS FROM STEEL TO COPPER PIPE SHALL BE ACCOMPLISHED VIA FLANGED JOINTS. THE JOINTS SHALL BE FITTED WITH GALVANIC ISOLATION KITS TO PREVENT DIRECT METAL TO METAL CONTACT.
- EXTERIOR HOSE BIBS SHALL BE FROST FREE. ALL HOSE BIBS SHALL HAVE VACUUM BREAKERS.
- FIT ALL SINK FAUCETS WITH SUPPLY HOSES AND STOP VALVES AT BULKHEAD.
- PROVIDE MOMENTARY BUTTON IN PILOT HOUSE CONSOLE TO ACTIVATE WINDOW WASHING SPRAY. COLOCATE PUSH BUTTON WITH WIPER CONTROLS FOR SAME WINDOW.
- ALL POTABLE WATER VALVES SHALL BE LOCATED FOR EASY ACCESS.

REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	SHT 1	1. REMOVED PROPRIETARY DETAILS	MWR	7/27/17	LGB

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
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- PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS AND WITH SUFFICIENT TAKE DOWN JOINTS TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING AND REPLACEMENT OF PIPING, VALVES, FITTINGS AND EQUIPMENT.
- AVOID POCKETS IN THE PIPE LINES. BOSSES AND VALVES OR SCREWED PLUGS SHALL BE FITTED TO ENABLE COMPLETE DRAINING OF PIPES WHERE POCKETS DO OCCUR.
- PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO THE BASIC SHIP STRUCTURE. CARE SHALL BE EXERCISED TO PLACE PIPE HANGERS SO THAT THE STRAIN IS AVOIDED WHERE PIPING IS CONNECTED TO MACHINERY. HANGERS SHALL NOT BE ATTACHED BY WELDING DIRECTLY TO PIPES.
- HOT & COLD WATER PIPING TO BE INSULATED ACCORDING TO REF 1.
- HOT WATER THERMOSTAT SETTINGS NOT TO EXCEED 140° F.
- THE POTABLE WATER PRESSURE PUMP SYSTEM SHALL BE SUPPLIED WITH INTEGRAL PRESSURE SWITCHES TO CONTROL THE PUMP OPERATION. THE PRESSURE SWITCHES SHALL BE SET TO START THE PUMP AT 40 PSI AND STOP IT AT 60 PSI. THE PUMP SHALL HAVE AN INTEGRAL CHECK VALVE.
- THE POTABLE WATER SYSTEM SHALL BE SUPPLIED WITH TWO PRESSURE PUMPS. NORMAL OPERATION IS ONE PUMP PRESSURIZING THE SYSTEM AND THE SECOND PUMP ON STANDBY.
- TEMPERATURE TRANSDUCERS AND OTHER TEMPERATURE SENSING DEVICES SHALL BE INSTALLED IN THERMOWELLS.
- AFTER INSTALLATION & TESTING THE SYSTEM SHALL BE CLEANED, SANITIZED & FLUSHED IN ACCORDANCE WITH USPHS REQUIREMENTS. SEE REF 1.

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-506-1 FILLS, VENTS, AND SOUNDS
- 16101-200-201-1 MACHINERY ARRANGEMENT



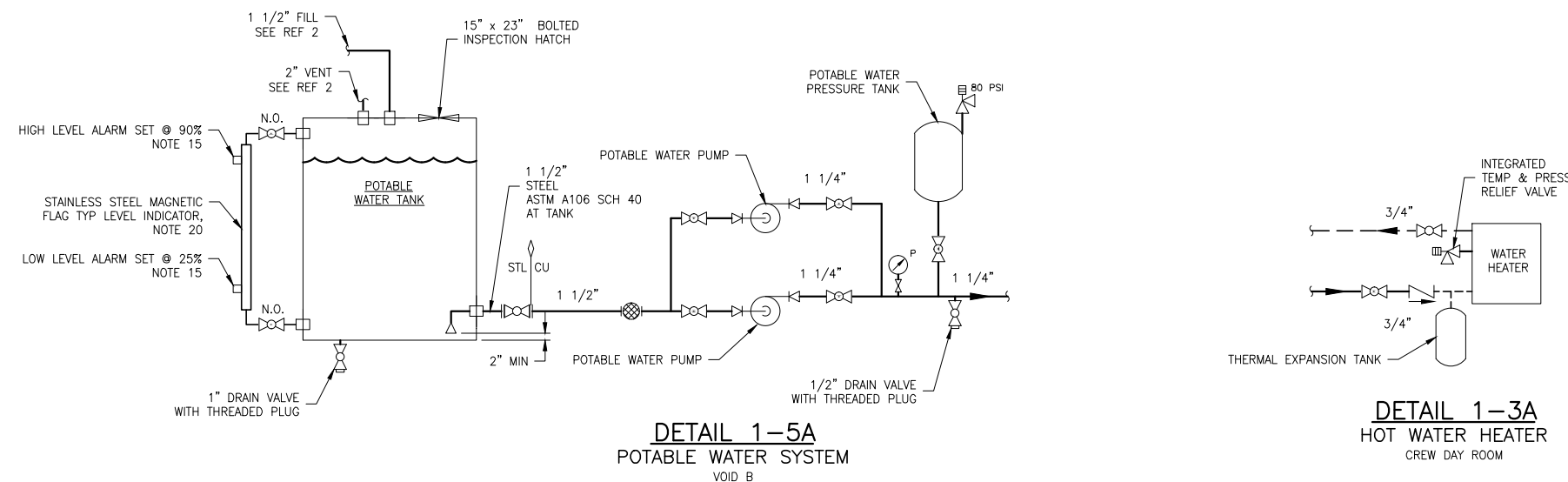
Elliott Bay Design Group
 North Carolina, PLLC

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



TITLE: POTABLE AND SANITARY WATER PIPING SCHEMATIC

SIZE	DWG NO.	REV
D	16101-200-533-1	A
SCALE: NTS	FILE NAME: 16101-200-533-1A	SHEET 1 OF 2
DWN: MWR	MOD: NUB	APVD: LGB
		APVD DATE: 7/21/17



DETAIL 1-5A
 POTABLE WATER SYSTEM
 VOID B

DETAIL 1-3A
 HOT WATER HEATER
 CREW DAY ROOM



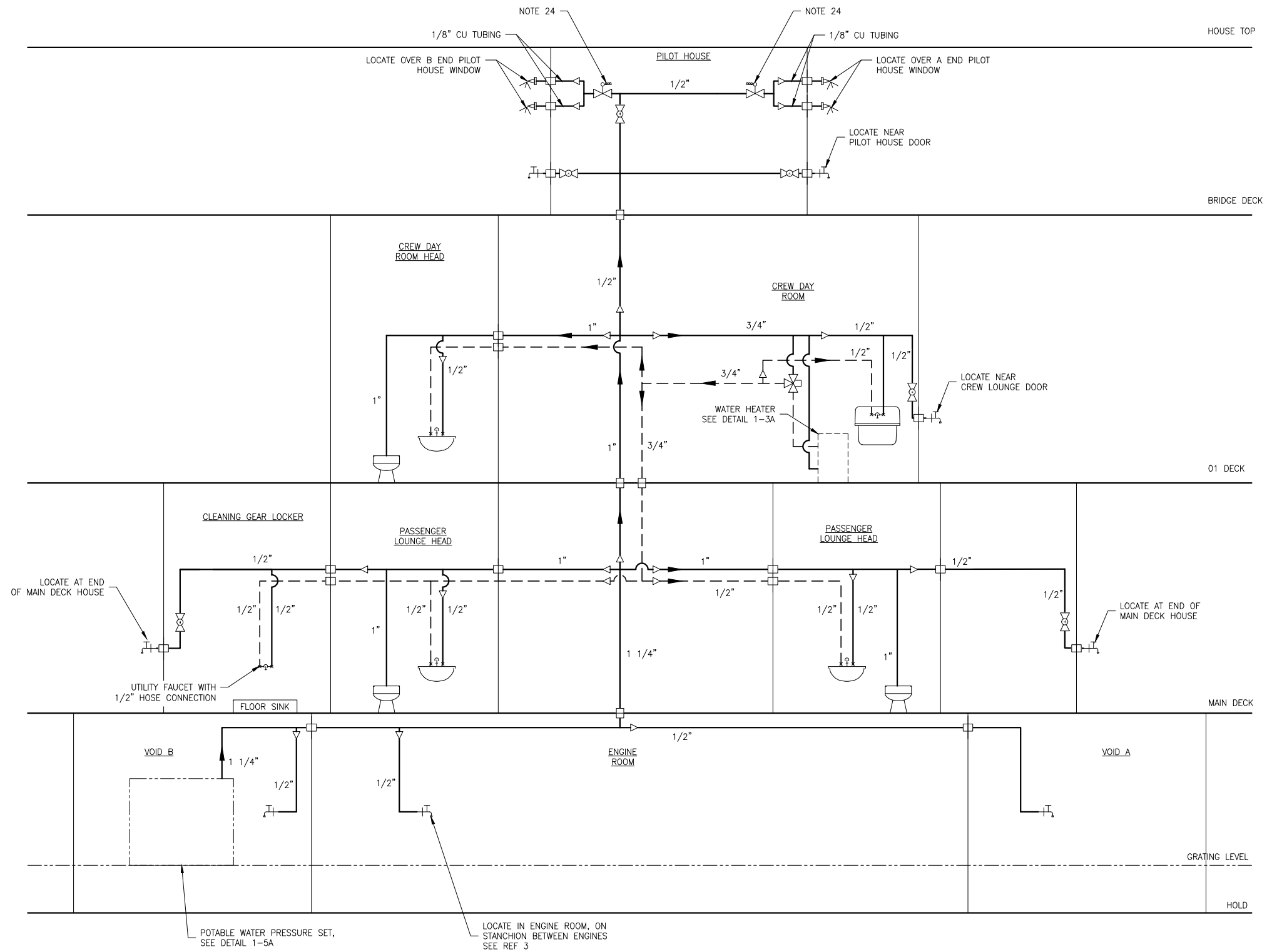


DIAGRAM 2-3A
 POTABLE & SANITARY WATER SYSTEM



SIZE	D	DWG NO.	16101-200-533-1	REV	A
SCALE	NTS	FILE NAME	16101-200-533-1A	SHEET	2 OF 2

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GENERAL NOTES (CONT)

REVISION HISTORY

10. STRAINERS SHALL PROTECT REDUCING STATIONS AND OTHER ITEMS OF EQUIPMENT SUPPLIED WITH COMPRESSED AIR.
11. FIRE SUPPRESSION SYSTEM SHALL BE SIZED TO INCLUDE THE VOLUME OF FREE AIR CONTAINED IN THE AIR RECEIVERS.
12. REDUCING STATION RELIEFS SHALL BE SET TO 10% ABOVE REDUCING STATION OUTLET PRESSURE. ROUTE RELIEF LINES TO THE BILGE.
13. WHERE PIPES PENETRATE TANK BOUNDARIES, BULKHEADS, OR DECKS HEAVY WEIGHT SPOOL PIECES OR AN ALTERNATE APPROVED PENETRATION FITTING SHALL BE USED. SEE DETAIL 1-6A.
14. LOW POINTS SHALL BE FITTED WITH DIRT LEGS AND DRAIN VALVES.
15. SERVICE AIR STATIONS REGULATORS SHALL BE EQUIPPED WITH PRESSURE GAUGE AND FILTER, CAPABLE OF UP TO 14 SCFM, ADJUSTABLE FROM 5 TO 125 PSIG.
16. REDUCING STATIONS SHALL INCLUDE A RELIEVING PRESSURE-REDUCING VALVE PRECEDED BY A WHY STRAINER, ISOLATION VALVES, AND A GLOBE BYPASS VALVE.
17. INTEGRATE AIR SUPPLY PRESSURE SENSORS WITH SHIP'S ALARM AND MONITORING SYSTEM. CONFIGURE FOR LOW PRESSURE ALARM. SEE REF 1.
18. COMPRESSORS SHALL BE SUPPLIED MOUNTED ON HORIZONTAL AIR RECEIVERS.

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

MATERIAL SCHEDULE

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			VALVES		FITTINGS	FLEXIBLE CONNECTIONS
			MATERIAL	GASKETS	BOLTING	BODY	TRIM		
COMPRESSED AIR MAWP: 165 PSIG	ALL	CARBON STEEL ASTM A53 OR A106, GRADE B, SEAMLESS ANSI B36.10 SCH 80	UNION, GROUND JOINT CARBON STEEL ASTM A105, 3000# MSS-SP-83 SOCKET WELD	-	-	BALL: CARBON STEEL ASTM A105, SOCKET WELD OR THREADED GATE, GLOBE, CHECK: CARBON STEEL ASTM A105 SOCKET WELD OR THREADED, ANSI B16.34	BALL: STAINLESS STEEL BALL & STEM, PTFE SEATS & SEALS GATE, GLOBE, CHECK: STAINLESS STEEL	CARBON STEEL ASTM A105, 3000# ANSI B16.11 SOCKET WELD	SEE NOTE 9

EQUIPMENT LIST

QTY.	SERVICE	TYPE	MODEL	CAPACITY	DRIVE	REMARKS
2	SHIP SERVICE COMPRESSOR	2 STAGE RECIPROCATING 828 RPM	-	17 SCFM @ 175 PSI	BELT DRIVE 208 VAC/3φ/60 Hz 5 HP TEFC MOTOR	NOTE 18
2	SHIP SERVICE RECEIVER	HORIZONTAL AIR RECEIVER	-	80 GAL SEE NOTE 11	-	ASME RATED TO 200 PSIG NOTES 8 & 18
2	SHIP'S HORN	AIR HORN	-	29 CFM 100 PSIG	-	WITH COMBINATION MANUAL/SOLENOID VALVE
1	AIR FILTER	COALESCING	-	5 CFM 80 PSIG	-	5 MICRON W/ OIL REMOVAL
1	AIR DRYER	DESICCANT CARTRIDGE	-	5 CFM 80 PSIG	-	-

SYMBOLS LIST

	PIPE
	BHD PENETRATION
	REDUCER
	BALL VALVE
	GLOBE VALVE
	LIFT CHECK VALVE
	SAFETY RELIEF VALVE
	STOP CHECK VALVE
	COMBINATION MANUAL/SOLENOID VALVE
	PRESSURE REGULATING VALVE
	FLEXIBLE CONNECTION
	STRAINER, WYE TYPE
	AIR COMPRESSOR
	QUICK DISCONNECT
	PRESSURE SWITCH
	PRESSURE TRANSDUCER
	PRESSURE GAUGE, LOCAL READING
	AIR FILTER
	AIR DRYER, CARTRIDGE TYPE
	AIR REGULATOR W/PRESSURE GAUGE

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURER'S CERTIFIED DRAWINGS AS APPROPRIATE.
3. PIPING SHALL BE RUN AS DIRECTLY AS PRACTICABLE WITH A MINIMUM NUMBER OF BENDS AND FITTINGS. PIPE SPOOLS SHALL BE SIZED AND ARRANGED TO PROVIDE FOR REMOVAL, INSPECTION, SERVICING, AND REPLACEMENT OF PIPING, VALVES, FITTINGS, AND EQUIPMENT WITHOUT CUTTING STRUCTURE OR PIPING.
4. PIPING SHALL BE ADEQUATELY SUPPORTED BY HANGERS IN ACCORDANCE WITH ASTM F708. HANGERS SHALL BE ATTACHED TO THE PIPE WITH BOLTED CLAMPS AND WELDED TO BASIC SHIP STRUCTURE. HANGERS SHALL NOT BE WELDED DIRECTLY TO PIPES.
5. THE PIPING SYSTEM SHALL BE CLEANED, FLUSHED, FILLED AND HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH USCG REQUIREMENTS. SEE REF 1.
6. AIR COMPRESSORS SHALL BE CONFIGURED FOR A LEAD/LAG OPERATION. THE LEAD COMPRESSOR SHALL START AT 130 PSI AND STOP AT 150 PSI. THE LAG COMPRESSOR SHALL START AT 100 PSI AND STOP AT 150 PSI.
7. THE SUPPLY AND DISCHARGE CONNECTIONS TO EACH 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.
8. AIR RECEIVERS SHALL BE DESIGNED, CERTIFIED AND STAMPED FOR 200 PSI WORKING PRESSURE IN ACCORDANCE WITH ASME & 46 CFR 54. RECEIVERS SHALL BE MOUNTED IN SUCH A WAY THAT UNDER THE MOST EXTREME TRIMMING CONDITIONS, THE DRAIN WILL SAY AT THE LOWEST POINT. ACCESS FOR CLEANING SHALL BE PROVIDED.
9. BURSTING PRESSURE OF FLEX CONNECTIONS SHALL BE AT LEAST 5 TIME THE WORKING PRESSURE OR 4 TIMES THE RELIEF VALVE SETTING.

REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION
2. 16101-200-521-1 FIRE MAIN SYSTEM SCHEMATIC
3. 16101-200-529-1 BILGE AND BALLAST SCHEMATIC



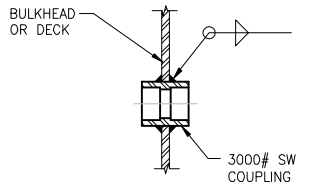
Elliott Bay Design Group
 North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY



TITLE		COMPRESSED AIR PIPING SCHEMATIC	
SIZE	D	DWG NO.	16101-200-551-1
SCALE	NTS	FILE NAME	16101-200-551-1-
DWN	LGB	MOD	
CKD	NJB	APVD	LGB
APVD DATE	7/21/17		

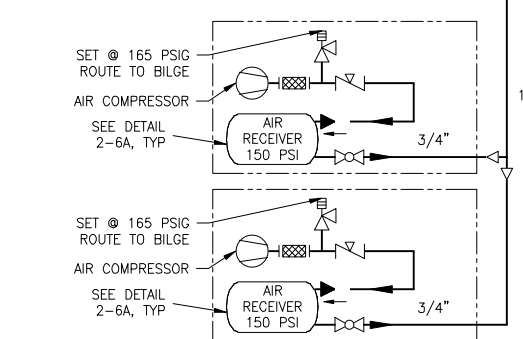
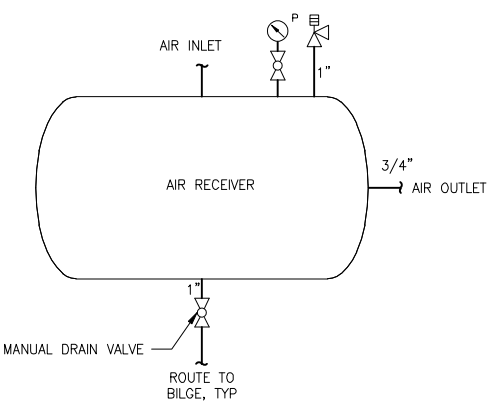


DETAIL 1-6A
 TYP DECK/BHD PENETRATION
 FOR SCH 80 STEEL PIPE 2" AND BELOW

7/21/2017 5:25:52 PM

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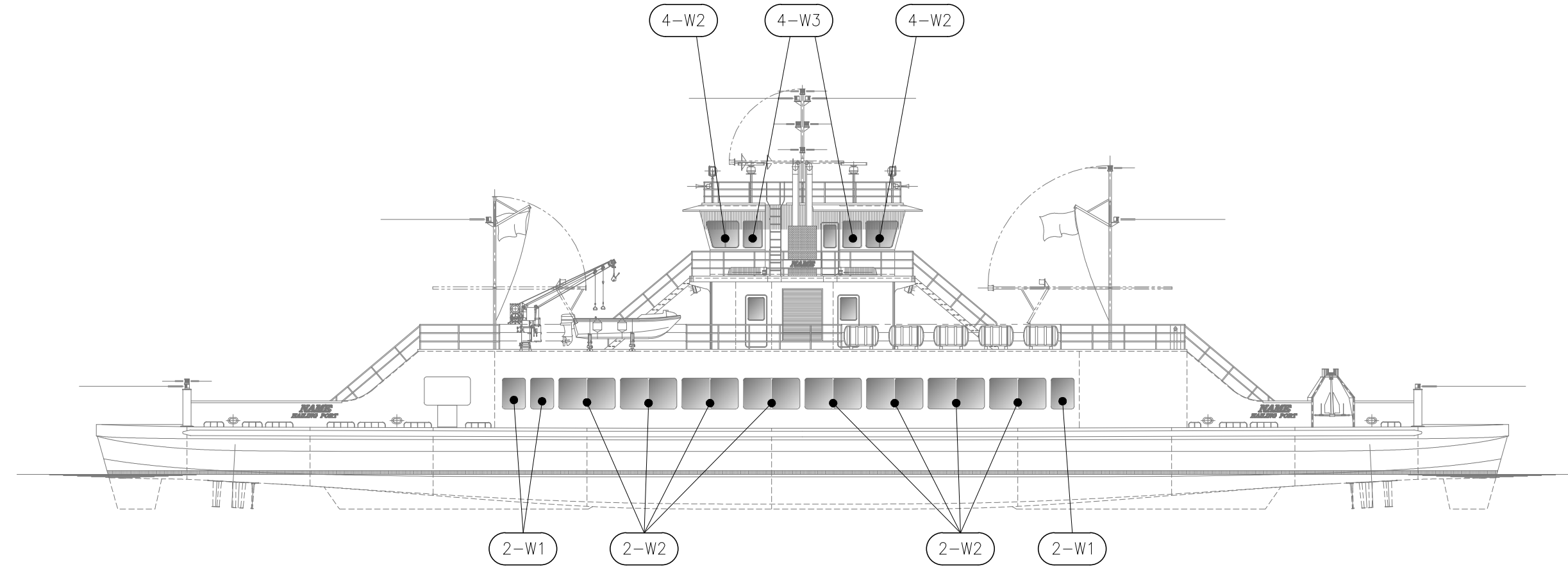
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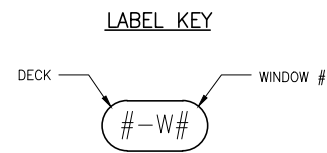
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WINDOW LIST									
NO.	QTY.	DECK	SPACE	FR / A-B	NOMINAL SIZE (W x H)	THICKNESS (in)	FIRE	REMARKS	
1-W1	2	HOLD	EOS	2/B	36 x 35	TBD	A60	WIRE-INSERTED GLASS; GN 6	
1-W2	2	HOLD	EOS	5/B	45 x 35	TBD	A60	WIRE-INSERTED GLASS; GN 6	
2-W1	3	MAIN	PASSENGER LOUNGE	17/A-B	36 x 46	1/4	-	-	
2-W2	8	MAIN	PASSENGER LOUNGE	14A-14B	88 x 46	1/4	-	-	
3-W1	2	01	CREW LOUNGE	5A/6A	36 x 36	1/4	-	-	
3-W2	1	01	CREW LOUNGE	1B	24 x 24	1/4	-	-	
3-W3	1	01	CREW LOUNGE	6B	24 x 24	1/4	-	HORIZONTAL SPLIT, TOP OPEN, PRIVACY GLASS OR SUITABLE TINTED; GN 5	
4-W1	2	BRIDGE	PILOT HOUSE	6A-6B	64 x 40	1/4	-	CUSTOM SHAPE	
4-W2	4	BRIDGE	PILOT HOUSE	5A-5B	43 x 40	1/4	-	CUSTOM SHAPE, SLIDING	
4-W3	7	BRIDGE	PILOT HOUSE	3A-3B	36 x 40	1/4	-	CUSTOM SHAPE	



OUTBOARD PROFILE



REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES

1. VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2. FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.
3. ALL GLASS SHALL BE TEMPERED.
4. WINDOWS IN PASSENGER SPACES SHALL HAVE A FINISHED INTERIOR SILL HEIGHT GREATER THAN THE HEIGHT OF THE PASSENGER SEAT BACKS.
5. WINDOW SHALL BE SPLIT HORIZONTALLY AND THE TOP HALF SHALL OPEN. WINDOW SHALL BE PRIVACY GLASS OR SUITABLY TINTED.
6. EOS WINDOWS SHALL HAVE A MINIMUM STC RATING OF 43.

VESSEL PARTICULARS

LENGTH OVERALL:	183'-7"
LENGTH DESIGN LOAD WATERLINE:	180'-6"
BEAM, MOLDED:	46'-0"
BEAM OVER GUARDS:	46'-10"
DEPTH AT SIDE:	10'-6"
DRAFT AT DLWL:	4'-6"
FREEBOARD AT SIDE:	6'-0"
TOTAL PASSENGER CAPACITY:	300 MAX.
VEHICLE CAPACITY:	40 SV

REFERENCES

1. 16101-200-832-1 TECHNICAL SPECIFICATION
2. 16101-200-101-0 PROFILES AND DECK ARRANGEMENTS



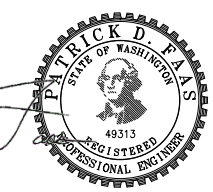
Elliott Bay Design Group
 North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY

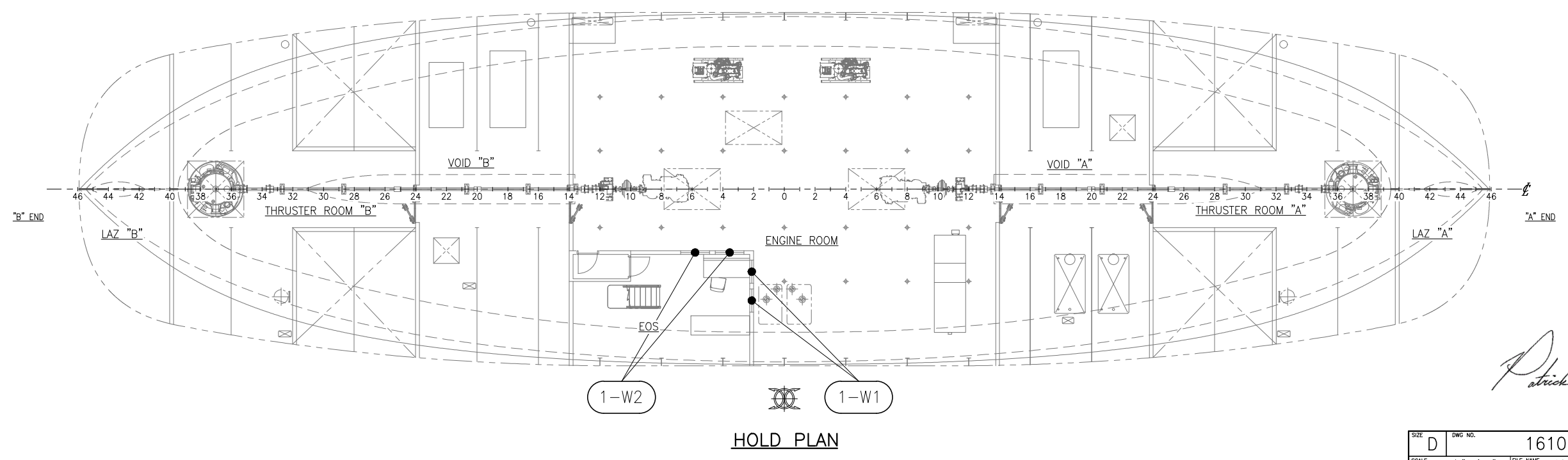
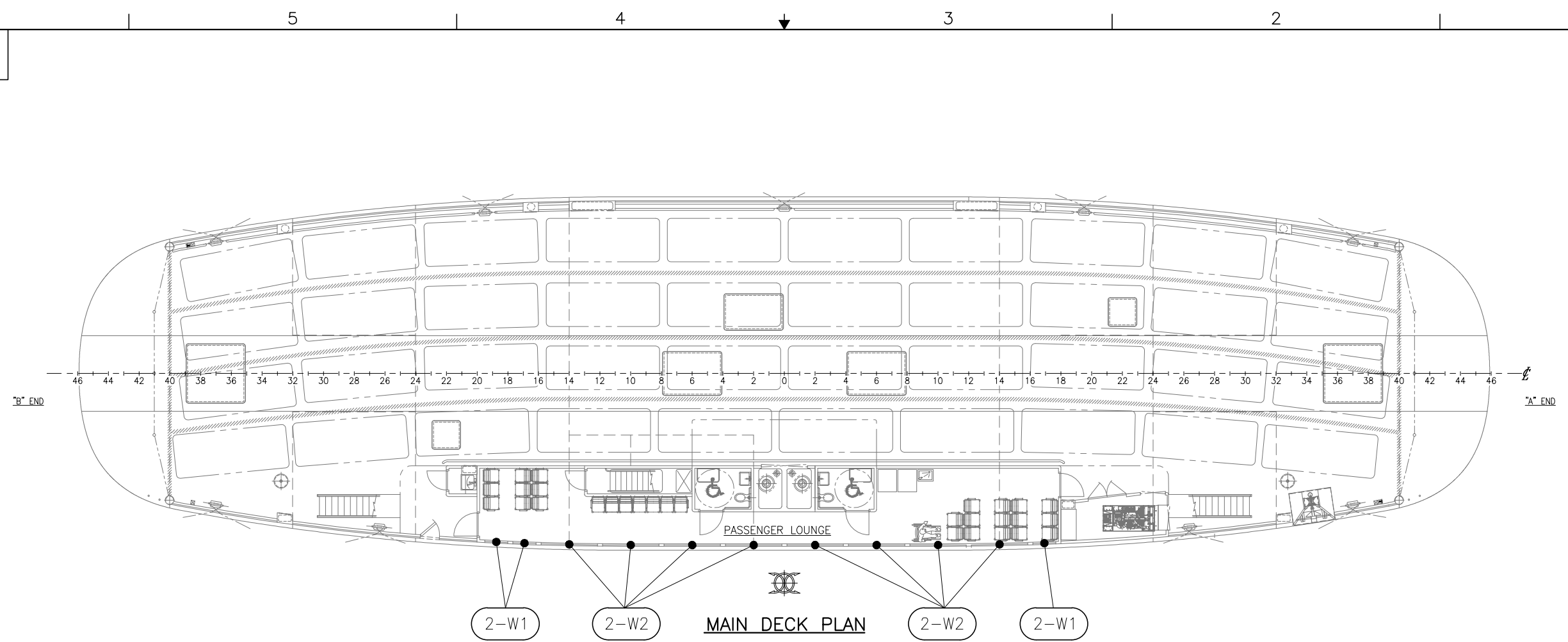
WINDOW SCHEDULE

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SCALE	NONE	FILE NAME	16101-200-624-1-	SHEET	1 OF 3
DWN	MWR	MOD	CND PDF	APVD	PDF
				APVD DATE	7/28/2017



Patrick

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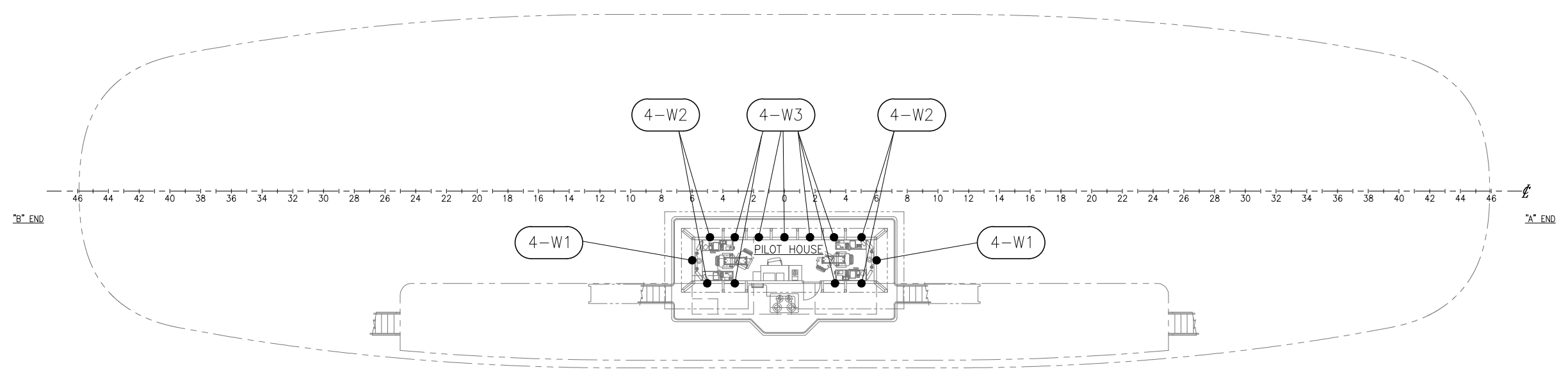
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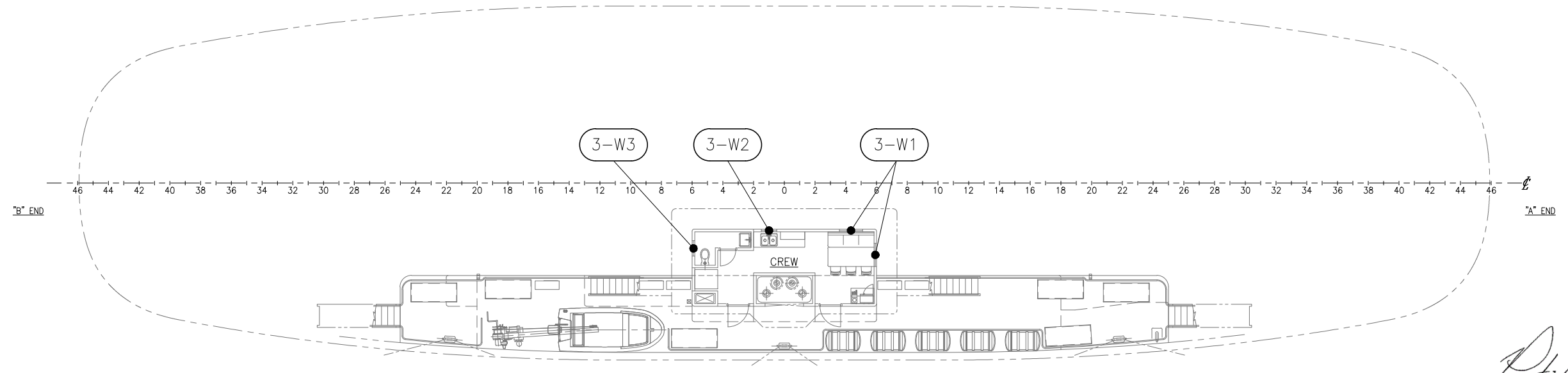
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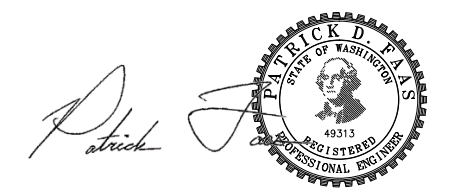
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BRIDGE DECK PLAN



01 DECK PLAN



SIZE	D	DWG NO.	16101-200-624-1	REV	-
SCALE	1/8"=1'-0"	FILE NAME	16101-200-624-1-	SHEET	3 OF 3

6 5 4 3 2 1

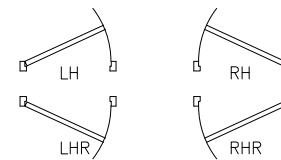
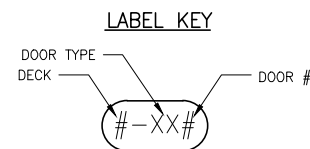
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JOINER DOOR LIST										
NO.	DECK	SPACE	FR-END/P-S	SIZE	FIRE	SWING	SILL	LOCK	WINDOW	REMARKS
1-JD1	HOLD	EOS	10-B/S	30 x 80	A-0	LHR	0	NONE	10 x 10	CLOSER, 10"x10" WINDOW
1-JD2	HOLD	EOS	13-B/S	30 x 80	A-0	RHR	0	NONE	10 x 10	CLOSER, 10"x10" WINDOW
2-JD1	MAIN DECK	PASSENGER ADA HEAD	8-A/S	36 x 80	B-0	LH	0	PRIVACY	NONE	CLOSER, 12"x12" LOUVER DOOR, ADA POWER ASSIST
2-JD2	MAIN DECK	PASSENGER ADA HEAD	5-B/S	36 x 80	B-0	RH	0	PRIVACY	NONE	CLOSER, 12"x12" LOUVER DOOR, ADA POWER ASSIST
3-JD1	01 DECK	CREW HEAD	4-B/S	24 x 80	B-0	RH	0	PRIVACY	NONE	CLOSER, 12" x 12" LOUVER DOOR

WEATHERTIGHT DOOR LIST										
NO.	DECK	SPACE	FR-END/P-S	SIZE	FIRE	SWING	SILL	LOCK	WINDOW	REMARKS
2-WE1	MAIN DECK	EMERGENCY GENERATOR RM	21-A/S	60 x 74	A-0	DBL SWING	6	CIPHER	NONE	
2-WE2	MAIN DECK	PASSENGER LOUNGE	18-A/S	36 x 80	A-0	RH	1/2" MAX	NONE	28 x 34	TONNAGE OPENING; ADA ACCESS; GENERAL NOTE 7
2-WE3	MAIN DECK	PASSENGER LOUNGE	20-B/S	36 x 80	A-0	LH	1/2" MAX	NONE	28 x 34	TONNAGE OPENING; ADA ACCESS; GENERAL NOTE 7
2-WE4	MAIN DECK	CLEANING LOCKER	22-B/S	30 x 77	A-0	LHR	3	KEY	NONE	CLOSER
2-WE5	MAIN DECK	ENGINE ROOM ACCESS	13-B/S	30 x 77	A-15	LHR	3	CIPHER	NONE	CLOSER
3-WE1	01 DECK	CREW SPACE	3-A/S	32 x 77	A-0	LH	3	NONE	24 x 34	CLOSER
3-WE2	01 DECK	CREW SPACE	3-B/S	32 x 77	A-0	RH	3	NONE	24 x 34	CLOSER
4-WE1	BRIDGE DECK	PILOTHOUSE	3-A/S	26 x 74	A-0	LH	6	CIPHER	NONE	CLOSER

WATERTIGHT DOOR LIST										
NO.	DECK	SPACE	FR-END/P-S	SIZE	FIRE	SWING	SILL	LOCK	REMARKS	
1-WT1	HOLD	THRUSTER ROOM "A"	24-A/S	32 x 66	A-0	LH	6	NONE	STEEL, QUICK ACTING, SIX OR EIGHT DOG	
1-WT2	HOLD	ENGINE ROOM "A"	12-A/S	30 x 72	A-0	RH	6	NONE	STEEL, QUICK ACTING, SIX OR EIGHT DOG	
1-WT3	HOLD	ENGINE ROOM "B"	12-B/S	30 x 72	A-0	RH	6	NONE	STEEL, QUICK ACTING, SIX OR EIGHT DOG	
1-WT4	HOLD	THRUSTER ROOM "B"	24-B/S	32 x 66	A-0	LH	6	NONE	STEEL, QUICK ACTING, SIX OR EIGHT DOG	



SECURE SIDE
DETAIL 1-3A
 HANDING GUIDE
 NO SCALE



REVISION HISTORY					
REV	ZONE	DESCRIPTION	DWN	DATE	APVD

GENERAL NOTES	
1.	VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
2.	FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.
3.	DOOR HANDEDNESS LISTED ON TABLES IS DETERMINED FROM A POSITION ON THE SECURE SIDE OF THE DOOR. SEE DETAIL 1-3A.
4.	ALL DOOR HANDLES IN PUBLIC SPACES ARE TO BE BEST ACCESS SYSTEMS LEVER TYPE. ALL LOCK SETS ARE TO BE CLASSROOM TYPE (ANSI F84) TO ALLOW CREW AND PASSENGER ESCAPE.
5.	FINAL KEY CORES AND CIPHER LOCKS WILL BE OWNER FURNISHED EQUIPMENT.
6.	WATERTIGHT DOORS ARE TO HAVE WELDED FRAMES. ALL OTHER DOOR FRAMES TO BE BOLTED IN.
7.	MAIN DECK PASSENGER DOORS TO BE FITTED WITH INTERIOR PANIC BARS AND HEAVY DUTY HYDRAULIC CLOSERS (CLOSE IN 30 KNOT WINDS).

VESSEL PARTICULARS	
LENGTH OVERALL:	183'-7"
LENGTH DESIGN LOAD WATERLINE:	180'-6"
BEAM, MOLDED:	46'-0"
BEAM OVER GUARDS:	46'-10"
DEPTH AT SIDE:	10'-6"
DRAFT AT DLWL:	4'-6"
FREEBOARD AT SIDE:	6'-0"
TOTAL PASSENGER CAPACITY:	300 MAX.
VEHICLE CAPACITY:	40 SV

REFERENCES	
1.	16101-200-832-1 TECHNICAL SPECIFICATION
2.	16101-200-101-0 PROFILES AND DECK ARRANGEMENTS



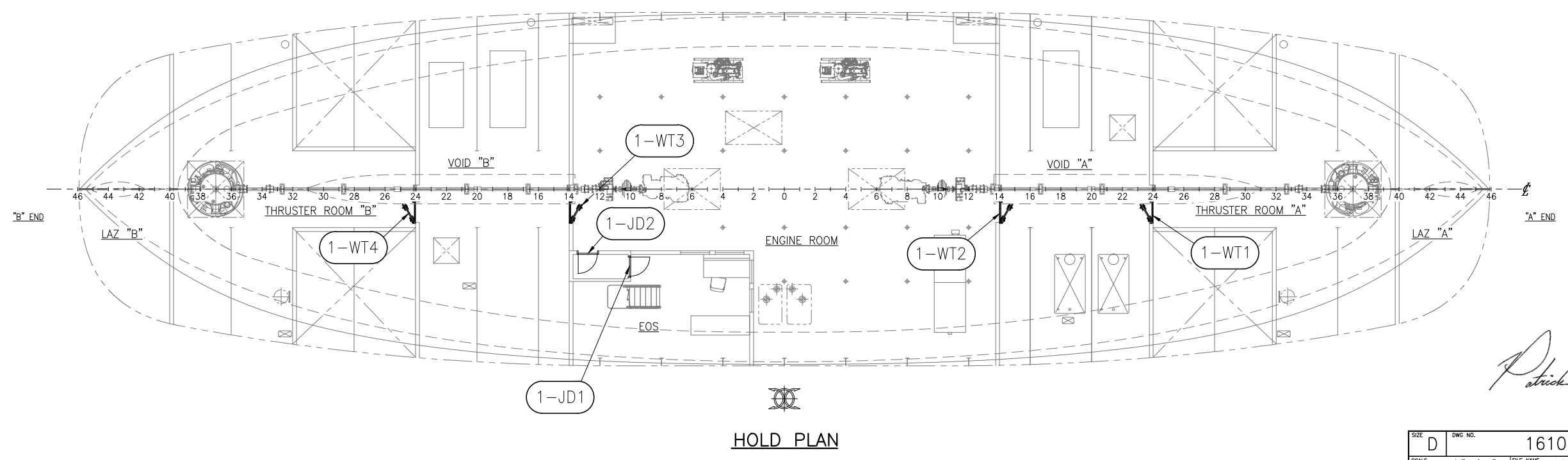
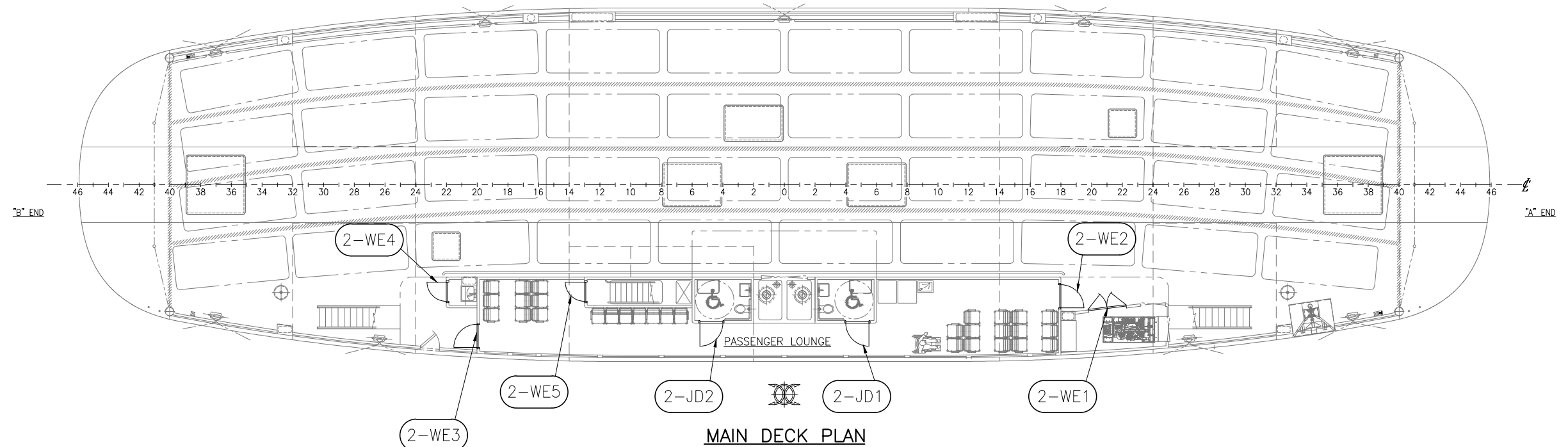
Elliott Bay Design Group
 North Carolina, PLLC

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

PROJECT: NEW RIVER CLASS FERRY

DOOR SCHEDULE					
SIZE	D	DWG NO.	16101-200-624-2	REV	-
SCALE	NONE	FILE NAME	16101-200-624-2-	SHEET	1 OF 3
DWN	JEH	MOD	MWR	CRD	PDF
APVD	PDF	APVD DATE	7/28/2017		

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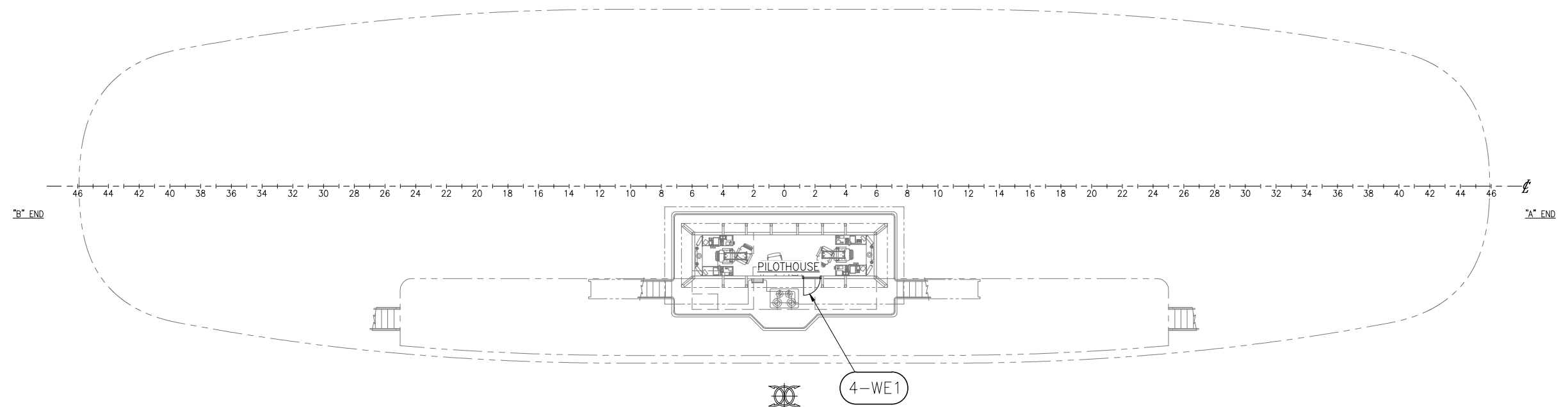
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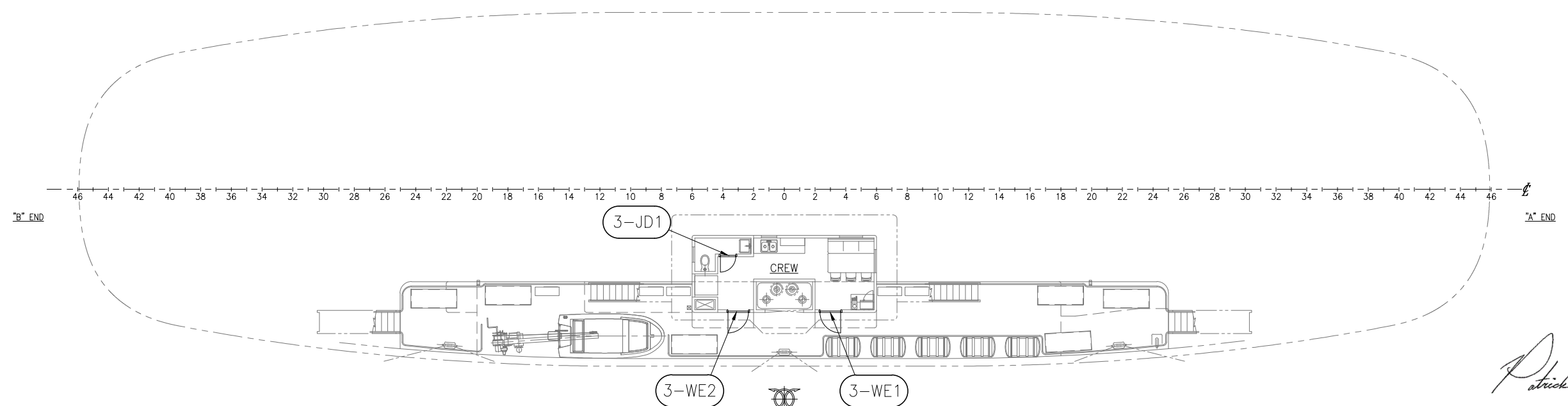
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D
C
B
A

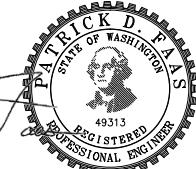
D
C
B
A



BRIDGE DECK PLAN



01 DECK PLAN

Patrick J. ...


SIZE	D	DWG NO.	16101-200-624-2	REV	-
SCALE	1/8"=1'-0"	FILE NAME	16101-200-624-2-	SHEET	3 OF 3

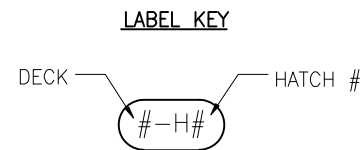
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6
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HATCH LIST						
NO.	DECK	SPACE	FR-END/P-S	SIZE	COAMING	REMARKS
1-H1	HOLD	POTABLE WATER TANK (P)	22-B/P	15 x 23	2.5	RAISED, BOLTED, WATER TIGHT
1-H2	HOLD	FUEL OIL TANK (A)	18-A/P	15 x 23	2.5	RAISED, BOLTED, OIL TIGHT
1-H3	HOLD	FUEL OIL TANK (B)	18-B/P	15 x 23	2.5	RAISED, BOLTED, OIL TIGHT
2-H1	MAIN	BOW VOID	40-A/S	15 x 23	0	FLUSH, HINGED, WATER TIGHT, BOLTED
2-H2	MAIN	VOITH UNIT ACCESS	37-A/C	88 x 88	0	EQUIPMENT REMOVAL CAR DECK PLATE, FLUSH, SCREWED, WATER TIGHT
2-H3	MAIN	BALLAST TANK (P)	29-A/P	15 x 23	0	FLUSH, HINGED, WATER TIGHT, BOLTED
2-H4	MAIN	BALLAST TANK (S)	29-A/S	15 x 23	0	FLUSH, HINGED, WATER TIGHT, BOLTED
2-H5	MAIN	THRUSTER ROOM "A" ESCAPE	32-A/S	22 DIA	0	FLUSH, HINGED, WATER TIGHT, QUICK ACTING, SPRING ASSIST
2-H6	MAIN	MAIN ENGINE ACCESS	6-A/C	64 x 88	0	EQUIPMENT REMOVAL CAR DECK PLATE, A-80, FLUSH, SCREWED, WATER TIGHT, REF 3
2-H7	MAIN	EXHAUST ACCESS	0/S	72 x 84	0	STUD, X2 HANDLE, EQUIPMENT REMOVAL PLATE, WATER TIGHT
2-H8	MAIN	ENG. RM. MACHINERY ACCESS	2-B/P	52 x 88	0	EQUIPMENT REMOVAL CAR DECK PLATE, A-80, FLUSH, SCREWED, WATER TIGHT, REF 3
2-H9	MAIN	MAIN ENGINE ACCESS	6-B/C	64 x 88	0	EQUIPMENT REMOVAL CAR DECK PLATE, A-80, FLUSH, SCREWED, WATER TIGHT, REF 3
2-H10	MAIN	VOID "B" MACHINERY ACCESS	22-B/S	40 x 40	0	EQUIPMENT REMOVAL CAR DECK PLATE, FLUSH, SCREWED, WATER TIGHT, REF 3
2-H11	MAIN	BALLAST TANK (P)	29-B/P	15 x 23	0	FLUSH, HINGED, WATER TIGHT, BOLTED
2-H12	MAIN	BALLAST TANK (S)	29-B/S	15 x 23	0	FLUSH, HINGED, WATER TIGHT, BOLTED
2-H13	MAIN	THRUSTER ROOM "B" ESCAPE	32-B/S	22 DIA	0	FLUSH, HINGED, WATER TIGHT, QUICK ACTING, SPRING ASSIST
2-H14	MAIN	VOITH UNIT ACCESS	37-B/C	88 x 88	0	EQUIPMENT REMOVAL CAR DECK PLATE, FLUSH, SCREWED, WATER TIGHT, REF 3
2-H15	MAIN	BOW VOID	40-B/S	15 x 23	0	FLUSH, HINGED, WATER TIGHT
2-H16	MAIN	VOID "A" MACHINERY ACCESS	22-A/P	40 x 40	0	EQUIPMENT REMOVAL CAR DECK PLATE, FLUSH, SCREWED, WATER TIGHT, REF 3
2-H17	MAIN	ANCHOR CHAIN STORAGE	34A-S	15 x 23	0	BOLTED
2-H18	MAIN	VOID "B" ESCAPE	21-B/S	22 DIA	0	FLUSH, HINGED, WATER TIGHT, QUICK ACTING, SPRING ASSIST

A1



STAMP
PROFESSIONAL ENGINEER
STAMP PER:
REV: -
ENGR: PATRICK D. FAAS
DATED: 07/27/2017
STATE: WA
REG NO: 49313

A1



FOR REV A ONLY

08/31/2017

1 REVISION HISTORY

REV	ZONE	DESCRIPTION	DWN	DATE	APVD
A	1-6C 2-4C	1. UPDATED PE STAMP FOR REV A. 2. ADDED HATCH AT FR 21 B END STBD.	DKG	08/31/17	KAJ

GENERAL NOTES

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS.
- FRAME SPACING IS 24" UNLESS NOTED OTHERWISE.
- ALL HATCHES ARE TO BE GASKETED, WATERTIGHT. FLUSH HATCHES ON CAR DECK ARE TO USE ADDITIONAL SEALING COMPOUND TO ENSURE WATERTIGHT FIT.
- SEE REF 3 FOR B.E.R.P. HATCH STRUCTURE.
- ESCAPE HATCHES SHALL BE PAINTED IN A BRIGHT COLOR CONTRASTING THE DECK.

VESSEL PARTICULARS

LENGTH OVERALL:	183'-7"
LENGTH DESIGN LOAD WATERLINE:	180'-6"
BEAM, MOLDED:	46'-0"
BEAM OVER GUARDS:	46'-10"
DEPTH AT SIDE:	10'-6"
DRAFT AT DLWL:	4'-6"
FREEBOARD AT SIDE:	6'-0"
TOTAL PASSENGER CAPACITY:	300 MAX.
VEHICLE CAPACITY:	40 SV

REFERENCES

- 16101-200-832-1 TECHNICAL SPECIFICATION
- 16101-200-101-0 PROFILES AND DECK ARRANGEMENTS
- 16101-200-130-2 MAIN DECK



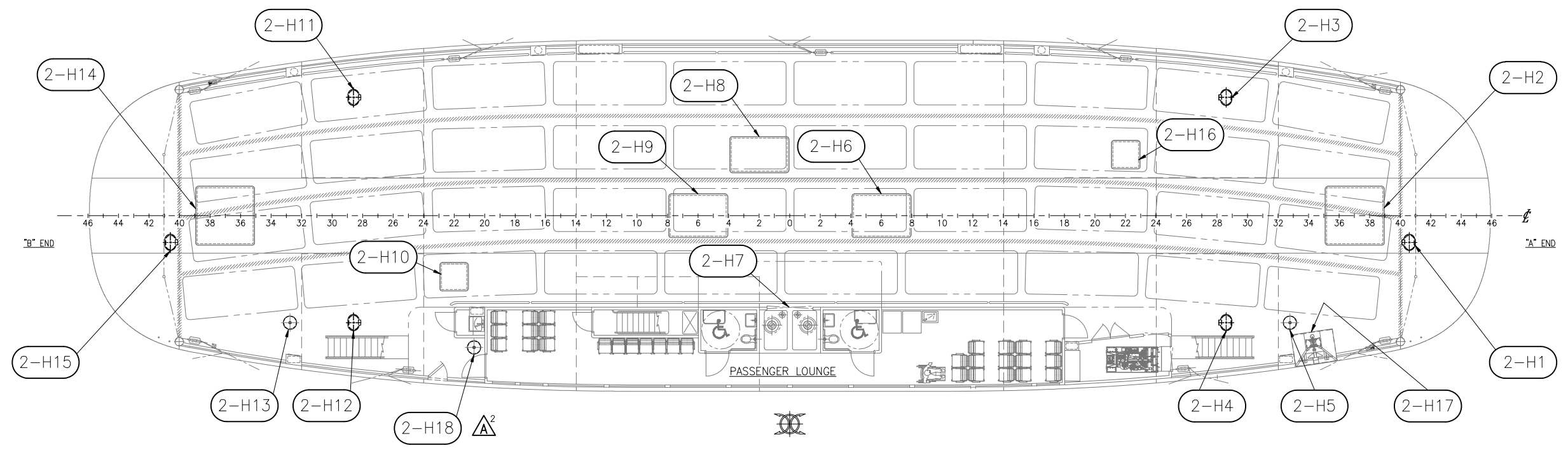
Elliott Bay Design Group
North Carolina, PLLC

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

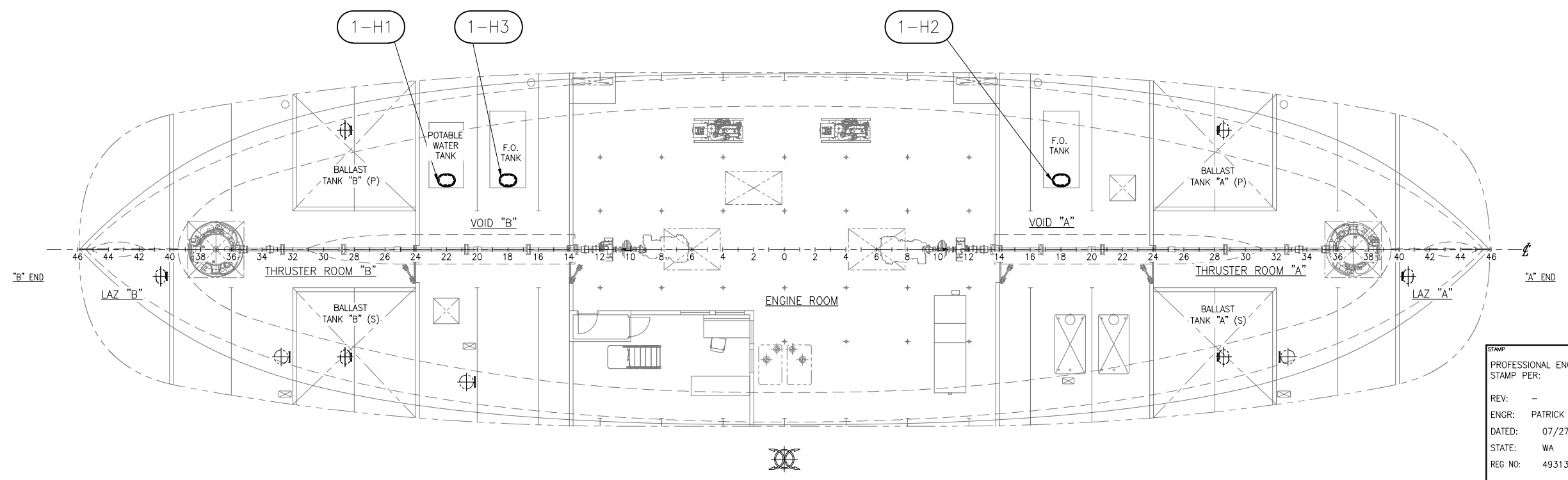
HATCH SCHEDULE

SIZE	DWG NO.	REV
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SCALE: NONE	FILE NAME: 16101-200-624-3A	SHEET 1 OF 2
DWN: JEH	MOD: MWR	CKD: PDF
APVD: KAJ	APVD DATE: 7/27/2017	

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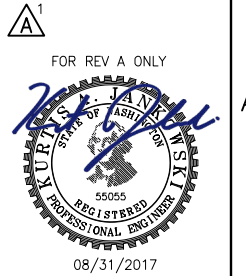


MAIN DECK PLAN



HOLD PLAN

STAMP
 PROFESSIONAL ENGINEER
 STAMP PER:
 REV: -
 ENGR: PATRICK D. FAAS
 DATED: 07/27/2017
 STATE: WA
 REG NO: 49313



SIZE	D	DWG NO.	16101-200-624-3	REV	A
SCALE	1/8"=1'-0"	FILE NAME	16101-200-624-3A	SHEET	2 OF 2