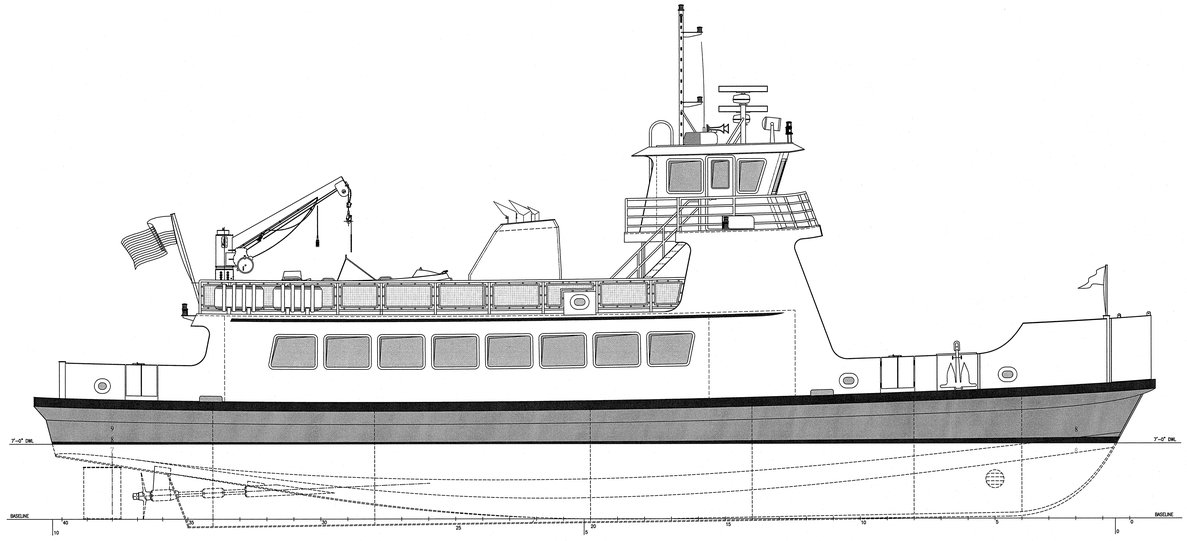
State of Maine Department of Transportation
104 Foot LOA Passenger/Vehicle Ferry
Project No. WIN 024897.10
State Ferry Vessel Replacement

CONTRACT DRAWINGS

DWG. NO.	DESCRIPTION
D367–A1	GENERAL ARRANGEMENTS
D367–A2	INBOARD PROFILE
D367–A3	OUTBOARD PROFILE
D367–A4	EMERGENCY EVACUATION PLAN
D367–A5	REGULATORY TONNAGE PLAN
D367–A7	DOOR, WINDOW, AND HATCH SCHEDULE
D367–A8	COLREGS PLAN
D367–A9	ENGINE ROOM ARRANGEMENT
D367–A12	MOORING FITTINGS, ANCHOR AND BULWARK DETAILS
D367–S1	STRUCTURAL PROFILE
D367–S2	CONSTRUCTION SECTIONS BELOW MAIN DECK
D367–S3	CONSTRUCTION SECTIONS ABOVE MAIN DECK
D367–S4	TRANSVERSE AND LONGITUDINAL BULKHEADS BELOW MAIN DECK
D367–S5	LONGITUDINAL & TRANSVERSE BULKHEADS ABOVE MAIN DECK
D367–S6	SHELL EXPANSION
D367–S7	DECK SCANTLINGS
D367–S9	MAIN ENGINE FOUNDATION AND ARRANGEMENT DETAILS
D367–S12	RAILING, LADDERS & STAIRWAY DETAILS AND ARRANGEMENTS
D367–S13	BOW DOOR LOADING GATE DETAILS
D367–M1	PROPELLER SHAFTING ARRANGEMENT & DETAILS
D367–M2	RUDDER & STEERING ARRANGEMENT AND DETAILS
D367–M5	RESCUE BOAT DAVIT ARRANGEMENT AND FOUNDATION DETAILS
D367–M7	ENGINE ROOM VENTILATION PLAN
D367–M9	HVAC SYSTEM ARRANGEMENT AND DETAILS
D367–M10	MAIN ENGINE & GEARBOX COOLER ARRANGEMENTS
D367–P1	MAIN ENGINE, GENERATOR, BOW THRUSTER & EXHAUST ARRANGEMENTS
D367–P3	DECK DRAINS ONE LINE PIPING SCHEMATIC AND DETAILS
D367–P4	FUEL OIL ONE–LINE PIPING SCHEMATIC & MANIFOLD DETAILS
D367–P5	POTABLE WATER ONE–LINE PIPING SCHEMATIC
D367–P6	DRAIN, WASTE, & FLUSHING ONE–LINE PIPING SCHEMATIC
D367–P7	FIRE MAIN SYSTEM ONE–LINE PIPING SCHEMATIC
D367–P9	BILGE SYSTEM PIPING SCHEMATIC AND SEACHEST DETAILS
D367–P10	COMPRESSED AIR, ONE–LINE PIPING SCHEMATIC
D367–P11	LUBE OIL AND DIRTY OIL ONE–LINE PIPING SCHEMATIC
D367–P12	VENTS, FILLS, & SOUND TUBE PIPE SCHEMATIC & DETAILS
D367–P13	PILOTHOUSE HVAC ARRANGEMENT
D367–P14	KEEL COOLING ONE–LINE PIPING SCHEMATIC
D367–P15	HVAC BOILER WATER PIPE SCHEMATIC
D367–T1	LINES PLAN
D367–T3	FLOODABLE LENGTH PLAN
D367–T9	WELD SCHEDULE
D367–E1	ELECTRICAL ONE–LINE DIAGRAM
D367–E2	ELECTRICAL LIGHTING GUIDANCE PLAN



PRINCIPAL CHARACTERISTICS

LENGTH BET. PERP.	98'–6 1/2"
LENGTH ON DECK	104'–0"
MOLDED BEAM	28'–6"
MOLDED DEPTH	11'–0"
MOLDED DRAFT @DWL	7'–0"
NUMBER OF PASSENGERS	149
APPLICABLE USCG REG	SUBCHAPTER T

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

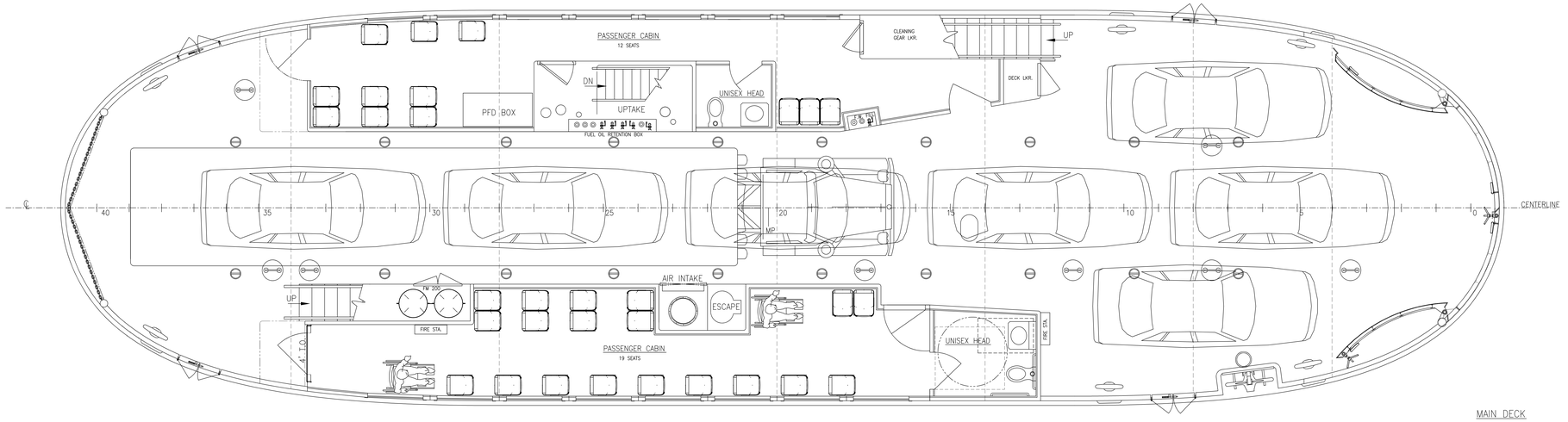
104 FT LOA PASSENGER/VEHICLE FERRY

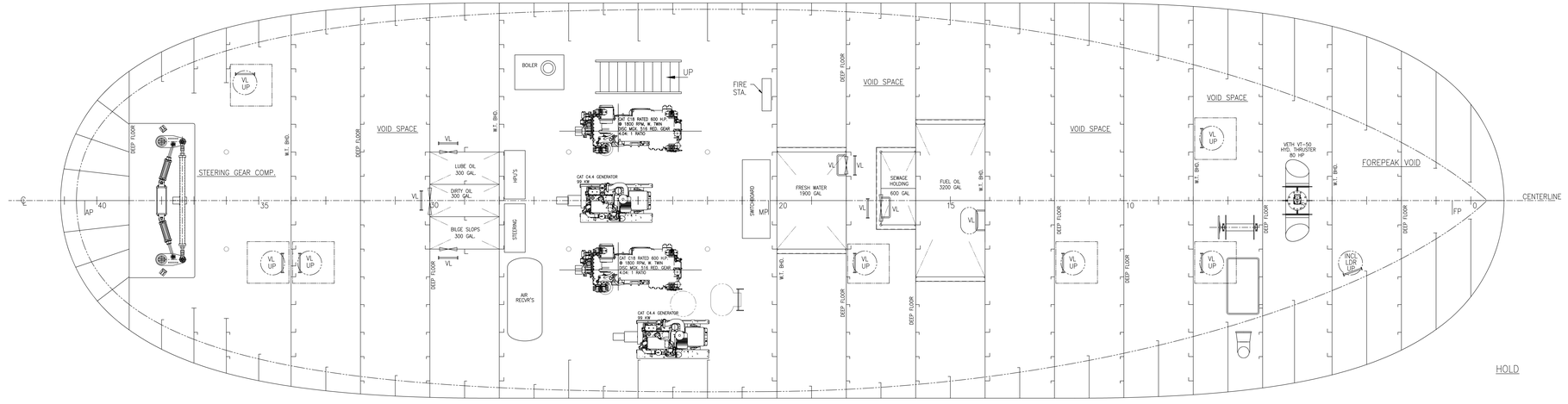
CONTRACT DRAWINGS
COVER PAGE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED	DATE
COMMISSIONER:	4-21-22
CHIEF ENGINEER:	4-21-2022

DRAWN BY ERC DATE 4/2022
CHECKED BY JG DATE 4/2022
APPROVED BY DATE
SCALE 1/4" = 1'–0"
DWG. NO. D367–A0 ALT. 0





ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

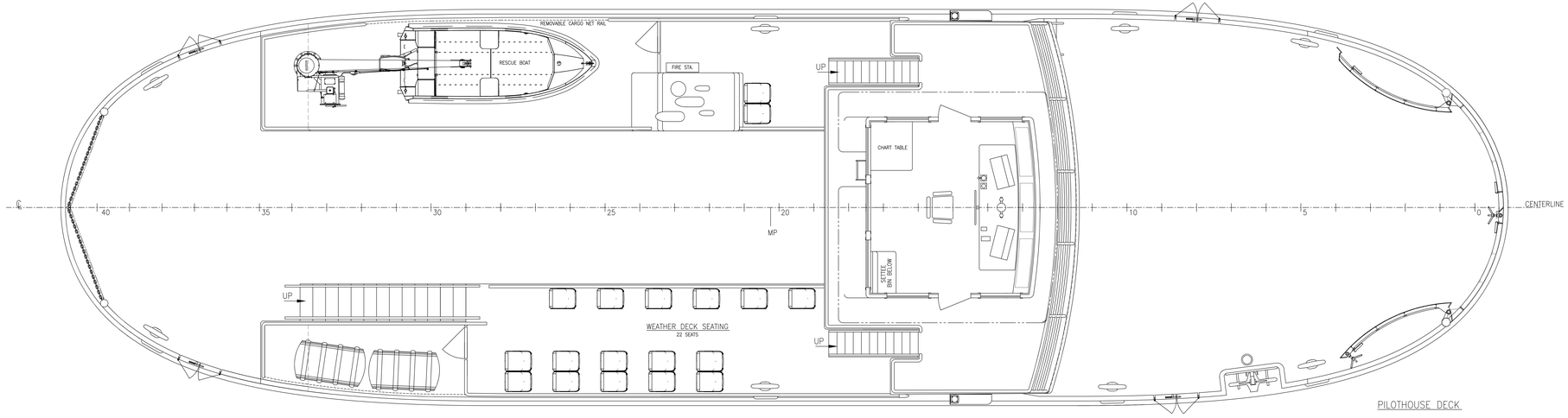
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

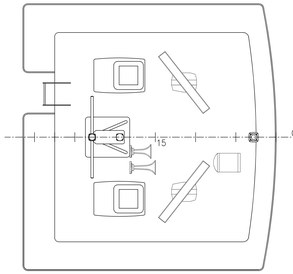
GENERAL ARRANGEMENT
HOLD & MAIN DECK

DRAWN BY JG/KC	DATE 05/11/2021
CHECKED BY JG	DATE
APPROVED BY	DATE
SCALE 3/8" = 1'-0"	
DWG. NO. D367-A1-1	ALT. 0

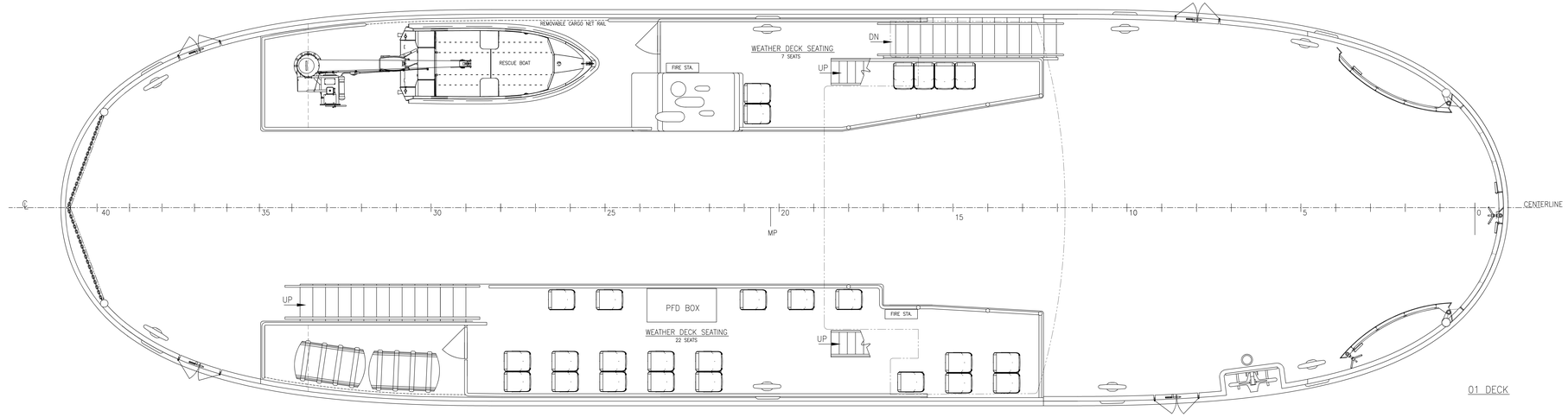
SHEET 1 OF 2



PILOTHOUSE DECK



PILOTHOUSE TOP



01 DECK

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

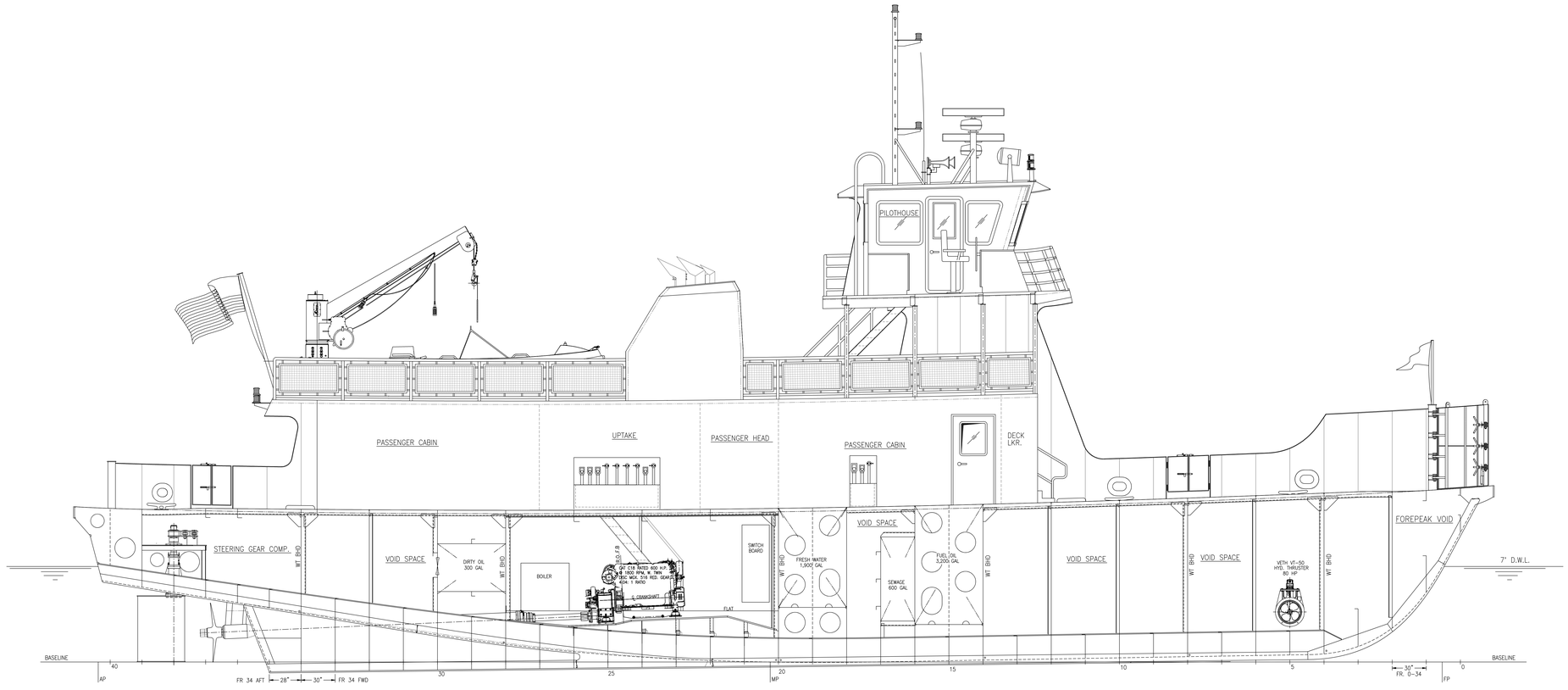
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

GENERAL ARRANGEMENT
01 AND PILOTHOUSE DECK

DRAWN BY JG/KC DATE 05/11/2021
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-A1-2 ALT. 0

SHEET 2 OF 2



ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

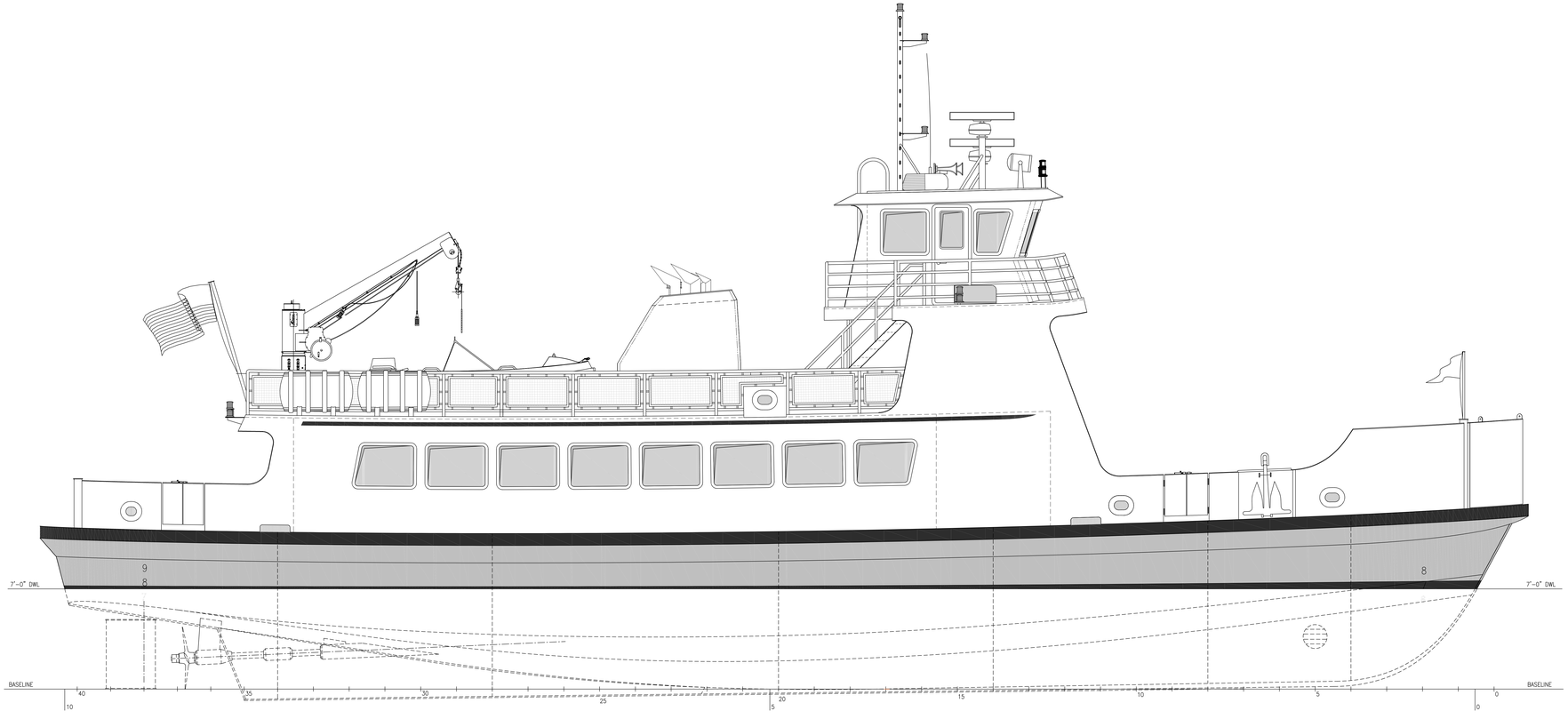
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

INBOARD PROFILE

DRAWN BY JG/KC — DATE 05/11/2021
CHECKED BY JG — DATE
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-A2 — ALT. 0

SHEET 1 OF 1



ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

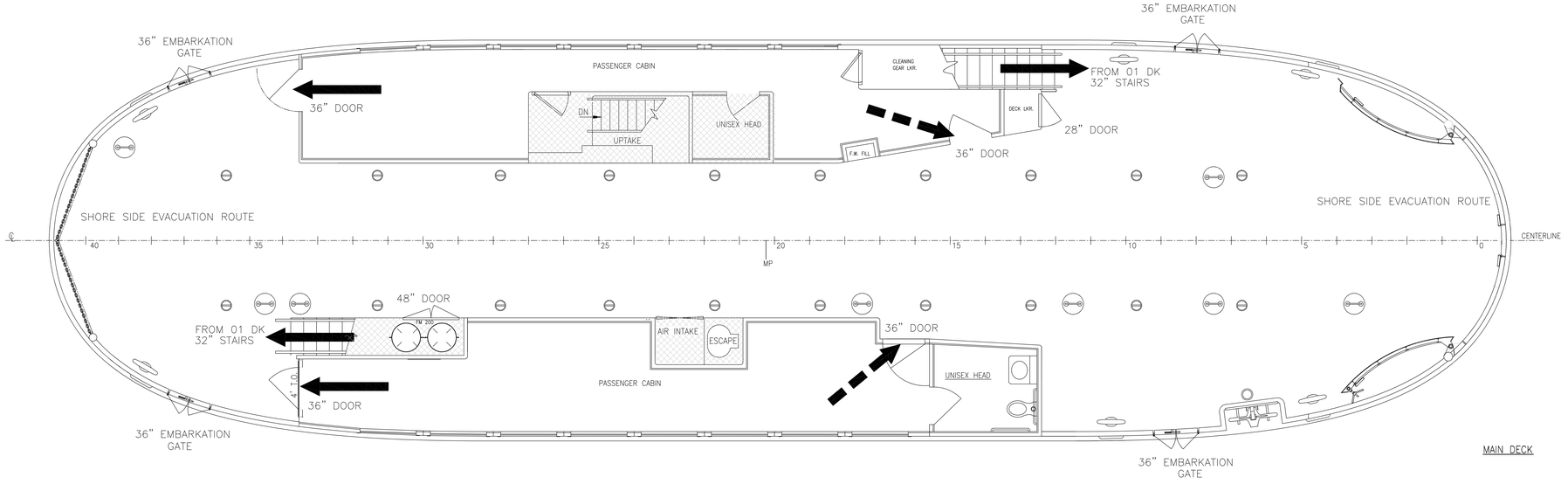
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

OUTBOARD PROFILE

DRAWN BY JG/KC
DATE 05/11/2021
CHECKED BY GEG
DATE
APPROVED BY
DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-A3
ALT. 0

SHEET 1 OF 1



MAIN DECK

KEY:

PRIMARY ESCAPE ROUTE

SECONDARY ESCAPE ROUTE

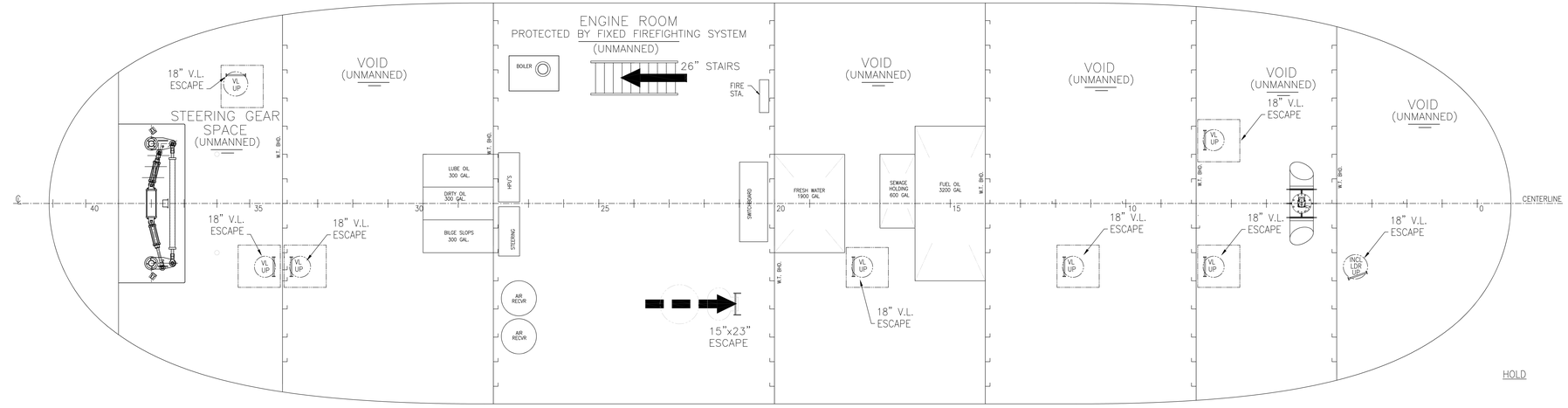
NOTES:

DOORS = 0.33"/PAX
LADDERS = 0.33"/PAX
CABIN CAPACITY = 10 SQ. FT./PAX
CABIN REFUGE = 5 SQ. FT./PAX
EXCESS LANDING = 3.5 SQ FT./PAX

HATCHED AREAS INDICATE AREAS NOT USED FOR ACCOMMODATION OR REFUGE

PASSENGER CABIN

DECK AREA = 1720 SQUARE FEET
CAPACITY – 172 PASSENGERS
REFUGE – 344 PASSENGERS



HOLD

ALT	DESCRIPTION	DATE	NAME

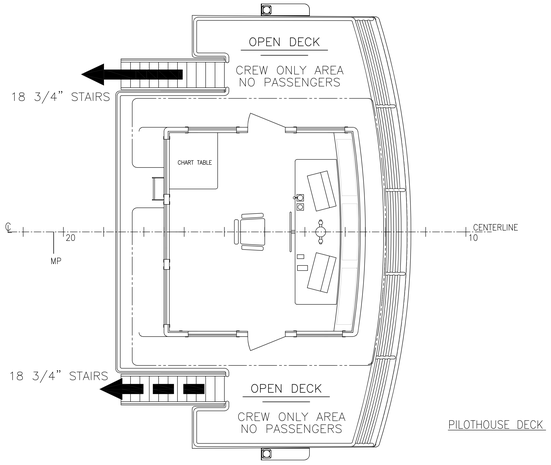
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

EVACUATION PLAN
HOLD & MAIN DECK

DRAWN BY KC DATE 05/11/2021
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-A4-1 ALT. 0

SHEET 1 OF 2



PILOTHOUSE DECK

KEY:

PRIMARY ESCAPE ROUTE

SECONDARY ESCAPE ROUTE

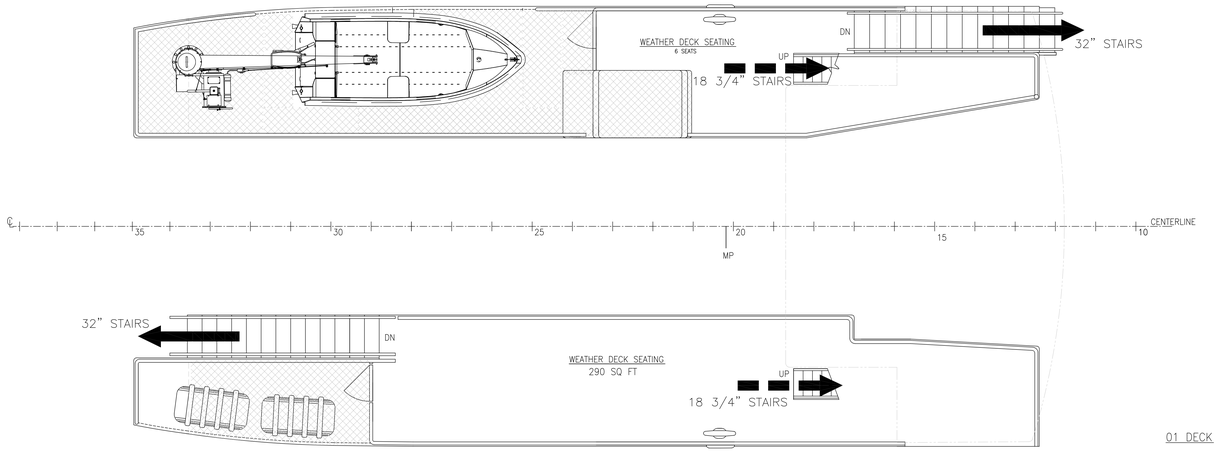
NOTES:

DOORS = 0.33"/PAX
LADDERS = 0.33"/PAX
CABIN CAPACITY = 10 SQ. FT./PAX
CABIN REFUGE = 5 SQ. FT./PAX
EXCESS LANDING = 3.5 SQ FT./PAX

HATCHED AREAS INDICATE AREAS NOT USED FOR ACCOMMODATION OR REFUGE

PASSENGER CABIN

DECK AREA = 1720 SQUARE FEET
CAPACITY – 172 PASSENGERS
REFUGE – 344 PASSENGERS



01 DECK

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

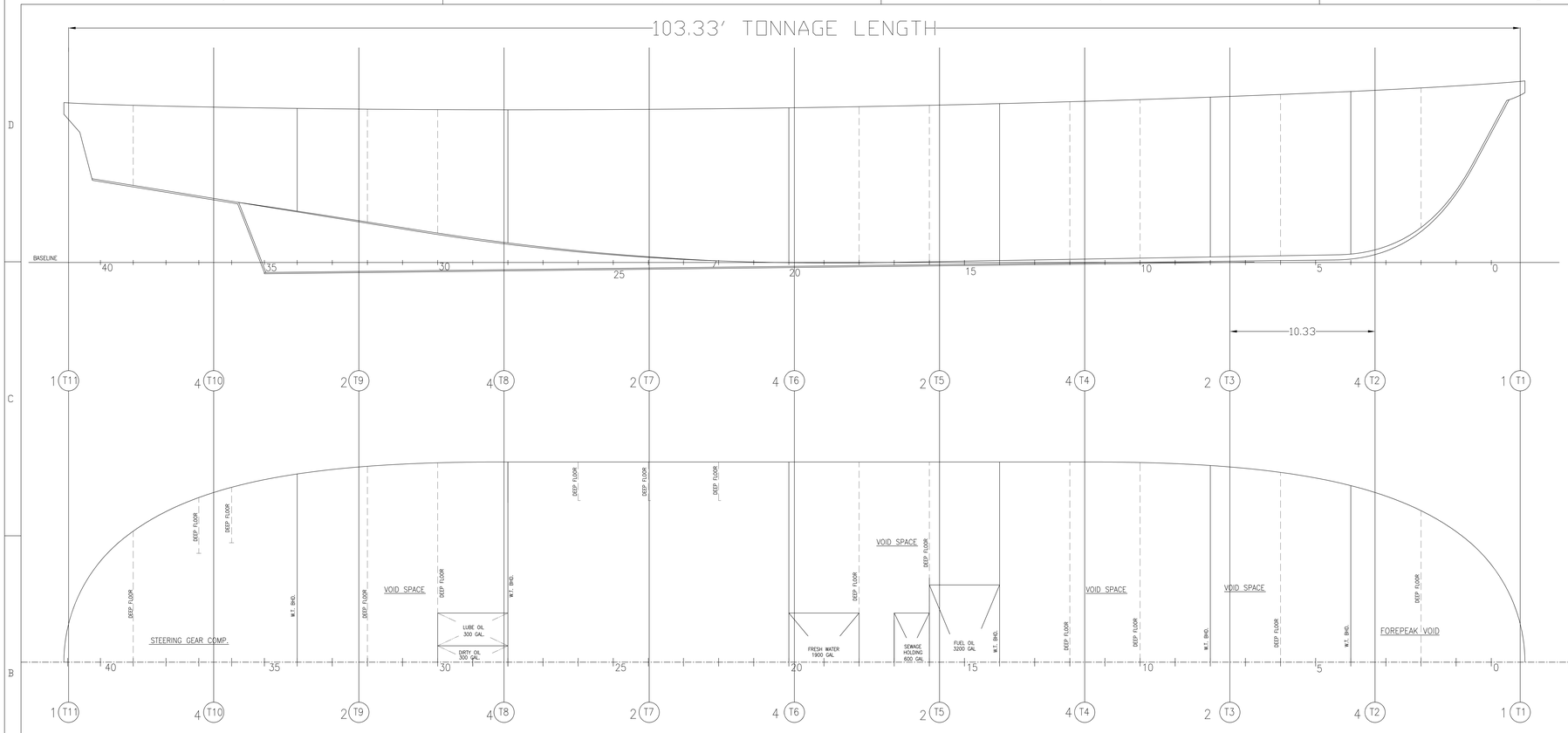
NAVAL ARCHITECTS
MARINE ENGINEERS

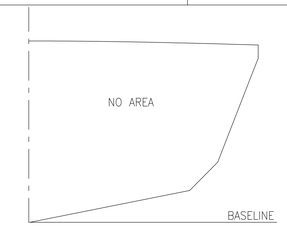
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

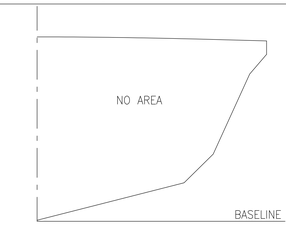
EVACUATION PLAN
01 & PILOTHOUSE DECK

DRAWN BY KC DATE 05/11/2021
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-A4-2 ALT. 0

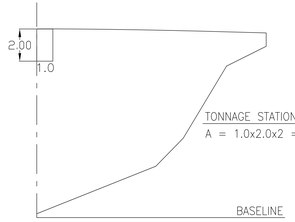




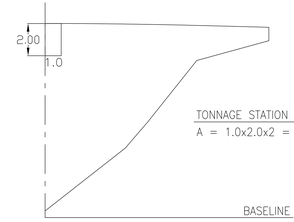
TONNAGE STATION T6



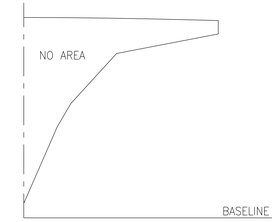
TONNAGE STATION T5



TONNAGE STATION T4



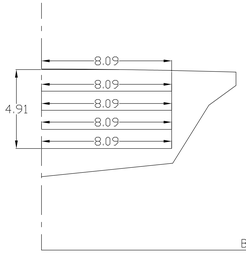
TONNAGE STATION T3



TONNAGE STATION T2

1	0.0	1	0.0
2	0.0	4	0.0
3	4.0	2	8.0
4	4.0	4	16.0
5	0.0	2	0.0
6	0.0	4	0.0
7	202.44	2	404.88
8	0.0	4	0.0
9	0.0	2	0.0
10	79.44	4	317.76
11	0.0	1	0.0
			746.64

T = 746.64x103.33/(10x3x100) = 25.72 TONS



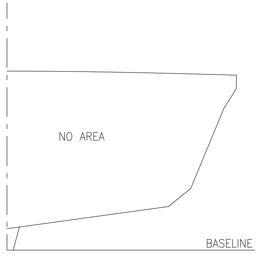
TONNAGE STATION T10

1	8.09	1	8.09
2	8.09	4	32.36
3	8.09	2	16.18
4	8.09	4	32.36
5	8.09	1	8.09
			97.08

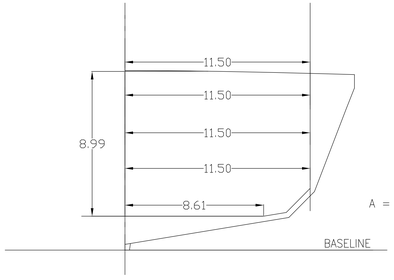
A = 97.08x2x4.91/(4x3) = 79.44



TONNAGE STATION T9



TONNAGE STATION T8



TONNAGE STATION T7

1	11.50	1	11.50
2	11.50	4	46.00
3	11.50	2	23.00
4	11.50	4	46.00
5	8.61	1	8.61
			135.11

A = 135.11x2x8.99/(4x3) = 202.44

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

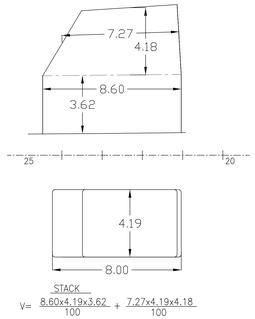
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

TONNAGE PLAN
BELOW MAIN DECK

DRAWN BY JG/KC DATE 05/11/2021
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-A5-1 ALT. 0

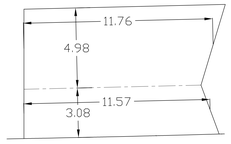
SHEET 1 OF 2

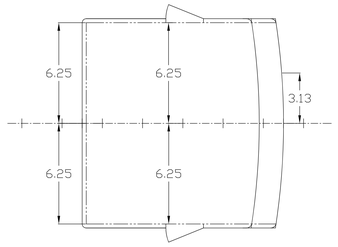


STACK

$V = \frac{8.60 \times 4.19 \times 3.62}{100} + \frac{7.27 \times 4.19 \times 4.18}{100}$

V=2.57 TONS





PILOTHOUSE HOUSE TONNAGE ABV. KNUCKLE

1	3.13	1	3.13
2	6.25	4	25.00
3	6.25	1	6.25
			34.38

V = 4.98x34.38x11.76x2/3/100 = 13.42 TONS

PILOTHOUSE HOUSE TONNAGE BEL. KNUCKLE

1	3.13	1	3.13
2	6.25	4	25.00
3	6.25	1	6.25
			34.38

V = 4.98x34.38x11.57x2/3/100 = 13.20 TONS

02 DECK TONNAGE

PH BEL KNUCKLE	13.20 TONS
PH ABV KNUCKLE	13.42 TONS
STACK	2.57 TONS
	29.19 TONS

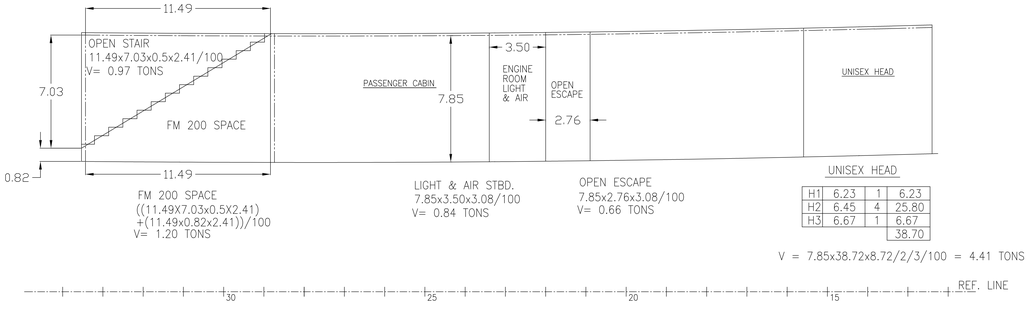
02 DECK EXEMPTIONS

PH BEL KNUCKLE	13.20 TONS
PH ABV KNUCKLE	13.42 TONS
STACK	2.57 TONS
	29.19 TONS

TOTAL TO GROSS = 0.00 TONS

GROSS TONNAGE BELOW DECK = 25.72 TONS
MAIN DECK TONNAGE STBD. = 1.20 TONS
MAIN DECK TONNAGE PORT = 24.42 TONS
02 DECK TONNAGE = 0.00 TONS

TOTAL GROSS TONNAGE = 51.34 TONS



FM 200 SPACE
((11.49X7.03x0.5X2.41)
+(11.49x0.82x2.41))/100
V= 1.20 TONS

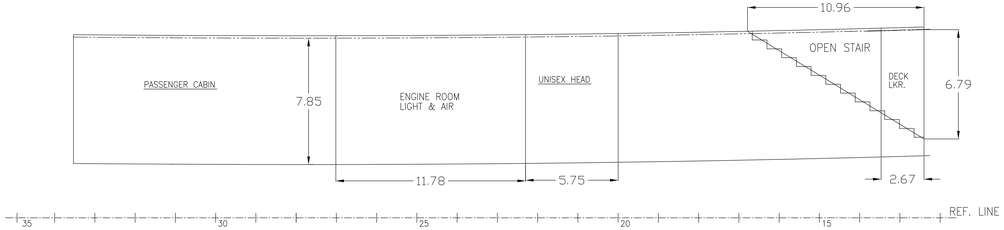
LIGHT & AIR STBD.
7.85x3.50x3.08/100
V= 0.84 TONS

OPEN ESCAPE
7.85x2.76x3.08/100
V= 0.66 TONS

UNISEX HEAD

H1	6.23	1	6.23
H2	6.45	4	25.80
H3	6.67	1	6.67
			38.70

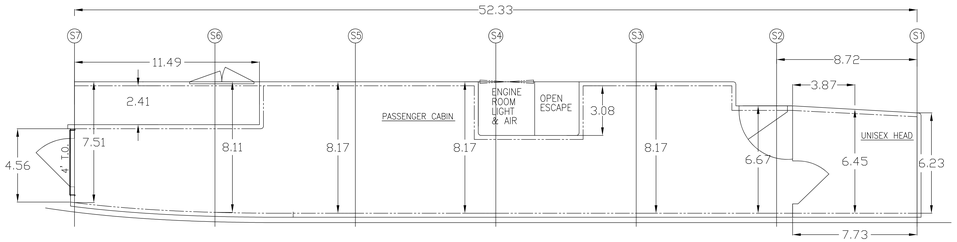
V = 7.85x38.72x8.72/2/3/100 = 4.41 TONS



ENGINE ROOM LIGHT & AIR
7.85x11.78x5.08/100
V= 4.70 TONS

UNISEX HEAD
7.85x5.75x5.08/100
V= 2.30 TONS

OPEN STAIR
10.96x6.79x0.5x2.91/100
V= 1.08 TONS



STBD EXEMPT SPACES

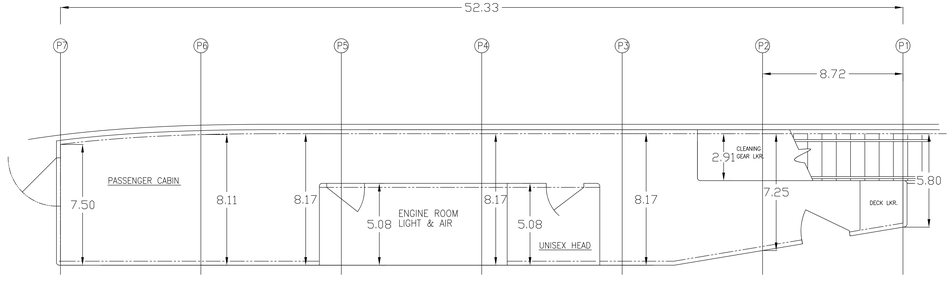
OPEN STAIR	= 0.97 TONS
PASS HEAD	= 3.54 TONS
ENGINE ROOM LIGHT AND AIR	= 0.84 TONS
OPEN ESCAPE	= 0.84 TONS
	6.19 TONS

PASSENGER CABIN OPEN = 24.15

STBD CABIN TONNAGE

S1	6.23	1	6.23
S2	6.67	4	26.68
S3	8.17	2	16.34
S4	8.17	4	32.68
S5	8.17	2	16.34
S6	8.11	4	32.44
S7	7.51	1	7.51
			138.22

V = 7.85x138.22x52.33/6/3/100 = 31.54 TONS
EXEMPTIONS = −6.19 TONS
FM 200 SPACE = +1.20 TONS
TONNAGE OPEN PASSENGER SPACE EXEMPTION = −24.15 TONS
TOTAL STBD. SIDE TO GROSS = 1.20 TONS



PORT EXEMPT SPACES

OPEN STAIR	= 0.68 TONS
COMPANION	= 4.13 TONS
PASS HEAD	= 1.88 TONS
GEAR LOCKER	= 0.68 TONS
	7.36 TONS

PORT CABIN TONNAGE

P1	5.80	1	5.80
P2	7.25	4	29.00
P3	8.17	2	16.34
P4	8.17	4	32.68
P5	8.17	2	16.34
P6	8.11	4	32.44
P7	7.50	1	7.50
			140.10

V = 7.85x140.10x52.33/6/3/100 = 31.97 TONS
LIGHT AND AIR EXEMPTION = −4.17 TONS
OPEN STAIR = −1.08 TONS
UNISEX HEAD = −2.30 TONS
TOTAL PORT SIDE TO GROSS = 24.42 TONS

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

TONNAGE PLAN
ABOVE MAIN DECK

DRAWN BY JG/KC DATE 05/11/2021
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-A5-2 ALT. 0

–DOOR SCHEDULE–

	DOOR NO.	FIRE RATING	DECK	ROOM NAME	HANDAGE	CLEAR OPENING		LOCK	LOUVER	SELF–CLSR.	WINDOW CLR. OPEN	REMARKS
						WIDTH	HEIGHT					
	1	A–0	PILOTHOUSE	PILOT HOUSE (S). ⊕FR 5	RHR	28"	80"	YES	NO	NO	29"x18"	WEATHERTIGHT. 2 DOGS, LATCH, 3" SILL, DEANSTEEL 2 SETS HOLDBACK HOOKS – OPEN AND 6" OPEN
	2	A–0	PILOTHOUSE	PILOT HOUSE (P). ⊕FR 5	LHR	28"	80"	YES	NO	NO	29"x18"	WEATHERTIGHT. 2 DOGS, LATCH, 3" SILL, DEANSTEEL 2 SETS HOLDBACK HOOKS – OPEN AND 6" OPEN
*	3	A–0	MAIN DECK	PASSENGER CABIN (P). ⊕FR 14	RH	36"	80"	YES	NO	YES	27"x19"	WEATHERTIGHT, LATCH, DEAN STEEL w. HOLDBACKS/DOOR BUMPERS
	4	A–0	MAIN DECK	CLEANING GEAR LKR. ⊕FR 17.5	LHR	24"	80"	NO	NO	NO		STEEL JOINER, DEAN STEEL
*	5	B–0	MAIN DECK	UNISEX HEAD (P). ⊕FR 21	LH	28"	80"	YES	YES	YES		STEEL JOINER, DEAN STEEL
	6	A–0	MAIN DECK	STAIRWELL TO ENG. RM (P). ⊕FR 26	RH	30"	72"	YES	NO	YES		STEEL WEA. T., 6" SILL, DEAN STEEL w. HOLDBKS/DOOR BUMPERS
*	7	A–0	MAIN DECK	PASSENGER CABIN (P). ⊕FR 33.5	LHR	36"	80"	YES	NO	YES	27"x19"	WEATHERTIGHT, LATCH, DEAN STEEL w. HOLDBACKS/DOOR BUMPERS
*	8	B–0	MAIN DECK	UNISEX HEAD (S). ⊕FR 15.5	RH	36"	80"	YES	YES	YES		STEEL JOINER, DEAN STEEL w. HOLDBACKS/DOOR BUMPERS
*	9	A–0	MAIN DECK	PASSENGER CABIN (S). ⊕FR 16	LH	36"	80"	YES	NO	YES	27"x19"	WEATHERTIGHT, LATCH, DEAN STEEL w. HOLDBACKS/DOOR BUMPERS
*	10	A–0	MAIN DECK	PASSENGER CABIN (S). ⊕FR 33.5	RHR	36"	80"	YES	NO	YES	27"x19"	WEATHERTIGHT, LATCH, DEAN STEEL w. HOLDBACKS/DOOR BUMPERS
	11	A–0	MAIN DECK	FM 200 (S). ⊕FR 30	LHR RHR	42"	60"	NO	NO	NO		DOUBLE WEATHERTIGHT, LATCH, DEAN STEEL
*	12	A–0	MAIN DECK	DECK LOCKER (P). ⊕FR 12.5	RHR	28"	80"	YES	NO	NO		WEATHERTIGHT, LATCH, DEAN STEEL

–WINDOW SCHEDULE–

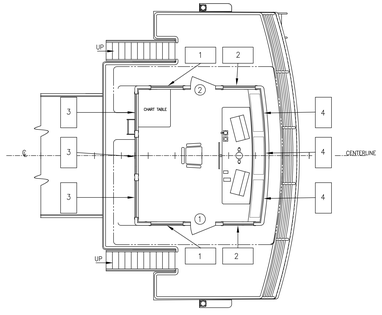
WINDOW NO.	QTY	DECK	GLAZING SIZE	GLASS TYPE	LOCATION	REMARKS	CORNER RADIUS	STEEL RETAINER CLIPS
1	2	PILOTHOUSE	36"x34" THERMOPANE	3/8" SAFETY GLASS	PILOTHOUSE SIDE (P/S)	BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED	1 1/2"	NO
2	2	PILOTHOUSE	25"x15.5"x34" THERMOPANE	3/8" SAFETY GLASS	PILOTHOUSE SIDE (P/S)	BECLAWAT OR EQUAL ALUMINUM FIXED TRAPEZOIDAL SHAPED	1 1/2"	NO
3	3	PILOTHOUSE	42"x34" THERMOPANE HEATED	3/8" SAFETY GLASS	PILOTHOUSE BACK	BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED	1 1/2"	NO
4	3	PILOTHOUSE	42"x34" THERMOPANE HEATED	3/8" SAFETY GLASS	PILOTHOUSE FRONT	BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED. SEE D367–S5 FOR ADDITIONAL INSTALLATION DETAILS	1 1/2"	NO
5	11	MAIN DECK	48"x34" THERMOPANE	3/8" SAFETY GLASS	SUPERSTRUCTURE SIDE (P/S)	BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED	2 1/2"	NO
6	2	MAIN DECK	48"&34"x34" THERMOPANE	3/8" SAFETY GLASS	SUPERSTRUCTURE SIDE (P/S)	BECLAWAT OR EQUAL ALUMINUM FIXED TRAPEZOIDAL SHAPED	2 1/2"	NO
7	2	MAIN DECK	48"&34"X34" THERMOPANE	3/8" SAFETY GLASS	SUPERSTRUCTURE SIDE (P/S)	BECLAWAT OR EQUAL ALUMINUM FIXED TRAPEZOIDAL SHAPED	2 1/2"	NO

–MANHOLE AND HATCH SCHEDULE–

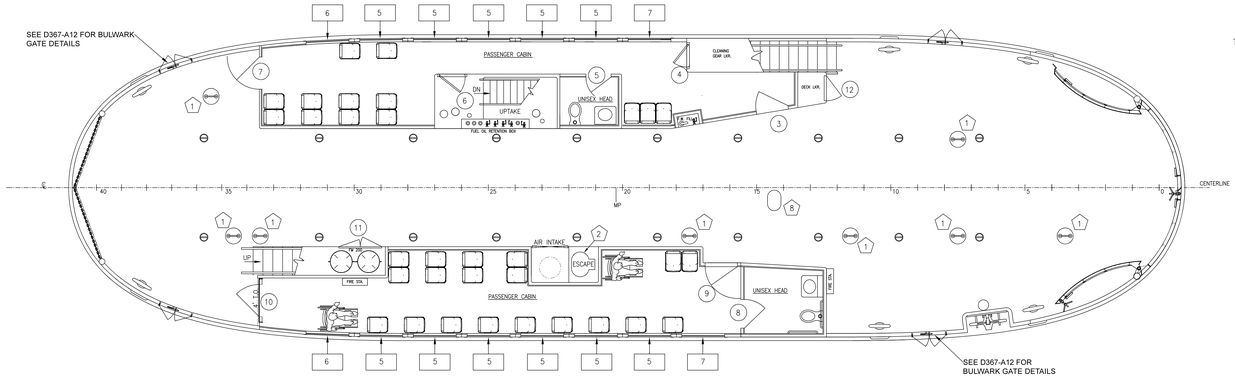
M.H. NO.	TYPE	QTY	SIZE	DECK	LOCATION	REMARKS
1	FLUSH	8	18" DIA	MAIN DECK	MAIN DECK HATCHES	FREEMAN MARINE EQUIPMENT ROUND LIFT–OUT HATCH S–C, DUCTILE IRON COVER. PART NO. 2481–0107
2	FLUSH	1	15"x23"	MAIN DECK	DECK HATCH. ESCAPE TRUNK ⊕FR. 20.5	MOUNTED ON RAISED FLAT. QUICK ACTING SPRING LOADED HATCH CEN–TEX DWG. NO. 223–MS
3	RAISED	1	15"x23"	HOLD	BILGE SLOPS TK. ⊕FR 29	MOUNTED ON SIDE TANK, W.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS
4	RAISED	1	15"x23"	HOLD	LUBE OIL TK. ⊕FR 29	MOUNTED ON SIDE TANK, O.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS
5	RAISED	1	15"x23"	HOLD	F.W TK. ⊕FR 19	MOUNTED IN FRONT TANK, W.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS
6	RAISED	1	15"x23"	HOLD	SEWAGE HOLDING TK. ⊕FR 16	MOUNTED ON BACK TANK, W.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS
7	RAISED	1	15"x23"	HOLD	DIRTY OIL TK. ⊕FR 29	MOUNTED ON BACK TANK, O.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS
8	FLUSH	1	15"x23"	HOLD	FUEL OIL TK. ⊕FR 15	MOUNTED IN DECK, O.T. HATCH FLUSH. CEN–TEX DWG. NO. 303–MS

*NOTE – ALL DOORS ACCESSIBLE BY PASSENGERS SHALL BE FITTED WITH FINGER GUARD PROTECTORS. INTERIOR SELF–CLOSING DOORS ACCESSIBLE BY PASSENGERS SHALL HAVE PULL FORCE NO GREATER THAN 5 LBS OR AS REQ'D BY USCG. EXTERIOR SELF–CLOSING DOOR FORCE BY USCG REGS.

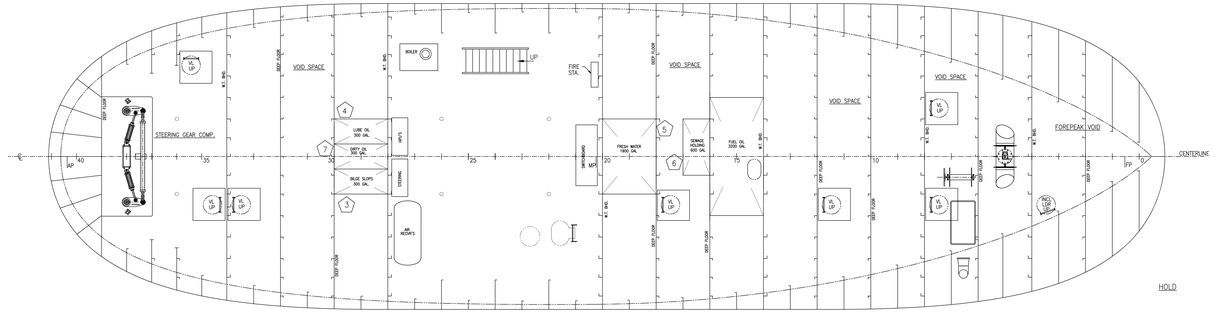
– WINDOWS 3 & 4 SHALL ALSO BE FITTED WITH WIPERS. ALL PILOTHOUSE WINDOWS SHALL BE FITTED WITH SOLA–CURE ANTI–GLARE FILM SHADES.



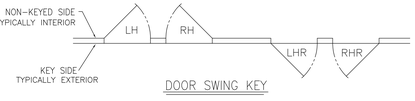
PILOTHOUSE DECK



MAIN DECK



HOLD



DOOR SWING KEY

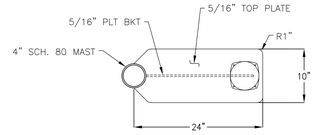
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

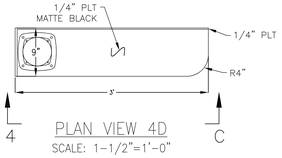
DOOR, WINDOW and HATCH SCHEDULE

DRAWN BY ERC DATE 01/2022
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 1/4" = 1'–0"
DWG. NO. D367–A7 ALT. 0



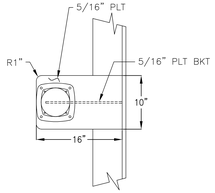
PLAN VIEW 5D

SCALE: 1-1/2"=1'-0"



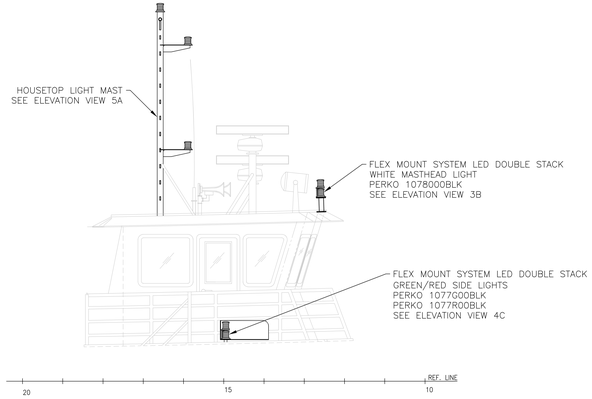
PLAN VIEW 4D

SCALE: 1-1/2"=1'-0"

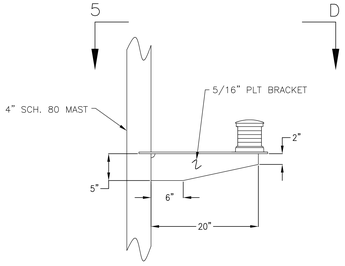


PLAN VIEW 3D

SCALE: 1-1/2"=1'-0"

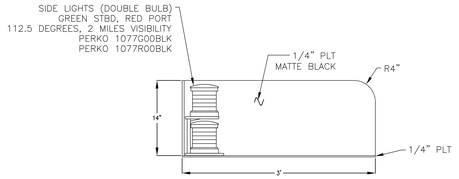


PILOTHOUSE PROFILE



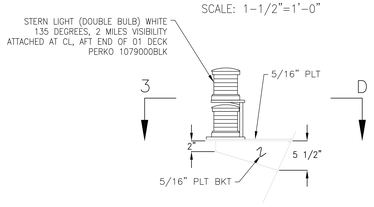
ELEVATION VIEW 5C

SCALE: 1-1/2"=1'-0"



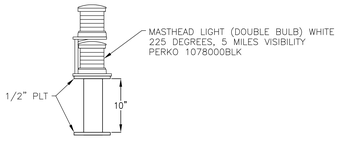
ELEVATION VIEW 4C

SCALE: 1-1/2"=1'-0"



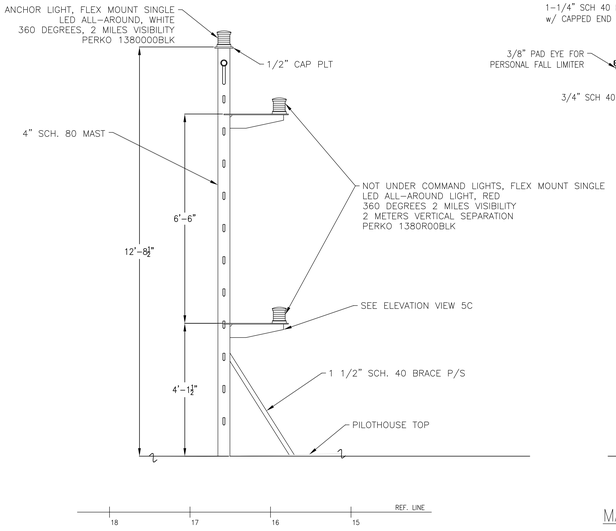
ELEVATION VIEW 3C

SCALE: 1-1/2"=1'-0"



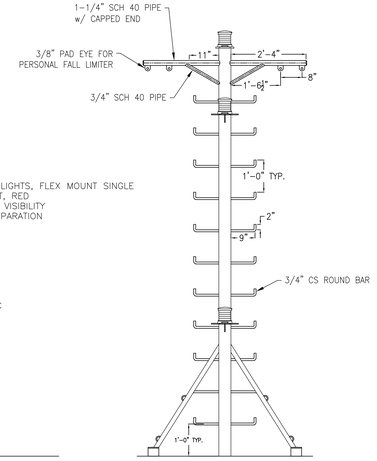
ELEVATION VIEW 3B

SCALE: 1-1/2"=1'-0"



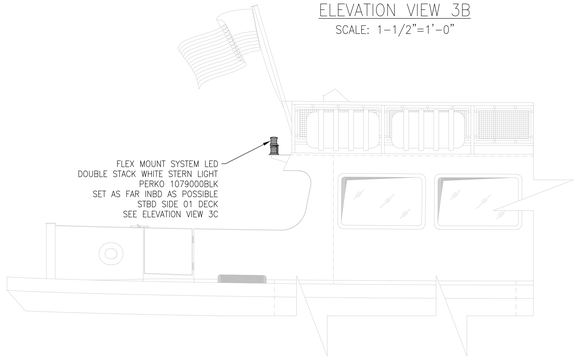
ELEVATION VIEW 5A

SCALE: 3/4"=1'-0"

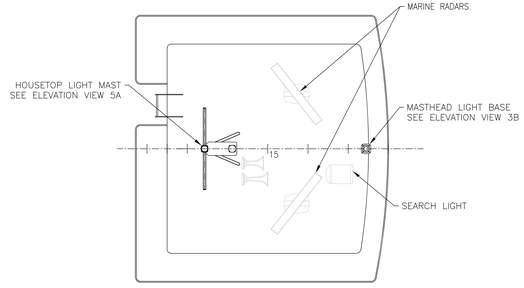


MAST SECTION VIEW 4A

SCALE: 3/4"=1'-0"



STERN LIGHT PROFILE



PILOTHOUSE TOP

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

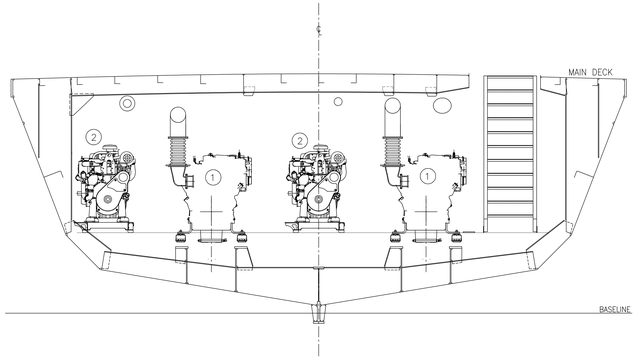
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

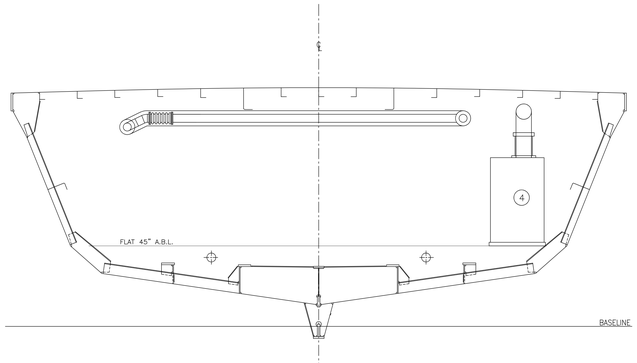
NAVIGATION LIGHTS
AND COLREGS PLAN

DRAWN BY FD DATE 11/23/2021
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0" OR AS NOTED
DWG. NO. D367-A8 ALT. 0

SHEET 1 OF 1

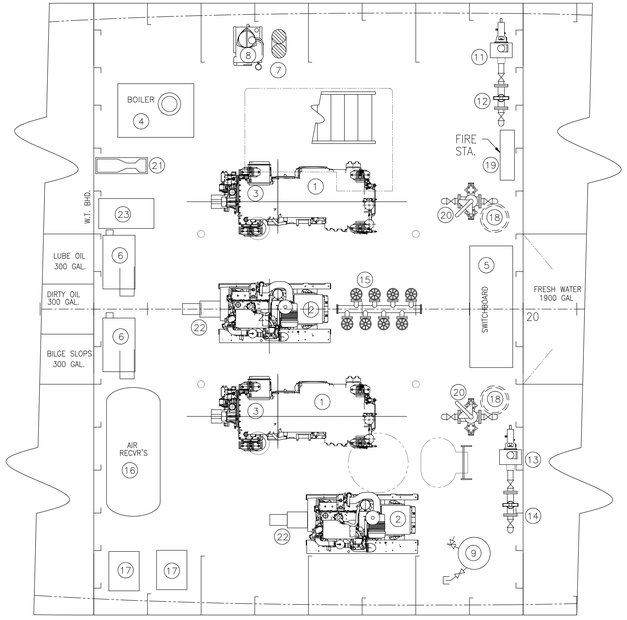


SECTION VIEW AT FR. 24
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 27
FWD. SIDE LKG. AFT

EQUIPMENT LIST			
NO.	QTY.	DESCRIPTION	SPECIFICATION
1	2	MAIN ENGINES	CATERPILLAR C18 RATED 600 H.P. @ 1800 RPM
2	2	GENERATORS	CATERPILLAR C4.4 99KW
3	2	REDUCTION GEARS	MGX 516 4.04:1
4	1	BOILER	WEIL-MCLAIN SERIES 80 MODEL 380 OR EQU.
5	1	SWITCHBOARD	ELECTRONIC POWER DESIGN INC.
6	1	STEERING HYDRAULIC POWER UNITS	EMI 3 HP DUAL HYDRAULIC POWER UNIT, 50 GAL TANK, 3 GPM VANE PUMP, VALVES, CONTROLS & FILTERS.
7	1	FUEL OIL STRAINER	KRAISSL DUPLEX STRAINER
8	1	FUEL CENTRIFUGE	ALFA-LAVAL MAB-103 FUEL OIL SEPERATOR
9	1	POTABLE WATER PRESSURE SET	GRUNDFOS BMQE 15
10	2	LUBE OIL SUPPLY PUMP	ALEMITE PNEUMATIC OIL PUMP 8322 RATED 14 GPM W/ OIL REEL 8078-D, METER 3670, & FILTER/REGULATOR 7936
11	1	BILGE PUMP	MP HHFL 15 SELF-PR CENTRIF, 2"x2", 6.7" IMPELLER, 7.5 HP, 3PH, 3450 RPM TEFC MOTOR
12	1	BILGE STRAINER	KRAISSL SIMPLEX STRAINER MODEL 72
13	1	FIRE PUMP	MP HHFL 15 SELF-PR CENTRIF, 2"x2", 6.7" IMPELLER, 7.5 HP, 3PH, 3450 RPM TEFC MOTOR
14	1	FIRE PUMP STRAINER	KRAISSL SIMPLEX STRAINER MODEL 72
15	1	BILGE MANIFOLD	
16	2	AIR RECEIVERS	QUINCY 200 GAL 300 PSI MAWP
17	2	AIR COMPRESSORS	QUINCY MODEL QR-25 MODEL #325HP
18	2	SEACHEST	SEE D367-P9
19		FIRE STATION	
20	2	SEACHEST STRAINER	KRAISSL SIMPLEX STRAINER MODEL 72
21	1	DIRTY OIL SUCTION PUMP	1" VIKING MODEL GG4193 SERIES PUMP
22	2	BOWTHRUSTER HPU	HYDR. PISTON PUMP – EMI



ENGINE ROOM PLAN VIEW

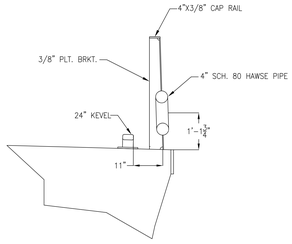
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT L.O.A. PASSENGER/VEHICLE FERRY

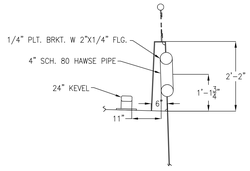
ENGINE ROOM ARRANGEMENTS

DRAWN BY TMH DATE 3/1/2022
CHECKED BY DATE
APPROVED BY DATE
SCALE 1/2" = 1'-0"
DWG. NO. D367-A9-1 ALT. 0
SHEET 1 OF 1



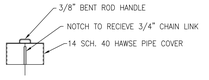
SECTION VIEW 5-D

SCALE 3/4"=1'-0"



SECTION VIEW 5-C

SCALE 3/4"=1'-0"



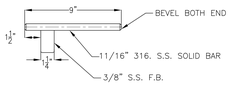
ANCHOR RODE HAWSE EYE COVER

SCALE 3/4"= 1'-0"



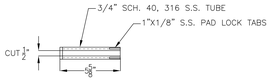
HAWSE PIPE DETAIL

SCALE 1 1/2"=1'-0"



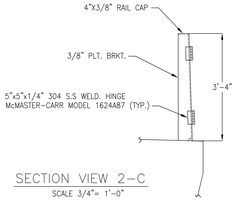
DEAD BOLT DETAILS

SCALE 3"=1'-0"



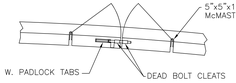
MAIN CLEAT PLAN VIEW

SCALE 3"=1'-0"



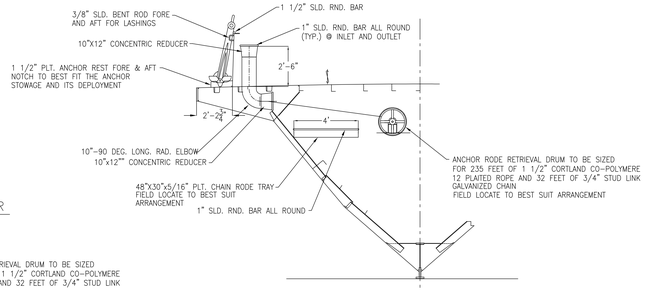
SECTION VIEW 2-C

SCALE 3/4"= 1'-0"



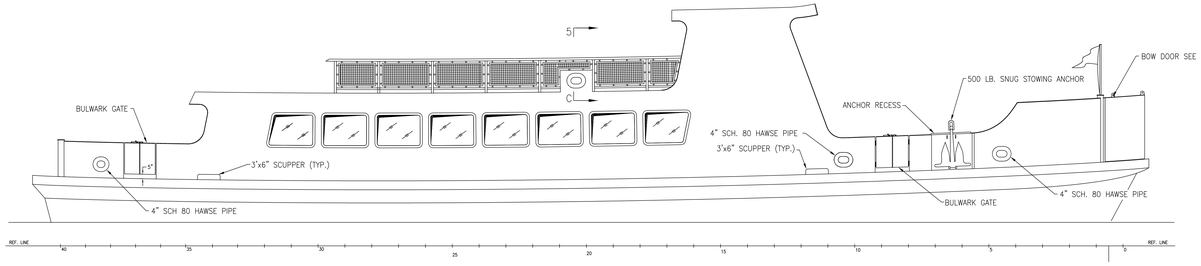
PLAN VIEW OF BULWARK GATE

SCALE 3/4"=1'-0"

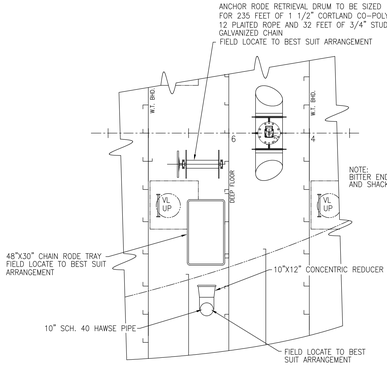


SECTION VIEW IN WAY OF ANCHOR RODE RETRIEVAL

SCALE 3/8"= 1'-0"

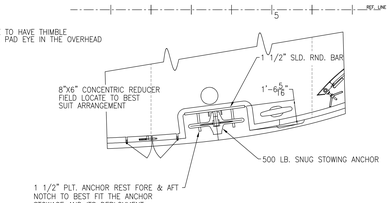


PROFILE VIEW OF MOORING FITTINGS AND SERVICE GATE LOCATION



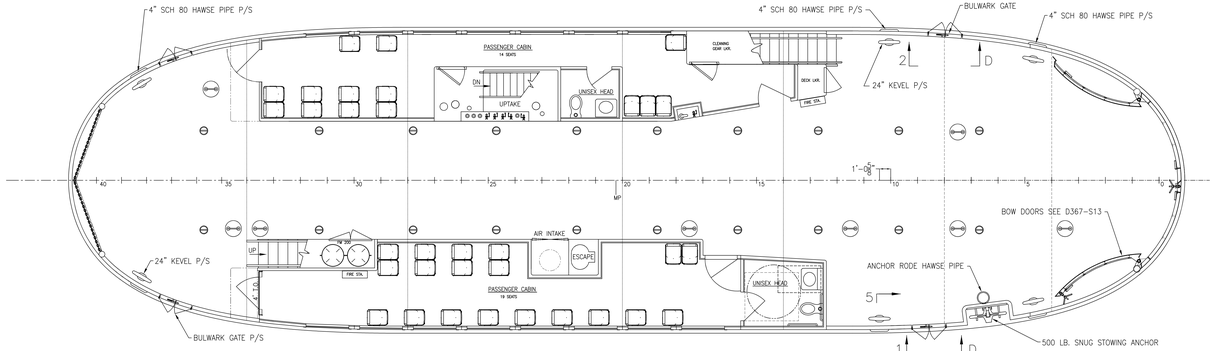
HOLD ARRANGEMENT PLAN

SCALE 3/8"= 1'-0"



MAIN DECK ARRANGEMENT PLAN OF ANCHOR POCKET

SCALE 3/8"= 1'-0"



PLAN VIEW OF MOORING FITTINGS AND SERVICE GATE LOCATION

MAIN DECK

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

MOORING FITTINGS, ANCHOR AND BULWARK DETAILS

DRAWN BY JG DATE 2/24/2022

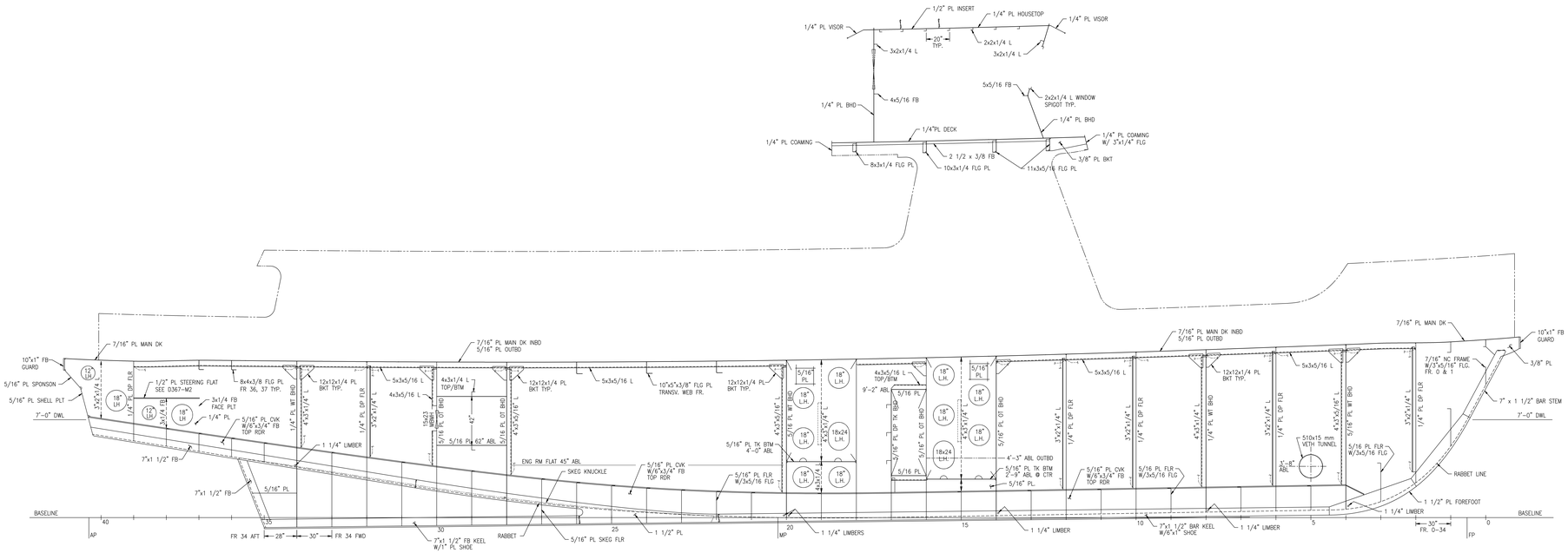
CHECKED BY GEG DATE

APPROVED BY DATE

SCALE 1/4" = 1'-0" OR AS NOTED

DWG. NO. D367-A12 ALT. 0

SHEET 1 OF 1



ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS MARINE ENGINEERS

100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

STRUCTURAL PROFILE

DRAWN BY GEG DATE 9/7/2021

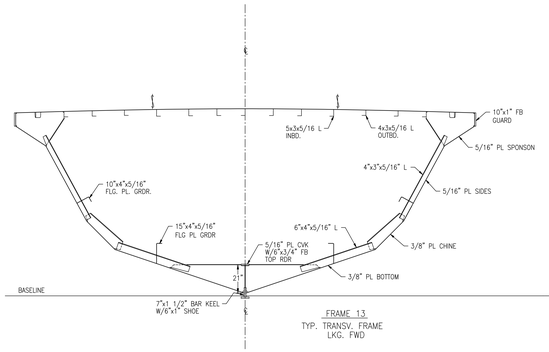
CHECKED BY JG DATE 3/21/22

APPROVED BY DATE

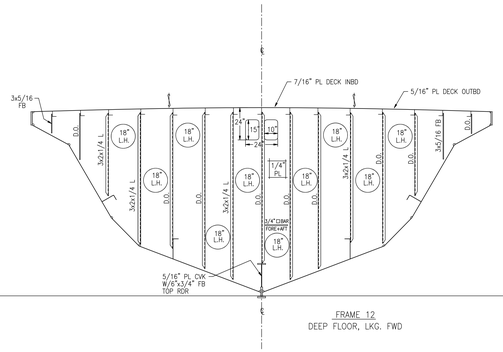
SCALE 3/8" = 1'-0"

DWG. NO. D367-S1 ALT. 0

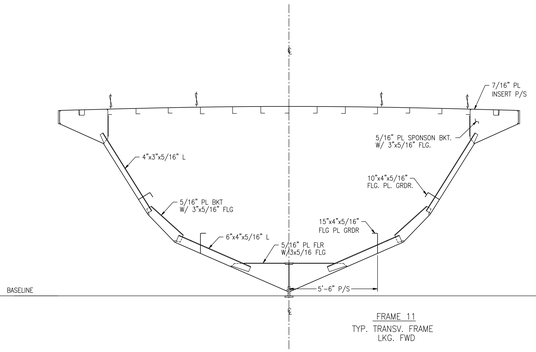
SHEET 1 OF 1



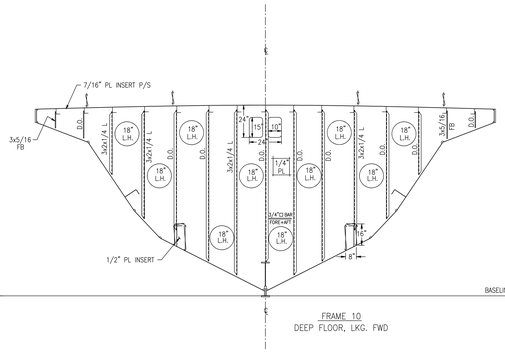
FRAME 13
TYP. TRANSV. FRAME
LKG. FWD



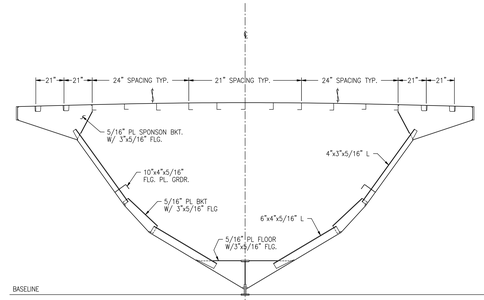
FRAME 12
DEEP FLOOR, LKG. FWD



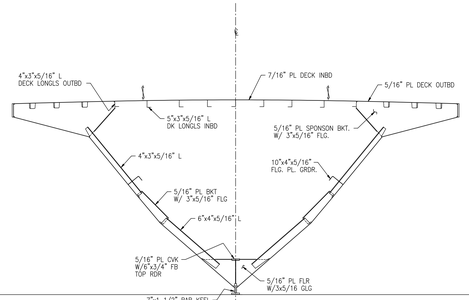
FRAME 11
TYP. TRANSV. FRAME
LKG. FWD



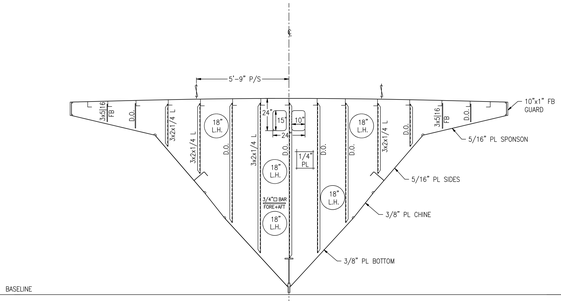
FRAME 10
DEEP FLOOR, LKG. FWD



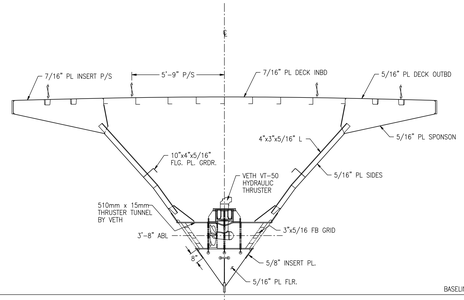
FRAME 9
TYP. TRANSV. FRAME
LKG. FWD



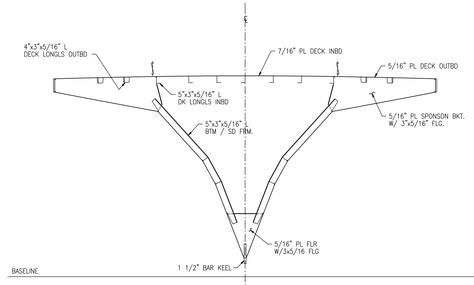
FRAME 7
TYP. TRANSV. FRAME
LKG. FWD



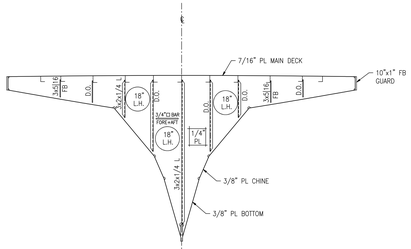
FRAME 6
DEEP FLOOR, LKG. FWD



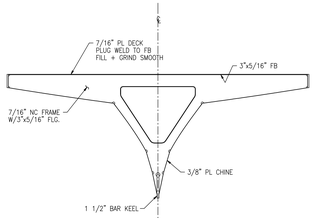
FRAME 5
TYP. TRANSV. FRAME
BOWTHRUSTER



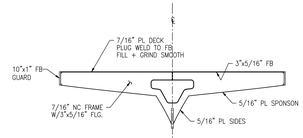
FRAME 3
TYP. TRANSV. FRAME
LKG. FWD



FRAME 2
DEEP FLOOR, LKG. FWD



FRAME 1
TYP. NC FRAME
LKG. FWD



FRAME 0
TYP. NC FRAME
LKG. FWD

ALT	DESCRIPTION	DATE	NAME

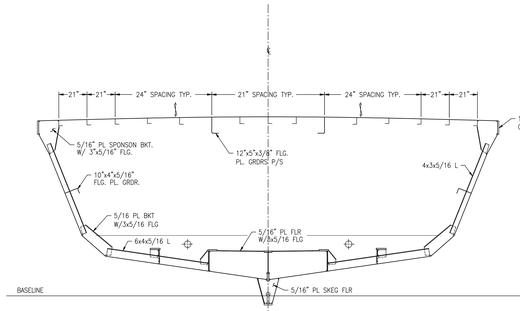
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

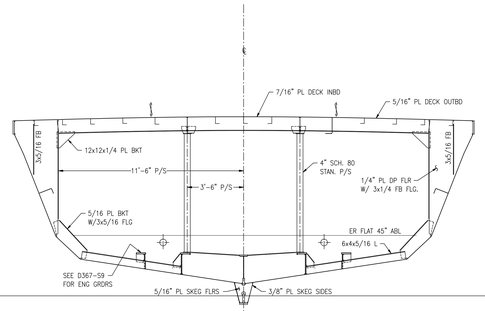
HULL CONSTRUCTION SECTIONS

DRAWN BY GEG DATE 9/7/2021
CHECKED BY JG DATE 3/21/22
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-S2-1 ALT. 0

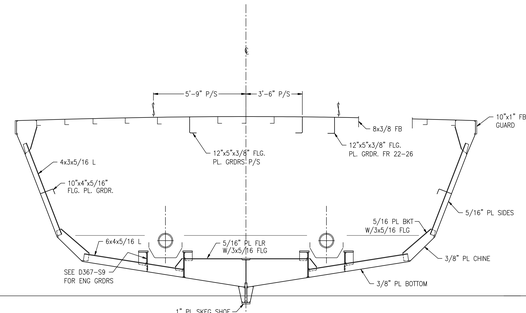
SHEET 1 OF 3



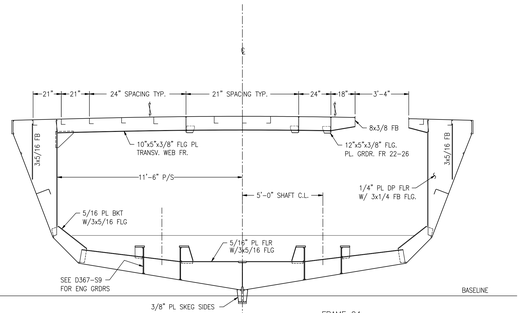
FRAME 27
TYP. TRANSV. FRAME
LKG. AFT



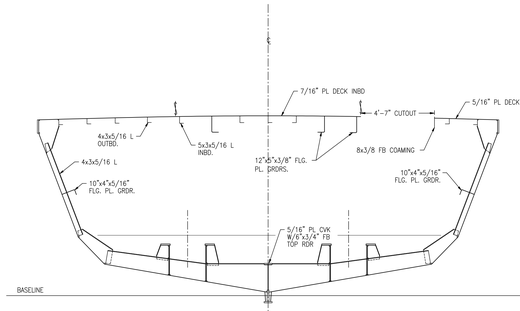
FRAME 26
DEEP FLOOR, LKG. AFT



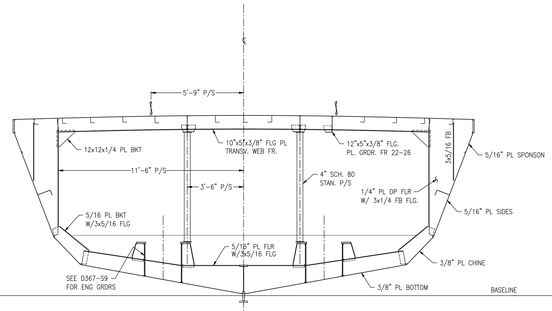
FRAME 25
TYP. TRANSV. FRAME
LKG. AFT



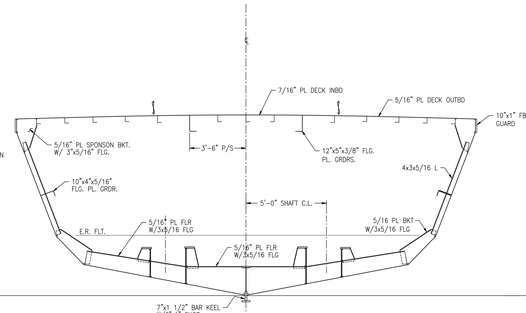
FRAME 24
DEEP FLOOR, LKG. AFT



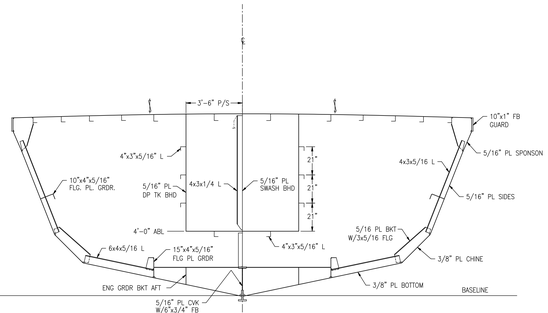
FRAME 23
TYP. TRANSV. FRAME
LKG. AFT



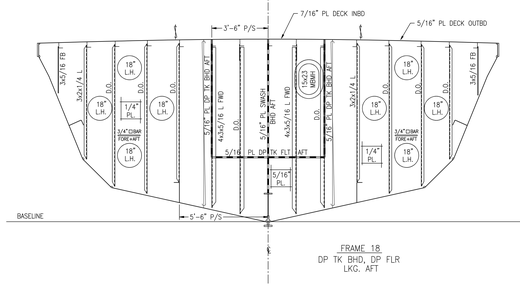
FRAME 22
DEEP FLOOR, LKG. AFT



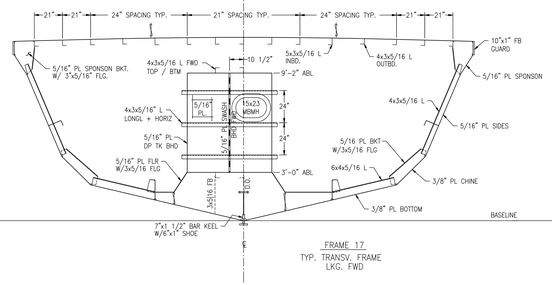
FRAME 21
TYP. TRANSV. FRAME
LKG. AFT



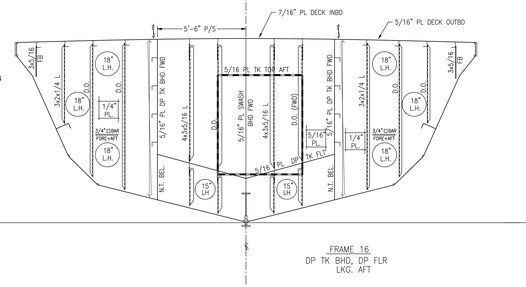
FRAME 19
TYP. TRANSV. FRAME
LKG. FWD



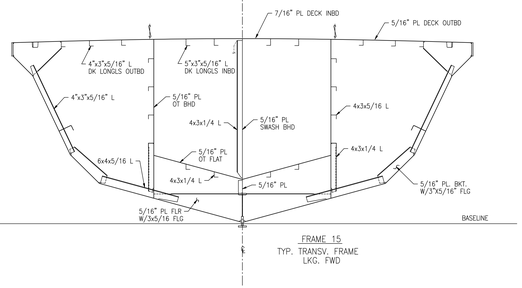
FRAME 18
DP TK BHD, DP FLR
LKG. AFT



FRAME 17
TYP. TRANSV. FRAME
LKG. FWD



FRAME 16
DP TK BHD, DP FLR
LKG. AFT



FRAME 15
TYP. TRANSV. FRAME
LKG. FWD

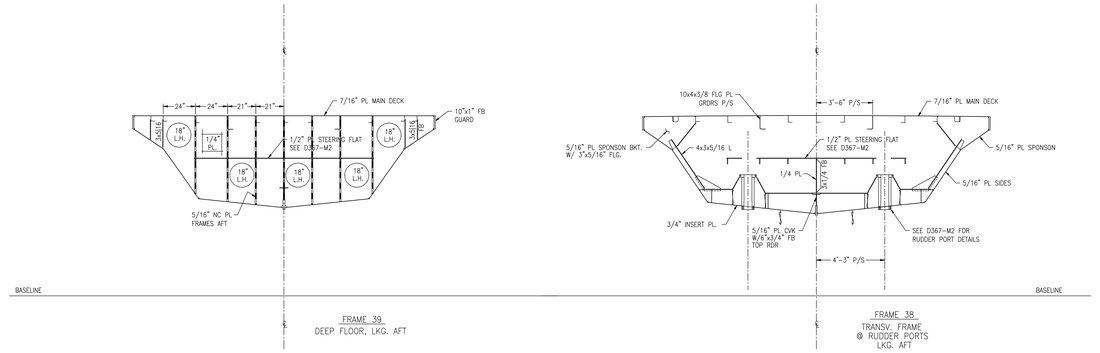
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

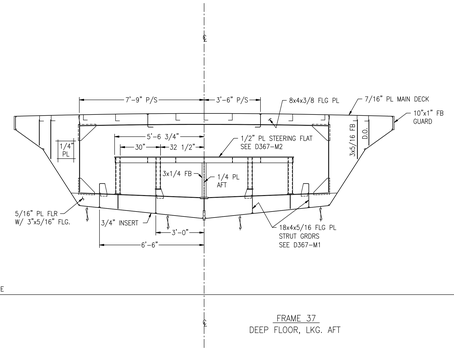
HULL CONSTRUCTION SECTIONS

DRAWN BY GEG DATE 9/7/2021
CHECKED BY JG DATE 3/21/22
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-S2-2 ALT. 0

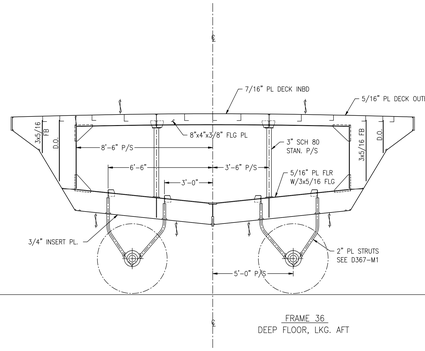


FRAME 39
DEEP FLOOR, LKG. AFT

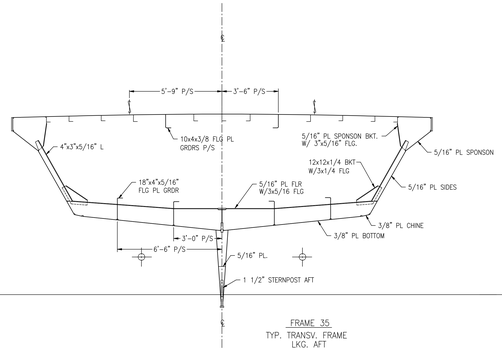
FRAME 38
TRANSV. FRAME
@ RUDDER PORTS
LKG. AFT



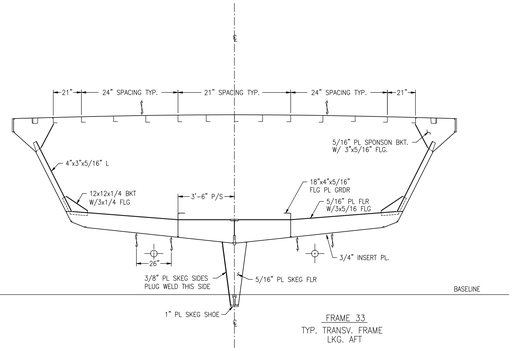
FRAME 37
DEEP FLOOR, LKG. AFT



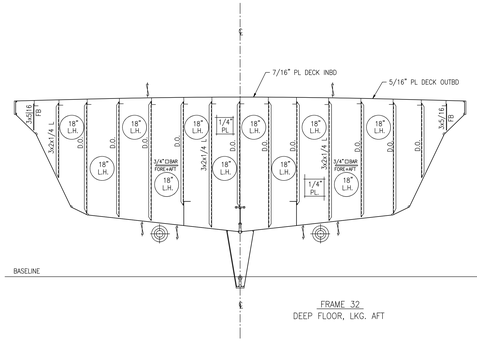
FRAME 36
DEEP FLOOR, LKG. AFT



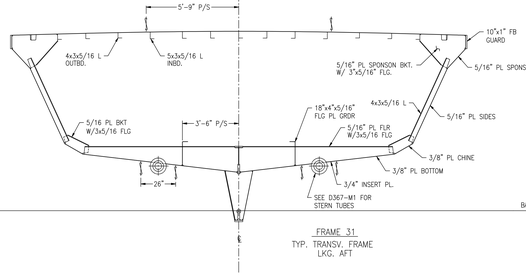
FRAME 35
TYP. TRANSV. FRAME
LKG. AFT



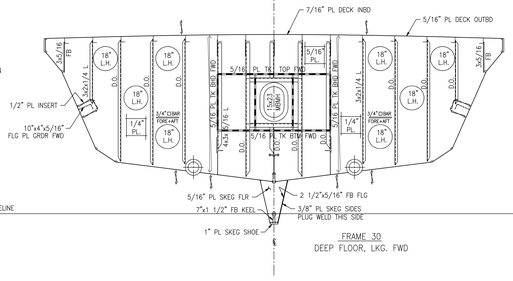
FRAME 33
TYP. TRANSV. FRAME
LKG. AFT



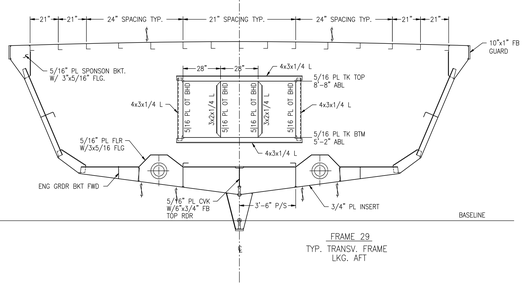
FRAME 32
DEEP FLOOR, LKG. AFT



FRAME 31
TYP. TRANSV. FRAME
LKG. AFT



FRAME 30
DEEP FLOOR, LKG. FWD



FRAME 29
TYP. TRANSV. FRAME
LKG. AFT

ALT	DESCRIPTION	DATE	NAME

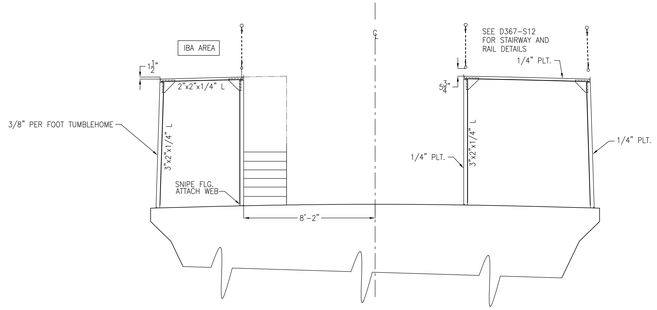
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

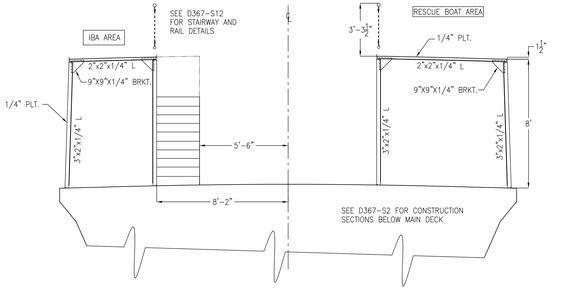
HULL CONSTRUCTION SECTIONS

DRAWN BY GEG DATE 9/7/2021
CHECKED BY JG DATE 3/21/22
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-S2-3 ALT. 0

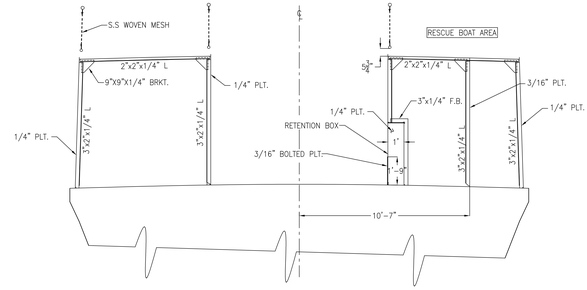
SHEET 3 OF 3



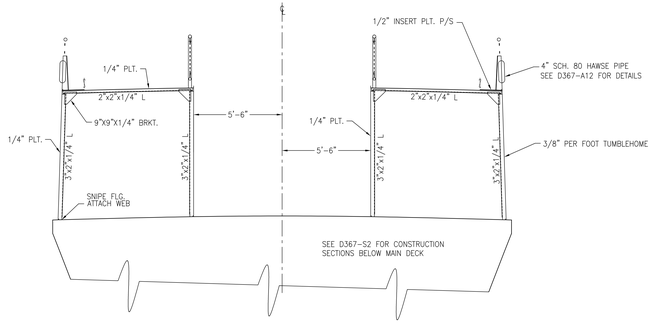
FRAME 32
FWD. END LKG. AFT



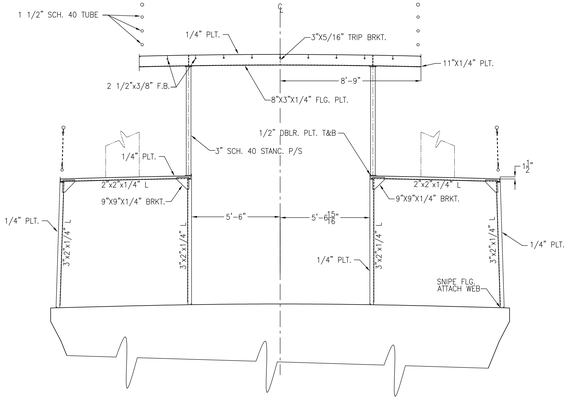
FRAME 30
FWD. END LKG. AFT



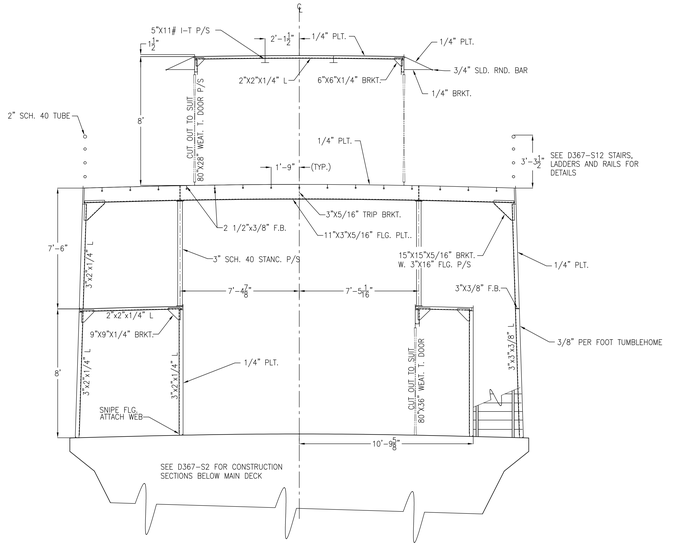
FRAME 26
FWD. END LKG. AFT



FRAME 20
FWD. END LKG. AFT



FRAME 18
FWD. END LKG. AFT



FRAME 14
FWD. END LKG. AFT

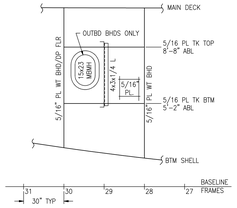
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

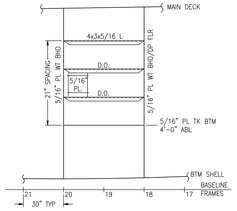
104 FT LOA PASSENGER/VEHICLE FERRY

CONSTRUCTION SECTIONS ABOVE MAIN DECK

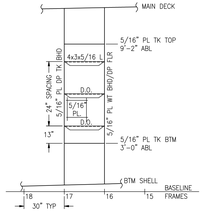
DRAWN BY JG — DATE 2/13/22
CHECKED BY GEG — DATE
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-S3 — ALT. 0



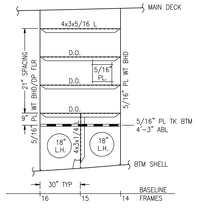
LONGL DP TK BHD
3'-6" OFF CTR
STBD SHOWN, PORT SIMILAR
BHDS 1'-2" OFF CTR SIMILAR



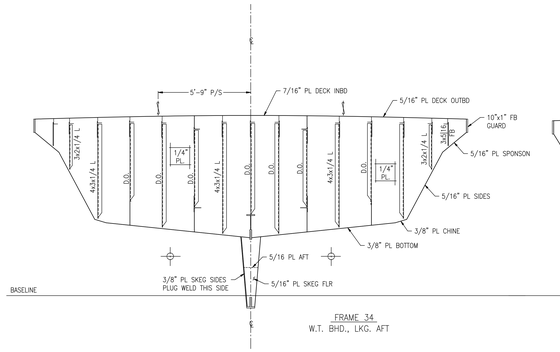
LONGL DP TK BHD
3'-6" OFF CTR
STBD SHOWN, PORT SIMILAR



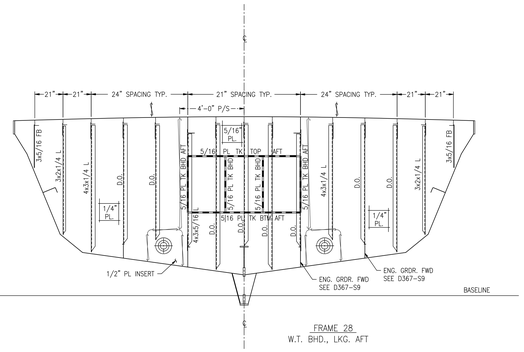
LONGL DP TK BHD
1'-9" OFF CTR (STBD)
PORT SIMILAR (3'-6" OFF CTR)



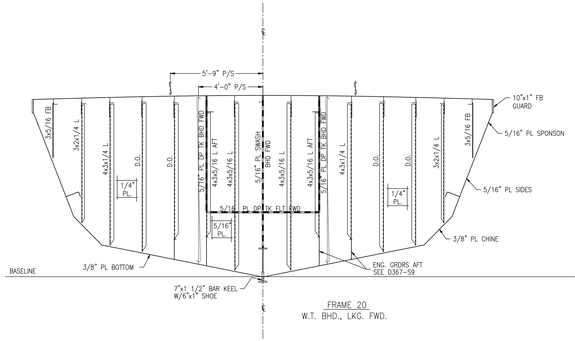
LONGL DP TK BHD
5'-6" OFF CTR
STBD SHOWN, PORT SIMILAR



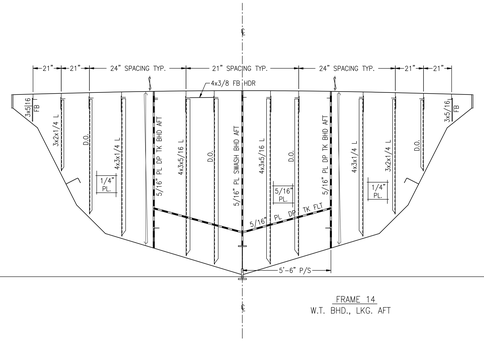
FRAME 34
W.T. BHD., LKG. AFT



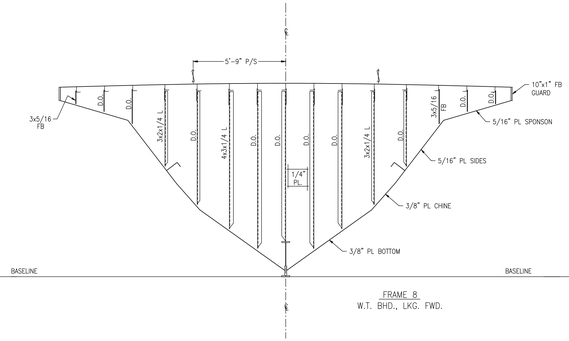
FRAME 28
W.T. BHD., LKG. AFT



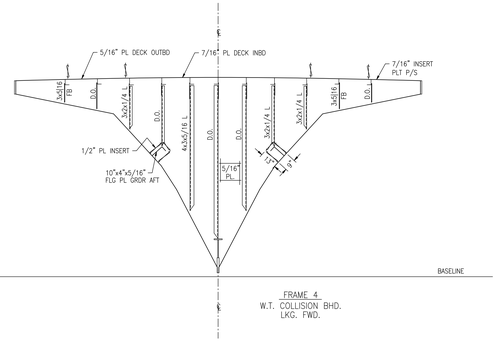
FRAME 20
W.T. BHD., LKG. FWD.



FRAME 14
W.T. BHD., LKG. AFT



FRAME 8
W.T. BHD., LKG. FWD.



FRAME 4
W.T. COLLISION BHD.
LKG. FWD.

ALT	DESCRIPTION	DATE	NAME

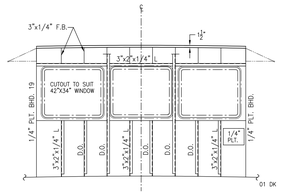
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

HULL TRANSVERSE AND LONGITUDINAL BULKHEADS

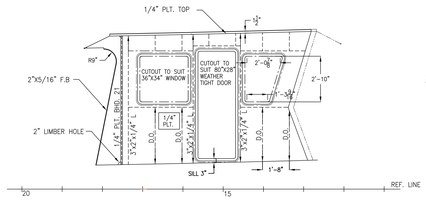
DRAWN BY GEG DATE 9/7/2021
CHECKED BY JG DATE 3/21/22
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-S4 ALT. 0

SHEET 1 OF 1



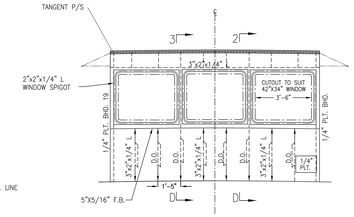
TRANSV. BULKHEAD 21

FWD. SIDE LKG. AFT.



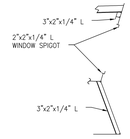
LONGT. BULKHEAD 19

OUTBD. SIDE LKG INBD.
PORT SIDE SIMILAR

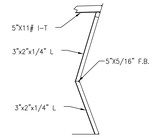


TRANSV. BULKHEAD 17

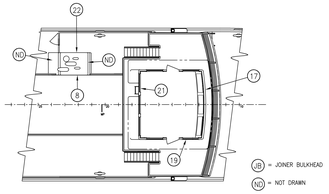
FWD. SIDE LKG. AFT.



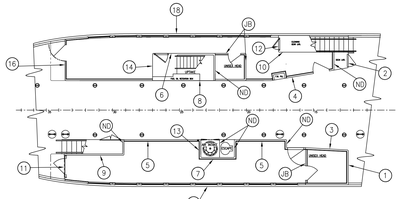
SECTION VIEW 3-D



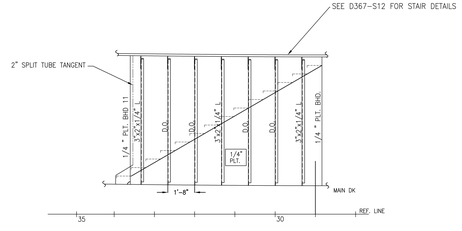
SECTION VIEW 2-D



01 & PILOT HOUSE DECK BULKHEAD KEY PLAN

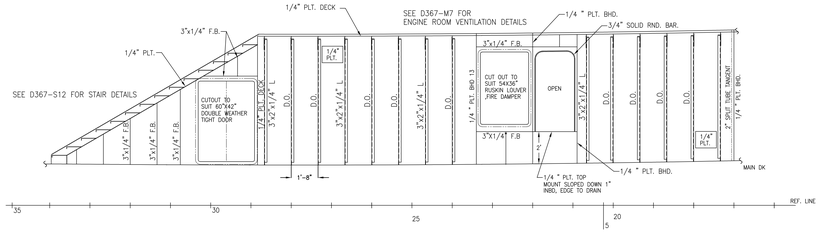


MAIN DECK BULKHEAD KEY PLAN



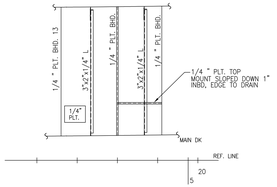
LONGT. BULKHEAD 9

OUTBD. SIDE LKG INBD.



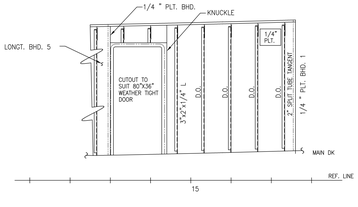
LONGT. BULKHEAD 5

OUTBD. SIDE LKG INBD.



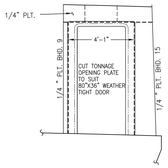
LONGT. BULKHEAD 7

OUTBD. SIDE LKG INBD.



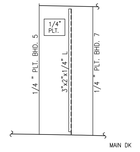
LONGT. BULKHEAD 3

OUTBD. SIDE LKG INBD.



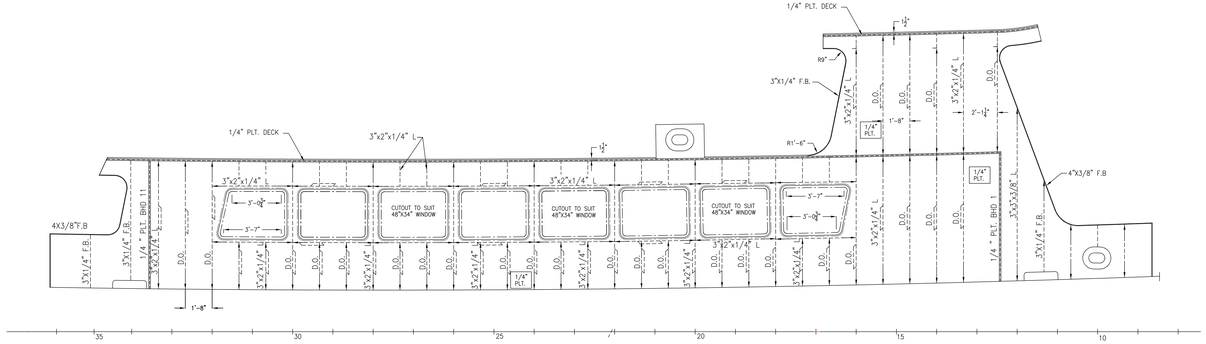
TRANSV. BULKHEAD 11

AFT SIDE LKG FWD.



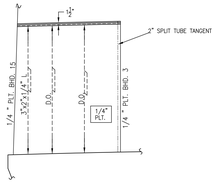
TRANSV. BULKHEAD 13

AFT SIDE LKG FWD.
TRANSV. BHD. 3" FWD OF FR. 21,
TRANSV. BHD. 2 1/2" AFT OF FR. 29
AND TRANSV. BHD. FR. 22 SIMILAR



LONGT. BULKHEAD 15

OUTBD SIDE LKG INBD.



TRANSV. BULKHEAD 1

FWD, SIDE LKG AFT.

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

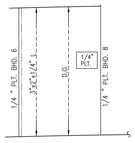
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

LONGTUDINAL & TRANSVERSE BULKHEADS ABOVE MAIN DECK

DRAWN BY JG	DATE 2/21/22
CHECKED BY GEG	DATE
APPROVED BY	DATE
SCALE 3/8" = 1'-0"	
DWG. NO. D367-S5-1	ALT. 0

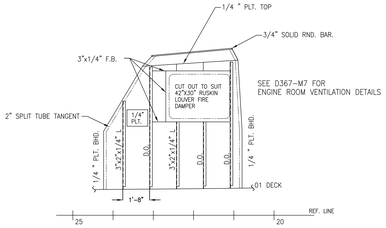
SHEET 1 OF 2



TRANSV. BULKHEAD 14

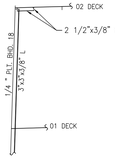
AFT SIDE LKG FWD.

TRANSV. BHD. 10" AFT OF FR. 22 SIMILAR

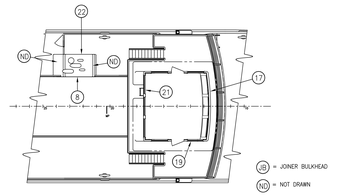


LONGT. BULKHEAD 21

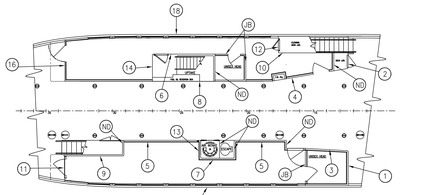
INBD. SIDE LKG OUTBD



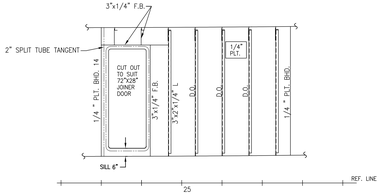
SECTION 8-D



01 & PILOT HOUSE DECK BULKHEAD KEY PLAN

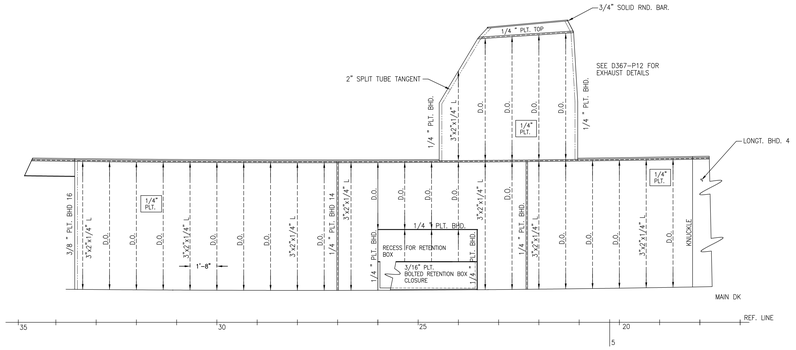


MAIN DECK BULKHEAD KEY PLAN



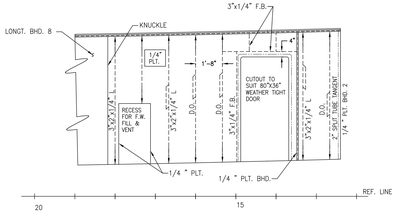
LONGT. BULKHEAD 6

INBD. SIDE LKG OUTBD



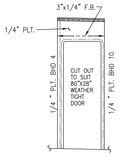
LONGT. BULKHEAD 8

INBD. SIDE LKG OUTBD



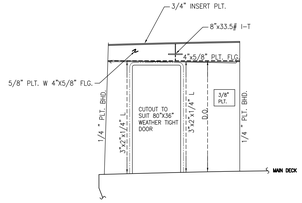
LONGT. BULKHEAD 4

INBD. SIDE LKG OUTBD



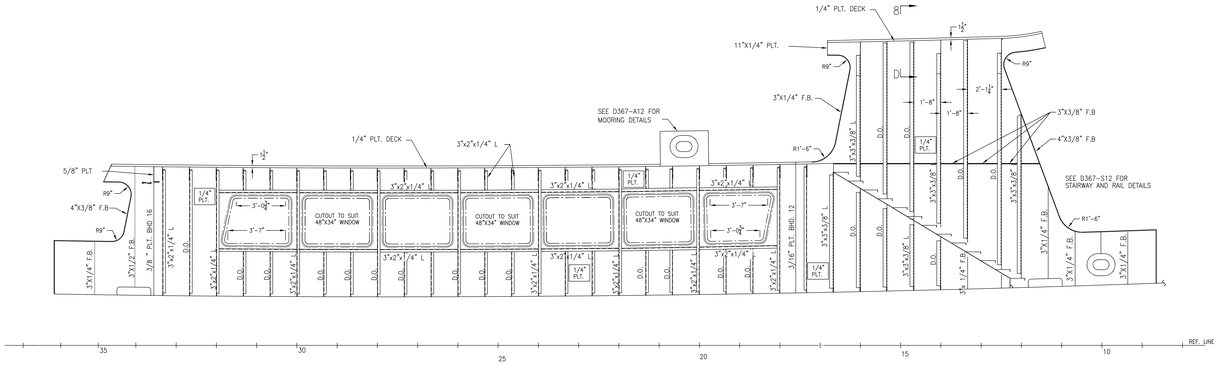
TRANSV. BULKHEAD 2

FWD. SIDE LKG AFT.



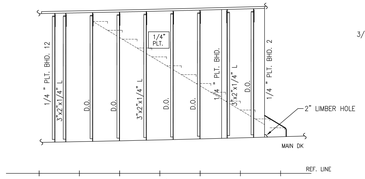
TRANSV. BULKHEAD 16

AFT SIDE LKG FWD.



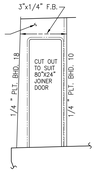
LONGT. BULKHEAD 18

INBD. SIDE LKG OUTBD



LONGT. BULKHEAD 10

INBD.. SIDE LKG OUTBD.



TRANSV. BULKHEAD 12

AFT SIDE LKG FWD.

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS MARINE ENGINEERS

100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

LONGTUDINAL & TRANSVERSE BULKHEADS ABOVE MAIN DECK

DRAWN BY JG DATE 2/21/22

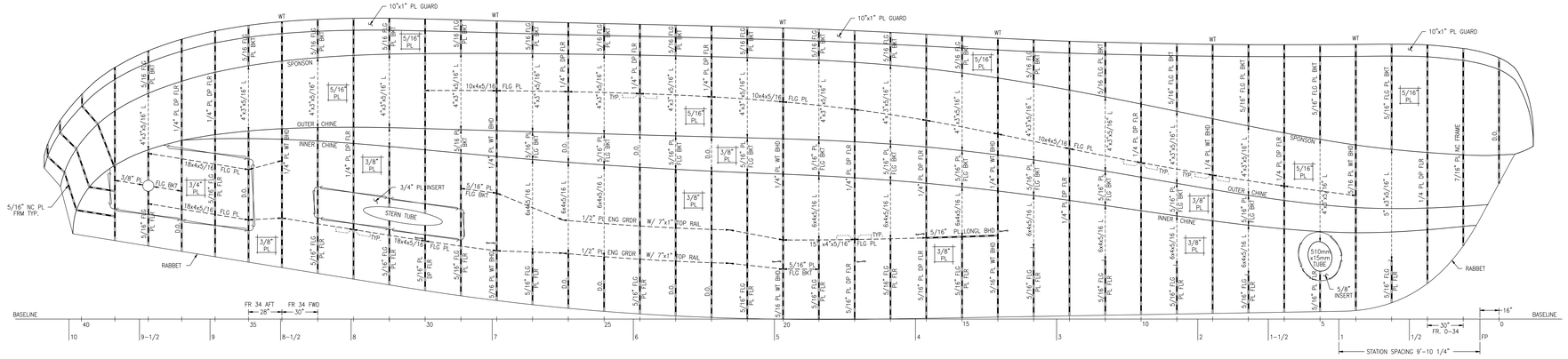
CHECKED BY GEG DATE

APPROVED BY DATE

SCALE 3/8" = 1'-0"

DWG. NO. D367-S5-2 ALT. 0

SHEET 2 OF 2



ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

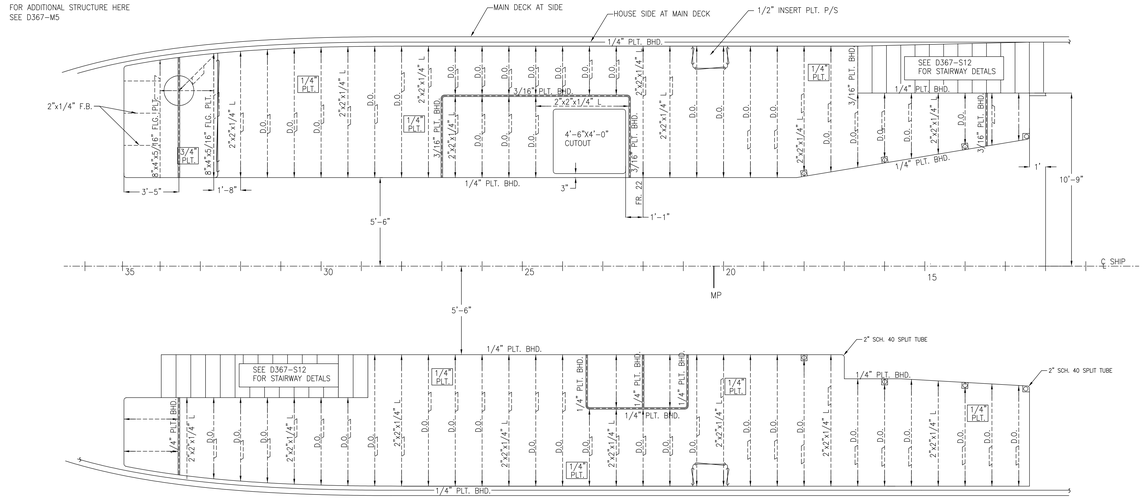
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

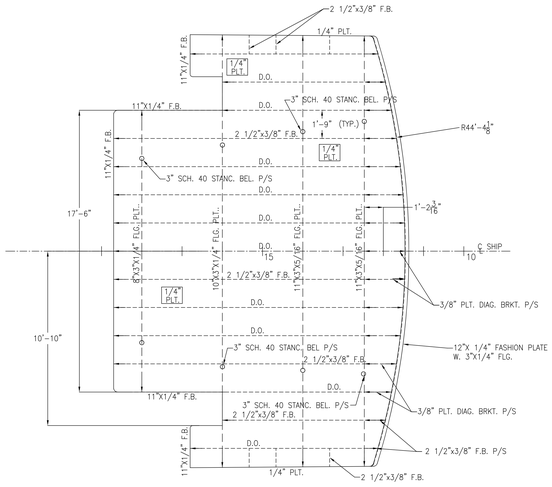
SHELL EXPANSION

DRAWN BY GEG DATE 9/7/2021
CHECKED BY JG DATE 3/21/22
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-S6 ALT. 0

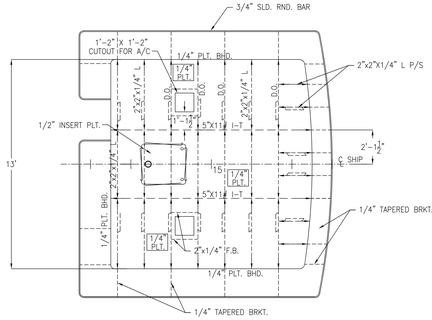
SHEET 1 OF 1



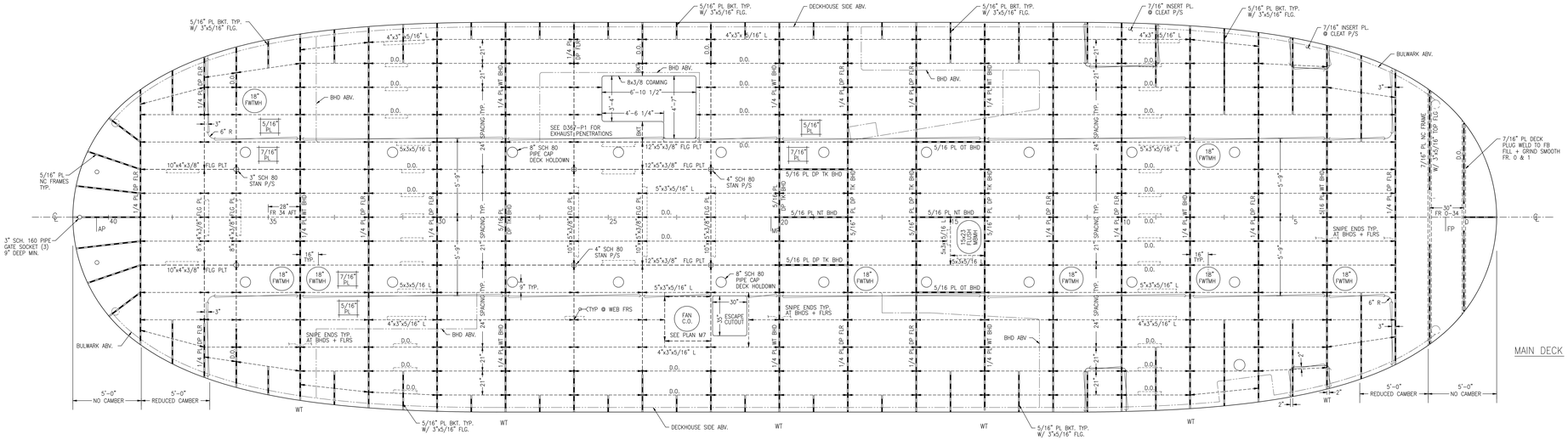
01 DECK



PILOTHOUSE DECK



PILOTHOUSE TOP



ALT	DESCRIPTION	DATE	NAME

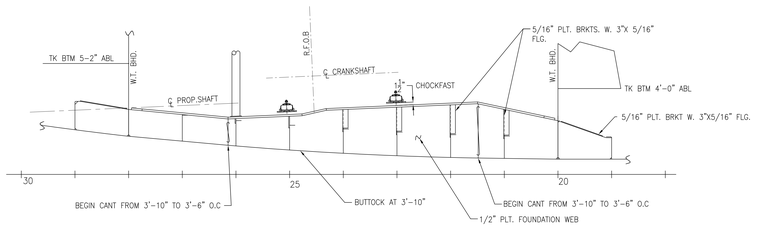
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

DECK SCANTLINGS MAIN, 01 & PILOTHOUSE DECK

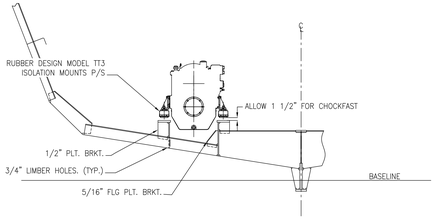
DRAWN BY JG/KC	DATE 05/11/2021
CHECKED BY GEG	DATE 3/21/22
APPROVED BY	DATE
SCALE 3/8" = 1'-0"	
DWG. NO. D367-S7	ALT. 0

SHEET 1 OF 1



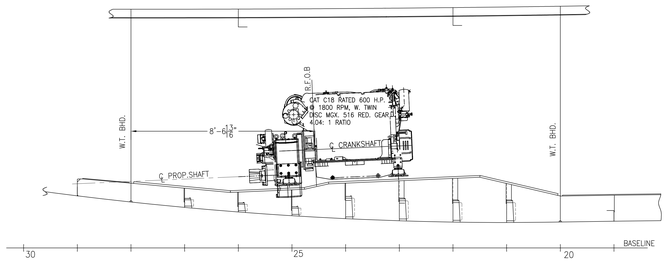
DETAIL VIEW PORT. INBD. ENGINE RAIL

INBOARD SIDE LOOKING OUTBOARD



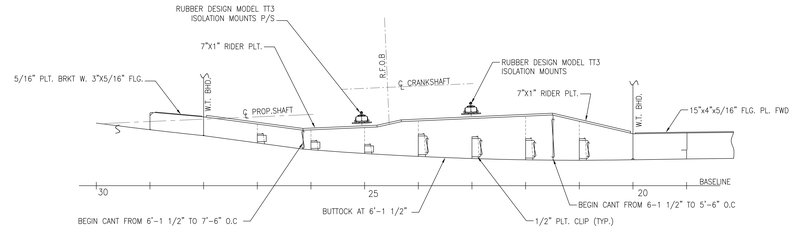
SECTION VIEW AT FR. 25

FWD. SIDE LKG. AFT.



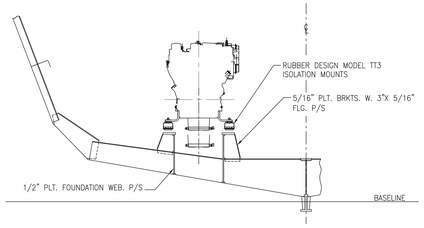
PROFILE VIEW STBD. OUTBD. ENGINE RAIL ARRANGEMENT

OUTBD. SIDE LKG. INBD.
PORT PROFILE ARRANGEMENT SIMILAR



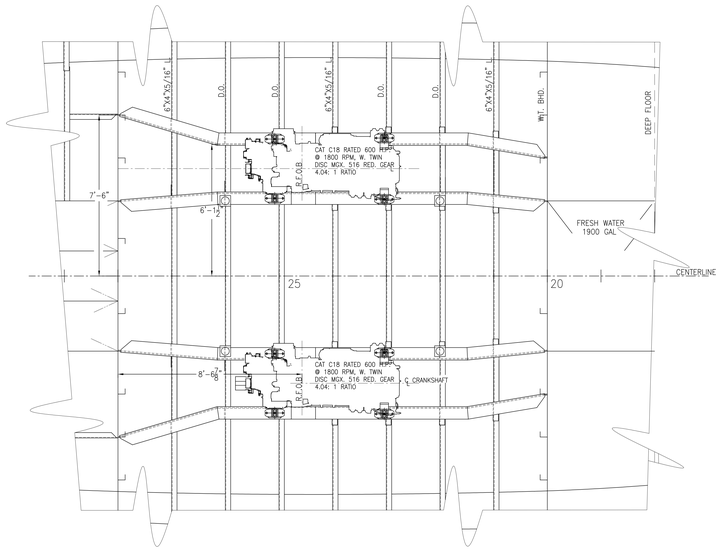
DETAIL VIEW PORT. OUTBD. ENGINE RAIL

INBOARD SIDE LOOKING OUTBOARD

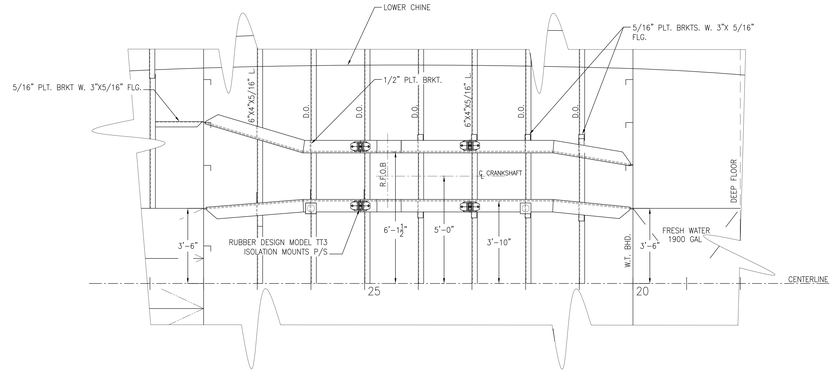


SECTION VIEW AT FR. 23

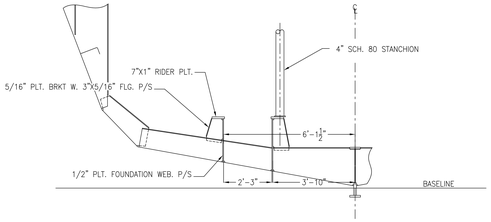
FWD. SIDE LKG. AFT.



PLAN VIEW ENGINE FOUNDATION ARRANGEMENT



PLAN VIEW PORT ENGINE FOUNDATION DETAILS



SECTION VIEW AT FR. 22

FWD. SIDE LKG. AFT.

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

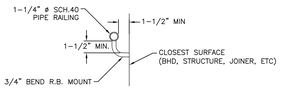
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

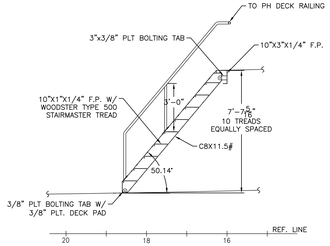
MAIN ENGINE FOUNDATION ARRANGEMENT AND DETAILS

DRAWN BY JG	DATE 11/11/21
CHECKED BY GEG	DATE
APPROVED BY	DATE
SCALE 1/2" = 1'-0"	
DWG. NO. D367-S9-1	ALT. 0

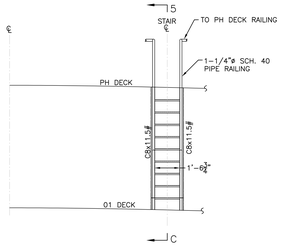
SHEET 1 OF 1



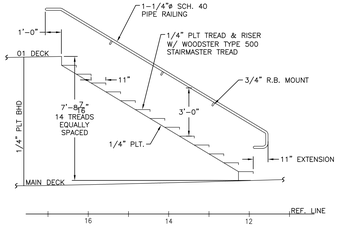
SECTION 5-D: TYPICAL RAILING MOUNT
NOT TO SCALE



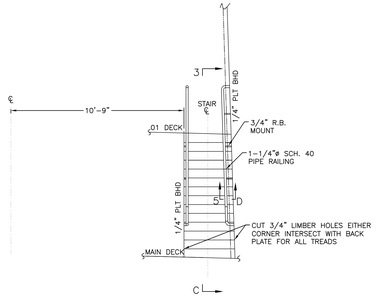
SECTION 5-C: PILOT HOUSE STAIRS
OUTBD SIDE LKG INBD
PORT SIDE SIMILAR



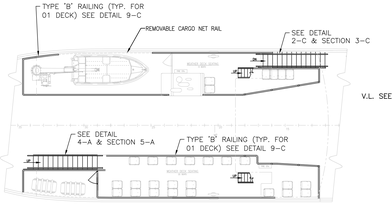
DETAIL 4-C: PILOT HOUSE STAIRS
AFT SIDE LKG FWD
PORT SIDE SIMILAR



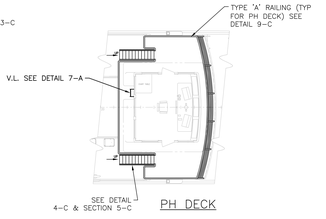
SECTION 3-C: PORT MAIN DECK STAIRS
INBD SIDE LKG OUTBD



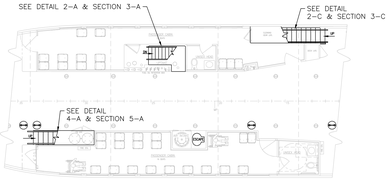
DETAIL 2-C: PORT MAIN DECK STAIRS
FWD SIDE LKG AFT



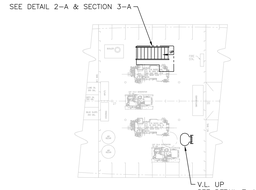
01 DECK



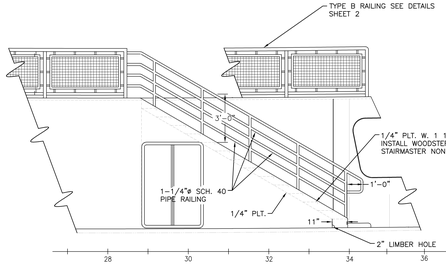
PH DECK



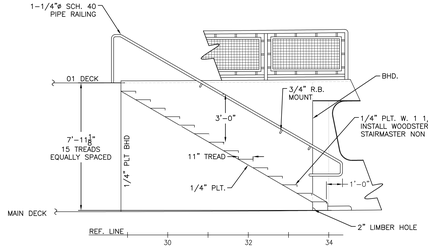
MAIN DECK



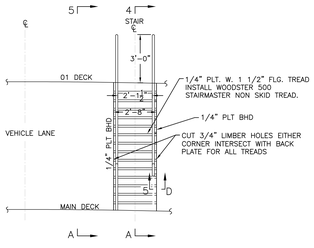
HOLD



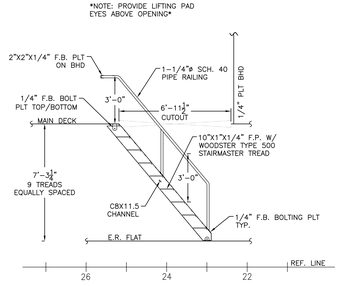
SECTION 5-A: STBD MAIN DECK STAIRS
INBD SIDE LKG OUTBD



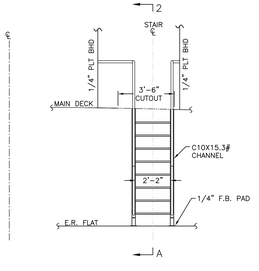
SECTION 4-A: STBD MAIN DECK STAIRS
INBD SIDE LKG OUTBD



DETAIL 3-A: STBD MAIN DECK STAIRS
AFT SIDE LKG FWD



SECTION 2-A: E.R. STAIRS
INBD SIDE LKG OUTBD



DETAIL 2-A: E.R. STAIRS
FWD SIDE LKG AFT

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT L.O.A. PASSENGER/VEHICLE FERRY

STAIRS, LADDERS, & RAILINGS ARRANGEMENT AND DETAILS

DRAWN BY TMH DATE 02/16/2022
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0" OR AS NOTED
DWG. NO. D367-S12-1 ALT. 0

SHEET 1 OF 2

NOTES:

1. HANDRAILS SHALL BE ATTACHED TO BULKHEADS AND STAIR STRINGERS. THE LOCATION AND DISTANCE OF RAILING OFF THE BULKHEADS AND OTHER OBSTRUCTIONS ARE TO BE DETERMINED PRIOR TO INSTALLATION TO INSURE ADEQUATE CLEARANCE FOR HANDS, INSULATION AND LININGS

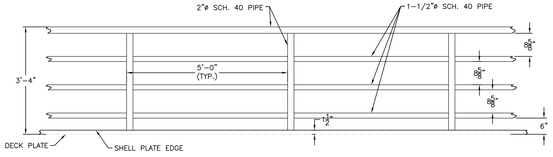
2. ALL PASSENGER STAIRS ARE TO HAVE WOOSTER 500 STAIRMASTER TREAD PLATES. BEDDING COMPOUND IS TO BE PLACED BETWEEN THE STEEL STAIR AND THE NON-SKID TREAD PLATE

3. ALL STAIRS W. OUT NON-SKID TREAD PLATES, PLATFORMS, AND LANDINGS ARE TO BE COVERED WITH NON-SKID COLOR: YELLOW AND BLACK.

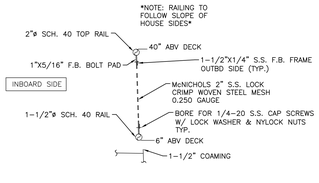
4. BACKS OF STAIRWAYS ARE TO BE WATERTIGHT TO PREVENT WEATHER FROM DRAINING TO BELOW DECK. OPEN STAIRS ARE TO BE CLOSED AT BACK WITH VANITY SHIELDS WHERE NECESSARY.

5. ALL WELDS ARE TO BE DOUBLE CONTINUOUS.

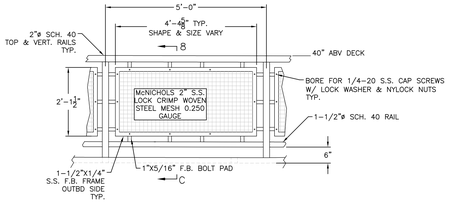
6. SEE D-367-57 DECK SCANTLINGS FOR DETAILED CUT OUT LOCATIONS AND DIMENSIONS. SEE D-367-55 FOR BULKHEAD DETAILS.



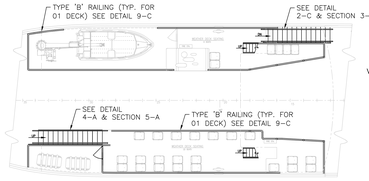
DETAIL 9-C: TYPE 'A' RAILING
SCALE: 3/4"=1'



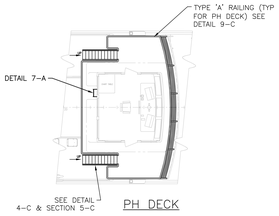
SECTION 8-C: TYPE 'B' RAILING
SCALE: 3/4"=1'



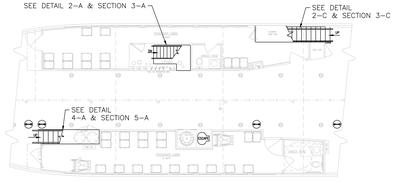
DETAIL 7-C: TYPE 'B' RAILING
SCALE: 3/4"=1'



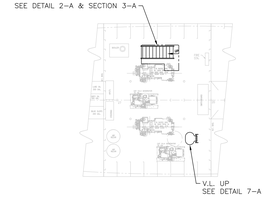
01 DECK



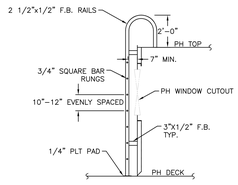
PH DECK



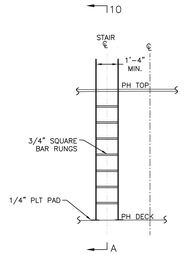
MAIN DECK



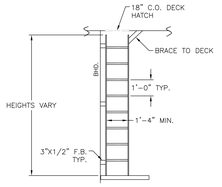
HOLD



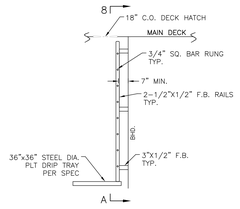
SECTION 10-A: PILOT HOUSE LADDER
INBD SIDE LKG OUTBD



DETAIL 9-A: PILOT HOUSE LADDER
AFT SIDE LKG FWD



SECTION 8-A: TYPICAL VERTICAL LADDER



DETAIL 7-A: TYPICAL VERTICAL LADDER

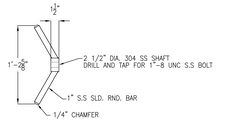
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

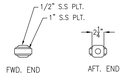
104 FT L.O.A. PASSENGER/VEHICLE FERRY

STAIRS, LADDERS, & RAILINGS ARRANGEMENT AND DETAILS

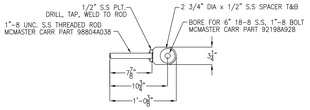
DRAWN BY TMH DATE 02/16/2022
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-S12-2 ALT. 0



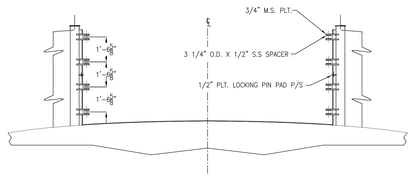
DOOR DOG DETAIL
SCALE 1 1/2"= 1'-0"



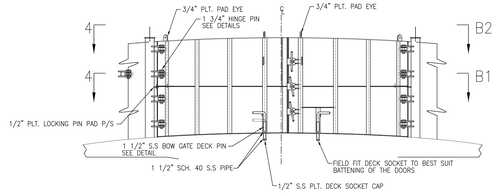
DOOR DOG PIN END ON VIEWS
SCALE 1 1/2"= 1'-0"



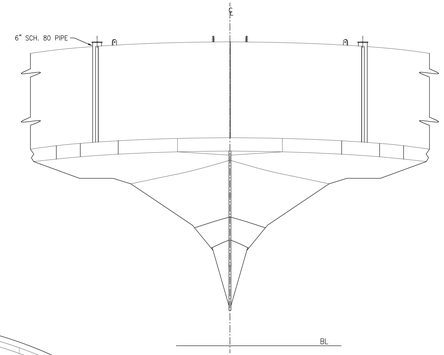
DOOR DOG PIN DETAIL
SCALE 1 1/2"= 1'-0"



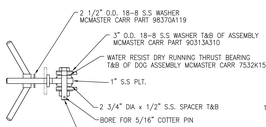
SECTION VIEW OF BOW DOOR SUPPORTS
AFT SIDE LOOKING FORWARD



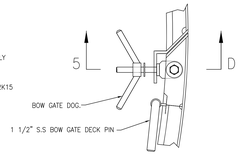
SECTION VIEW OF BOW DOORS
AFT SIDE LOOKING FORWARD



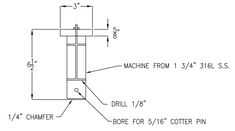
SECTION VIEW OF BOW DOORS
FORWARD SIDE LOOKING AFT.



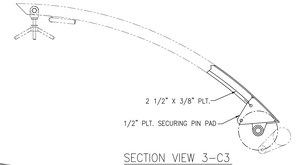
SECTION 5-D
SCALE 1 1/2"= 1'-0"



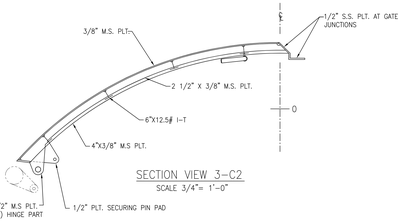
PLAN VIEW PORT DOOR DOG AND
DECK PIN ASSEMBLY
SCALE 1 1/2"= 1'-0"



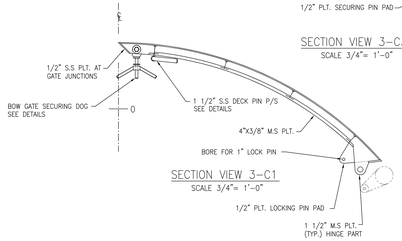
DOOR HINGE PIN DETAIL
SCALE 3"= 1'-0"



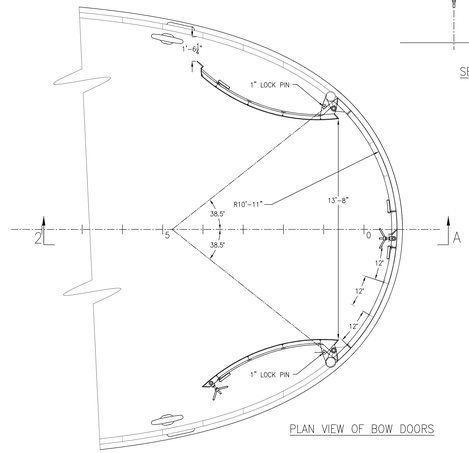
SECTION VIEW 3-C3
SCALE 3/4"= 1'-0"



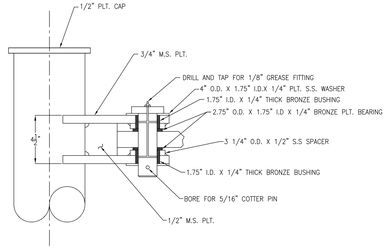
SECTION VIEW 3-C2
SCALE 3/4"= 1'-0"



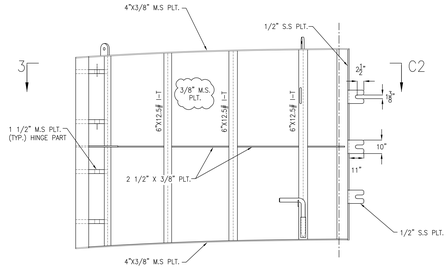
SECTION VIEW 3-C1
SCALE 3/4"= 1'-0"



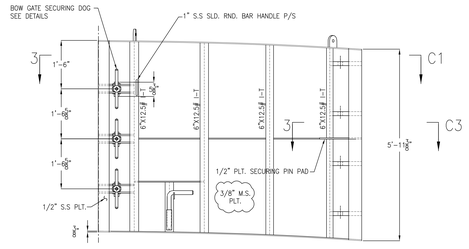
PLAN VIEW OF BOW DOORS



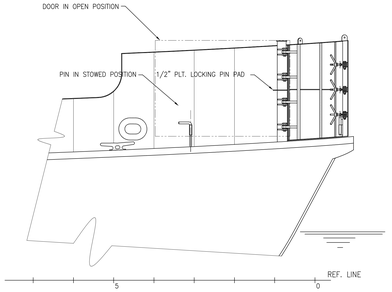
SECTION 5-A
SCALE 3"= 1'-0"



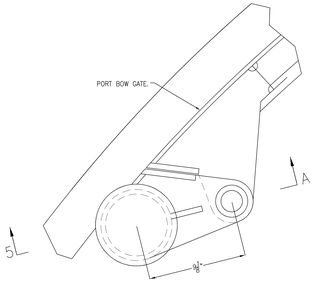
DETAIL SECTION VIEW OF PORT BOW DOOR
AFT SIDE LOOKING FORWARD
SCALE 3/4"= 1'-0"



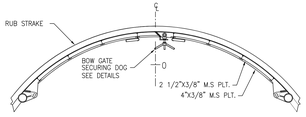
DETAIL SECTION VIEW OF STBD. BOW DOOR
AFT SIDE LOOKING FORWARD
SCALE 3/4"= 1'-0"



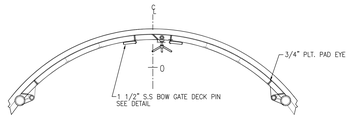
SECTION VIEW 2-A



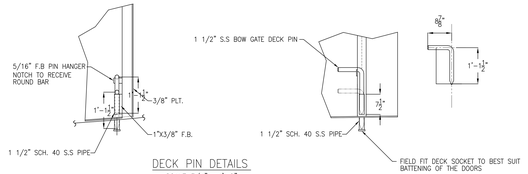
PLAN VIEW PORT DOOR SUPPORT AND HINGE
SCALE 3"= 1'-0"



SECTION 4-B2



SECTION 4-B1



DECK PIN DETAILS
SCALE 3/4"= 1'-0"

ALT	DESCRIPTION	DATE	NAME

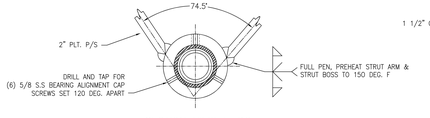
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

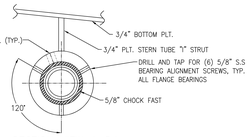
BOW DOORS AND LOADING GATE ARRANGEMENTS AND DETAILS

DRAWN BY JG DATE 1/14/22
CHECKED BY KC DATE 1/19/22
APPROVED BY DATE
SCALE 3/8" = 1'-0" OR AS NOTED
DWG. NO. D367-S13 ALT. 0

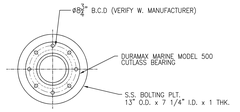
SHEET 1 OF 1



SECTION VIEW 5–D2
SCALE 1 1/2"=1'–0"



SECTION VIEW 4–D4
SCALE 1 1/2"=1'–0"



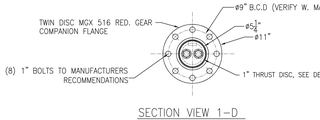
SECTION VIEW 4–D2
SCALE 1 1/2"=1'–0"



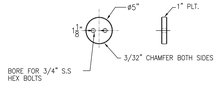
OVERALL LINE SHAFT ARRANGEMENT DETAIL
SCALE 1 1/2"=1'–0"



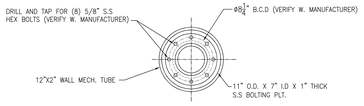
OVERALL TAIL SHAFT ARRANGEMENT DETAIL
SCALE 1 1/2"=1'–0"



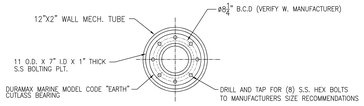
SECTION VIEW 1–D
SCALE 1 1/2"=1'–0"



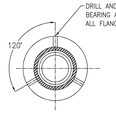
THRUST DISC DETAILS
SCALE 1 1/2"=1'–0"



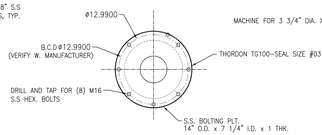
SECTION VIEW 5–D1
SCALE 1 1/2"=1'–0"



SECTION VIEW 4–D3
SCALE 1 1/2"=1'–0"



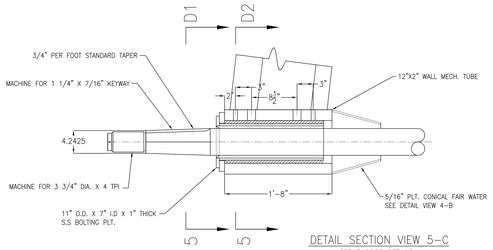
SECTION VIEW 4–D1
SCALE 1 1/2"=1'–0"



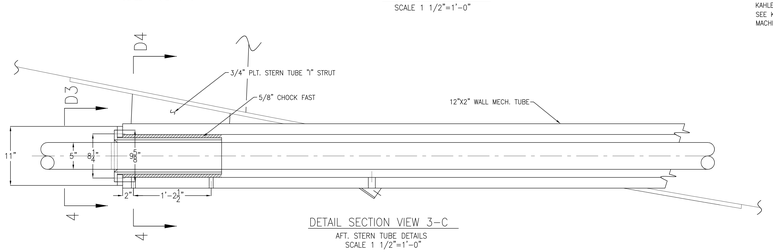
SECTION VIEW 3–D
SCALE 1 1/2"=1'–0"



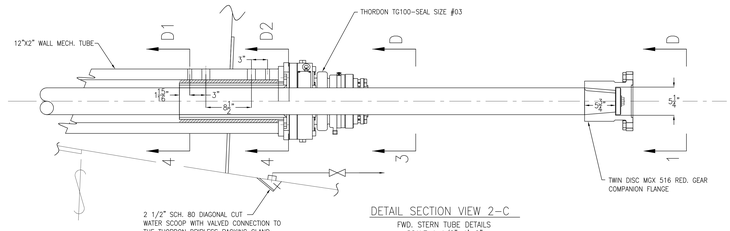
OVERALL SHAFT ARRANGEMENT DETAIL
SCALE 3/4"=1'–0"



DETAIL SECTION VIEW 5–C
STRUT BOSS DETAILS
SCALE 1 1/2"=1'–0"



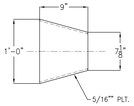
DETAIL SECTION VIEW 3–C
AFT. STERN TUBE DETAILS
SCALE 1 1/2"=1'–0"



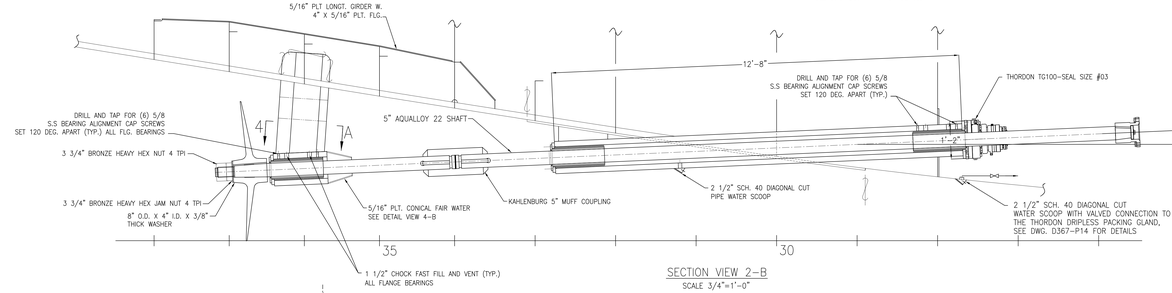
DETAIL SECTION VIEW 2–C
FWD. STERN TUBE DETAILS
SCALE 1 1/2"=1'–0"

MATERIAL LIST

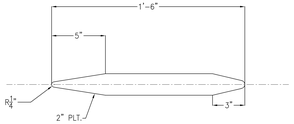
No.	QTY*	SIZE	DESCRIPTION	MATERIAL SPECIFICATIONS
1	2	52"Ø	PROPELLER	4 BLADE, 52" DIA, FINAL DAR & PITCH TBD – SOUND PROPELLER OR EQUIVALENT
2	2	3 3/4"	FULL HEIGHT PROP NUT	BRONZE, 4 TPI
3	4	5"Ø	CUTLESS BEARING	STRUT BARREL AND AFT STERN TUBE BRASS/FLANGED CUTLESS BEARING DURAMAX MARINE MODEL CODE "EARTH"
4	2	12"Ø	STRUT BARREL	12" O.D. 8" I.D. x 1'–8" L MECHANICAL TUBE AISI 1026 ASTM A519
5	2		S.S. BOLTING PLT	S.S. BOLTING PLT 14 3/8" O.D. x 10 7/8" I.D. x 1 THK.
6	2		S.S. BOLTING PLT	S.S. BOLTING PLT 14" O.D. x 7 1/4" I.D. x 1 THK.
7	2	3 3/4	JAM NUT	BRONZE, 4 TPI
8	2	5"Ø	"MUFF" COUPLING	S.S. KAHLENBERG "MUFF" COUPLING FOR 5"Ø SHAFT
9	4		S.S. BOLTING PLT	S.S. BOLTING PLT 11" O.D. x 7" I.D. X 1" THK
10	2	5"Ø	LINE SHAFT	5"Ø AQUALOY 22, S.S.
11	2	5"Ø	CUTLESS BEARING	FWD STERN TUBE BRASS/FLANGED CUTLESS BEARING – DURAMAX MARINE MODEL No. 500
12	2	5"Ø	SHAFT SEAL	THORDON TG100–SEAL SIZE ø03
13	2		STERN TUBE	12" O.D. 8" I.D. x 12'–8" L MECHANICAL TUBE, AISI 1026, ASTM A519
14	2	5"Ø	TAIL SHAFT	5"Ø AQUALOY 22, S.S.
15	2	2"	WATER SCOOP	2" SCH. 80 TUBE
16	2		CONICAL FAIRWATER	5/16" ROLLED PLATE, ASTM A36
17	4		SHAFT STRUTS	2" SHAPED PLATE, ASTM. A36
18	2		COMPANION FLANGE	TWIN DISC MGX 516 REDUCTION GEAR FLANGE
	2	52"	PROPELLERS	SOUND PROPELLER 52" X 50" APROX. X .80 DAR, STAINLESS STEEL



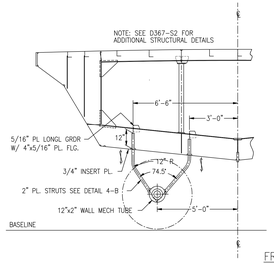
DETAIL VIEW 4–B
CONICAL FAIRWATER
SCALE 1 1/2"=1'–0"



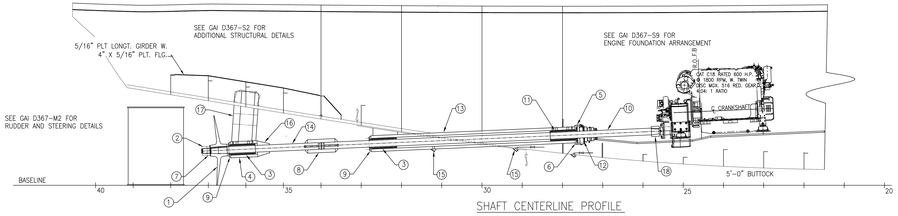
SECTION VIEW 2–B
SCALE 3/4"=1'–0"



SECTION VIEW 4–A
SHAFT STRUT
SCALE 3"=1'–0"



FRAME 36
FWD. SIDE LKG. AFT.
SCALE 3/8"=1'–0"



SHAFT CENTERLINE PROFILE
5'–0" OFF CENTERLINE
PORT SIDE SHOWN INBD., SIDE LKG. OUTBD.
SCALE 3/8"=1'–0"

ABS SHAFTING CALCULATION
SHAFT DIAMETER

$$D=100K\sqrt[3]{(H/R)[C_r/(U+C_2)]}$$

D (LINESHAFT) = 3.723" (REQUIRED)
D (LINESHAFT) = 5" (ACTUAL)

D (TAILSHAFT) = 4.14 (REQUIRED)
D (TAILSHAFT) = 5" (ACTUAL)

D=MIN. REQUIRED SHAFT Ø
U=100,000 PSI (AQUALOY 22 LINESHAFT)
U=87,000 PSI MAX (AQ 22 TAILSHAFT)
K=1.1 (LINESHAFT), 1.18 (TAILSHAFT)
H=600 HP
R=445.8 RPM
C_r=3.55
C_2=23180

ABS SHAFTING CALCULATION
KEYWAY SHEAR AREA SIZING

REDUCTION GEAR COUPLING

$A_{REQ}=(D^3/5.1r_o)*(Y_r/Y_s)$

D= REQ'D LINE SHAFT DIA = 4.2"
r_o = 1.697
$(Y_r/Y_s)=1$

A_{REQ} = 5.96 in^2

$A_{KEYWAYS\ ACTUAL}$ =1.25X5.31"=6.625 in^2

PROPELLER HUB

$A_{REQ}=(D^3/5.1r_o)*(Y_r/Y_s)$

D= REQ'D LINE SHAFT DIA = 4.14"
r_o = 4.58"
$(Y_r/Y_s)=1$

A_{REQ} =3.037 in^2

$A_{KEYWAY\ ACTUAL}$ =11.688"x1.250"=14.61 in^2

ALT	DESCRIPTION	DATE	NAME

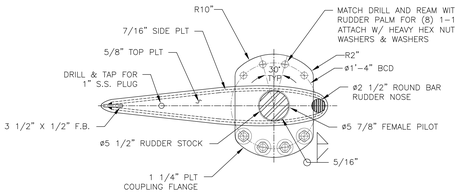
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT. LOA PASSEENGER/VEHICLE FERRY

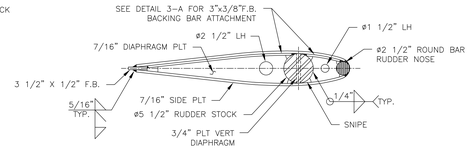
SHAFTING ARRANGEMENT AND DETAILS

DRAWN BY JG DATE 11/24/21
CHECKED BY GEG DATE
APPROVED BY DATE
SCALE 3/8" = 1'–0" OR AS NOTED
DWG. NO. D367–MI–1 ALT. 0

SHEET 1 OF 1



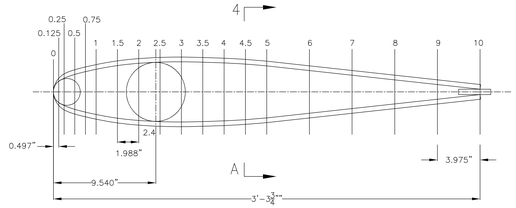
SECTION 5-D
RUDDER TOP PLT.



SECTION 4-D
RUDDER DIAPHRAGM PLT.

RUDDER OFFSETS TO OUTSIDE OF PLATING FROM RUDDER CENTERLINE

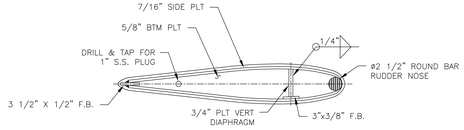
	STA. 0	STA. 0.125	STA. 0.25	STA. 0.5	STA. 0.75	STA. 1	STA. 1.5	STA. 2	STA. 2.5	STA. 3	STA. 3.5	STA. 4	STA. 4.5	STA. 5	STA. 6	STA. 7	STA. 8	STA. 9	STA. 10
OFFSET FROM $\mathcal{C}_L$	0"	1.266"	1.675"	2.065"	2.322"	2.541"	2.889"	3.100"	3.210"	3.242"	3.203"	3.135"	3.025"	2.860"	2.428"	1.993"	1.559"	1.125"	0.69"



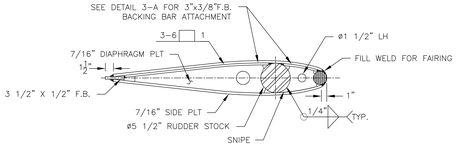
DETAIL 3-D
SECTION VIEW INSIDE LINE OF THE RUDDER
SCALE: 3"=1'

BILL OF MATERIALS

ITEM	QUANTITY	SIZE	DESCRIPTION	MATERIAL	MATERIAL SPECIFICATION
1	2	5 1/2"ø	UPPER RUDDER STOCK	AQUALOY22	SEE SHEET 2 FOR DETAILS
2	4	7/16"	RUDDER SIDE PLT	STEEL	ASTM A36
3	2	7/16"	RUDDER DIAPHRAGM	STEEL	ASTM A36
4	2	3/4"	RUDDER VERTICAL DIAPHRAGM	STEEL	ASTM A36
5	2	5/8"	RUDDER TOP PLT	STEEL	ASTM A36
6	2	5/8"	RUDDER BOTTOM PLT	STEEL	ASTM A36
7	2	1/2"	RUDDER TRAILING EDGE BAR	STEEL	ASTM A36, 3 1/2" x 1/2" F.B.
8	2	5-1/2"ø	RUDDER LOWER BEARING	ELASTOMER	THORDON SXL BEARING 6.102" HOUSING DIAMETER
9	2	2-1/2"ø	RUDDER NOSE	STEEL	2-1/2"ø ROUND BAR
10	AS NEEDED	3/8"	FB PLUG WELD BACKER PLT	STEEL	ASTM A36, 3"X3/8"
11	2	5-1/2"ø	LOWER RUDDER STOCK	AQUALOY22	SEE SHEET 2 FOR DETAILS
12	4	1"	RUDDER PLUG	ST. STEEL	ASTM A316
13	2	1-1/4"	LOWER RUDDER PALM	STEEL	ASTM A36
14	2	1-1/4"	UPPER RUDDER PALM	ST. STEEL	ASTM A316
15	16	1-1/4"	RUDDER PALM BOLTS	ST. STEEL	ASTM A316
16	32	1-1/4"	RUDDER PALM NUTS & JAM NUTS	ST. STEEL	ASTM A325 (16) HEAVY HEX NUT & (16) JAM NUT
17	48	1-1/4"	RUDDER PALM WASHERS	ST. STEEL	ASTM A316 (32) WASHERS & (16) LOCK WASHERS
18	2	9-1/4"ø	RUDDER PORT	STEEL	ASTM A519 MECH. TUBE, 9-1/4"O.D. x 2" WALL. x 2'-0" L
19	2	2"	RUDDER PORT FLANGE	STEEL	ASTM A36, 10 3/4" O.D. x 5-3/4" x 2" THICK
20	2	1/2"	RUDDER STOCK RETAINER RING	ST. STEEL	9-1/4" O.D. x 5-7/8" I .D. x 1/2" THICK
21	16	5/8"ø	RUDDER STOCK RETAINER RING SCREWS	ST. STEEL	5/8" x 2-1/2" A316 S.S. HEX HEAD CAP SCREWS
22	2	1/4"	KEEPER BAR	ST. STEEL	1-1/2" x 1/4" BAR
23	2	9"ø	TILLER HUB	STEEL	ASTM A519 MECH. TUBE 9" O.D. x 5-3/4" I.D. x 6" L
24	4	1 1/2"	TILLER ARMS	STEEL	ASTM A36
25	8	3/4"	TILLER PIN SPACER	STEEL	ASTM A36
26	4	1-1/4"	TILLER HUB KEYS	STEEL	ABS GR. 2 KEYSTOCK OR EQUIV. 7/8" x 1-1/4"
27	4	1-1/2"	TILLER HUB PINS	ST. STEEL	1 1/2" 316 S.S SEE SHEET 3 FOR DETAILS
28	4	1-1/2"	TILLER PIN NUT	STEEL	1-1/2" HEAVY HEX NUT
29	8	1/2"	TILLER PIN LOCK KEY	STEEL	ABS GR. 2 KEYSTOCK OR EQUIV. 1/2" x 1/2"
30	2	2"	JOCKEY-BAR ROD ENDS	ST. STEEL	BALL JOINT ROD END MCMASTER-CARR 60645K771
31	2	2"	JOCKEY BAR RODS	STEEL	2"-12 HIGH STRENGTH THREADED ROD
32	1	4"	JOCKEY BAR	STEEL	4" SCH 120 PIPE
33	2	1-1/2"	JOCKEY BAR CAP	STEEL	ASTM A36
34	4	2"	JOCKEY BAR BUSHING	BRONZE	2" O.D. x 1 1/2" I.D. BRONZE BUSHING
35	8	1/8"	JOCKEY BAR WASHER	BRONZE	2 1/2" O.D. x 2" I.D. BRONZE WASHER
36	4	5 1/2"	RUDDER SEALS	———	THORDON THORSEAL RUDDER SEAL- (2) AS SPARE
37	AS NEEDED	5/8", 1/2"	RUDDER SEAL HOUSING THREADED STUDS & NUTS	ST. STEEL	5/8"-11 UNC x 4-1/4" A316 S.S. ASTM A193 (16) THREADED STUD, (16) JAM NUT, (16) HEX NUT 1/2"-13 UNC x 2-3/4" A316 S.S. ASTM A193 (16) THREADED STUD, (16) JAM NUT, (16) HEX NUT
38	2	4-15/16"ø	CARRIER BEARING	———	DODGE EFC-S2-415R PILOTED FLANGE ROLLER BEARING PT# 071522
39	2	4-7/16"ø	CARRIER BEARING THRUST COLLAR	IRON	DODGE SPLIT IRON SHAFT COLLAR PT# 010117
40	12	7/8"	CARRIER BEARING BOLTS	ST. STEEL	7/8" S.S. BOLTS W/NUTS & JAM NUTS ASTM GR320
41	2	3 1/4"ø	RUDDER STOCK NUT	ST. STEEL	ASTM A325 HEAVY HEX NUT; 4 TPI
42	2	3/8"	RUDDER STOCK WASHER	STEEL	ASTM A36
43	AS NEEDED	———	SACRIFICIAL ANODES	ALUMINUM	
44	1	1"	JOCKEY BAR SUPPORT PAD	TIVAR	TIVAR 1000 SELF LUBRICATING PAD 6" x 9"
45	2	———	HYDRAULIC CYLINDER	———	EMI SUPPLIED TBD STEEL ACTUATORS
46	2	1/8"	RUDDER PORT GASKET	EPDM	EPDM SHEET PLAIN BACKING ASTM D2000 BA 607



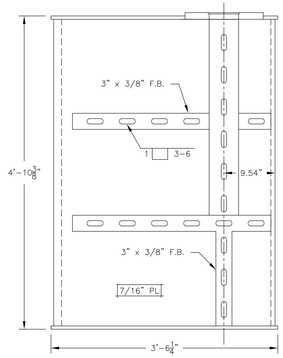
SECTION 5-C
RUDDER BOTTOM PLT.



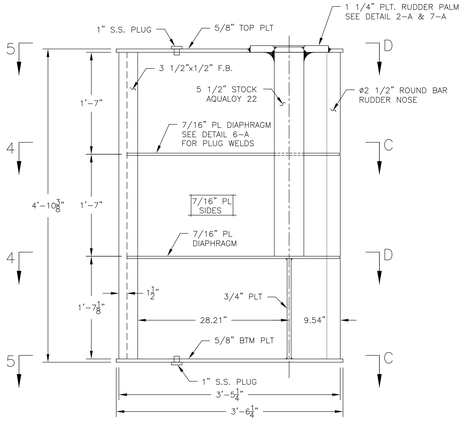
SECTION 4-C
RUDDER DIAPHRAGM PLT.

RUDDER STOCK CALCULATIONS

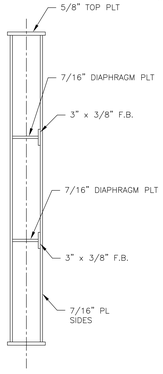
RUDDER PORT: THICKNESS = 1.75"
UPPER LOCKING NUT: THREAD DIA = 3.25"
UPPER LOCKING NUT: HEIGHT = 3"
UPPER LOCKING NUT: OD = 7.5"
UPPPER STOCK: DIAMETER = 5 1/2" AQUAMET 22
RUDDER PALM: THICKNESS = 1.25"
RUDDER PALM: BOLTS = 1.25" ø
RUDDER PALM: NUMBER OF BOLTS = 8



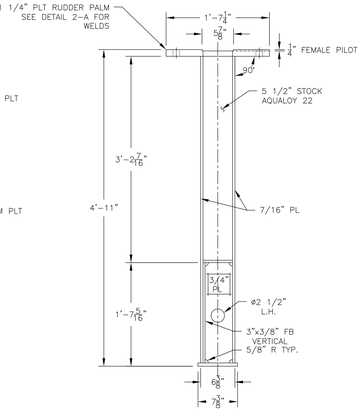
DETAIL 5-A
PLUG WELD DETAIL
SCALE: 1 1/2" = 1'-0"
NOTE: SLOTS TO BE FILL WELDED AND GROUND SMOOTH AFTER ASSEMBLY.



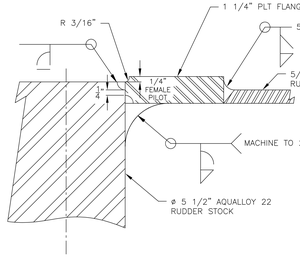
DETAIL 4-A
RUDDER PROFILE
SCALE: 1 1/2" = 1'-0"



DETAIL 3-A2
SECTION AT 45% OF RUDDER
SCALE: 1 1/2" = 1'-0"



DETAIL 3-A1
RUDDER CENTERLINE STRUCTURAL SECTION
SCALE: 1 1/2" = 1'-0"



DETAIL 2-A
LOWER PALM FLANGE WELDS
SCALE : HALF FULL SIZE

GENERAL NOTES

1. THIS DRAWING SHALL BE READ TOGETHER WITH D367-M2-2 & D367-M2-3.
2. ALL WELDING MATERIALS AND PROCEDURES SHALL BE ACCORDING TO ABS RULES AND TO SATISFACTION OF OCMI.
3. RUDDERS SHALL BE WATERTIGHT AND TESTED TO SATISFACTION OF COAST GUARD OCMI.
4. EACH RUDDER SHALL BE FITTED WITH THREADED PLUGS TOP AND BOTTOM FOR DRAINAGE.
5. INTERIOR OF RUDDERS SHALL BE COATED WITH SUITABLE RUST INHIBITOR AND PROPERLY DRAINED.
6. EACH RUDDER SHALL BE FITTED WITH TWO STREAMLINED ANODES EACH 9"x5"x1" APPROX., 18" FWD OF TRAILING EDGE.
7. STEERING APPARATUS SHALL MEET THE REQUIREMENTS OF 46 CFR 182.600 AND THE APPLICABLE PORTIONS OF SUBCHAPTERS F AND J OF 46 CFR
8. MAKE PROVISION TO SECURE TWO SPARE 5 1/2" THORSEAL RINGS BETWEEN RUDDER SEAL RETAINING PLATE & CARRIER BEARING.

ALT	DESCRIPTION	DATE	NAME

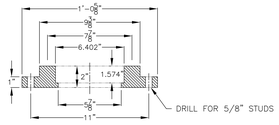
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT PASSENGER/VEHICLE FERRY

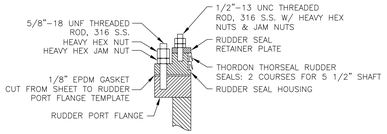
RUDDER ARRANGEMENT & DETAILS

DRAWN BY KVC/JG DATE 9/29/21
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 1 1/2" = 1'-0"
DWG. NO. D367-M2-1 ALT. 0

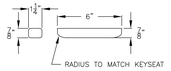
SHEET 1 OF 3



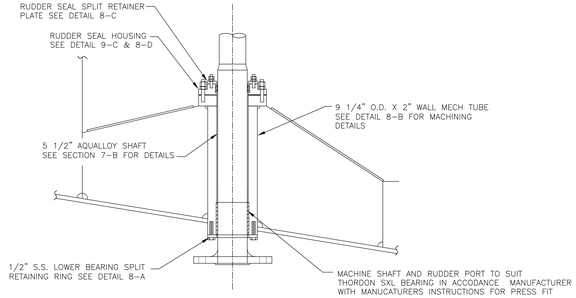
SECTION 9-D
SECTION VIEW RUDDER SEAL HOUSING
SCALE: 3" = 1'-0"



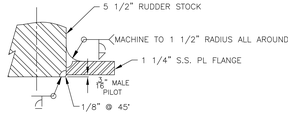
DETAIL 8-D
RUDDER SEAL HOUSING ATTACHMENT DETAIL
SCALE: 3" = 1'-0"



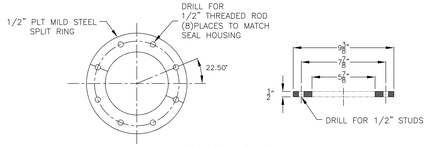
DETAIL 7-D
TILLER HUB KEYS
SCALE: 3" = 1'-0"



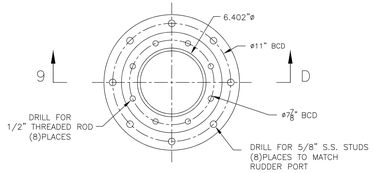
SECTION 6-D
SECTION VIEW RUDDER PORT ASSEMBLY



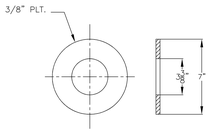
SECTION 7-C
UPPER PALM FLANGE WELDS
SCALE: 3" = 1'-0"



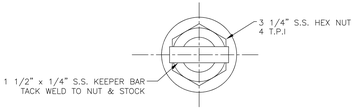
DETAIL 8-C
RUDDER SEAL SPLIT RETAINER PLATE
SCALE: 3" = 1'-0"



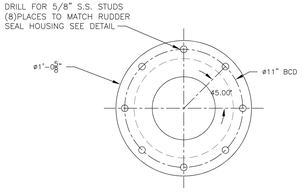
DETAIL 9-C
TOP VIEW RUDDER SEAL HOUSING
SCALE: 3" = 1'-0"



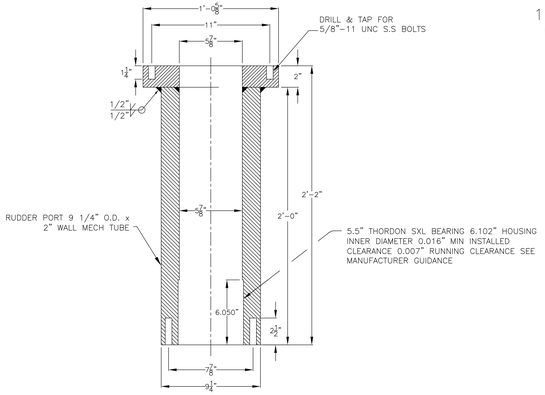
DETAIL 10-C
TILLER NUT WASHER
SCALE: 3" = 1'-0"



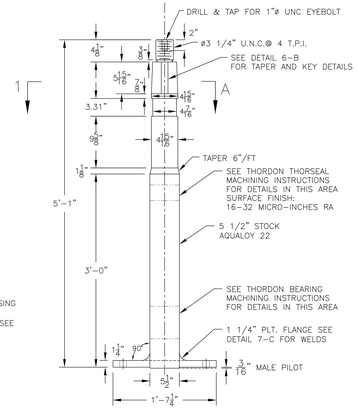
SECTION 10-B



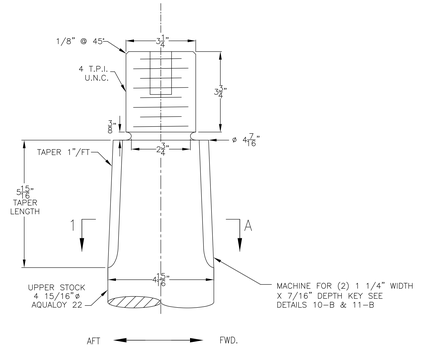
DETAIL 9-B
RUDDER PORT TOP DETAILS
SCALE: 3" = 1'-0"



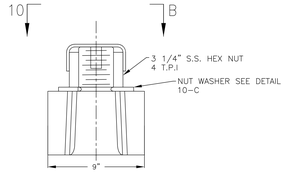
SECTION 8-B
SECTION THROUGH RUDDER PORT
SCALE: 3" = 1'-0"



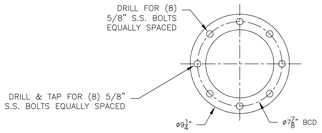
SECTION 7-B
RUDDER STOCK
FWD. SIDE LKG. AFT
SCALE: 1 1/2" = 1'-0"



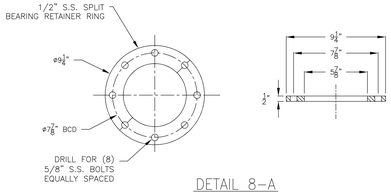
SECTION 6-B
UPPER STOCK TAPER & THREAD
SCALE: HALF FULL SIZE



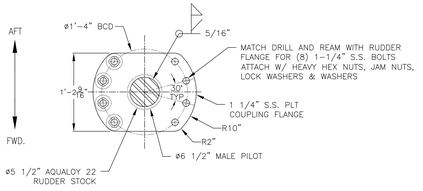
DETAIL 10-A
TILLER HUB NUT
SCALE: 3" = 1'-0"



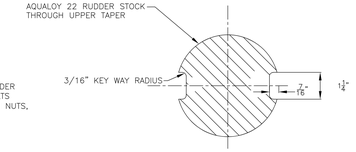
DETAIL 9-A
RUDDER PORT BOTTOM DETAILS
SCALE: 3" = 1'-0"



DETAIL 8-A
LOWER BEARING SPLIT RETAINER RING
SCALE: 3" = 1'-0"



DETAIL 7-A
RUDDER STOCK UPPER PALM
SCALE: 1 1/2" = 1'-0"



SECTION 1-A
SECTION THROUGH STOCK
SCALE: HALF FULL SIZE

ALT	DESCRIPTION	DATE	NAME

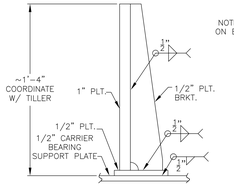
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT PASSENGER/VEHICLE FERRY

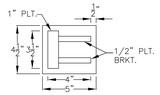
RUDDER ARRANGEMENT & DETAILS

DRAWN BY KVC/JG DATE 9/29/21
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 1 1/2" = 1'-0" OR AS NOTED
DWG. NO. D367-M2-2 ALT. 0

SHEET 2 OF 3

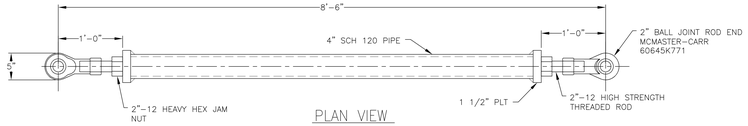


PROFILE VIEW
SCALE: 3" = 1'-0"



PLAN VIEW
SCALE: 3" = 1'-0"

DETAIL 15-D
RUDDER STOP

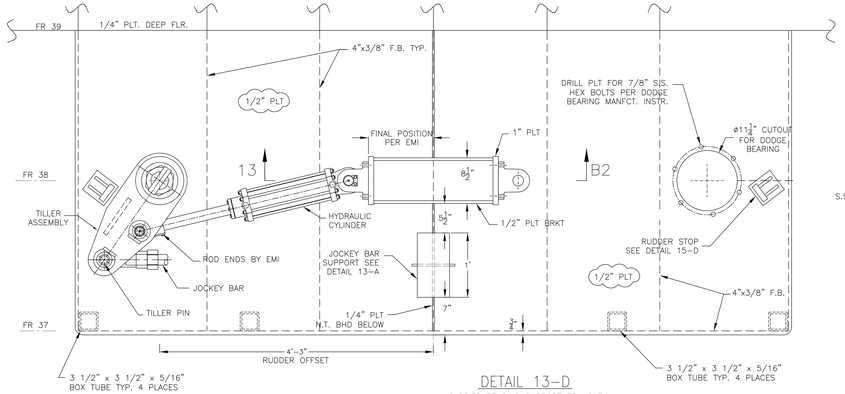


PLAN VIEW

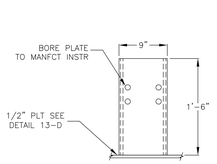


PROFILE VIEW

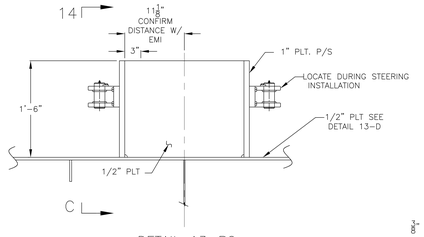
DETAIL 15-C
JOCKEY BAR



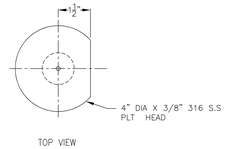
DETAIL 13-D
CARRIER BEARING SUPPORT FOUNDATION



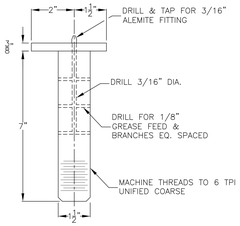
SECTION 14-C
PISTON FOUNDATION BASE



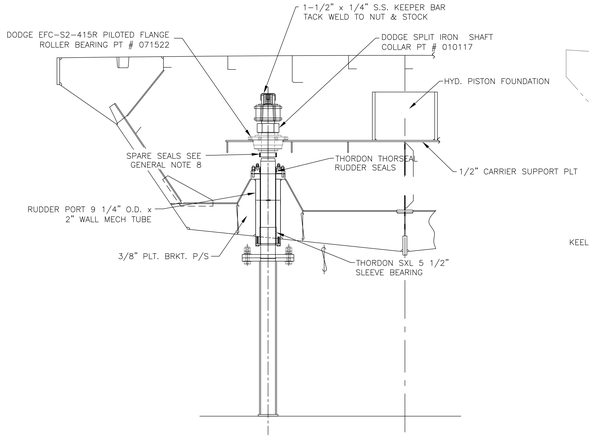
DETAIL 13-B2
HYDRAULIC PISTON FOUNDATION



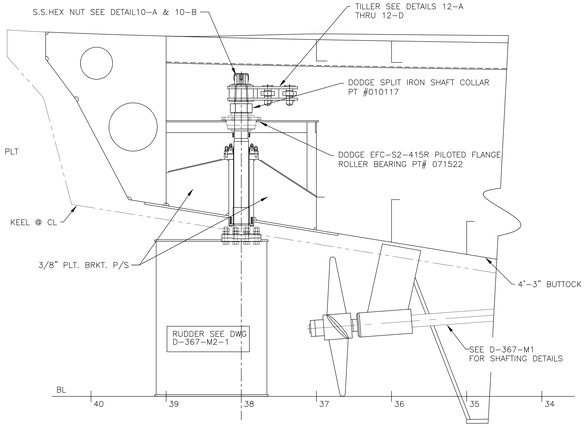
TOP VIEW



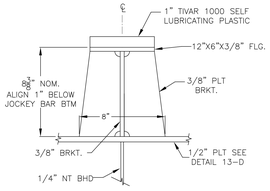
DETAIL 13-B1
JOCKEY BAR & RAM CLEVIS PIN
SCALE: HALF FULL SIZE



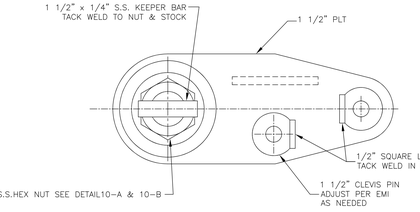
FRAME 38
SECTION THROUGH RUDDER STOCK
SCALE: 3/4" = 1'-0"



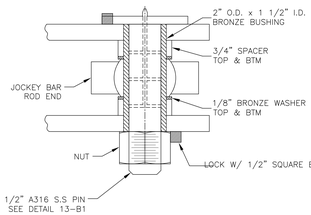
PROFILE VIEW 4'-3" OFF CENTERLINE
PROFILE OF RUDDER STOCK
SCALE: 3/4" = 1'-0"



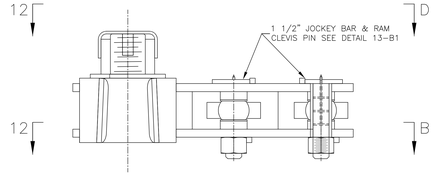
DETAIL 13-A
JOCKEY BAR SUPPORT
SCALE: 3" = 1'-0"



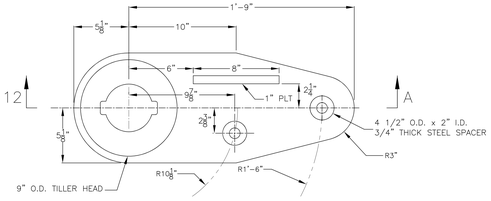
SECTION 12-D
PLAN VIEW OF TILLER - NUT ASSEMBLY
PORT TILLER SHOWN-STARBOARD SIMILAR & OPPOSITE
SCALE: 3" = 1'-0"



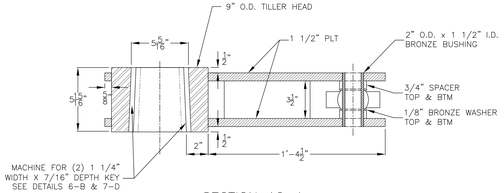
DETAIL 11-D
JOCKEY BAR PIN ARRANGEMENT
SCALE: HALF FULL SIZE



DETAIL 12-C
PROFILE VIEW OF TILLER ASSEMBLY
SCALE: 3" = 1'-0"



SECTION 12-B
PLAN VIEW OF TILLER
SCALE: 3" = 1'-0"



SECTION 12-A
TILLER HEAD & ARM SECTION VIEW
SCALE: 3" = 1'-0"

ALT	DESCRIPTION	DATE	NAME

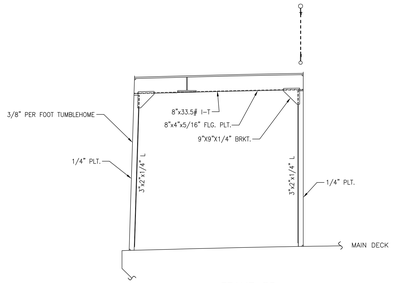
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT PASSENGER/VEHICLE FERRY

RUDDER ARRANGEMENT & DETAILS

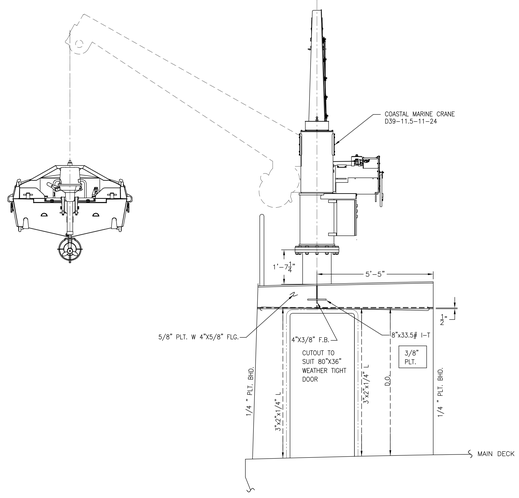
DRAWN BY KVC/JG DATE 10/29/21
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 1 1/2" = 1'-0" OR AS NOTED
DWG. NO. D367-M2-3 ALT. 0

SHEET 3 OF 3



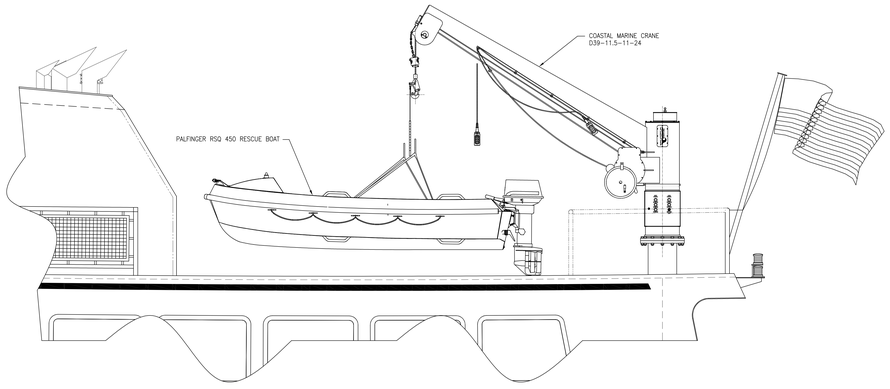
FRAME 33

AFT SIDE LKG. FWD.



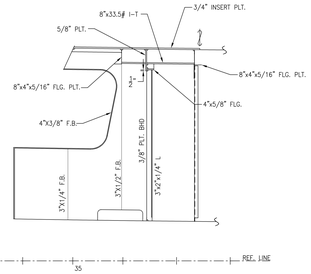
TRANSV. BULKHEAD 14" FWD. FR. 34

AFT SIDE LKG. FWD.

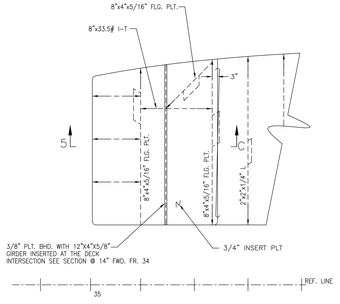


RESCUE BOAT PROFILE
01 DECK PORT

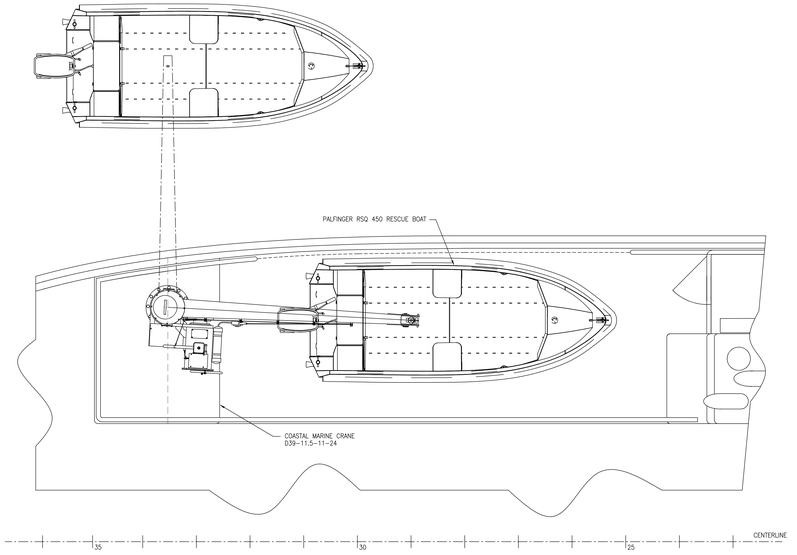
AFT SIDE LKG. FWD.



SECTION 5-C



PORT SIDE 02 DECK SCANTLINGS



RESCUE BOAT ARRANGEMENT
01 DECK PORT

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

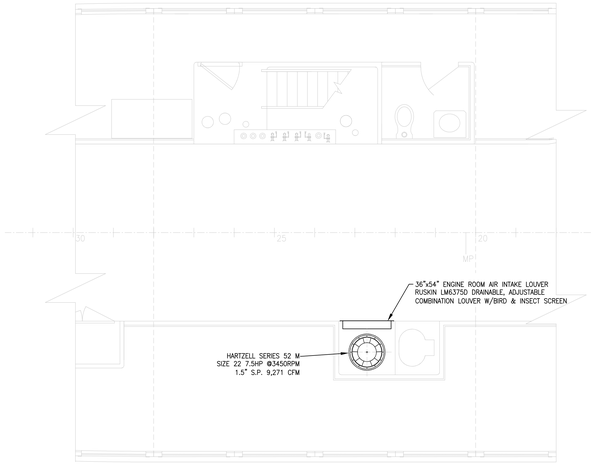
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

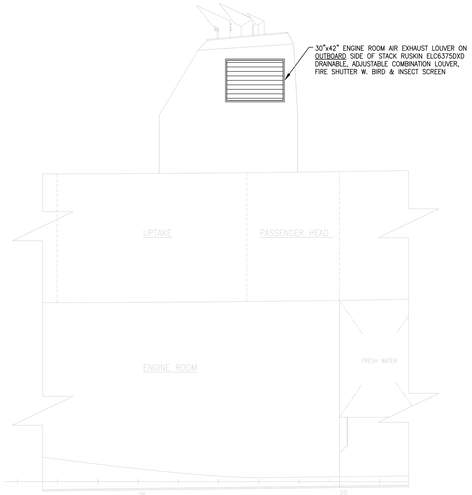
RESCUE BOAT DAVIT
ARRANGEMENT & STRUCTURE

DRAWN BY BKG/ JG	DATE 3/7/22
CHECKED BY GEG	DATE
APPROVED BY	DATE
SCALE 1/2" = 1'-0"	
DWG. NO. D367-M5	ALT. 0

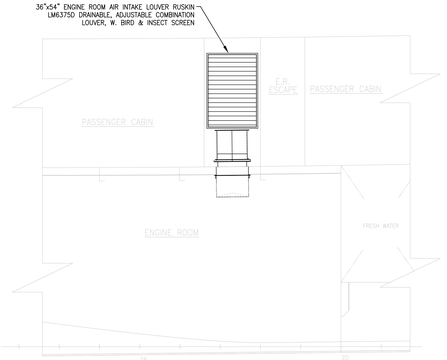
SHEET 1 OF 1



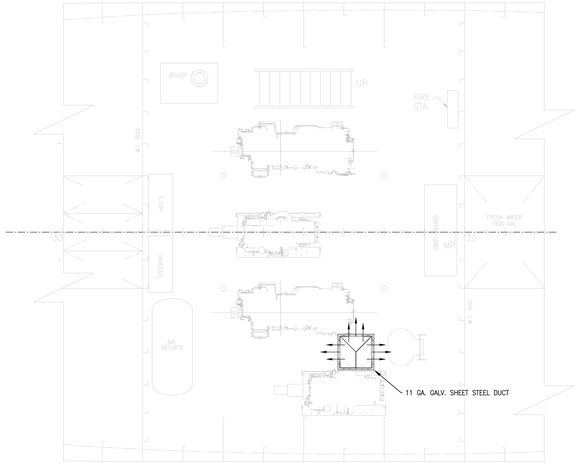
MAIN DECK



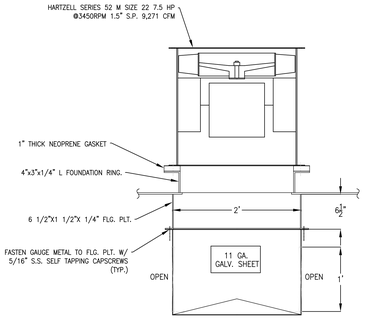
PROFILE VIEW OF ENGINE ROOM VENTILATION EXHAUST
5'-6" PORT OFF C.L.
INBD LKG. OUTBD.



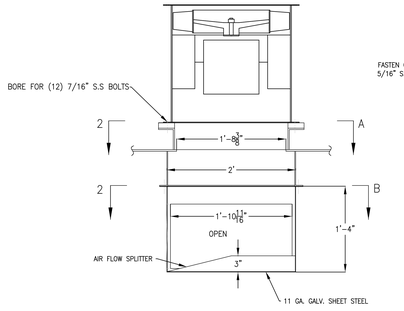
PROFILE VIEW OF ENGINE ROOM VENTILATION INTAKE
5'-6" STARBOARD OFF C.L.
OUTBOARD LKG. INBD.



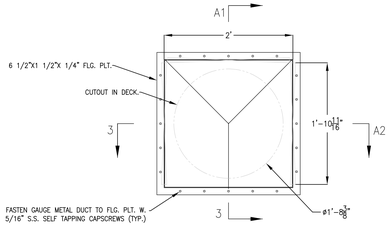
HOLD



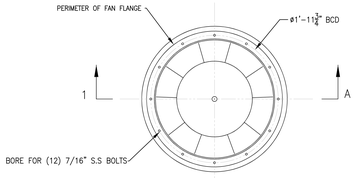
SECTION 3-A2
SCALE 1 1/2"=1'-0"



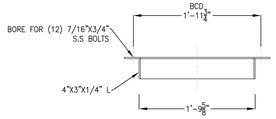
SECTION 3-A1
SCALE 1 1/2"=1'-0"



SECTION 2-B
DUCTING FOUNDATION
SCALE 1 1/2"=1'-0"



SECTION 2-A
FAN FOUNDATION
SCALE 1 1/2"=1'-0"



SECTION 1-A
SCALE 1 1/2"=1'-0"

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

ENGINE ROOM VENTILATION PLAN

DRAWN BY KC
DATE 05/11/2021
CHECKED BY JC
DATE
APPROVED BY
DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-M7
ALT. 0

SHEET 1 OF 1

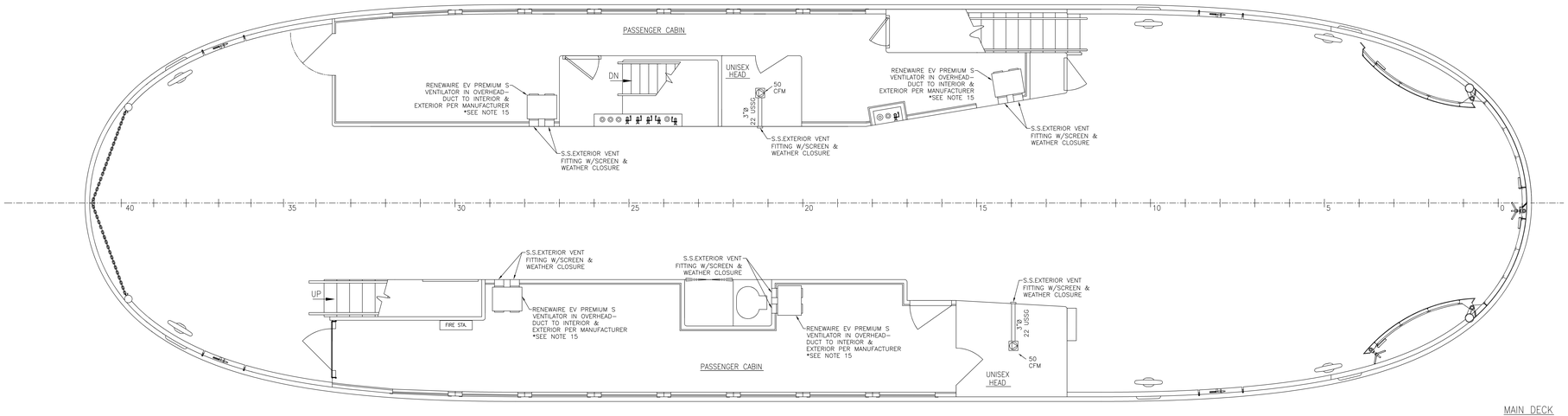
MATERIAL LIST

DESCRIPTION	QTY	MODEL NUMBER	MANUFACTURER	REMARKS
THERMOSTAT	2	1006998	INDEECO	
HEAD EXHAUST FANS	2	2213K31	MCMASTER-CARR	50 CFM, 120 V
CABIN ENERGY RECOVERY VENTILATOR	4	EV PREMIUM S	RENEWAIRE	CEILING MOUNT ERV 0.053 KW, 120 VAC, 1-PHASE

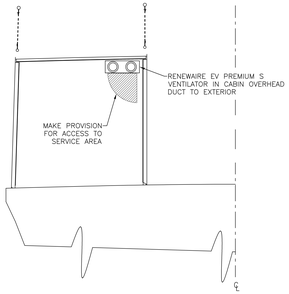
ALL DUCTING SHALL BE GALVANIZED SHEET STEEL

GENERAL NOTES

1. THIS DRAWING WAS DEVELOPED FOR THE INSTALLATION OF NEW HEATING AND VENTILATION FOR THE PASSENGER AREAS.
2. THIS DRAWING IS A SCHEMATIC ONLY AND NOT INTENDED TO LOCATE ANY DUCTWORK, FITTINGS OR EQUIPMENT EXCEPT IN GENERAL OR AS NOTED.
3. TEMPLATE WORK FOR VESSEL AND EQUIPMENT PRIOR TO INSTALLATION.
4. THIS DRAWING IS BASED ON THE REQUIRREMENTS, RULES AND REGULATIONS OF THE UNITED STATES COAST GUARD (U.S.C.G.) CODE OF FEDERAL REGULATIONS, 46 CFR WHOSE PROVISIONS SHALL PREVAIL WHERE THIS DRAWING IS SILENT.
5. MOUNTING HARDWARE NOT SHOWN ON THIS DRAWING SHALL BE SUPPLIED BY THE CONTRACTOR.
6. ALL EQUIPMENT AND FOUNDATIONS SHALL BE INSTALLED PARALLEL TO AND/OR PERPENDICULAR TO THE HORIZONTAL BASE LINE OF THE VESSEL.
7. VENTILATION DUCTWORK SHALL BE SUPPORTED BY HANGERS. CONTRACTOR TO SUPPLY ALL HANGERS, LINERS AND FASTENERS. MATERIAL SHALL BE APPROVED BY OWNERS REPRESENTATIVE. HANGERS SHALL BE MOUNTED TO THE STRUCTURAL STIFFENERS AND NOT TO THE PLANE SURFACE OF THE OVERHEAD OR BULKHEADS.
8. FINAL LOCATIONS OF ALL DUCTWORK AND EQUIPMENT SHALL BE DETERMINED ON THE FERRY TO BEST SUIT INSTALLATION.
9. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND BALANCING OF THE HVAC SYSTEM.
11. ALL HVAC EQUIPMENT AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS.
12. GRIND SMOOTH ALL SHARP CORNERS AND ROUGH EDGES LIABLE TO CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.
13. THE PART NUMBER IN THE LIST OF MATERIAL SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING PROCUREMENT.
14. ALL CABIN HVAC EQUIPMENT SHALL BE THERMOSTATICALLY CONTROLLED.
15. ENERGY RECOVERY VENTILATOR UNITS SHALL BE PLACED BETWEEN TRANSVERSE DECK BEAMS. SOFFIT DROP CEILING AS NEEDED TO ACCOMMODATE UNITS & PROVIDE ACCESS TO HINGED DOOR ON UNIT.

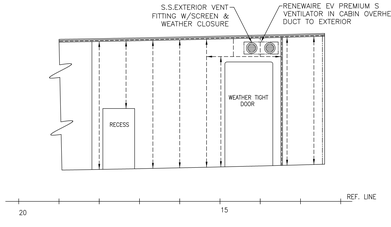


MAIN DECK



TYP. SECTION THROUGH PASSENGER CABIN

SEE D367-S3 FOR CONSTRUCTION SECTIONS ABOVE MAIN DECK



INBOARD LONGT. BULKHEAD OF CABIN

SEE D367-S5 FOR STRUCTURAL DETAILS

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

HVAC ARRANGEMENT AND DETAILS

DRAWN BY KVC DATE 02/22/22
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-M9-1 ALT. 0

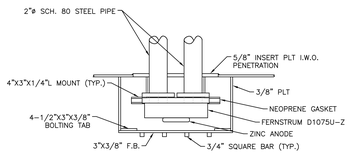
SHEET 1 OF 1

EQUIPMENT LIST					
ENGINES, GEARS, EQUIP. COOLED		KEEL COOLERS			
QUANTITY	MODEL	UNITS PER MODEL	ITEM	MODEL	MANUFACTURER
2	MAIN ENGINE: CAT C18 RED'N GEAR: TWIN DISC MGX-516 (AFTERCOOLER + RED. GEAR LOOP)	1	GRID COOLER	CN1263C-Z	FERNSTRUM
2	MAIN ENGINE: CAT C18 (JACKET WATER LOOP)	1	GRID COOLER	D1075U-Z	FERNSTRUM
2	GENERATOR ENGINE: CAT C4.4 (JACKET WATER LOOP)	1	GRID COOLER	BN1257B	FERNSTRUM
2	GENERATOR ENGINE: CAT C4.4 (AFTERCOOLER LOOP)	1	GRID COOLER	BN1033B-Z	FERNSTRUM

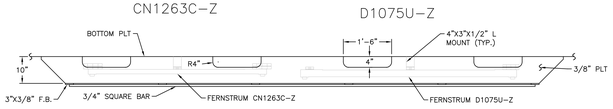
GENERAL NOTES

1. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE AS DETERMINED ON THE VESSEL TO BEST SUIT THE INSTALLATION.
2. SIZES ARE TO BE VERIFIED. ANY NECESSARY ADJUSTMENT AS REQUIRED BY THE EQUIPMENT AND SYSTEMS, SHALL BE MADE SUBJECT TO THE APPROVAL OF THE NAVAL ARCHITECT.
3. ALL VALVES SHALL HAVE IDENTIFYING MARKS AND LABELS.
4. ALL VALVES SHALL BE LOCATED TO PROVIDE FOR EASY ACCESS AT ALL TIMES.
5. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR EASY REMOVAL.
6. ALL SYSTEMS SHALL HAVE PROVISION FOR COMPLETE DRAINAGE.
7. SHUTOFF VALVES SHALL BE LOCATED WHERE PIPING PENETRATES THE SHELL, AS NEAR THE SHELL AS POSSIBLE PER 46 CFR 182.422.
8. GAUGES TO INDICATE ENGINE COOLING WATER DISCHARGE TEMPERATURE AND LUBRICATING OIL PRESSURE SHALL BE PROVIDED FOR ALL ENGINES.
9. THE ENGINE COOLING SYSTEMS SHALL FULFILL ALL REQUIREMENTS OF THE ENGINE AND REDUCTION GEAR MANUFACTURER'S RECOMMENDATIONS.
10. THIS DRAWING IS NOT TO BE REFERENCED FOR ENGINE PLACEMENT.
11. FOR COOLING SYSTEM PIPE SCHEMATIC SEE JWGA DRAWING D367-P14
12. KEEL COOLERS TO BE ELECTRICALLY ISOLATED FROM HULL USING NEOPRENE DISKS AS SUPPLIED WITH COOLERS AND INSTALLED ACCORDING TO FERNSTRUM RECOMMENDATIONS.

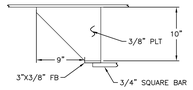
MATERIALS LIST														
PIPE MATERIAL				VALVE MATERIAL							FITTING MATERIAL			
SERVICE	SIZE	SPECIFICATION	MATERIAL	SERVICE	SIZE	PRESS CLASS	VALVE TYPE	VALVE POSITION	BODY MATERIAL	TRIM MATERIAL	SERVICE	SIZE	CONNECTION	SPECIFICATION	MATERIAL
50-50 MIX FRESH WATER & ETHYLENE GLYCOL COOLING FOR ALL ENGINES AND REDUCTION GEARS.	ALL	ASTM A-53 GR B	STEEL, ERW, BLK, SCH 80	50-50 MIX FRESH WATER & ETHYLENE GLYCOL COOLING FOR ALL ENGINES AND REDUCTION GEARS.	ALL	ALL	ALL	ALL	DUCTILE IRON ASTM A 395	BRONZE	50-50 MIX FRESH WATER & ETHYLENE GLYCOL COOLING FOR ALL ENGINES AND REDUCTION GEARS.	2" & BELOW	SOCKET WELD	ANSI B16.11	ASTM A-105 FORGED STEEL
												2 1/2" & ABOVE	BUTT WELD	ANSI B16.9	ASTM A-234 GR WPB FORGED STEEL
RED. GEAR OIL, SS COOLING, VENTS	ALL	ASTM A312 ASME B31.1, ASME B36.19	316 STAINLESS SCH. 80 WELDED	RED. GEAR OIL SS COOLING, VENTS	—	—	—	—	—	—	RED. GEAR OIL SS COOLING, VENTS	ALL	FLANGED OR WELDED	ASTM A403 ASME B16.1 THRU ASME B16.11	316 STAINLESS
COOLING VENTS	ALL		STEEL, ERW, BLK, SCH 80												



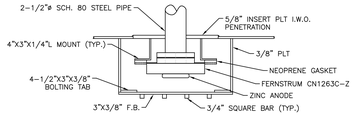
SECTION 3-D: MAIN ENGINE JW COOLER GUARD
FWD SIDE LKG AFT
SCALE: 1-1/2"=1'



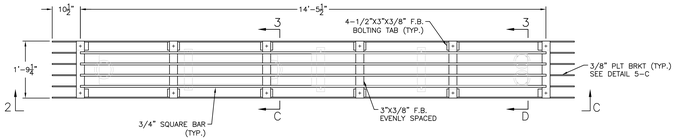
SECTION 2-C: MAIN ENGINE GRIDCOOLER GUARD
OUTBD SIDE LKG INBD
SCALE: 3/4"=1'



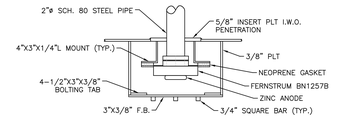
DETAIL 5-C: TYPICAL GUARD BRKT
SCALE: 1-1/2"=1'



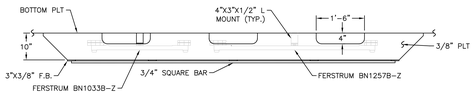
SECTION 3-C: MAIN ENGINE AFTERCOOLER/GEAR COOLER GUARD
FWD SIDE LKG AFT
SCALE: 1-1/2"=1'



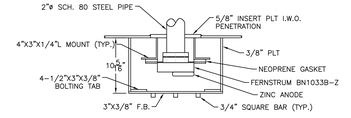
MAIN ENGINE GRIDCOOLER GUARD
BOTTOM SIDE LKG UP
SCALE: 3/4"=1'



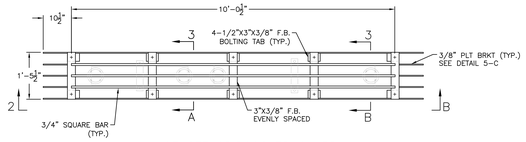
SECTION 3-B: GENSET JW COOLER GUARD
FWD SIDE LKG AFT
SCALE: 1-1/2"=1'



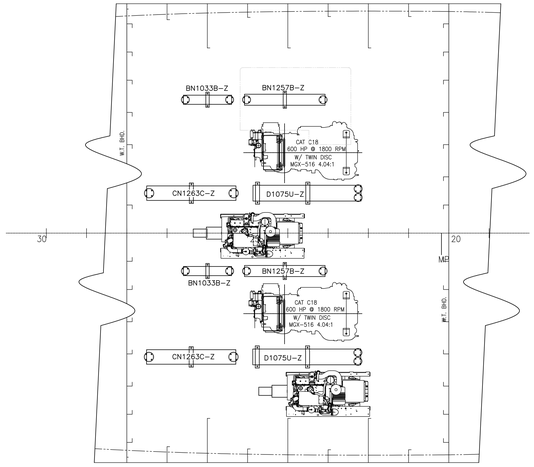
SECTION 2-B: GENSET GRIDCOOLER GUARD
OUTBD SIDE LKG INBD
SCALE: 3/4"=1'



SECTION 3-A: GENSET AFTERCOOLER GUARD
FWD SIDE LKG AFT
SCALE: 1-1/2"=1'



GENSET GRIDCOOLER GUARD
BOTTOM SIDE LKG UP
SCALE: 3/4"=1'



GRIDCOOLER ARRANGEMENT

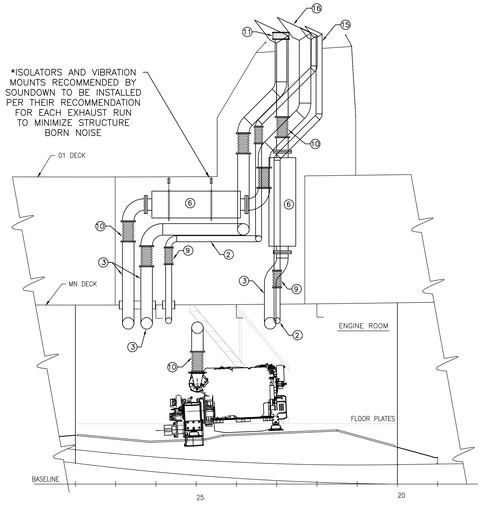
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

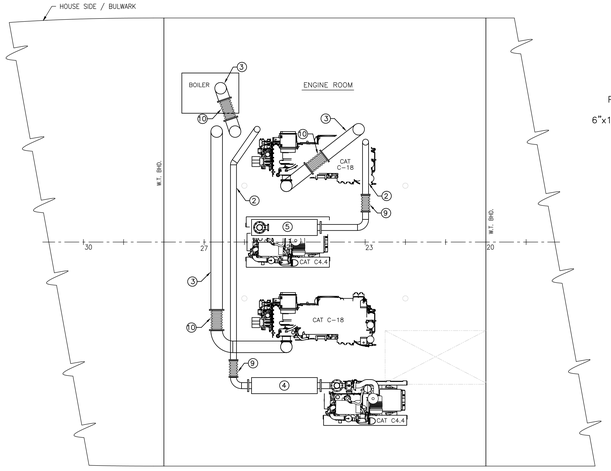
104 FT LOA PASSENGER/VEHICLE FERRY

KEEL COOLER
ARRANGEMENT & DETAILS

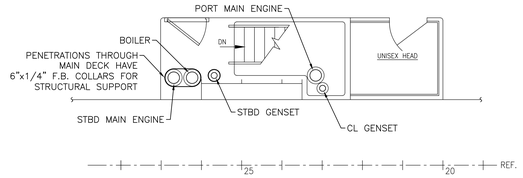
DRAWN BY BKG, TMH — DATE 10/2021
CHECKED BY JC — DATE
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-M10 — ALT. 0
SHEET 1 OF 1



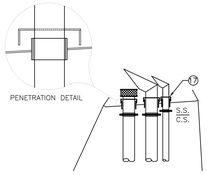
EXHAUST SYSTEM ARRANGEMENT
CENTERLINE PROFILE LOOKING OUTBOARD TO PORT

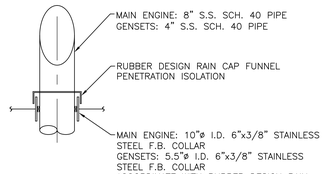


EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW IN HOLD

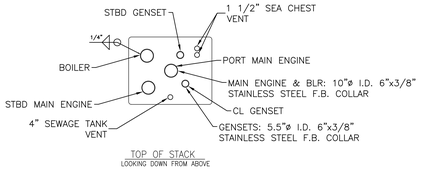


MAIN DECK PENETRATIONS

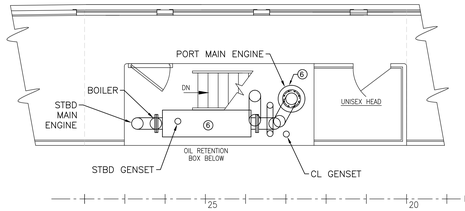




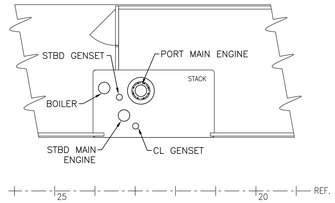
EXHAUST STACK
PIPE PENETRATION DETAIL
NOT TO SCALE



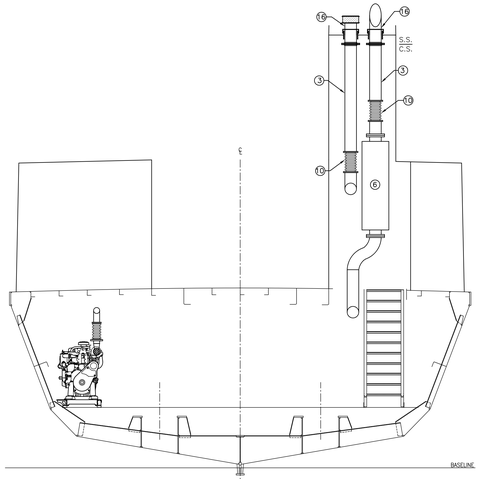
TOP OF STACK
LOOKING DOWN FROM ABOVE



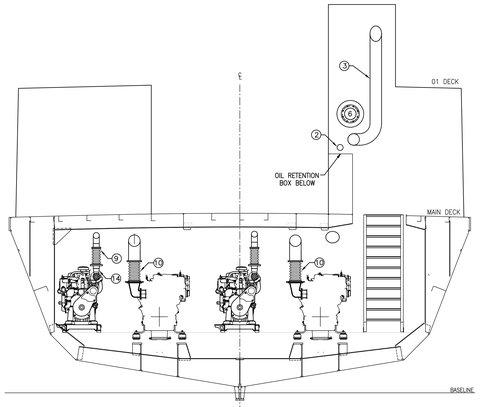
MAIN DECK



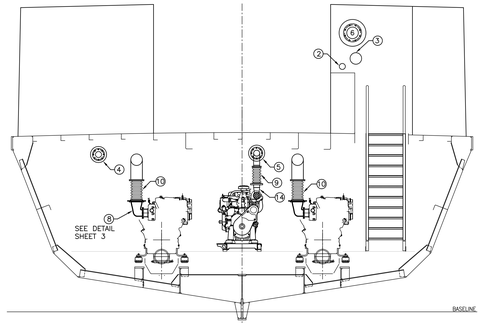
01 DECK



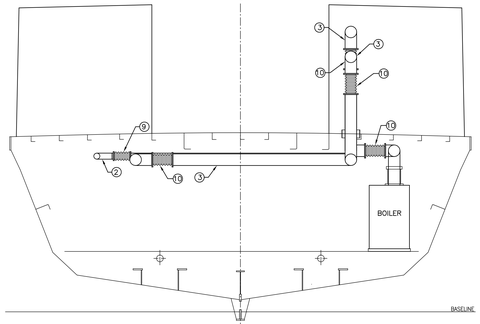
SECTION VIEW AT FR. 23
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 24
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 25
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 26.5
FWD. SIDE LKG. AFT

BILL OF MATERIALS

NUMBER	DESCRIPTION	MATERIAL SPEC.
1	2" PIPE INSULATION FOR INTERIOR SECTIONS. GT 103-400 FOR 4"ø PIPE OR EQUAL, GT 104-8-400 FOR 4"ø BELLOWS OR EQUAL, GT 106-400 FOR 4ø FLANGES OR EQUAL, GT 103-863 FOR 8"ø PIPE OR EQUAL, GT 104-8-800 FOR 8"ø BELLOWS OR EQUAL, GT 106-800 FOR 8"ø FLANGES OR EQUAL, GT OR OTHER BLANKETS FOR OTHER INTERIOR SECTIONS.	INSULATION USCG APPROVED HIGH DENSITY TYPE E FIBERGLASS, MESH: 304 STAINLESS
2	4" SCH. 40 BLACK PIPE	ASTM A 53 GR. B
3	8" SCH. 40 BLACK PIPE	ASTM A 53 GR. B
4	GT A202-5104 4" SPARK ARRESTING CRITICAL GRADE SILENCER STYLE 1	
5	GT A202-5104 4" SPARK ARRESTING CRITICAL GRADE SILENCER STYLE 2	
6	GT A202-5108 8" SPARK ARRESTING CRITICAL GRADE SILENCER	
7	3/4" PLT	ASTM A36
8	5" CONNECTOR (C18) ELBOW TO 8"	A 512 GR. 1010
9	EXPANSION JOINT BOA 4025E 4"ø TYPE FSP OR EQUAL	BELLOWS AISI 321
10	EXPANSION JOINT BOA 4025E 8"ø TYPE FSP OR EQUAL	BELLOWS AISI 321
11	8" RAIN CAP-WEATHERSHEILD CHIMNEY CAP-NON AIR-COOLED - 1" MESH	304 SS
12	150 LB SLIP-ON, WELD-NECK FLANGES LADISH OR EQUAL	ASTM A181-GRADE I
13	1/4" PLT W/ 3"x1/4" FLANGE	ASTM A36
14	CONCENTRIC REDUCER 2.5" X 4"	ASTM A36
15	4" SCH. 40 STAINLESS STEEL PIPE	ASTM A 240
16	8" SCH. 40 STAINLESS STEEL PIPE	ASTM A 240
17	RUBBER DESIGN RAIN CAP FUNNEL 4" & 8"	

GENERAL NOTES

1) THIS DRAWING SHOWS A PROPOSED EXHAUST SYSTEM. FINAL FIELD INSTALLATION, WHILE CONFORMING AS CLOSELY AS POSSIBLE TO THE INTENT OF THE PLAN, SHALL REFLECT A NEAT, AND EFFICIENT INSTALLATION.

2) SIZES SHOWN ARE FOR GUIDANCE ONLY AND NECESSARY ADJUSTMENTS MAY BE REQUIRED BY EQUIPMENT AND SYSTEMS TO ENSURE SATISFACTORY OPERATION.

3) ALL PIPING DIAGRAMS, SPECIFICATIONS, AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURERS SHALL SUPERSEDE.

4) ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR REMOVAL IN SEVERAL SECTIONS.

5) INSULATION SHALL BE WRAPPED ON ALL SURFACES OF THE EXHAUST SYSTEM COMPONENTS. INSULATION HAS BEEN OMITTED FROM THE PROFILE DRAWINGS FOR CLARITY. USE IN ACCORDANCE WITH BILL OF MATERIALS.

6) EXHAUST SYSTEM SHALL COMPLY WITH USCG 46 CFR, PART 56 & ABYC STANDARD P-1.

7) EXHAUST SYSTEM SHALL BE PROPERLY SUPPORTED THROUGHOUT ITS LENGTH WITH PIPE HANGERS AS REQUIRED.

8) PIPE HANGERS SHALL BE LOCATED TO ALLOW FOR EXPANSION AND CONTRACTION WHERE NECESSARY.

9) INSTALLATION OF EXHAUST HANGERS SHALL TAKE INTO ACCOUNT MAIN ENGINE'S ISOLATION MOUNT STIFFNESS.

10) FINAL INSTALLATION SHALL BE VERIFIED TO BE WITHIN RATED ENGINE EXHAUST BACK-PRESSURE LIMITS.

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

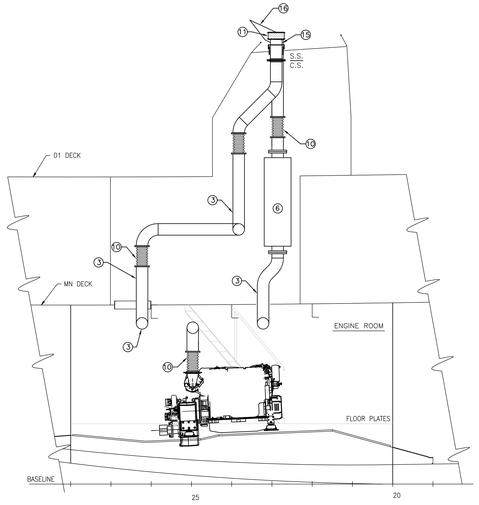
104 FT LOA PASSENGER/VEHICLE FERRY

EXHAUST ARRANGEMENT AND DETAILS

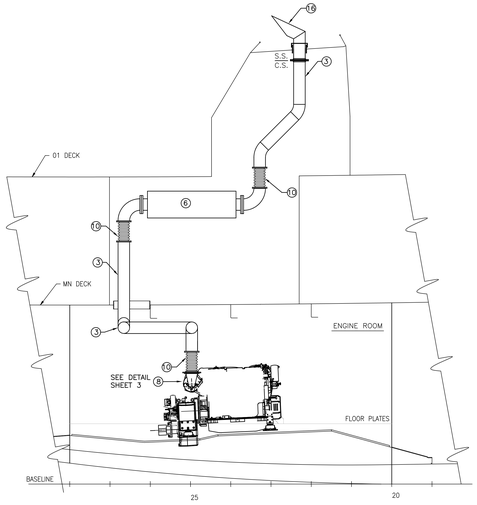
DRAWN BY KC	DATE 11/16/21
CHECKED BY JG	DATE
APPROVED BY	DATE
SCALE 3/8" = 1'-0"	
DWG. NO. D367-P1-1	ALT. 0

NOTE: INSULATION NOT SHOWN FOR CLARITY

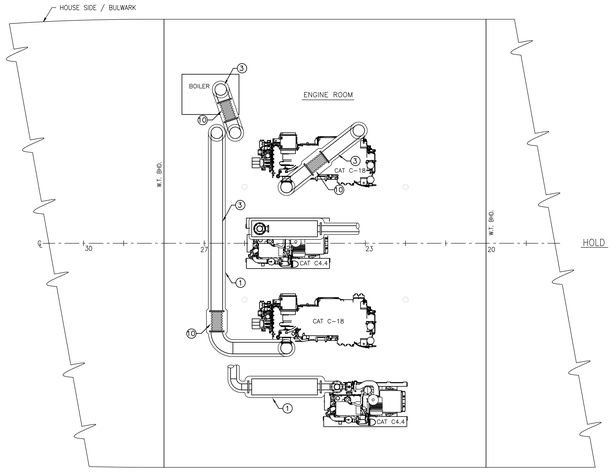
NOTE: INSULATION NOT SHOWN FOR CLARITY



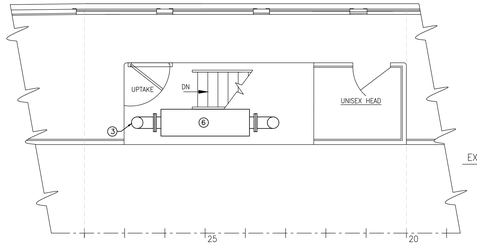
PORT MAIN ENGINE & BOILER
EXHAUST SYSTEM ARRANGEMENT
OUTBOARD PROFILE LOOKING INBOARD TO PORT



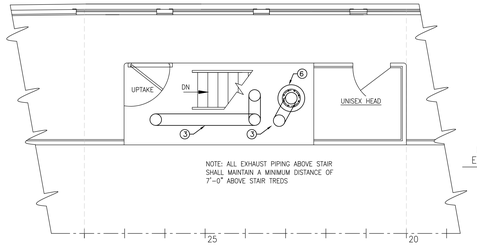
STARBOARD MAIN ENGINE
EXHAUST SYSTEM ARRANGEMENT
OUTBOARD PROFILE LOOKING INBOARD TO PORT



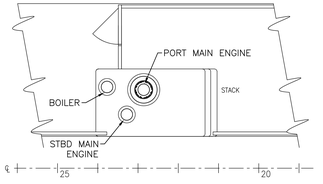
MAIN ENGINE & BOILER
EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW



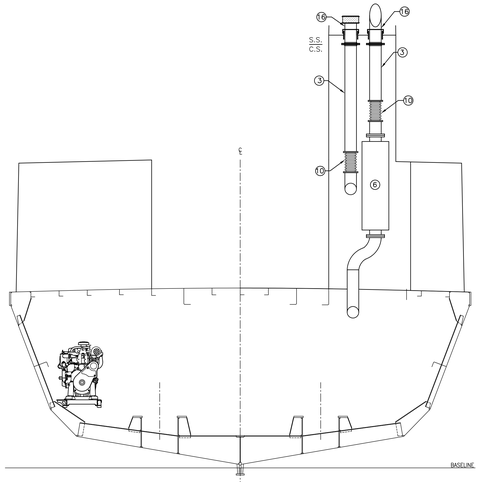
STARBOARD MAIN ENGINE
EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW MAIN DECK



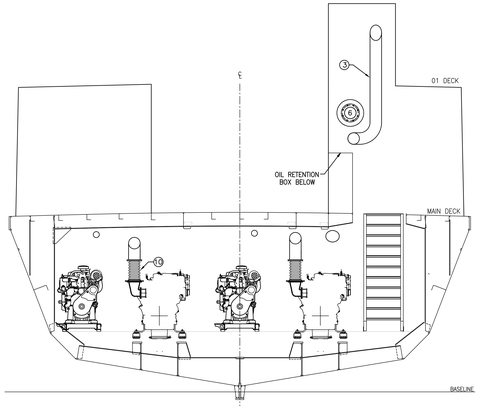
PORT MAIN ENGINE & BOILER
EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW MAIN DECK



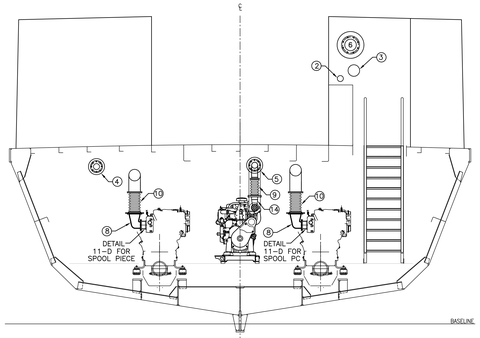
01 DECK



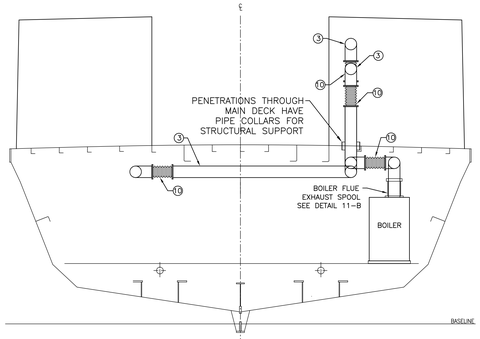
SECTION VIEW AT FR. 23
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 24
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 25
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 26.5
FWD. SIDE LKG. AFT

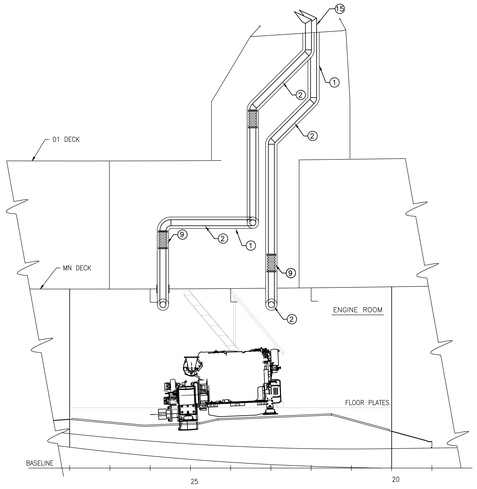
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

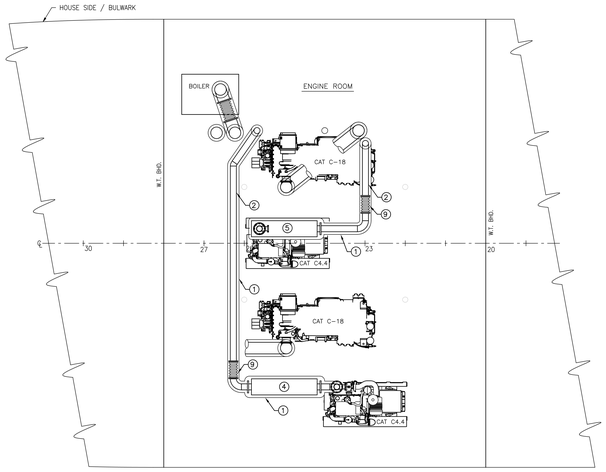
104 FT LOA PASSENGER/ VESSEL FERRY

EXHAUST ARRANGEMENT AND DETAILS

DRAWN BY KC DATE 11/16/21
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P1-2 ALT. 0

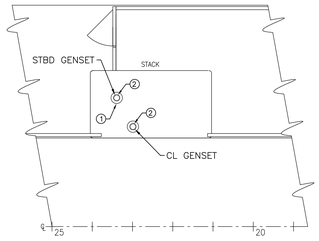


GENERATOR
EXHAUST SYSTEM ARRANGEMENT
CENTERLINE PROFILE LOOKING OUTBOARD TO PORT

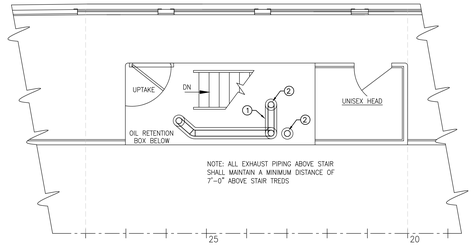


GENERATOR
EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW

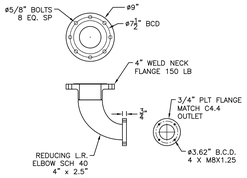
HOLD



01 DECK

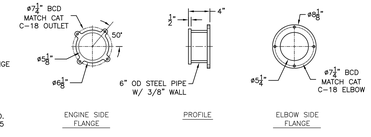


MAIN DECK

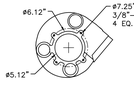


C4.4 EXHAUST CONNECTION
SEE CAT DWG 610-3534 SHT 7 OF 7
NOT TO SCALE

C4.4 EXHAUST ATTACHMENT
NOT TO SCALE



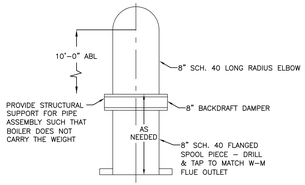
DETAIL 11-D
C-18 EXHAUST SPOOL PIECE



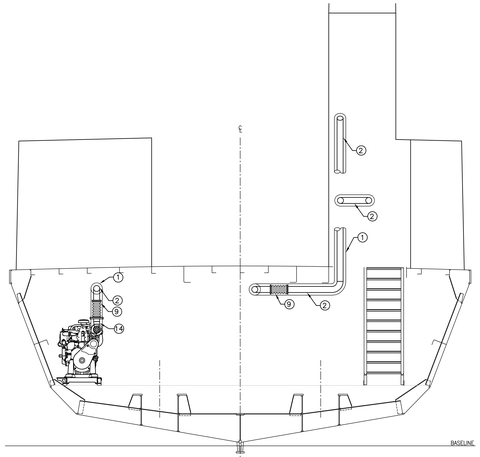
C-18 EXHAUST CONNECTION
SEE CAT DWG 439-2854 SHT 8 OF 9
NOT TO SCALE



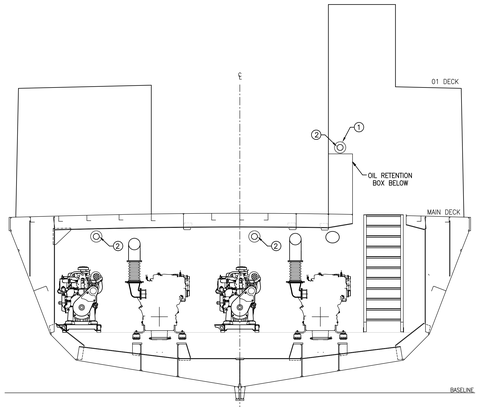
C-18 EXHAUST SCAC ATTACHMENT
SEE CAT DWG XXX
NOT TO SCALE



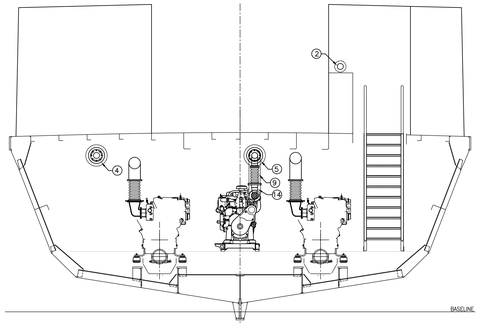
DETAIL 11-B
BOILER FLUE
EXHAUST SPOOL DETAIL
1-1/2" = 1 FT



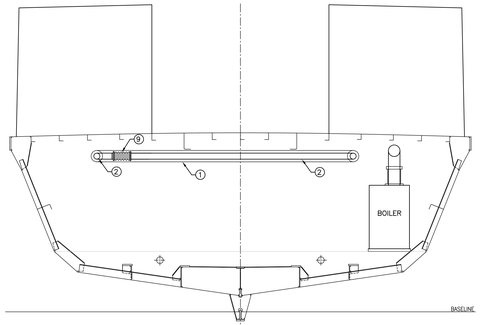
SECTION VIEW AT FR. 23
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 24
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 25
FWD. SIDE LKG. AFT



SECTION VIEW AT FR. 27
FWD. SIDE LKG. AFT

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

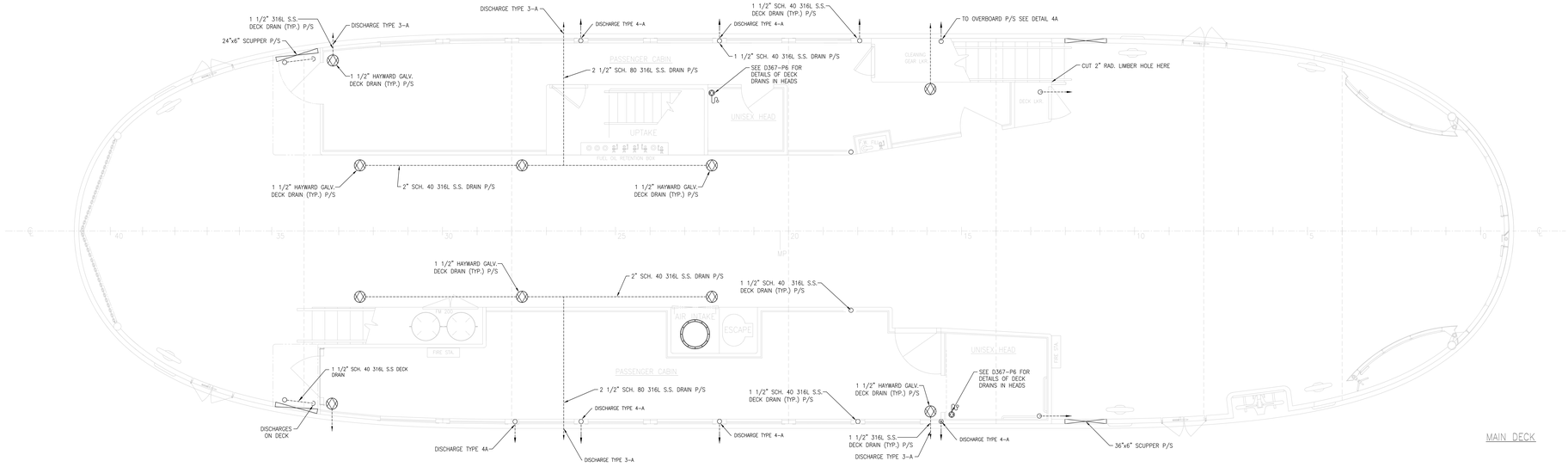
EXHAUST ARRANGEMENT AND DETAILS

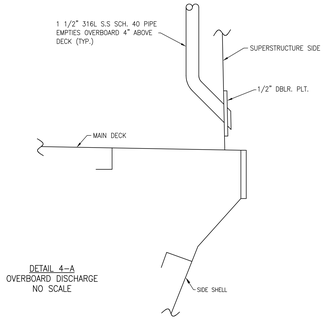
DRAWN BY KC DATE 11/16/21
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P1-3 ALT. 0

SHEET 3 OF 3

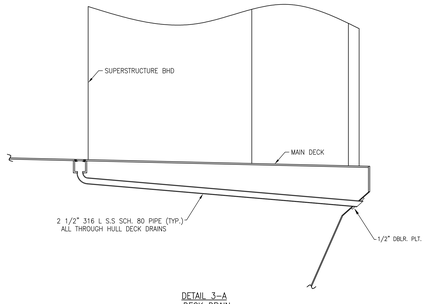
GENERAL NOTES

1. THIS DRAWING IS A SCHEMATIC ONLY AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS EXCEPT IN GENERAL OR AS NOTED.
2. FINAL LOCATION OF ALL PIPE AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT INSTALLATION.
3. ALL HORIZONTAL PIPES SHALL BE INSTALLED WITH A SLOPE OF 1/4" PER FOOT.
4. THE DECK AND BULKHEAD PENETRATIONS SHALL HAVE REINFORCEMENT AROUND THE PIPING AND BE WELDED ON BOTH SIDES OF THE PENETRATION.
5. ALL DECK DRAINS SHALL BE FITTED WITH A REMOVABLE BRASS OR STAINLESS STEEL STRAINER PLATE HAVING A FREE AREA OF AT LEAST TWICE THE AREA OF THE DRAIN PIPE THE STRAINERS SHALL BE SECURED AND SHALL BE FLUSH WITH THE DECK.
6. ALL OF THE DECK DRAIN PIPES SHALL BE 316L S.S. SCH 40 OR 80 PIPE.

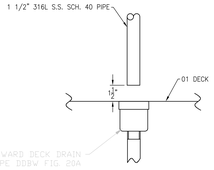




DETAIL 4-A
OVERBOARD DISCHARGE
NO SCALE



DETAIL 3-A
DECK DRAIN
NO SCALE



DETAIL 2-A
PIPE EMPTYING ABOVE DECK DRAIN
NO SCALE

SYMBOLS

- 1 1/2" HAYWARD GALV. DECK DRAIN TYPE DDBW FIG 20A
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP & DOWN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- CHECK VALVE

ALT	DESCRIPTION	DATE	NAME

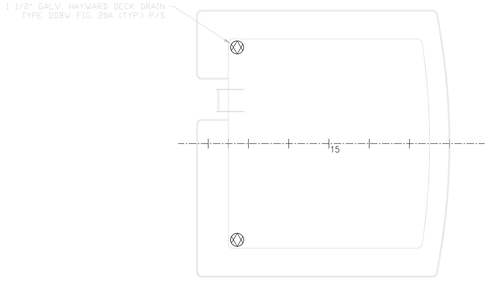
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

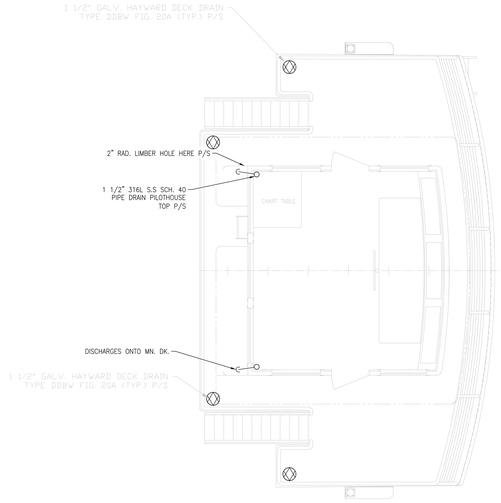
DECK DRAINS
HOLD & MAIN DECK

DRAWN BY KC — DATE 08/03/2021
CHECKED BY JC — DATE
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P3-1 — ALT. 0

SHEET 1 OF 2



PILOTHOUSE TOP

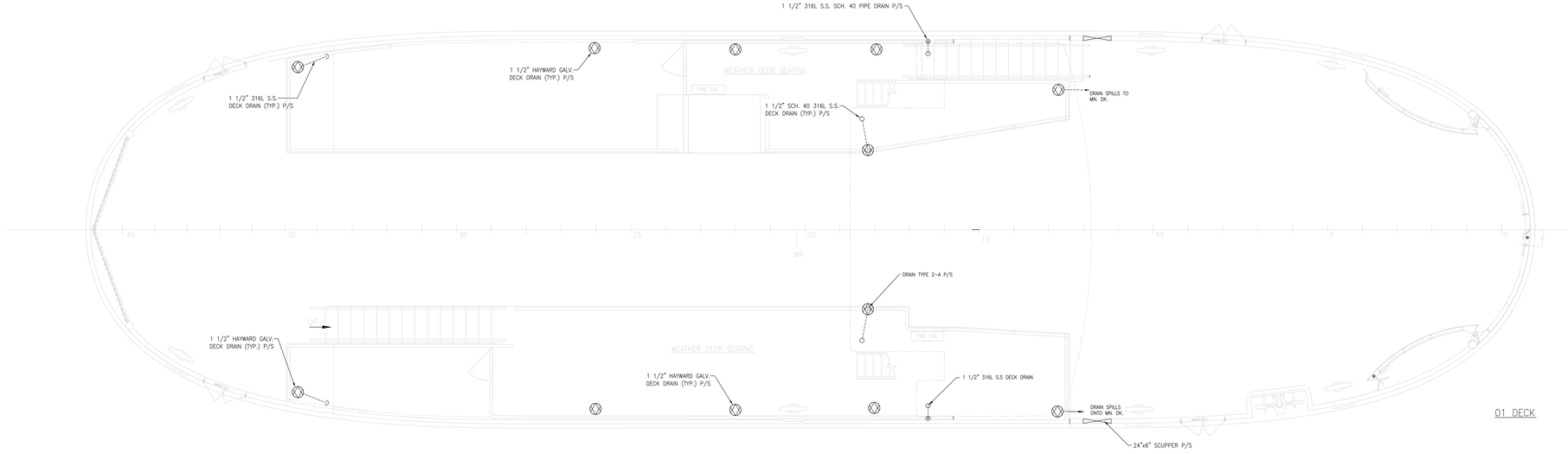


SYMBOLS

- 1 1/2" HAYWARD GALV. DECK DRAIN TYPE DDBW FIG 20A
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP & DOWN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- CHECK VALVE

PILOTHOUSE TOP

PILOTHOUSE DECK



01 DECK

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

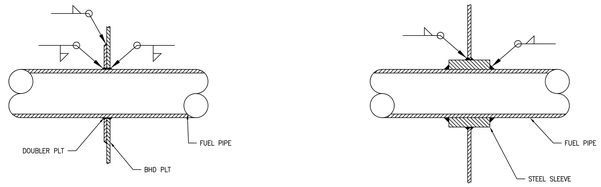
DECK DRAINS
01 AND PILOTHOUSE DECK

DRAWN BY KC — DATE 08/03/2021
CHECKED BY JC — DATE
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P3-2 — ALT. 0

SHEET 2 OF 2

GENERAL NOTES

1. THE DRAWING IS SCHEMATIC ONLY AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS OR EQUIPMENT EXCEPT IN GENERAL.
2. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT THE INSTALLATION.
3. SIZES SHOWN ARE FOR GUIDANCE ONLY AND NECESSARY ADJUSTMENT SHALL BE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.
4. ALL PIPING DIAGRAMS, SPECIFICATIONS AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURERS OF EQUIPMENT SERVICED BY A SYSTEM SHALL SUPERSEDE.
5. ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED AS MUCH AS POSSIBLE.
6. ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS.
7. ALL OIL PIPING SYSTEMS, SHALL COMPLY WITH THE REQUIREMENT OF U.S.COAST GUARD 46 CFR, SUBCHAPTER K, PART 119.455.
8. ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.
9. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR REMOVAL.
10. THE DECK AND BULKHEAD PIPING PENETRATIONS SHALL HAVE REINFORCEMENT AROUND THE PIPING AND SHALL BE WELDED ON BOTH SIDES OF THE PENETRATIONS.
11. ALL SYSTEMS SHALL HAVE PROVISIONS FOR COMPLETE DRAINAGE.
12. ALL OIL SUPPLY AND RETURN, FLEXIBLE CONNECTIONS INSTALLED AT THE ENGINES, SHALL BE TO THE SATISFACTION OF THE OCMI (SEE NOTE 14).
13. THE INSTALLATION, TESTING AND WORKMANSHIP MUST BE TO THE SATISFACTION OF THE OFFICER IN CHARGE MARINE INSPECTION (O.C.M.I.)
14. FLEXIBLE HOSE SECTIONS BETWEEN THE ENGINE ATTACHED CONNECTIONS AND VESSEL PIPING SHALL BE 37° SAE FLARE SWIVEL ON BOTH ENDS. FLEXIBLE HOSE SHALL BE FLAME RESISTANT IN ACCORDANCE WITH 46 CFR 56.60-25. HOSE ASSEMBLIES SHALL BE NO MORE THAN 30" IN LENGTH
15. DRIP PANS WITH UP-TURNED, SEALED, AND FLANGED EDGES SHALL BE PROVIDED BENEATH ALL FILTERS, PUMPS, STRAINERS, AND ANY OTHER EQUIPMENT THAT CONTAINS OIL AND REQUIRES PERIODIC MAINTENANCE.
16. TANK SUCTION VALVES SHALL BE FITTED WITH A REMOTE QUICK CLOSING PULL CABLE SYSTEM LOCATED ON THE MAIN DECK NEAR OR IN ENGINE ROOM EGRESS.
17. TANK SHUT-OFF VALVES SHALL HAVE FIRE SAFE METALLIC SEATS.
18. SLOPE FUEL OIL TANK VENT LINE 1/8" PER FOOT TOWARDS TANK.
19. THE HEIGHT OF THE FUEL SUCTION TAIL PIECE SHALL BE ABOVE THE BOTTOM OF THE FUEL TANK.
20. THE FUEL RETURN LINE SHALL ENTER NEAR THE TOP OF THE TANK AND SHALL HAVE DIFFUSER AS REQUIRED TO MINIMIZE STIRRING UP THE OIL IN THE TANK.
21. FUEL PUMPS AND CENTRIFUGE SHALL HAVE REMOTE SHUTDOWNS.
22. HOSE INSTALLATION PER 182.410, FLEXIBLE HOSE MUST MEET THE REQUIREMENTS OF §182.720(e).
23. FUEL LINES MUST BE ACCESSIBLE, PROTECTED FROM MECHANICAL INJURY, AND EFFECTIVELY SECURED AGAINST EXCESSIVE MOVEMENT AND VIBRATION BY THE USE OF SOFT NONFERROUS METAL STRAPS WHICH HAVE NO SHARP EDGES AND ARE INSULATED TO PROTECT AGAINST CORROSION. WHERE PASSING THROUGH BULKHEADS, FUEL LINES MUST BE PROTECTED BY CLOSE FITTING FERRULES OR STUFFING BOXES. ALL FUEL LINES AND FITTINGS MUST BE ACCESSIBLE FOR INSPECTION.



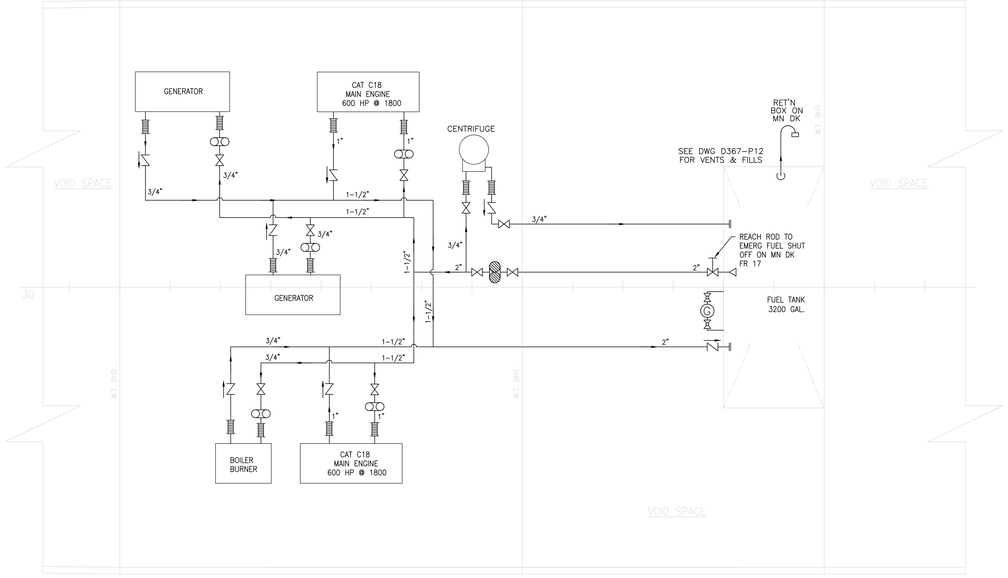
DETAIL 3-C

TYPICAL PIPE PENETRATION DETAIL
NOT TO SCALE

MATERIALS LIST

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS			VALVES		FITTINGS
			MATERIAL	GASKETS	BOLTING	BODY	TRIM	
FUEL OIL PIPING MAWP: 100 PSIG MAX TEMP: 120°F	2½" & ABOVE	CARBON STEEL ASTM A53 OR A106, GRADE B SEAMLESS ANSI B36.10 SCH 40	FLANGE CARBON STEEL ASTM A105 ANSI B16.5 150# SLIP-ON OR WELD NECK	GARLOCK IFG 5500	BOLTS: CARBON STEEL ASTM A307 GRADE B ANSI B18.2.1 NUTS: HEX HEAD CARBON STEEL ASTM A563 GRADE A ANSI B18.2.2	GATE: CARBON STEEL ASTM A216 GR WCB FLANGED 1500 PSI ASTM 105 ANSI B16.34	GATE: CRES STEM, DISC, & SEAT	CARBON STEEL ASTM A234, GR WPB ANSI B16.9 BUTT WELD LONG RADIUS
	2" & UNDER	CARBON STEEL ASTM A53 OR A106, GRADE B SEAMLESS ANSI B36.10 SCH 80	UNION GROUND JOINT CARBON STEEL ASTM A105 ANSI B16.11 SOCKET WELD			BALL: CARBON STEEL ASTM A216 GR WCB SOCKET WELD OR THREADED 1500 PSI SWING CHECK: CARBON STEEL ASTM A216 GR WCB 150#, SOCKET WELD OR THREADED	BALL: CHROME PLATED CARBON STEEL BALL RPTFE SEATS CHECK: CRES DISC	CARBON STEEL ASTM A105 ANSI B16.11 3000# SOCKET WELD

DESCRIPTION	MATERIAL SPEC.
FLEXIBLE NON-METALLIC HOSE	AEROQUIP FC 234 HOSE - SAE J1942 SAE J1475 (MAX 30" LENGTH)
FUEL CENTRIFUGE	ALFA-LAVAL MAB-103 FUEL OIL SEPARATOR - NOTE 240 VAC, 60 Hz



HOLD
NOT TO SCALE

LEGEND

- BUTTERFLY VALVE
- SPRING LOADED DEADMAN VALVE
- NORMALLY OPEN BALL VALVE
- GATE VALVE
- CHECK VALVE
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- FLEXIBLE CONNECTION
- DUPLEX STRAINER
- RACOR DUPLEX FUEL FILTER
- BELLMOUTH SUCTION
- GATE VALVE W/ REMOTE ACTUATOR
- VENT WITH "U" BEND & FLAME SCREEN
- FLANGE JOINT WITH MATERIAL ISOLATION
- RACOR SIMPLEX FUEL FILTER
- CAP
- TANK FILL WITH CAP

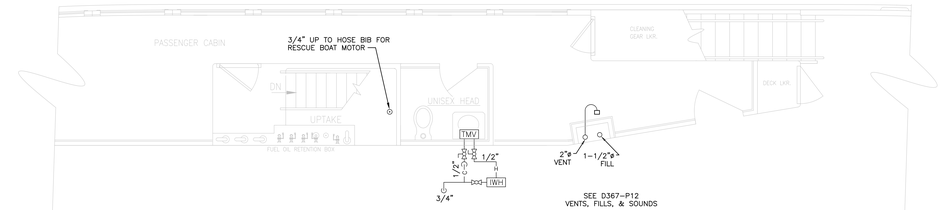
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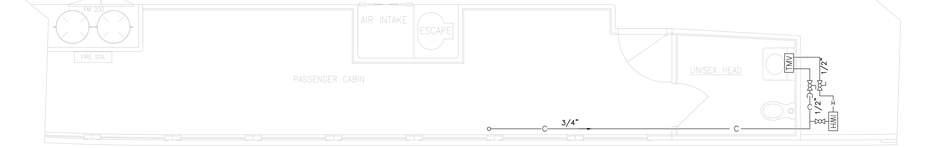
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

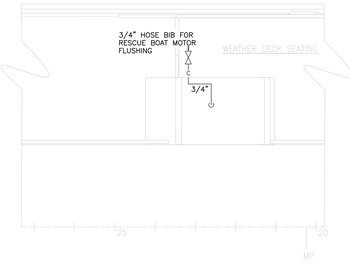
FUEL OIL
SCHEMATIC & DETAILS

DRAWN BY KC DATE 06/04/2021
CHECKED BY DATE
APPROVED BY DATE
SCALE NOT TO SCALE
DWG. NO. D367-P4 ALT. 0
SHEET 1 OF 1

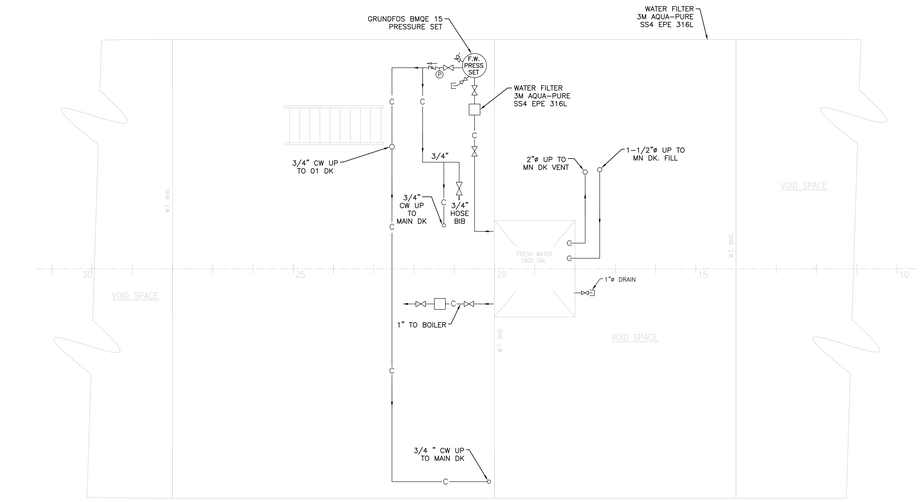




MAIN DECK



01 DECK



HOLD

BILL OF MATERIALS

ITEM	QUANTITY	SPECIFICATION	ASTM	ANSI	MANUFACTURER	REMARKS
PIPE	AS NEEDED	ø AS SPECIFIED, TYPE L COPPER TUBE	B 88			
PIPE FITTINGS	AS NEEDED	ø AS SPECIFIED, TYPE L COPPER, 300#				MAPRESS COMPRESSION TYPE CONNECTIONS
BUSHINGS	AS NEEDED	ø AS SPECIFIED, TYPE L COPPER, 300#				
GATE VALVES	AS NEEDED	ø AS SPECIFIED, BRONZE	B 62	B16.34		
CHECK VALVES	AS NEEDED	ø AS SPECIFIED, BRONZE	B 62	B16.34		
MIXING VALVES	2	ø AS SPECIFIED, BRONZE	B 62	B16.34		
RELIEF VALVES	X	ø AS SPECIFIED, BRONZE	B 62	B16.34		ø AS REQ. BY WATER HEATER & PRESSURE SETS
PIPE INSULATION	AS NEEDED	TO SUIT PIPE ø	E84		SPI MARINE 59M FIBERGLASS PIPE INSULATION	USE W/SYSTEM INSULATION JOINT TAPE
POTABLE WATER PRESSURE SET	1	GRUNDFOS BNQE 15				
INSTANT WATER HEATER	2	ELECTRIC			BOSCH TRONIC 3000 OR EQUIVALENT	

GENERAL NOTES

1. THIS DRAWING IS A SCHEMATIC ONLY AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS, OR EQUIPMENT EXCEPT IN GENERAL OR AS NOTED. FINAL LOCATION OF ALL PIPE AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT A NEAT & EFFICIENT SYSTEM.
2. SIZES SHOWN ARE FOR GUIDANCE ONLY AND, IF NECESSARY, ADJUSTMENTS SHALL BE MADE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.
3. ALL PIPING MATERIALS & WORKMANSHIP TO BE IN ACCORDANCE WITH USCG AND ABS RULES & REGULATIONS.
4. ITEMS LISTED IN THE PARTS LIST ARE "OR EQUAL" FOR PROCUREMENT PURPOSES.
5. ALL WELDING AND BRAZING IS TO BE IN ACCORDANCE WITH ABS AND USCG REQUIREMENTS.
6. ALL PIPING SHALL BE ARRANGED SO THAT IT WILL NOT NORMALLY BE SUBJECT TO MECHANICAL INJURY AND TO PRECLUDE ITS USE FOR OTHER PURPOSES SUCH AS GRAB RAILS, STEPPING POINTS AND HANDRAILS.
7. UNIONS AND/OR FLANGES ARE TO BE INSTALLED IN THE FIELD AS NECESSARY TO PERMIT DISMANTLING OF THE LINES AND EQUIPMENT.
8. PIPING SHALL BE THOROUGHLY CLEANED AFTER FABRICATION.
9. ALL PIPING TO HAVE SUFFICIENT FLEXIBILITY TO PREVENT OVERSTRESSING OF PIPING MATERIALS, LEAKAGE OF JOINTS OR DISTORTION OF CONNECTED EQUIPMENT.
10. ALL SYSTEMS SHALL HAVE PROVISION FOR COMPLETE DRAINAGE. DRAIN COCKS TO BE INSTALLED AT LOW POINTS IN THE PIPING.
11. PIPING TO BE RUN INSIDE JOINER BULKHEADS WHERE POSSIBLE. ALL WATER PIPES SHALL BE INSULATED AGAINST CONDENSATION AND FREEZING.
12. ALL POTABLE WATER CONNECTIONS TO NON-POTABLE WATER USES SHALL HAVE ETHER AN AIR GAP OR A BACK FLOW PREVENTER.
13. ALL BATHROOM SINKS AND LAVATORY FAUCETS WILL BE "SELF-CLOSING". ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS. ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED TOGETHER AS MUCH AS POSSIBLE. ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.
14. THE POTABLE WATER SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND STANDARDS OF SANITATION FOR THEIR CONSTRUCTION. ALL MATERIALS FOR POTABLE WATER SUPPLY SHALL BE OF MATERIALS APPROVED BY THE PUBLIC HEALTH SERVICE.
15. PROPER SUPPORTS SHALL BE PROVIDED FOR ALL PIPE RUNS AS REQUIRED BY THE REGULATORY BODIES AND ESTABLISHED MARINE PRACTICE.
16. ON THE MAIN BRANCHES OF HOT AND COLD WATER, SHUT-OFF VALVES SHALL BE PROVIDED.
17. THE DECK AND BULKHEAD PIPING PENETRATIONS SHALL MAINTAIN THE WATERTIGHT INTEGRITY AND FIRE-RATING OF DIVISION. NVIC 9-97 CH 1 SHALL BE USED FOR GUIDANCE. THE DECK AND BULKHEAD PENETRATIONS SHALL HAVE PIPE OR INSERT PLT. REINFORCEMENT AROUND THE PIPING AND BE WELDED ON BOTH SIDES OF THE PENETRATION.
18. ALL POTABLE WATER PIPES ARE TO EMANATE FROM THE ENGINE ROOM INTO THE CABINS AND BRANCH TO THE VARIOUS SERVICES WITHIN THE CABINS, ANY OTHER POTABLE WATER PIPES NOT RESIDING IN AREAS WITH A CONTROLLED ENVIRONMENT ARE TO HAVE HEAT TAPE.

SYMBOLS

- —C— COLD POTABLE WATER LINE
- —H— HOT POTABLE WATER LINE
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP AND DOWN
- IN-LINE BALL VALVE
- GATE VALVE
- CHECK VALVE
- BALL CHECK VALVE
- PRESSURE RELIEF VALVE
- IWH INSTANT WATER HEATER
- TMV TOUCHLESS MIXING VALVE
- PRESSURE GAUGE
- GOOSENECK VENT
- N.C. NORMALLY CLOSED
- EXPANSION TANK PRESSURE CAP
- DRAIN
- HOSE CONNECTOR C/W CAP & KEEP CHAIN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- WATER FILTER
- HOSE BIB

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS MARINE ENGINEERS

100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

POTABLE WATER SYSTEM PIPING SCHEMATIC

DRAWN BY KC DATE 05/28/2021

CHECKED BY JG DATE

APPROVED BY DATE

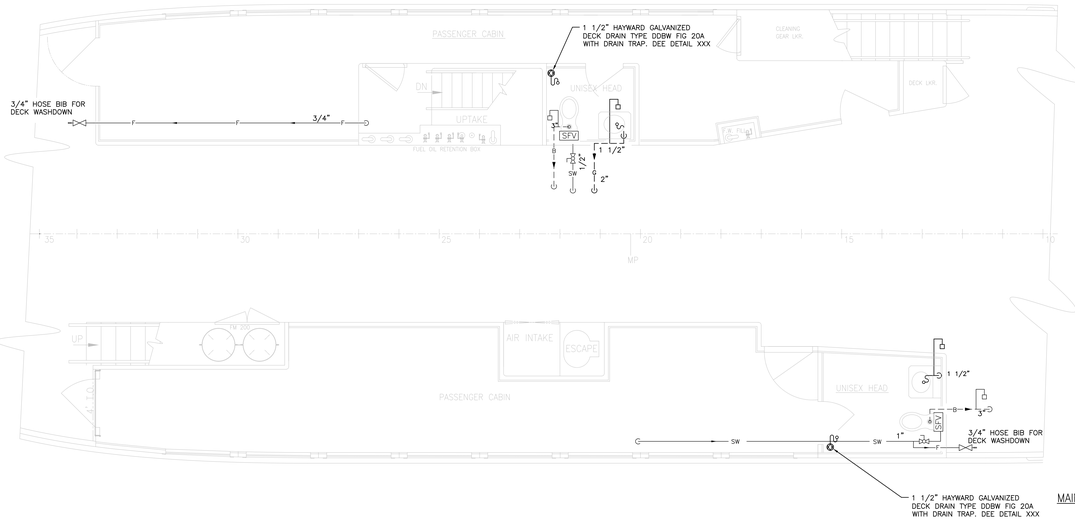
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SHEET 1 OF 1 DWG. NO. D367-P5 ALT. 0

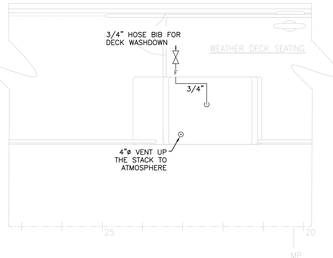
BILL OF MATERIALS

SERVICE	SIZE	PIPE	JOINTS	VALVE BODIES	VALVE MOUNTINGS	FITTINGS
SANITARY WATER PUMP SUCTION AND DISCHARGE UP TO PRESSURE SET	1-1/2 IN. AND BEL.	COPPER – NICKEL ASME SB-467 CLASS 200	SOCKET WELD OR FLANGED	BRONZE SCREWED 150# STD	BRONZE	CU-NI 90/10 OR VIEGA PROPRESS
SANITARY WATER FROM PRESSURE SET (HOT & COLD)	1 IN. AND ABV.	S.D. COPPER TUBING TYPE K ASTM B88	BRONZE SILBRAZED 150# STANDARD	BRONZE FLANGED OR HARD SOLDER 100# STD.	BRONZE	WROUGHT COPPER OR BRASS SWEATED TYPE SILVER BRAZED VIEGA PROPRESS
	1 IN. AND BEL.		BRONZE SWEATED OR SILVER BRAZED UNION	BRONZE HARD SOLDER 100# STD.		
NOT PVC SANITARY DRAINS AND SHORE PUMPOUT	ALL	SCH. 40 GALV. STEEL A-53	FORGED STEEL SLIP-ON ASTM A105 ANSI B16.5	BRONZE ASME SB61 OR SB62	BRONZE ASME SB61 OR SB62	GALV. STEEL ASTM A234
PVC SANITARY DRAINS	ALL	PVC SCH. 80 ASTM D1784, ASTM D1785	PVC SOCKET FLANGE ASTM D2467 ANSI B16.5 150#	PVC BALL VALVES ASTM F1970	PVC	PVC ASTM D2467, ASTM D1784
BHD PENETRATION FIRE STOP MATERIAL	STI MARINE MFB MARINE FILLER BLANKET & MFS MARINE FIRESTOP SEALANT					

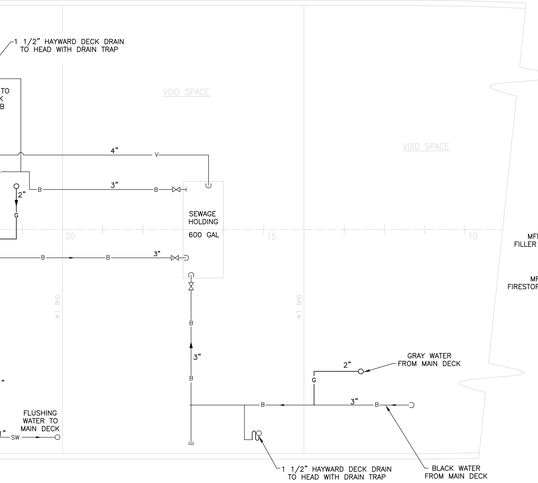
* USE SCH. 80 PVC TO THE MAX EXTENT POSSIBLE, SEE GENERAL NOTES FOR INSTALLATION REQUIREMENTS.



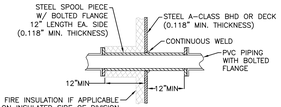
MAIN DECK



01 DECK

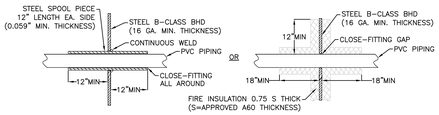


HOLD

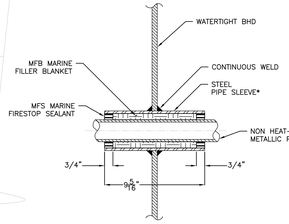


**NOTE – METALLIC SHUTOFF VALES REQUIRED AT WATERTIGHT BULKHEAD PENETRATIONS

DETAIL – NON METALLIC PIPE PENETRATION THROUGH A-CLASS BULKHEAD OR DECK
NOT TO SCALE



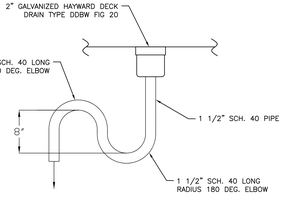
DETAIL – NON METALLIC PIPE PENETRATION THROUGH B-CLASS BULKHEAD
NOT TO SCALE



DETAIL – METALLIC PIPE PENETRATION THROUGH A-CLASS BULKHEAD
NOT TO SCALE

**NOTE: HEAT SENSITIVE DEFINED AS HAVING MELTING POINT BELOW 1700 DEG. F.

*BHD PENETRATION SLEEVE CAN BE EXPANDED TO SUIT MULTIPLE PIPE PENETRATIONS MAX OPENING SIZE PER STI MARINE GUIDANCE



DETAIL–PASSENGER HEAD DECK DRAIN
NOT TO SCALE

**NOTE: TO INSURE THAT THAT TANK GASSES ARE SEPARATED FROM PASSENGER CABINS AT ALL TIMES, FILL TRAP WITH WATER ON A REGULAR BASIS

GENERAL NOTES

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2. FINAL LOCATION OF ALL PIPE AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT THE INSTALLATION.
3. SIZES SHOWN ARE FOR GUIDANCE ONLY AND THE NECESSARY ADJUSTMENTS SHALL BE MADE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.
4. ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS.
5. ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED TOGETHER AS MUCH AS POSSIBLE.
6. ALL THROUGH-HULL CONNECTIONS SHALL HAVE VALVES FITTED AS CLOSELY AS POSSIBLE AND SHALL CONFORM TO THE REQUIREMENTS OF U.S. COAST GUARD SUBCHAPTER T.
7. ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.
8. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR REMOVAL.
9. ALL PIPE CONNECTIONS BETWEEN THE PUMPS AND PIPES SHALL BE FLEXIBLE.
10. ALL DECK AND LAVATORY DRAINAGE SYSTEMS SHALL BE FITTED WITH TRAPS.
11. SLOPE SANITARY DRAIN PIPE RUNS BETWEEN 1/8" AND 1/4" PER FOOT.
12. ALL LAVATORY DRAIN PIPES SHALL BE 1-1/2", OR AS SHOWN ON THE DRAWING.
13. ALL WATER CLOSET DRAIN PIPES SHALL BE 3".
14. EACH WATER CLOSET AND SINK DRAIN SHALL BE VENTED TO THE ATMOSPHERE BY STUDOR AIR ADMITTANCE VALVES.
15. ALL MATERIALS FOR POTABLE AND SANITARY SYSTEMS SHALL BE STAMPED AND APPROVED BY NATIONAL SANITATION FOUNDATION TESTING LABORATORY (NSF). ALL NONMETALLIC PIPING MATERIALS SHALL MEET THE REQUIREMENTS OF 46 CFR 56.60-25. PVC PIPING SHALL BE IN ACCORDANCE WITH IMO RESOLUTION A.753(18).
16. THE DECK AND BULKHEAD PENETRATIONS SHALL HAVE PIPE NIPPLE REINFORCEMENT AROUND THE PIPING AND BE WELDED ON BOTH SIDES OF THE PENETRATION. ALL PENETRATIONS THROUGH FIRE-RATED BULKHEADS BY NONMETALLIC PIPE SHALL BE IN ACCORDANCE WITH U.S. COAST GUARD NVIC 9-97 CH1.
17. INSULATE PIPING IN ACCORDANCE WITH ASTM F683. ALL INSULATING MATERIALS SHALL BE USCG APPROVED FOR THE INTENDED SERVICE AND LOCATION
18. PVC PIPING ONLY TO BE USED IN AREAS ACCESSIBLE FOR INSPECTION AND REPAIR. TRANSITION FROM STEEL TO PVC CAN BE MADE USING NORMA CG TYPE SERIES (METAL TO PLASTIC) COUPLINGS.
19. PIPING TO BE RUN INSIDE JOINER BULKHEADS WHERE POSSIBLE. ALL WATER PIPES SHALL BE INSULATED AGAINST CONDENSATION AND FREEZING. ALL FLUSHING WATER RISERS ARE TO BE LOCATED WITHIN HEATED AREAS OF THE BOAT.

SYMBOLS

- —F— FLUSH WATER SUPPLY
- —V— VENT LINE
- —B— BLACK WATER LINE
- —G— GRAY WATER LINE
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP AND DOWN
- IN-LINE BALL VALVE
- GATE VALVE
- CHECK VALVE
- 3-WAY VALVE
- BALL CHECK VALVE
- PRESSURE RELIEF VALVE
- STUDOR AIR ADMITTANCE VALVE
- 1 1/2" HAYWARD GALVANIZED DECK DRAIN TYPE DDBW FIG 20A WITH DRAIN TRAP
- PRESSURE GAUGE
- GOOSENECK VENT
- N.C. NORMALLY CLOSED
- DECK DRAIN
- DRAIN
- HOSE CONNECTOR C/W CAP & KEEP CHAIN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- SFV SLOAN FLUSHING VALVE
- HOSE BIB
- TRAP
- POSITIVE DISPLACEMENT PUMP

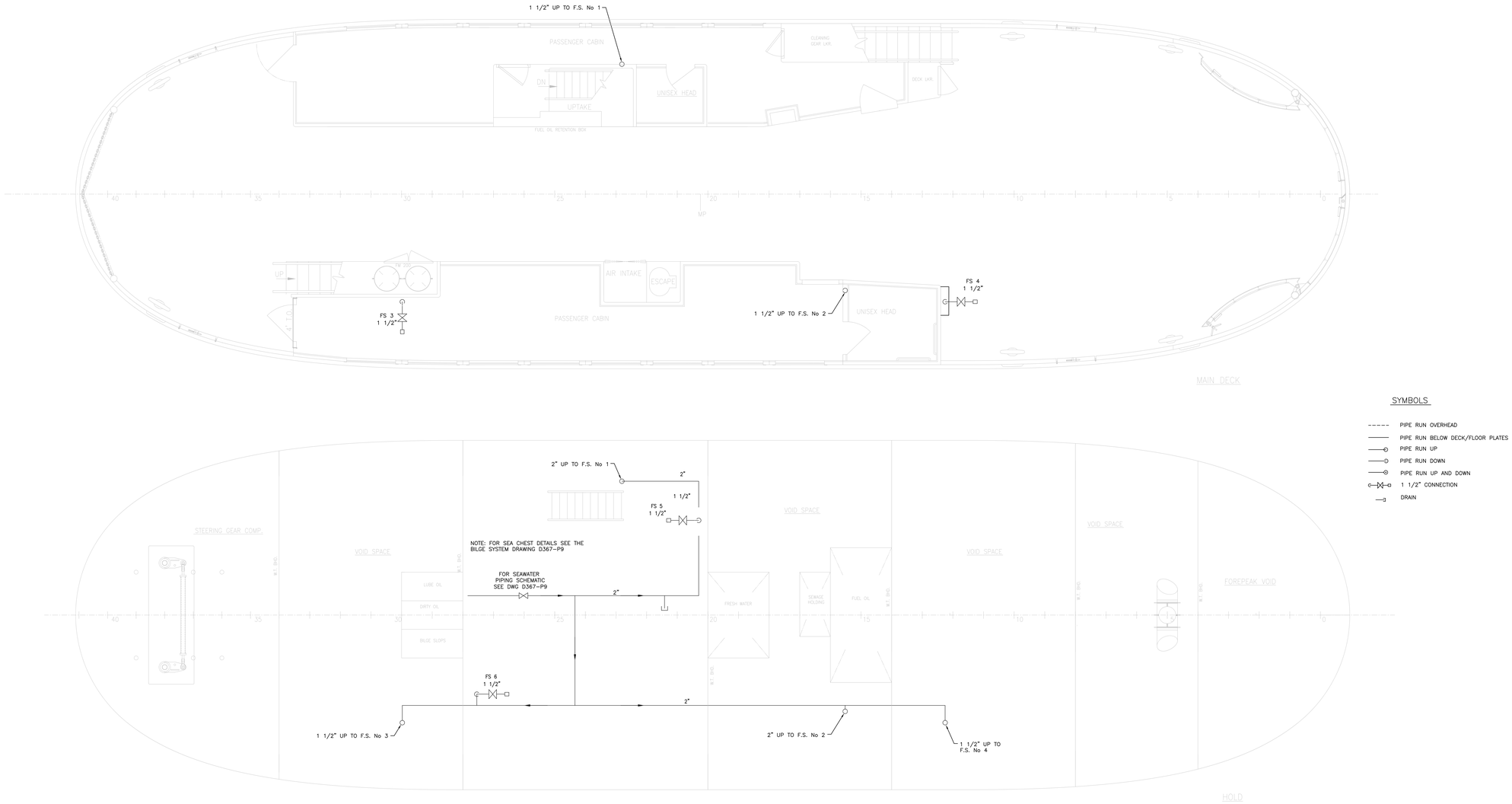
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

DRAIN, WASTE, & FLUSHING WATER PIPING SCHEMATIC

DRAWN BY KC DATE 06/15/2021
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P6 ALT. 0
SHEET 1 OF 1



SYMBOLS

- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK/FLOOR PLATES
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP AND DOWN
- 1 1/2" CONNECTION
- DRAIN

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

FIRE MAIN SYSTEM PIPING SCHEMATIC

DRAWN BY KC — DATE 05/17/2021
CHECKED BY JC — DATE
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P7-1 — ALT. 0

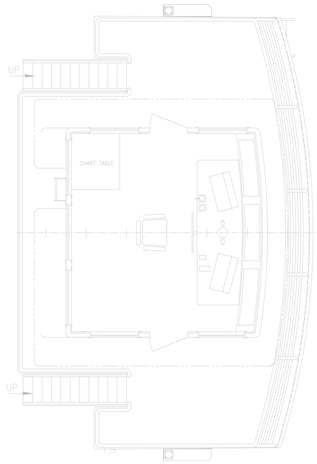
BILL OF MATERIALS

ITEM	QUANTITY	SPECIFICATION	MATERIAL
3", 2", 1 1/2" GALVANIZED STEEL PIPE (ABOVE SEA VALVE)	AS NEEDED	FURNACE BUTT-WELDED STEEL, SCH. 80 GALVANIZED W/ STEEL PLATE SLIP-ON OR FORGED STEEL JOINTS SOCKET WELDED FLANGE, GALV.	ASTM A53
VALVES BRONZE GATE VALVES 150# CHECK VLVS BRONZE THRD 300#	AS NEEDED	BRONZE SCREWED OR FLANGED, W/ BRONZE MOUNTINGS	ASME SB62 ANSI B16.24 MSS SP-6,9,25,80
STEEL FITTINGS, TEES, AND ELBOWS IN BILGE SYSTEM	AS NEEDED	CARBON STEEL SCREWED ENDS, GALV. SCH 80	ASTM A234 ASME B16.1 THRU ASME B16.11
FIRE PUMP / STAND-BY BILGE PUMP	1	MP HHLF 15 SELF-PR CENTRIF, 2"x2", 6.7" IMPELLER, 7.5 HP, 3PH, 3450 RPM TEFC MOTOR	BRONZE
HOSE NOZZLE	9	1 1/2" BRASS NOZZLE W/ 5/8" ORIFICE – USCG APPROVED AKRON OR EQUAL	--
HOSE	9	1 1/2" x 50' SINGLE JACKET USCG	UL 19

NOTE: FOR MATERIALS FROM SEACHEST TO MAIN BRANCH VALVE, SEE THE BILGE SYSTEM DRAWING D367-P9

GENERAL NOTES

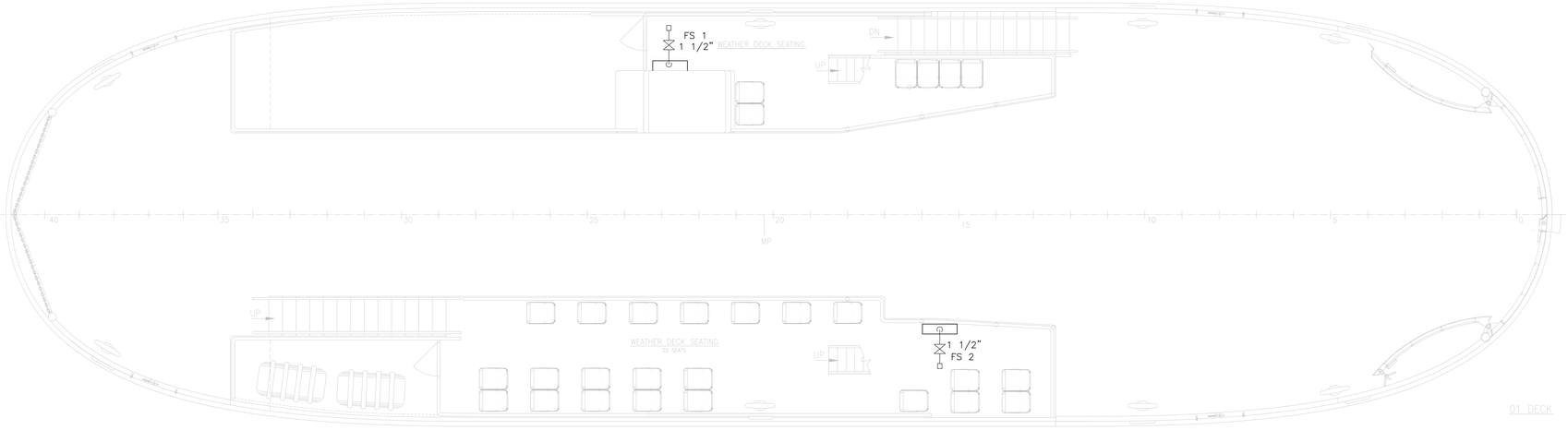
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2. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT INSTALLATION.
3. SIZES SHOWN ARE ARE SHOWN AS MINIMUMS. IF NECESSARY, ADJUSTMENTS SHALL BE MADE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.
4. ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED AS MUCH AS POSSIBLE.
5. ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS. FIRE EQUIPMENT SHALL BE LABELED IN ACCORDANCE WITH 46 CFR 78.47
6. ALL THROUGH-HULL CONNECTIONS SHALL HAVE VALVES FITTED AS CLOSE AS POSSIBLE TO THE HULL TO COMPLY WITH 46 CFR 56.50-95
7. ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.
8. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS TO PROVIDE FOR REMOVAL OF EQUIPMENT OR PIPE AND FOR SYSTEM CLEANING IN EACH WATER TIGHT COMPARTMENT. SYSTEMS SHALL ALSO HAVE PROVISIONS FOR EXPANSION OF PIPE BETWEEN EACH WATERTIGHT BULKHEAD.
9. THE BULKHEAD PIPING PENETRATION SHALL HAVE REINFORCEMENT AROUND THE PIPING AND BE WELDED ON BOTH SIDES OF THE PENETRATION.
10. THE FIRE MAIN SYSTEM SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SUBCHAPTER T 46 CFR 118.3 AND APPLICABLE PORTIONS OF 46 CFR 56.50 AND 56.55
11. EACH PUMP DISCHARGE SHALL BE FITTED WITH A PRESSURE GAUGE.
12. ALL PIPING VALVES AND FITTINGS SHALL BE INSTALLED WITH REGARD TO GOOD MARINE PRACTICE AND SUITABLE FOR ITS INTENDED PURPOSE. THE INSTALLATION, TESTING, AND WORKMANSHIP SHALL BE TO THE SATISFACTION OF THE U.S. COAST GUARD OFFICER IN CHARGE MARINE INSPECTION (O.C.M.I.)
13. SYSTEMS SHALL BE DESIGNED WITH MEANS FOR COMPLETE DRAINAGE. ALL PIPE RUNS ON SLOPE FOR DRAINAGE WITH PIPE PLUGS OR CAPS AT LOW POINTS.
14. THE FIRE PUMP SHALL BE CAPABLE OF DELIVERING TO THE HIGHEST FIRE HOSE STATION A PITOT TUBE PRESSURE OF 50 PSI AT THE HOSE OUTLET PER 46 CFR 118.300(b)
15. THE FIRE PUMP SHALL BE CAPABLE OF BOTH REMOTE OPERATION FROM THE PILOTHOUSE AND LOCAL OPERATION AT THE PUMP PER 46 CFR 118.300(e)
16. THE FIRE PUMP PERFORMANCE DATA & MOTOR SELECTION SHALL BE CONFIRMED WITH THE MANUFACTURER PRIOR TO PURCHASE.



PILOTHOUSE DECK

SYMBOLS

- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK/FLOOR PLATES
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP AND DOWN
- 1 1/2" CONNECTION
- DRAIN



01 DECK

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

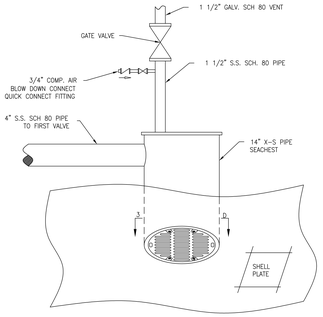
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

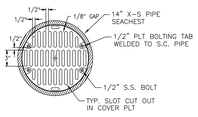
FIRE MAIN SYSTEM
PIPING SCHEMATIC

DRAWN BY KC DATE 05/17/2021
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P7-2 ALT. 0

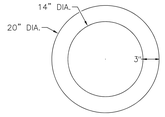
SHEET 2 OF 7



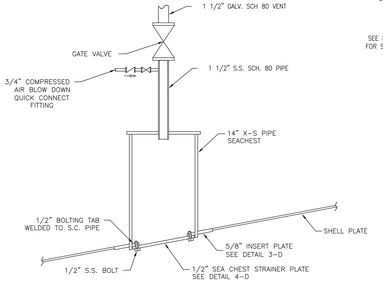
DETAIL 5-D
PROFILE VIEW OF SEA CHEST, LKG INBD
NOT TO SCALE



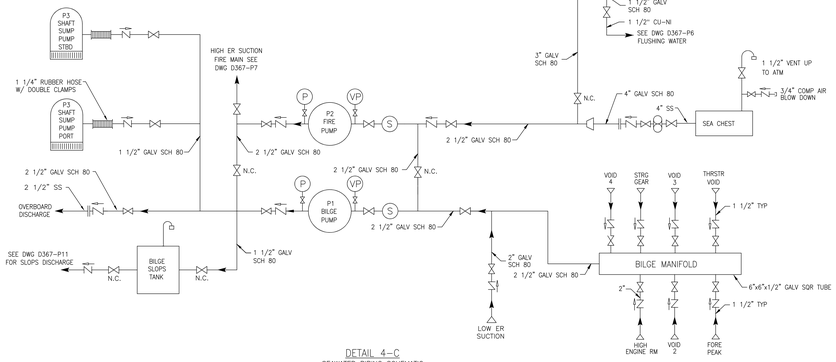
DETAIL 4-D
1/2" PLATE SEA CHEST STRAINER PLT.
SCALE: 1-1/2" = 1'-0"



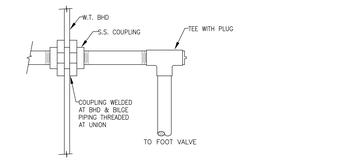
DETAIL 3-D
5/8" INSERT PLATE
SCALE: 1-1/2" = 1'-0"



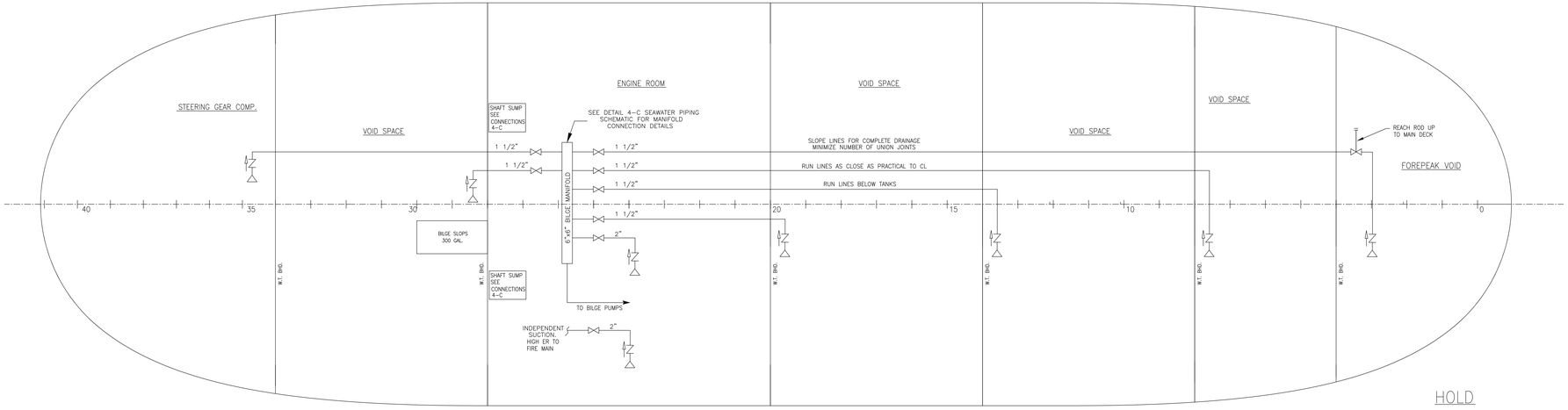
DETAIL 5-B
CROSS SECTION OF SEA CHEST
NOT TO SCALE



DETAIL 4-C
SEAWATER PIPING SCHEMATIC
NOT TO SCALE



DETAIL 5-A
TYPICAL PIPE PENETRATION DETAIL
NOT TO SCALE



HOLD

46 CFR 56.50-50(d) BILGE PIPING

LBP = 98.75 FT
B = 28.5 FT
D = 11.0 FT

(1) FOR SUCTIONS TO EACH MAIN BILGE PUMP:

$$d = 1 + \sqrt{\frac{L(B+D)}{2500}} = 2.25" \rightarrow 2\ 1/2"\ \text{NOM SCH 80 PIPE}$$

(2) FOR BRANCH SUCTIONS:

$$d = 1 + \sqrt{\frac{c(B+D)}{1500}} =$$

COMPARTMENT	(c) LENGTH	(d) DIA REQ	NOMINAL PIPE
FOREPEAK	12.0	1.56	1 1/2"
THRUSTER VOID	10.0	1.51	1 1/2"
VOID 2	15.0	1.63	1 1/2"
VOID 3	15.0	1.63	1 1/2"
ENGINE ROOM	20.0	1.73	2"
VOID 4	15.0	1.63	1 1/2"
STRG GEAR COMP	17.0	1.67	1 1/2"

PER TABLE 182.520: 2 POWER BILGE PUMPS REQ'D

46 CFR 56.50-50 BILGE PUMPS

(c) BILGE PUMP CAPACITY
PUMP MUST DEVELOP NOT LESS THAN 400 FT/MIN
VELOCITY IN THE BILGE MAIN
2 1/2" SCH 80 ID = 2.60"
Q = 110 GPM

MATERIAL LIST

ITEM	QUANTITY	SPECIFICATION	MATERIAL
2 1/2", 2", 1 1/2" GALVANIZED STEEL PIPE	AS NEEDED	FURNACE BUTT-WELDED OR SEAMLESS STEEL, SCH. 80 GALVANIZED W/ THREADED JOINTS	ASTM A53
6" x 6" x 1/2" BOX TUBE	AS NEEDED	CARBON STEEL, GALVANIZED	ASTM A500
VALVES BRONZE GATE VALVES 150# CHECK VLVS BRONZE THRD 300#	AS NEEDED	BRONZE SCREWED OR FLANGED, W/ BRONZE MOUNTINGS	ASME SB62 ANSI B16.24 MSS SP-6,9,25,80
STEEL FITTINGS, TEES, AND ELBOWS IN BILGE SYSTEM	AS NEEDED	CARBON STEEL SCREWED ENDS, GALV. SCH 80	ASTM A234, A105 ASME B16.1 THRU ASME B16.11
OVERBOARD DISCHARGE AND SEACHESTS TO 1ST VALVES PIPING	AS NEEDED	STAINLESS STEEL GRADE 316 SCH. 80 WELDED	ASTM A312 ASME B31.1 ASME B36.19
FITTINGS WITHIN STAINLESS STEEL PIPING SECTIONS	AS NEEDED	316 STAINLESS STEEL SOCKET WELD SCH. 80	ASTM A403 ANSI B16.3
OVERBOARD DISCHARGE – VALVES	AS NEEDED	CAST IRON, OR DUCTILE OR NODULAR CAST IRON OR CAST STEEL FLANGED, GALV., W/ BRONZE MOUNTINGS	ASTM A395 ASME B16.34
FOOT VALVE	8	2-1/2" FLOWMATIC CORP. MODEL 357 FOOT VALVE, CAST IRON	ASTM A48 ANSI B16.24
BILGE PUMP (P1)	1	MP HHLF 15 SELF-PR CENTRIF, 2"x2", 6.7" IMPELLER, 7.5 HP, 3PH, 3450 RPM TEFC MOTOR	BRONZE
STAND-BY BILGE PUMP/ FIRE PUMP (P2)	1	MP HHLF 15 SELF-PR CENTRIF, 2"x2", 6.7" IMPELLER, 7.5 HP, 3PH, 3450 RPM TEFC MOTOR	BRONZE
REACH ROD	1	ASSEMBLY BY ELLIOT MANUFACTURING	--
SIMPLEX STRAINER	2	KRAISSL SIMPLEX STRAINER MODEL 72	ASTM F-1199
DUPLEX STRAINER	2	KRAISSL DUPLEX STRAINER MODEL 72	ASTM F-1199
FLEXIBLE METALLIC HOSE	AS NEEDED		SAE J1942 SAE J-1475
SHAFT SUMP PUMPS (P3, P4)	2	DAYTON-GRAINGER 3YU17C SELF-PRIMING SUBMERSIBLE FLOAT-ACTUATED 1/2 HP PUMP	--

SYMBOLS

- BILGE SUCTION STRAINER
- SWING CHECK VALVE
- NORMALLY OPEN GATE VALVE
- N.C. NORMALLY CLOSED GATE VALVE
- DUPLEX STRAINER
- (S) SIMPLEX STRAINER
- DIRECTION OF FLOW
- REDUCER FITTING
- FLEXIBLE CONNECTION
- CAP
- SC SEA CHEST
- PRESSURE GAGE
- VACUUM PRESSURE GAGE
- VENT WITH "U" BEND
- PRESSURE RELIEF VALVE
- FLANGE JOINT WITH MATERIAL ISOLATION

GENERAL NOTES

1. THIS DRAWING IS SCHEMATIC ONLY, AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS, OR EQUIPMENT EXCEPT IN GENERAL OR AS NOTED.
2. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT INSTALLATION.
3. SIZES ARE SHOWN AS MINIMUMS. IF NECESSARY, ADJUSTMENTS SHALL BE MADE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.
4. ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED AS MUCH AS POSSIBLE.
5. ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS.
6. ALL THROUGH-HULL CONNECTIONS SHALL HAVE VALVES FITTED AS CLOSE AS POSSIBLE TO THE HULL TO COMPLY WITH 46 CFR 56.50-95.
7. ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.
8. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS TO PROVIDE FOR REMOVAL OF EQUIPMENT OR PIPE AND FOR SYSTEM CLEANING IN EACH WATER TIGHT COMPARTMENT.
9. THE BILGE MANIFOLD VALVES SHALL BE OF THE STOP-CHECK TYPE OR, STOP VALVE AND CHECK VALVE. IN ACCORDANCE WITH 46 CFR 56.50-50 (C).
10. THE BULKHEAD PIPING PENETRATION SHALL HAVE REINFORCEMENT AROUND THE PIPING AND BE WELDED ON BOTH SIDES OF THE PENETRATION (SEE DETAIL 5-A).
11. THE BILGE SYSTEM SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SUBCHAPTER T 46 CFR 182.5 AND APPLICABLE PORTIONS OF 46 CFR 56.50 AND 56.55.
12. EACH INDIVIDUAL BILGE SUCTION SHALL BE FITTED WITH A SUITABLE BILGE STRAINER HAVING AN OPEN AREA OF NOT LESS THAN THREE TIMES OF THE SUCTION PIPE.
13. THE SEA CHESTS SHALL BE FITTED WITH PORTABLE STEEL STRAINER PLATES FITTED AT THE OUTSIDE OF THE HULL SUITABLY PERFORATED. THE CLEAR AREA SHALL BE AT LEAST 3 TIMES THE COMBINED AREA OF ALL THE VALVES CONNECTED TO THE SEA CHEST.
14. EACH PUMP DISCHARGE SHALL BE FITTED WITH A PRESSURE GAUGE AND A PRESSURE RELIEF VALVE. WHERE REQUIRED.
15. ALL PIPING VALVES AND FITTINGS SHALL BE INSTALLED WITH REGARDS TO GOOD MARINE PRACTICE AND SUITABLE FOR ITS INTENDED PURPOSE. THE INSTALLATION, TESTING, AND WORKMANSHIP MUST BE TO THE SATISFACTION OF THE U.S. COAST GUARD OFFICER IN CHARGE MARINE INSPECTION (O.C.M.I.).
16. BILGE LEVEL ALARMS, VISUAL AND AUDIBLE, SHALL BE INSTALLED IN EACH HULL COMPARTMENT, AS REQUIRED. ALARM TO SOUND IN THE ENGINE ROOM AND IN THE PILOT HOUSE.
17. SYSTEMS SHALL BE DESIGNED WITH MEANS FOR COMPLETE DRAINAGE. ALL PIPE RUNS ON SLOPE FOR DRAINAGE WITH PIPE PLUGS OR CAPS AT LOW POINTS.
18. ALL THE VENTS ABOVE THE MAIN DECK SHALL BE PROVIDED WITH A BALL CHECK VALVE WHERE THE BALL FLOAT, NORMALLY IN THE OPEN POSITION, WILL FLOAT UP AND CLOSE UNDER THE ACTION OF A SUBMERGING WAVE.
19. THE BILGE & FIRE PUMP PERFORMANCE DATA & MOTOR SELECTION SHALL BE CONFIRMED WITH THE MANUFACTURER PRIOR TO PURCHASE.

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

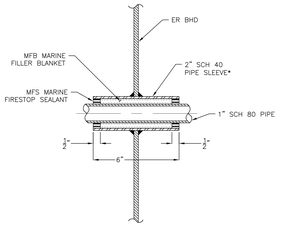
BILGE PIPE SCHEMATIC & SEA CHEST DETAILS

DRAWN BY KC DATE 05/12/2021
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P9 ALT. 0

SHEET 1 OF 1

GENERAL NOTES:

1. THIS PLAN IS A SCHEMATIC ONLY AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS, OR EQUIPMENT IN GENERAL.
2. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE SHIP TO BEST SUIT THE INSTALLATION.
3. SIZES SHOWN ARE FOR GUIDANCE ONLY AND NECESSARY ADJUSTMENT SHALL BE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.
4. ALL PIPING DIAGRAMS, SPECIFICATIONS, AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURERS OF EQUIPMENT SERVICED BY A SYSTEM SHALL SUPERCEDE.
5. ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED AS MUCH AS POSSIBLE.
6. ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS.
7. ALL AIR PIPING SYSTEMS SHALL COMPLY WITH THE REQUIREMENT OF U.S. COAST GUARD 46 CFR 56.50-60, 46 CFR 56.50-75, AND 58.01-25.
8. ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.
9. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR REMOVAL.
10. ALL PIPE CONNECTION BETWEEN THE AIR COMPRESSORS, PUMPS, AND ENGINES, SHALL BE FLEXIBLE.
11. THE DECK AND BULKHEAD PIPING PENETRATIONS SHALL HAVE REINFORCEMENT AROUND THE PIPING AND SHALL BE WELDED ON BOTH SIDES OF THE PENETRATIONS.
12. ALL SYSTEMS SHALL HAVE PROVISIONS FOR COMPLETE DRAINAGE.
13. ALL AIR SUPPLY AND RETURN, FLEXIBLE CONNECTIONS INSTALLED AT THE ENGINES, SHALL BE TO THE SATISFACTION OF THE OFFICER IN CHARGE OF MARINE INSPECTION (O.C.M.I.).
14. THE INSTALLATION, TESTING, AND WORKMANSHIP MUST BE TO THE SATISFACTION OF THE O.C.M.I.
15. STARTING AIR COMPRESSOR SWITCHES SHALL BE SET TO TURN ON THE LEAD COMPRESSOR AT 100 PSIG AND OFF AT 200 PSI. THE LAG COMPRESSOR SWITCHES SHALL BE SET TO TURN THE COMPRESSOR ON AT 80 PSIG AND OFF AT 180 PSIG. BOTH COMPRESSORS SHALL HAVE REMOTE RUN INDICATOR LIGHTS IN THE ENGINE ROOM AND PILOT HOUSE CONSOLES. A SELECTION SWITCH SHALL BE INSTALLED FOR USER SELECTION OF THE LEAD COMPRESSOR.



TYPICAL PIPE & W.T. BULKHEAD PENETRATION DETAIL
NOT TO SCALE

*BHD PENETRATION SLEEVE CAN BE EXPANDED TO SUIT MULTIPLE PIPE PENETRATIONS MAX OPENING SIZE PER STI MARINE GUIDANCE

MATERIALS LIST

SERVICE	SIZE	PIPE	JOINTS	VALVE		FITTINGS
				BODIES	TRIM	
COMPRESSED AIR PIPING	2-1/2" AND ABOVE	SEAMLESS STEEL ASTM A53 OR ASTM A106 GR.B ANSI B36.10 SCHEDULE 80	2000# FORGED STEEL, SOCKET WELDED, FLANGED ASTM A105 GR I OR II AND MSS-SP-83	CARBON STEEL ASTM A216, GR WCB - ANSI B16.34 SOCKET WELD OR THREADED 600 PSI 600#	BALL: CHROME PLT CARBON STL BALL PTFE SEATS & SEALS GATE/GLOBE/ CHECK: CARBON STL DISC & SEAT	CARBON STEEL ASTM A105 GR. I OR OR II, 2000# ANSI B16.11 SOCKET WELD
	OVER 1" TO 2"					
	1" AND BELOW		2000# FORGED STEEL UNIONS, SCREWED & SEALED	FORGED STEEL SCREWED AND SEALED		FORGED STEEL SCREWED AND SEALED

EQUIPMENT LIST

QTY	SERVICE	TYPE	MODEL	CAPACITY
2	SHIP SERVICE AIR COMPRESSOR	2 STAGE RECIP	QUINCY QR-25 MODEL #325HP	5 HP,14.20 ACFM @200 PSI 230/3/60 TEFC
2	SHIP SERVICE AIR RECEIVER	HORIZONTAL AIR RECEIVER	QUINCY	200 GAL 300 PSI MAWP
1	SHIP'S HORN	BRONZE	KAHLENBURG D-2	29 SCFM @ 100 PSI
2	AIR DRYER	HIGH PRESSURE REFRIGERATED DRYER	QUINCY-QRHT-25	232 PSIG MAX 25 CFM@100PSIG
1	CONTROL PANEL	NEMA 4	DUPLEX-SINGLE PWR	
2	AIR FILTER	MICRONIC COALESCER	QMF 25	232 PSIG MAX

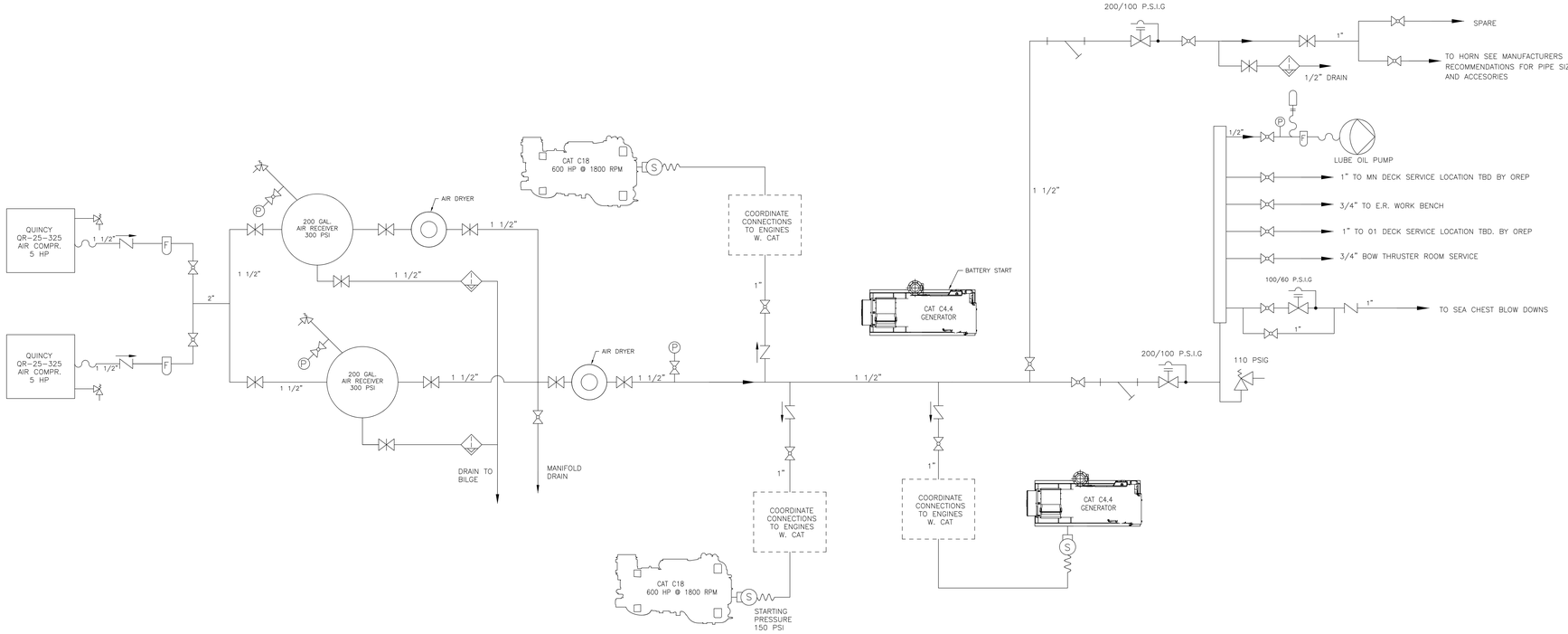
STARTING AIR COMPRESSORS

TOTAL STORAGE VOLUME, 400 GAL. = 53.47 CU. FT.
REQUIRED TIME TO RECHARGE 60 MIN.
INITIAL PRESSURE, Pi = 14.7 psia
FINAL PRESSURE, Pf = 200 psia
ATMOSPHERIC PRESSURE, Pa = 14.7 psia
FLOW RATE, Q = 12.13 CU.FT./MIN
NUMBER OF COMPRESSORS = 2
FLOW RATE / # COMPRESSORS = 6.06 CU.FT./MIN

STARTING AIR RECEIVERS

	MAIN ENGINE	GENERATOR ENGINE
AIR CONSUMPTION OF ENGINE'S STARTER MOTOR, Vs	5.16 ft^3/s	7.06 ft^3/s
TOTAL CRANKING TIME FOR 8/6 STARTS, T	8*5=40s	6*5=30s
ATMOSPHERIC PRESSURE, Pa	14.7 psi	14.7 psi
INITIAL STORAGE TANK PRESSURE, Pi	200 psi	200 psi
MINIMUM STORAGE TANK PRESSURE, Pmin	80 psi	80 psi
REQUIRED VOLUME, Vr (Vs*T)(Pa) / (Pi-Pmin) =	25.3 ft^3	26.0 ft^3

TOTAL VOLUME, Vt
25.3 + 26.0 = 51.3 ft^3 = 383 GAL;
TWO RECEIVERS, 200 GAL EACH



SYMBOLS

- BALL VALVE
- CHECK VALVE
- GATE VALVE
- RELIEF VALVE
- FLEXIBLE CONNECTION
- AIR RELAY VALVE
- PRESSURE GAUGE
- STARTING MOTOR
- VALVE W/ HOSE CONNECTION
- AIR LUBRICATOR
- "Y" STRAINER
- AIR FILTER
- PRESSURE REDUCING VALVE
- PIPE RUN UP
- PIPE RUN DN.
- AUTOMATIC CONDENSATE DRAIN VALVE
- ELECTRONIC RELAY VALVE
- SURGE DAMPENER

ALT	DESCRIPTION	DATE	NAME

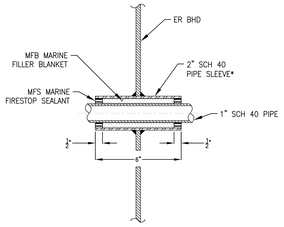
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

COMPRESSED AIR PIPING SCHEMATIC

DRAWN BY KVC/JG DATE 3/28/22
CHECKED BY JG DATE
APPROVED BY DATE
SCALE 1/2" = 1'-0"
DWG. NO. D367-P10 ALT. 0

SHEET 1 OF 1



DETAIL 5-D

TYPICAL PIPE PENETRATION DETAIL
NOT TO SCALE

*BHD PENETRATION SLEEVE CAN BE EXPANDED TO SUIT MULTIPLE PIPE PENETRATIONS MAX OPENING SIZE PER STI MARINE GUIDANCE

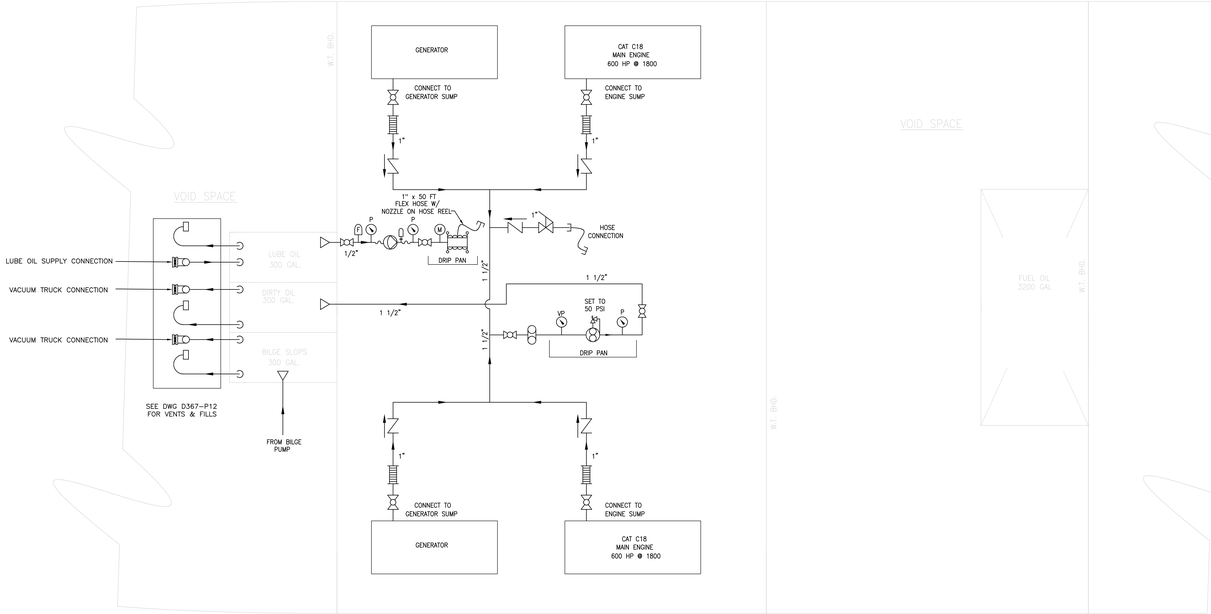
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3. SIZES SHOWN ARE FOR GUIDANCE ONLY AND NECESSARY ADJUSTMENT SHALL BE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.
4. ALL PIPING DIAGRAMS, SPECIFICATIONS, AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURERS OF EQUIPMENT SERVICED BY THIS SYSTEM SHALL SUPERSEDE.
5. ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED AS MUCH AS POSSIBLE.
6. ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS. PIPING SHALL BE MARKED WITH STANDARDIZED COLOR-CODED SYMBOLS FOR TYPE OF SERVICE AND DIRECTION OF FLOW.
7. ALL OIL PIPING SYSTEMS SHALL COMPLY WITH THE REQUIREMENT OF U.S.C.G. 46 CFR SUBCHAPTER T, PART 182 MACHINERY INSTALLATION.
8. ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.
9. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR REMOVAL.
10. THE DECK AND BULKHEAD PIPING PENETRATIONS SHALL HAVE REINFORCEMENT AROUND THE PIPING AND SHALL BE WELDED ON BOTH SIDES OF THE PENETRATIONS.
11. ALL SYSTEMS SHALL HAVE PROVISIONS FOR COMPLETE DRAINAGE.
12. ALL OIL SUPPLY AND RETURN SHALL HAVE FLEXIBLE CONNECTIONS INSTALLED AT THE ENGINES AND SHALL BE TO THE SATISFACTION OF THE OCMI (SEE NOTE 14).
13. THE INSTALLATION, TESTING, AND WORKMANSHIP MUST BE TO THE SATISFACTION OF THE O.C.M.I.
14. FLEXIBLE HOSE SECTIONS BETWEEN THE ENGINE ATTACHED CONNECTIONS AND VESSEL PIPING SHALL BE 37° SAE FLARE SWIVEL ON BOTH ENDS. FLEXIBLE HOSE SHALL BE IN ACCORDANCE WITH 46 CFR 56.60-25(b)(1-6). HOSE ASSEMBLIES SHALL BE NO MORE THAN 30" IN LENGTH.
15. DRIP PANS WITH UP-TURNED, SEALED, AND FLANGED EDGES SHALL BE PROVIDED BENEATH ALL FILTERS, PUMPS, STRAINERS, AND ANY OTHER EQUIPMENT THAT CONTAINS OIL AND REQUIRES PERIODIC MAINTENANCE.
16. TANK SHUT-OFF VALVES SHALL HAVE FIRE SAFE METALLIC SEATS.
17. BULKHEAD PENETRATIONS SHALL BE INBOARD OF THE HULL SIDE GREATER THAN 20% OF THE BEAM, MEASURED AT THE BOUNDARY PENETRATED.
18. SLOPE OIL TANK VENT LINES 1/8" PER FOOT TOWARDS TANK.
19. HOSE INSTALLATION PER 182.410, FLEXIBLE HOSE MUST MEET THE REQUIREMENTS OF §182.720(e).
20. OIL LINES MUST BE ACCESSIBLE, PROTECTED FROM MECHANICAL INJURY, AND EFFECTIVELY SECURED AGAINST EXCESSIVE MOVEMENT AND VIBRATION BY THE USE OF SOFT NONFERROUS METAL STRAPS WHICH HAVE NO SHARP EDGES AND ARE INSULATED TO PROTECT AGAINST CORROSION. WHERE PASSING THROUGH BULKHEADS, OIL LINES MUST BE PROTECTED BY CLOSE FITTING FERRULES OR STUFFING BOXES. ALL OIL LINES AND FITTINGS MUST BE ACCESSIBLE FOR INSPECTION.
21. ARRANGE LUBE OIL HOSE & HOSE REEL FOR COMPLETE DRAINAGE TO TANK. HOSE TO BE STORED DRAINED & DISCONNECTED.

MATERIALS LIST

SERVICE	SIZE	PIPE	JOINTS			VALVE		FITTINGS
			MATERIAL	GASKETS	BOLTING	BODIES	TRIM	
LUBE OIL MAWP: 100 PSIG MAX TEMP: 120°F	2-1/2" AND ABOVE	CARBON STEEL ASTM A53 OR A106, GRADE B SEAMLESS ANSI B36.10 SCH 40	FLANGE CARBON STEEL ASTM A105 ANSI B16.5 150# SUP-ON OR WELD NECK	GARLOCK IFG 5500	BOLTS: CARBON STEEL ASTM A307 GRADE B ANSI B18.2.1 NUTS: CARBON STEEL ASTM A563 GRADE A ANSI B18.2.2	BALL: CARBON STEEL ASTM A216 GR WCB SOCKET WELD OR THREADED, 1500 PSI SWING CHECK: DUCTILE IRON ASTM A395 150#	BALL: CHROME PLATED CARBON STEEL BALL RPTFE SEATS CHECK: BRONZE, RENEWABLE DISK + SEAT	CARBON STEEL ASTM A234, GR WPB ANSI B16.9 BUTT WELD LONG RADIUS
	2" AND BELOW	SAME AS ABOVE, SCH 80	UNION GROUND JOINT CARBON STEEL ASTM A105 ANSI B16.11 SOCKET WELD					CARBON STEEL ASTM A105 ANSI B16.11 3000# SOCKET WELD

DESCRIPTION	MATERIAL SPEC.
DIRTY OIL SUCTION PUMP	1" VIKING MODEL GG4193 SERIES PUMP RATED 10 GPM @ 14.7 FEET HEAD 1750 RPM MOTOR
LUBE OIL SUPPLY PUMP	ALEMITE PNEUMATIC OIL PUMP 8322 RATED 14 GPM W/ OIL REEL 8078-D, METER 3670, & FILTER/REGULATOR 7936
BHD PENETRATION FIRE STOP MATERIAL	STI MARINE MFB MARINE FILLER BLANKET & MFS MARINE FIRESTOP SEALANT



LEGEND

- SPRING LOADED DEADMAN VALVE
- BALL VALVE
- DIRECTION OF FLOW
- CHECK VALVE
- PIPE RUN UP
- POSITIVE DISPLACEMENT PUMP
- DIAPHRAGM PUMP
- DUPLEX STRAINER
- FILTER & REGULATOR
- VACUUM GAUGE
- PRESSURE GAUGE
- FLOW METER
- RELIEF VALVE
- BELLMOUTH
- PIPE CAP
- FLEXIBLE CONNECTION
- HOSE REEL
- SURGE DAMPENER
- TANK VENT
- QUICK CONNECT

ALT	DESCRIPTION	DATE	NAME

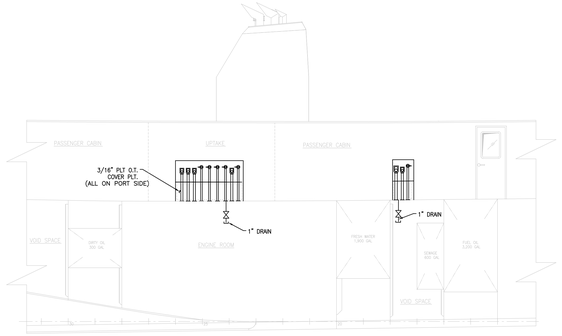
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

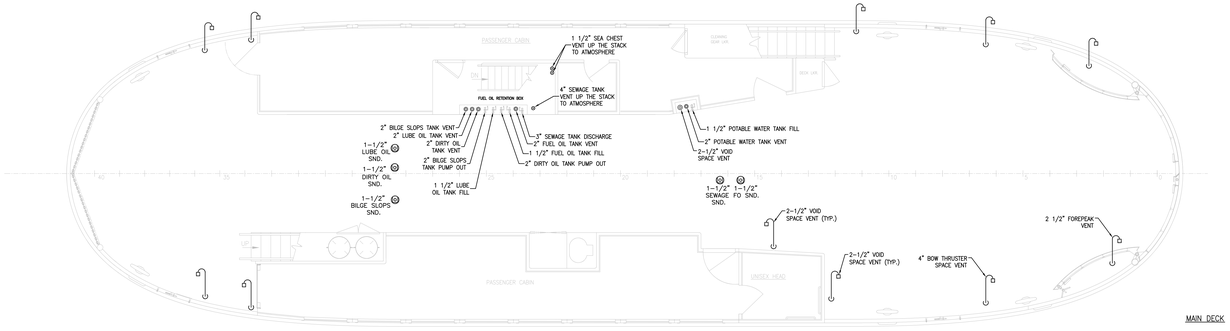
LUBE OIL & WASTE OIL PIPING SCHEMATIC

DRAWN BY KVC DATE 06/09/21
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 1/2" = 1'-0"
DWG. NO. D367-P11 ALT. 0

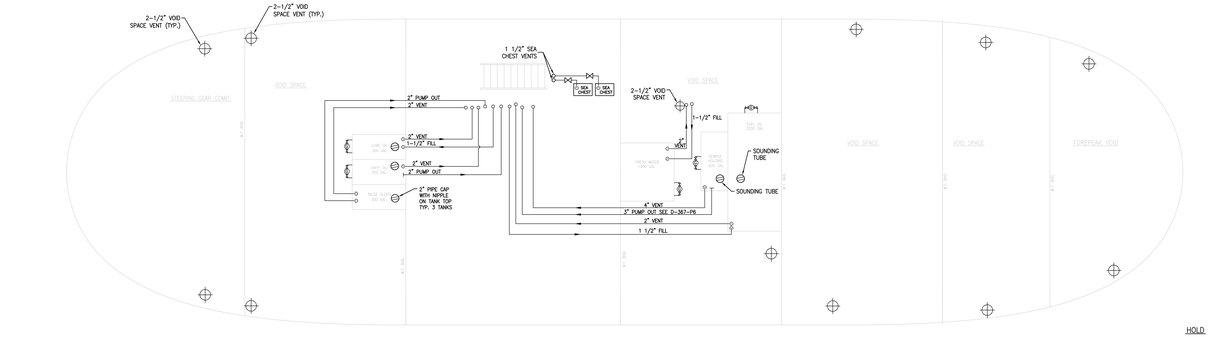
SHEET 1 OF 1



FILL AND VENT – PROFILE VIEW



MAIN DECK



HOLD

GENERAL NOTES

1) THIS DRAWING IS A SCHEMATIC ONLY AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS, OR EQUIPMENT EXCEPT IN GENERAL OR AS NOTED. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE SHIP TO BEST SUIT INSTALLATION.

2) SIZES SHOWN ARE FOR GUIDANCE ONLY. NECESSARY ADJUSTMENT SHALL BE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.

3) ALL DIAGRAMS, SPECIFICATIONS, AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURERS OF EQUIPMENT SERVICED BY A SYSTEM SHALL SUPERCEDE THIS PLAN.

4) VENT PIPES FOR FUEL OIL TANKS SHALL BE SLOPED AS NECESSARY TO PROVIDE DRAINAGE TO TANK AND TO PREVENT POCKETING.

5) VENTS WITH "U" BENDS SHALL TERMINATE CLOSE TO THE HOUSE SIDES.

6) SOUNDING TUBES SHALL BE INSTALLED WITH STRIKER PLATES IN ACCORDANCE WITH GOOD SHIPBUILDING PRACTICE.

7) WHERE SOUNDING TUBES TERMINATE FLUSH WITH THE DECK, FLUSH BRASS DECK PLUGS SHALL BE INSTALLED ON THE SOUNDING TUBES.

8) WHERE SOUNDING TUBES TERMINATE BELOW THE BULKHEAD DECK, A SELF-CLOSING GATE VALVE SHALL BE INSTALLED IN ACCORDANCE WITH 46 CFR 56.50-90(b).

9) SOUNDING TUBES SHALL BE MADE VERTICAL. WHERE THIS IS DEEMED IMPRACTICAL, SOUNDING TUBES SHALL NOT HAVE AN ANGLE OF MORE THAN 15° FROM VERTICAL.

10) ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS.

11) ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.

12) ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED AS MUCH AS POSSIBLE.

13) ALL CONNECTIONS BETWEEN THE PUMPS, ENGINES, AND PIPES SHALL BE FLEXIBLE.

14) FINAL FIELD INSTALLATION SHALL BE IN ACCORDANCE WITH GOOD SHIPBUILDING PRACTICES.

15) ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR REMOVAL.

16) THE DECK AND BULKHEAD PIPING PENETRATIONS SHALL HAVE REINFORCEMENT AROUND THE PIPING AND SHALL BE WELDED ON BOTH SIDES OF THE PENETRATIONS.

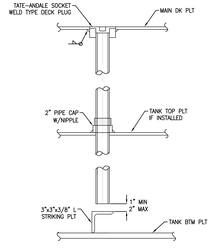
17) THE INSTALLATION, TESTING AND WORKMANSHIP MUST BE TO THE SATISFACTION OF THE OFFICER IN CHARGE, MARINE INSPECTION.

18) VENT OUTLETS FROM FUEL, FW, BILGE SLOPS, SEWAGE, DIRTY OIL TANKS SHALL BE FITTED WITH 30 BY 30 MESH SCREEN OF CORROSION RESISTANT WIRE.

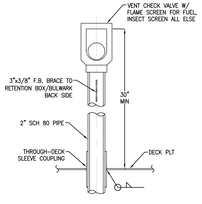
19) PROPER SUPPORTS SHALL BE PROVIDED FOR ALL PIPE RUNS AS REQUIRED BY THE REGULATORY BODIES AND ESTABLISHED MARINE PRACTICE.

BILL OF MATERIALS

QTY.	SIZE	DESCRIPTION	MATERIAL	ASTM
AS NEEDED	1-1/2"ø	PIPE, SCH. 80, SEAMLESS	BLK STEEL	A 53
AS NEEDED	1-1/2"ø	ELBOW, SCH. 80, SEAMLESS	BLK STEEL	A 234
AS NEEDED	1-1/2"ø	TEE, SCH. 80, SEAMLESS	BLK STEEL	A 234
3	1-1/2"ø	VALVE, CHECK, MANUAL HANDLE	D.I.	A 395
16	1-1/2"ø	VALVE, GATE, MANUAL HANDLE	D.I.	A 395
AS NEEDED	2"ø	PIPE, SCH. 80, SEAMLESS	BLK STEEL	A 53
AS NEEDED	2"ø	ELBOW, SCH. 80, SEAMLESS	BLK STEEL	A 234
AS NEEDED	2"ø	TEE, SCH. 80, SEAMLESS	BLK STEEL	A 234
AS NEEDED	2-1/2"ø	PIPE, SCH. 80, SEAMLESS	BLK STEEL	A 53
AS NEEDED	2-1/2"ø	ELBOW, SCH. 80, SEAMLESS	BLK STEEL	A 234
AS NEEDED	2-1/2"ø	TEE, SCH. 80, SEAMLESS	BLK STEEL	A 234
AS NEEDED	1-1/2"x1"	CONCENTRIC REDUCER	BLK STEEL	A 234
AS NEEDED	2"x1"	CONCENTRIC REDUCER	BLK STEEL	A 234
AS NEEDED	2"x1-1/2"	CONCENTRIC REDUCER	BLK STEEL	A 234
AS NEEDED	--	EATON AEROQUIP FC234 FLEXIBLE HOSE	--	SAE J1942 SAE J1475
AS NEEDED	--	GEMS SURESIGHT – SIGHT GLASSES	--	--
AS NEEDED	2"ø, 2-1/2"ø, 4"ø	WINTER WIN2000 HIAS THREADED VENT CHECK VALVE WITH SCREEN	--	--



TYPICAL SOUNDING TUBE DETAIL
FLUSH DECK SOUNDING
SCALE 1-1/2" = 1'-0"



TYPICAL VENT DETAIL
SCALE 1 1/2" = 1'-0"

LEGEND

- TANK SOUNDING TUBE
- SOUNDING TUBE DECK FITTING
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP AND DOWN
- VENT WITH "U" BEND, BALL CHECK VALVE, AND REMOVABLE FLAME SCREEN
- GATE VALVE
- CHECK VALVE
- BALL VALVE
- LEVEL GAUGE
- PIPE CAP

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

VENTS, FILLS, & SOUNDING TUBE PIPE SCHEMATIC & DETAILS

DRAWN BY KC	DATE 06/23/2021
CHECKED BY JC	DATE
APPROVED BY	DATE
SCALE 1/4" = 1'-0"	
DWG. NO. D367-P12	ALT. 0

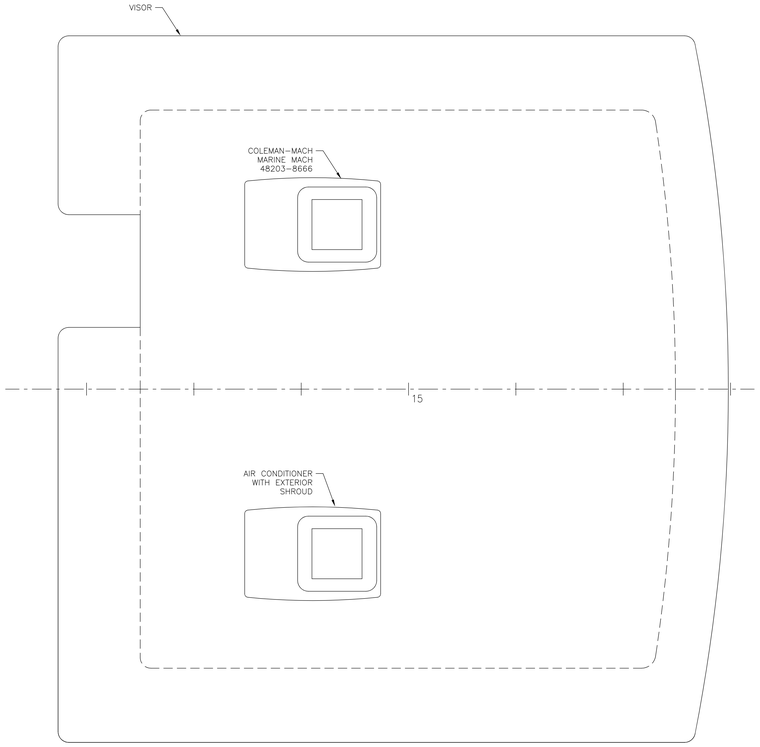
SHEET 1 OF 1

EQUIPMENT LIST

ITEM	LOCATION	QUANTITY	DESCRIPTION
1	PILOT HOUSE	2	COLEMAN MARINE MACH 48203-8666 13,500 BTU, 320 CFM 115V, 60HZ, 1 PHASE
2	PILOT HOUSE	2	VALAD ELECTRIC RSDM FORCED AIR SURFACE MOUNT WALL HEATER 3 KW, 220 VAC, 3 PHASE
3	PILOT HOUSE	1	RENEWAIRE EV PREMIUM S ENERGY RECOVERY VENTILATOR

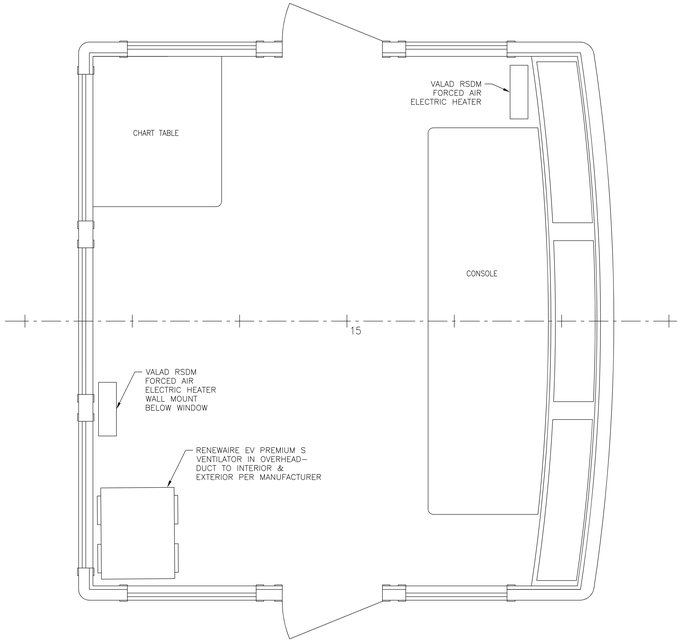
GENERAL NOTES

1. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE SHIP TO BEST SUIT INSTALLATION.
2. THE DECK AND BULKHEAD PIPING PENETRATION SHALL HAVE REINFORCEMENT AROUND PIPING AND SHALL BE WELDED ON BOTH SIDES OF THE PENETRATION.
3. ALL PIPING DIAGRAMS, SPECIFICATIONS AND RECOMMENDATIONS FURNISHED BY MANUFACTURER OF EQUIPMENT SERVICED BY A SYSTEM SHALL SUPERSEDE.
4. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. THE CONTRACTOR SHALL BE RESONSIBLE FOR TESTING, BALANCING AND ADJUSTING THE HVAC SYSTEM.
6. ALL THE PILOT HOUSE HVAC EQUIPMENT SHALL BE THERMOSTATICALLY CONTROLLED LOCALLY.
7. THIS DRAWING IS BASED ON THE REQUIREMENTS, RULES AND REGULATIONS OF THE UNITED STATES COAST GUARD (U.S.C.G.) CODE OF FEDERAL REGULATIONS, 46 CFR WHOSE PROVISIONS SHALL PREVAIL WHERE THIS DRAWING IS SILENT.
8. MOUNTING HARDWARE NOT ORDERED ON THIS DRAWING SHALL BE SUPPLIED BY THE INSTALLING ACTIVITY AND SHALL INCLUDE SELF LOCKING NUTS. ALL NUTS FOR DISSIMILAR METALS SHALL BE NYLOCK STYLE.
9. ALL EQUIPMENT AND FOUNDATIONS SHALL BE INSTALLED PARALLEL TO AND/OR PERPENDICULAR TO THE HORIZONTAL BASE LINE OF THE VESSEL.
10. VENTILATION DUCTWORK SHALL BE SUPPORTED BY HANGERS. CONTRACTOR TO SUPPLY ALL HANGERS, LINERS AND FASTENERS. MATERIAL SHALL BE APPROVED BY OWNERS REPRESENTATIVE. HANGERS SHALL BE MOUNTED TO THE STRUCTURAL STIFFENERS AND NOT TO THE PLANE SURFACE OF THE OVERHEAD OR BULKHEADS.
11. FINAL LOCATIONS OF ALL DUCTWORK AND EQUIPMENT SHALL BE DETERMINED ON THE FERRY TO BEST SUIT INSTALLATION.
12. THE PART NUMBER IN THE LIST OF MATERIAL SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING PROCUREMENT.
13. ENERGY RECOVERY VENTILATOR UNIT INPUTS SHALL BE PLACED TO AVOID BULKHEAD PENETRATIONS THROUGH STIFFENERS. SOFFIT DROP CEILING AS NEEDED TO ACCOMMODATE UNITS & PROVIDE ACCESS TO HINGED SERVICE DOOR ON UNIT.



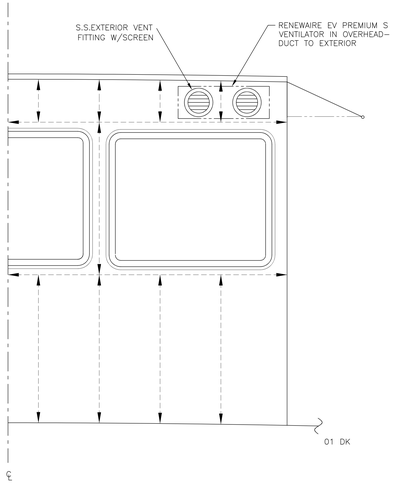
PILOT HOUSE TOP

AIR CONDITIONING



PILOT HOUSE

HEATING & VENTILATION



AFT BULKHEAD OF PILOT HOUSE

SEE D367-S5 FOR STRUCTURAL DETAILS

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

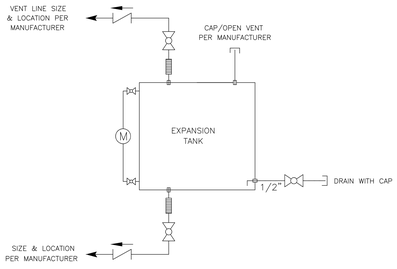
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA FERRY VESSEL

PILOT HOUSE
HVAC ARRANGEMENT

DRAWN BY KVC	DATE 02/02/2022
CHECKED BY JG	DATE
APPROVED BY	DATE
SCALE 1" = 1'-0"	
DWG. NO. D367-P13	ALT. 0

SHEET 1 OF 1



DETAIL 5-D

TYP EXPANSION TANK

MATERIALS LIST

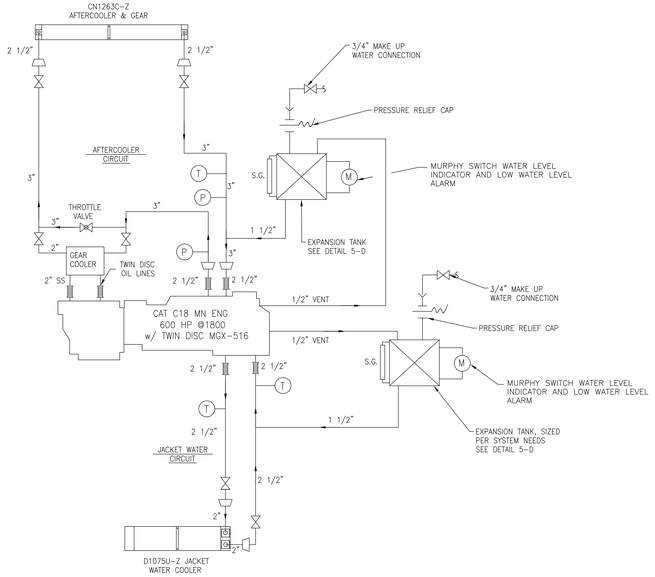
PIPE MATERIAL				VALVE MATERIAL							FITTING MATERIAL				
SERVICE	SIZE	SPECIFICATION	MATERIAL	SERVICE	SIZE	PRESS CLASS	VALVE TYPE	VALVE POSITION	BODY MATERIAL	TRIM MATERIAL	SERVICE	SIZE	CONNECTION	SPECIFICATION	MATERIAL
50-50 MIX FRESH WATER & ETHYLENE GLYCOL COOLING FOR ALL ENGINES AND REDUCTION GEARS.	ALL	ASTM A-53 GR B	STEEL, ERW, BLK, SCH 80	50-50 MIX FRESH WATER & ETHYLENE GLYCOL COOLING FOR ALL ENGINES AND REDUCTION GEARS.	ALL	ALL	ALL	ALL	DUCTILE IRON ASTM A 395	BRONZE	50-50 MIX FRESH WATER & ETHYLENE GLYCOL COOLING FOR ALL ENGINES AND REDUCTION GEARS.	2" & BELOW	SOCKET WELD	ANSI B16.11	ASTM A-105 FORGED STEEL
												2 1/2" & ABOVE	BUTT WELD	ANSI B16.9	ASTM A-236 GR WCB FORGED STEEL
RED. GEAR OIL, SS COOLING, VENTS	ALL	ASTM A312 ASME B31.1, ASME B36.19	316 STAINLESS SCH. 80 WELDED	RED. GEAR OIL SS COOLING, VENTS	—	—	—	—	—	—	RED. GEAR OIL SS COOLING, VENTS	ALL	FLANGED OR WELDED	ASTM A403 ASME B16.1 THRU ASME B16.11	316 STAINLESS
COOLING VENTS	ALL		STEEL, ERW, BLK, SCH 80												

EQUIPMENT LIST

ENGINES, GEARS, EQUIP. COOLED		KEEL COOLERS			
QUANTITY	MODEL	UNITS PER MODEL	ITEM	MODEL	MANUFACTURER
2	MAIN ENGINE: CAT C18 RED'N GEAR: TWIN DISC MGX-516 (AFTERCOOLER + RED. GEAR LOOP)	1	GRID COOLER	CN1263C-Z	FERNSTRUM
2	MAIN ENGINE: CAT C18 (JACKET WATER LOOP)	1	GRID COOLER	D1075U-Z	FERNSTRUM
2	GENERATOR ENGINE: CAT C4.4 (JACKET WATER LOOP)	1	GRID COOLER	BN1257B	FERNSTRUM
2	GENERATOR ENGINE: CAT C4.4 (AFTERCOOLER LOOP)	1	GRID COOLER	BN1033B-Z	FERNSTRUM

GENERAL NOTES

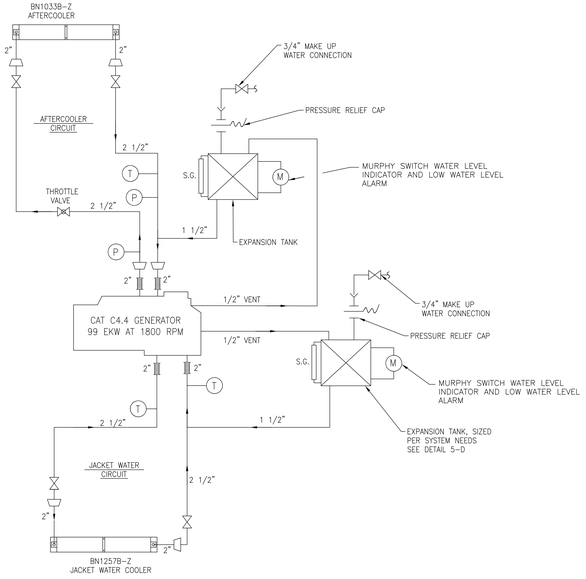
1. THIS DRAWING IS SCHEMATIC ONLY AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS OR EQUIPMENT EXCEPT IN GENERAL OR AS NOTED.
2. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE AS DETERMINED ON THE VESSEL TO BEST SUIT THE INSTALLATION.
3. SIZES ARE TO BE VERIFIED AGAINST EQUIPMENT AND SYSTEM REQUIREMENTS.
4. ALL VALVES SHALL HAVE IDENTIFYING MARKS AND LABELS.
5. ALL VALVES SHALL BE LOCATED TO PROVIDE FOR EASY ACCESS AT ALL TIMES.
6. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR EASY REMOVAL.
7. ALL SYSTEMS SHALL HAVE PROVISION FOR COMPLETE DRAINAGE.
8. ALL CONNECTIONS BETWEEN PUMPS & PIPES SHALL BE FLEXIBLE AND "AEROQUIP" MANUFACTURED (MODEL FC234).
9. THE PIPE SIZES SHALL BE VERIFIED WITH THE ENGINE AND REDUCTION GEAR MANUFACTURERS.
10. GAUGES TO INDICATE ENGINE COOLING WATER DISCHARGE TEMPERATURE AND LUBRICATING OIL PRESSURE SHALL BE PROVIDED FOR ALL ENGINES.
11. THE ENGINE COOLING SYSTEMS SHALL FULFILL ALL REQUIREMENTS OF THE ENGINE, GENERATOR, AND REDUCTION GEAR MANUFACTURER'S RECOMMENDATIONS.
12. LINES LEADING TO REMOTE EXPANSION TANKS REQUIRE AT LEAST 1/4" RISE PER 12' RUN OF DECLIVITY.
13. EXPANSION TANKS ARE TO BE FITTED WITH LOW WATER MURPHY SWITCH ALARMS AND SIGHT GLASSES.
14. MATERIALS AND INSTALLATION SHALL COMPLY WITH 46 CFR 56.50
15. ALL THROUGH-HULL CONNECTIONS SHALL HAVE VALVES FITTED AS CLOSE AS POSSIBLE TO THE HULL TO COMPLY WITH 46 CFR 56.50-95.



TYPICAL MAIN ENGINE AND REDUCTION GEAR COOLING SCHEMATIC

PORT & STBD SIMILAR

NOT TO SCALE



TYPICAL GENERATOR COOLING SCHEMATIC PORT & STBD SIMILAR

NOT TO SCALE

LEGEND

- GATE VALVE
- THROTTLE VALVE
- THREE WAY BYPASS VALVE
- FLEXIBLE HOSE CONNECTION
- FLOW DIRECTION
- PIPE DOWN
- PIPE UP
- PIPE UP & DOWN
- CONCENTRIC REDUCER
- (T) TEMPERATURE GAUGE
- (P) PRESSURE GAUGE
- (M) MURPHY SWITCH
- S.G. SIGHT GLASS

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS MARINE ENGINEERS

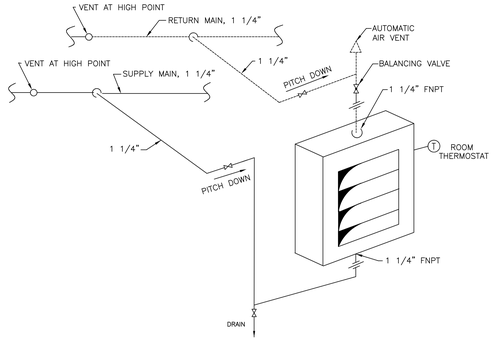
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA FERRY VESSEL

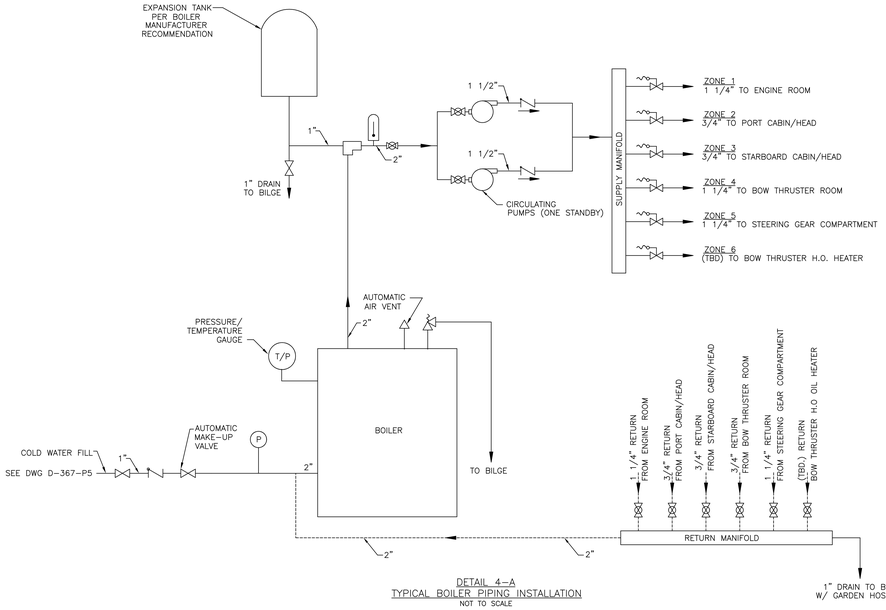
KEEL COOLING SCHEMATIC & DETAILS

DRAWN BY KC	DATE 07/29/2021
CHECKED BY JG	DATE 3/15/22
APPROVED BY	DATE
SCALE 3/8" = 1'-0"	
DWG. NO. D367-P14	ALT. 0

SHEET 1 OF 1



DETAIL 4–C
HORIZONTAL UNIT–HOT WATER HEATER
TYPICAL PIPING INSTALLATION
NOT TO SCALE



DETAIL 4–A
TYPICAL BOILER PIPING INSTALLATION
NOT TO SCALE

HEATING CIRCULATON PUMP

COMPARTMENT / PUMP No.	QTY	MODEL	PUMP CHARACTERISTIC GPM	HEAD (FT)	HP	RPM	PHASE	VOLTS	MANUFACTURER
ENGINE ROOM / P1	2	NPE/2ST 1–1/4 x1–1/2–6	50	50	1	3500	1	230	GOULDS CO.

MATERIAL LIST

SERVICE	SIZE	PIPE	TAKEDOWN JOINTS	VALVES BODIES	VALVES TRIM	FITTINGS
HEATING SYSTEM	ALL	COPPER TUBE ASTM B88 TYPE K	FLANGES: SILBRAZE BRONZE ASME SB62 ANSI B16.24 UNIONS: BRAZED OR THREADED BRONZE ASME SB61 OR SB62 MIL–F–1183	BALL: BRONZE ASTM B61 OR B62 MSS SP–110 FULL PORT, 3 PIECE 600 PSI THREADED END GATE/GLOBE/SWING CHECK: BRONZE ASTM B61 OR B62 ANSI B16.34 600 PSI THREADED END THERMOSTAT ZONE VALVE: TACO ZONE SENTRY FORGED BRASS 300 PSI THREADED END	BALL: CHROME PLATED BRONZE BALL PTFE SEATS AND SEALS GATE/GLOBE/ SWING CHECK: BRONZE DISC & SEAT BRASS, TEFLON SEAT	BRONZE, SILVER BRAZED, ASTM B62, 200#

LIST OF HOT WATER UNIT HEATERS

MODEL / DECK/ LOCATION	"MODINE" UNIT HEATER MODEL HC 47	ECOSTYLE RADIANT PANELS ESC36 1622CV 36x16	ESC24 2422CV 24x24	ESC36 3622CV 36x36	ESC36 4822CV 36x48	ESC16 2422CV 16x24	WEIL MCLAIN SNUG BASEBOARD
	QTY	QTY	QTY	QTY	QTY	QTY	QTY
ENGINE ROOM	2						
BOW THRUSTER ROOM	1						
STEERING GEAR COMPARTMENT	1						
PASSENGER CABIN MAIN DECK (STBD)					1		7 FT & 13.5 FT
PASSENGER CABIN MAIN DECK (PORT)		1		1			4 FT & 16 FT
PASSENGER HEAD MAIN DECK (STBD)			1				
PASSENGER HEAD MAIN DECK (PORT)						1	
TOTAL	4	1	1	1	1	1	

EQUIPMENT LIST

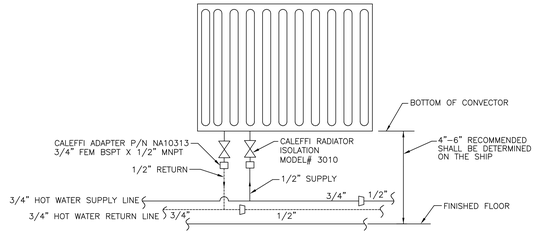
LOCATION	QUANTITY	DESCRIPTION
ENGINE ROOM	1	WEIL MCLAIN HOT WATER HEATING OIL–FIRED BOILER SERIES 80 MODEL 380 NET CAPACITY 278 MBH WATER TEMP: 200° F AND PRESSURE 30 PSIG

GENERAL NOTES

1. THIS DRAWING IS SCHEMATIC ONLY AND NOT INTENDED TO LOCATE ANY PIPING, FITTINGS, OR EQUIPMENT EXCEPT IN GENERAL OR AS NOTED.
2. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE SHIP TO BEST SUIT INSTALLATION.
3. THE DECK AND BULKHEAD PIPING PENETRATION SHALL HAVE REINFORCEMENT AROUND PIPING AND SHALL BE WELDED ON BOTH SIDES OF THE PENETRATION.
4. THE PIPING SUPPLY AND RETURN SHALL BE INSULATED WITH PIPE INSULATION OF NON COMBUSTIBLE MATERIAL AND U.S.COAST GUARD APPROVED.
5. ALL PIPING DIAGRAMS, SPECIFICATIONS AND RECOMMENDATIONS FURNISHED BY MANUFACTURER OF EQUIPMENT SERVICED BY A SYSTEM SHALL SUPERSEDE.
6. THE HOT WATER SYSTEM SHALL BE EQUIPPED WITH SUITABLE AIR VENT VALVES FOR RAPID AND COMPLETE REMOVAL OF AIR AT THE HIGH POINTS AND ENDS OF BOTH, SUPPLY AND RETURN MAINS.
7. THE SYSTEM SHALL BE PROVIDED WITH MEANS FOR FOR COMPLETE AND ADEQUATE DRAINAGE AT CONVENIENT LOW POINTS TO SUIT INSTALLATION, AS PER OWNER APPROVAL. THE PITCH SHALL BE AT LEAST 1/8–INCH PER FOOT.
8. THE RELIEF VALVE SHALL BE IN ACCORDANCE WITH 46 CFR 53.05–2. THE RELIEF VALVE REQUIREMENTS FOR HOT WATER BOILER MUST BE AS INDICATED IN ARTICLE 4 OF SECTION IV OF THE ASME CODE. ACCORDING TO 46 CFR 53.01–10(b)(1) BOILERS OF WROUGHT MATERIAL SHALL BE RESTRICTED TO A MAXIMUM OF 100 PSIG OR 250 DEG.F. FOR HOT WATER, AND ACCORDING TO 46 CFR 53.01–10(b)(2) BOILERS OF CAST IRON MATERIAL SHALL BE RESTRICTED TO A MAXIMUM OF 30 PSIG OR 250 DEG.F. FOR HOT WATER.
9. THE PIPES SHALL BE PROTECTED AGAINST MECHANICAL INJURY AND SUITABLY SUPPORTED.
10. MAKE PROPER PROVISION FOR EXPANSION AND CONTRACTION IN ALL PART OF PIPING SYSTEM WHEREVER POSSIBLE BY MEANS OF PIPE BENDS, SWING CONNECTIONS OR CHANGES IN DIRECTION OF PIPING. GUIDES SHALL BE PROVIDED WHERE NECESSARY TO CONFINE LATERAL MOVEMENT OF PIPING. PIPE SUPPORTS SHALL ALLOW AXIAL MOVEMENT.
11. ALL HEATING EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
12. THE HOT WATER HEATING BOILER SHALL OPERATE AT A PRESSURE OF 30 PSIG AND A TEMPERATURE OF 200 DEGREES F. AND MUST MEET THE REQUIREMENTS OF 46 CFR PART 53 FOR HEATING BOILERS AND 46 CFR PART 63 FOR AUTOMATIC AUXILIARY BOILERS' CONTROL.
13. THE CONTRACTOR SHALL TEST BALANCING AND ADJUSTING THE HEATING SYSTEM.
14. THE HOT WATER HEATING PIPING SHALL BE AS INDICATED IN THE MATERIAL LIST.
15. THE HOT WATER HEATING GATE VALVES SHALL BE BRONZE.
16. ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS.
17. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR REMOVAL.
18. THE CONTRACTOR SHALL VERIFY THE WATER CIRCULATION PUMP CHARACTERISTICS (GPM AND HEAD) AFTER FINAL LAYOUT OF THE PIPING AND EQUIPMENT AS WELL AS SIZING THE EXPANSION TANK.
19. BULKHEAD PENETRATIONS NEED TO BE INBOARD OF THE HULL SIDE GREATER THAN 20% OF THE BEAM, MEASURED AT THE BOUNDARY PENETRATED.
20. HEATING SYSTEM PIPING SHOULD HAVE A 40% MIXTURE OF PROPYLENE GLYCOL (DO NOT USE ETHYLENE GLYCOL ADDED) TO WATER FOR FREEZE PROTECTION.
21. MODINE HEATERS SHALL BE OF THE INTERMITTENT FAN OPERATION TYPE AND THERMOSTAT CONTROLLED.

SYMBOLS

- DIRECTION OF FLOW
- CHECK VALVE
- PRESSURE RELIEF VALVE
- PRESSURE GAUGE
- "Y" TYPE STRAINER
- THERMOMETER
- HOT WATER SUPPLY LINE
- HOT WATER RETURN LINE
- PIPE CAP
- UNION
- HOT WATER MODINE UNIT HEATER
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- CIRCULATION PUMP
- AUTOMATIC AIR VENT
- S — SUPPLY
- R — RETURN
- T — THERMOSTAT
- BALANCING VALVE
- BALL VALVE
- THERMOSTATICALLY CONTROLLED ZONE VALVE



DETAIL 2–A
PASSENGER HEAD
ECOSTYLE RADIANT PANELS
5" DEPTH X VARIOUS LENGTHS
TYPICAL PIPING INSTALLATION
NOT TO SCALE

ALT	DESCRIPTION	DATE	NAME

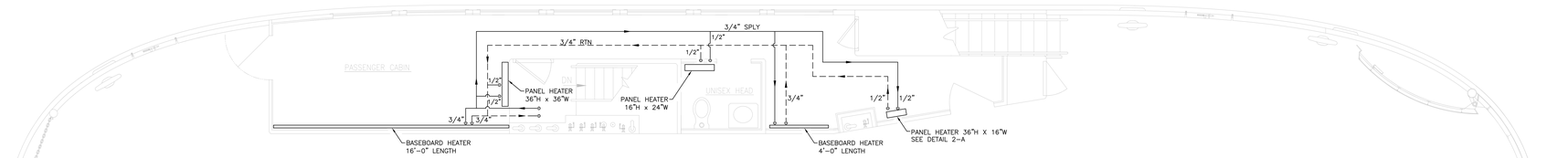
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

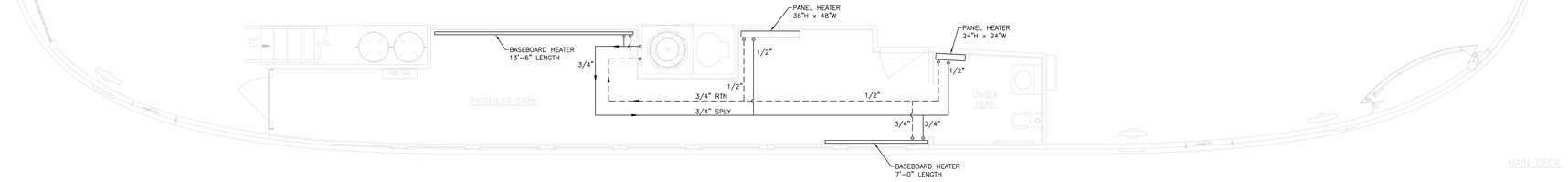
104 FT LOA PASSENEGER/VEHICLE FERRY

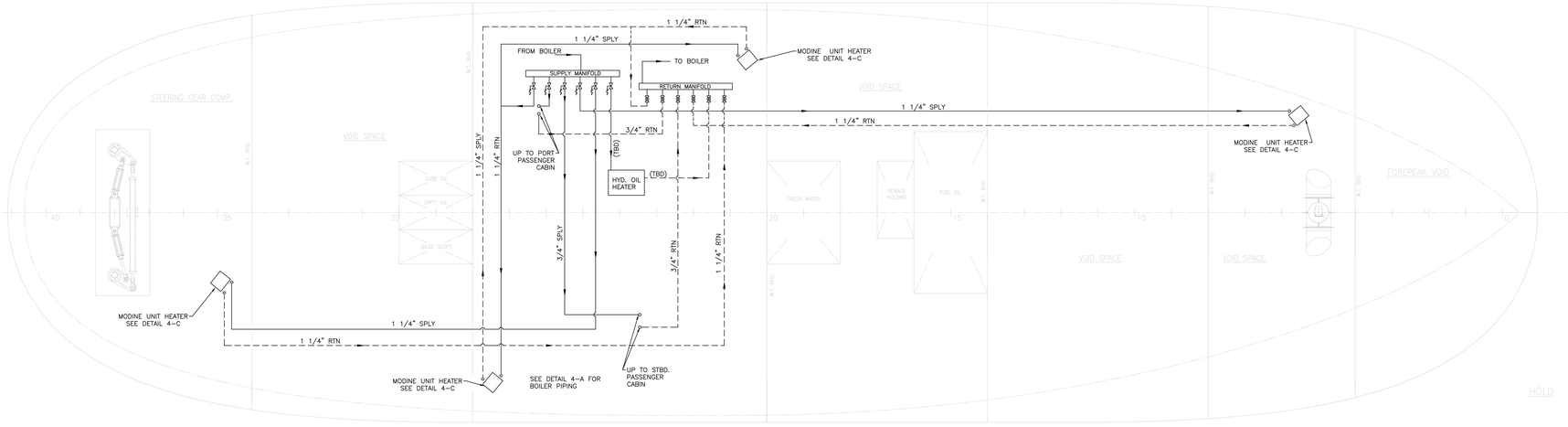
HVAC BOILER WATER PIPING SCHEMATIC

DRAWN BY KVC DATE 02/02/2022
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 3/4" = 1'–0"
DWG. NO. D367–P15–1 ALT. 0

SHEET 1 OF 2







SYMBOLS

- DIRECTION OF FLOW
- CHECK VALVE
- PRESSURE RELIEF VALVE
- PRESSURE GAUGE
- "Y" TYPE STRAINER
- THERMOMETER
- HOT WATER SUPPLY LINE
- HOT WATER RETURN LINE
- PIPE CAP
- UNION
- HOT WATER MODINE UNIT HEATER
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- CIRCULATION PUMP
- AUTOMATIC AIR VENT
- S SUPPLY
- R RETURN
- T THERMOSTAT
- BALANCING VALVE
- BALL VALVE
- THERMOSTATICALLY CONTROLLED ZONE VALVE

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

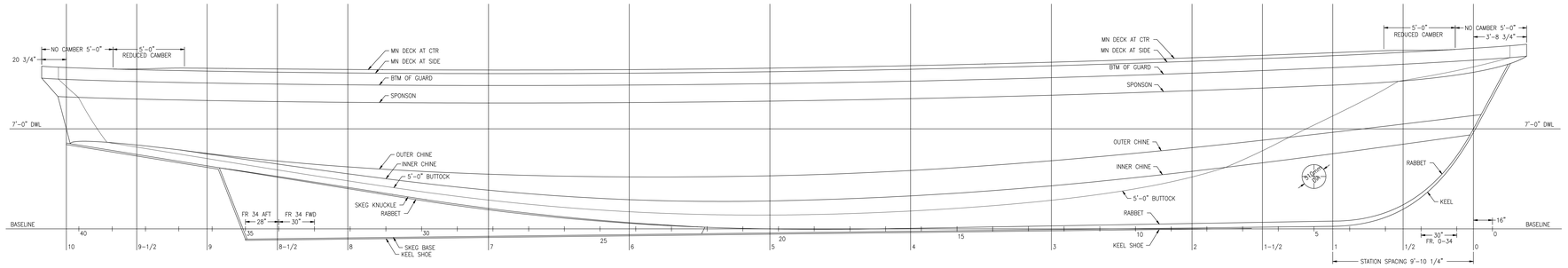
NAVAL ARCHITECTS
MARINE ENGINEERS

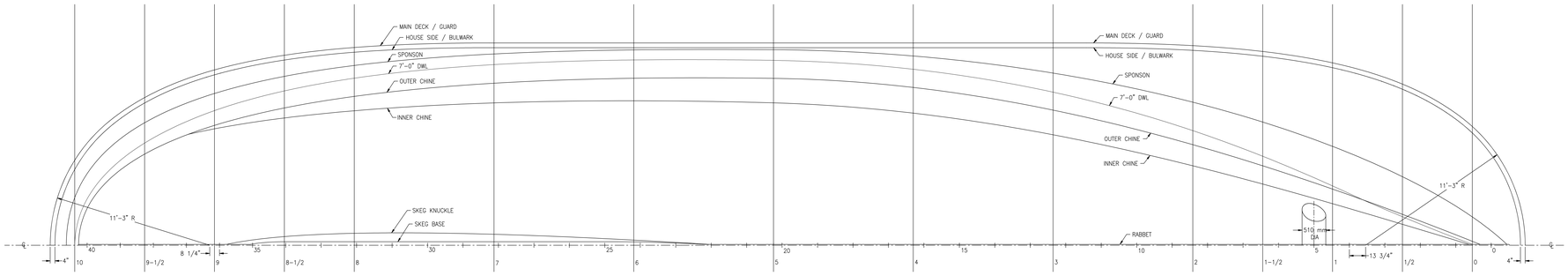
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

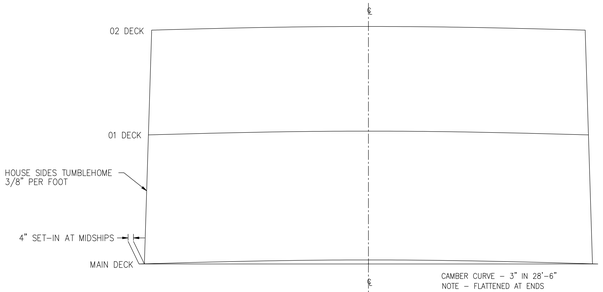
104 FT LOA PASSENGER/VEHICLE FERRY

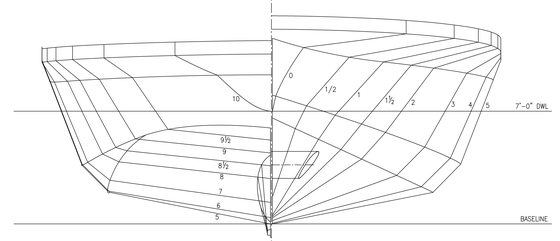
HVAC BOILER WATER PIPING SCHEMATIC

DRAWN BY KVC DATE 02/22/22
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-P15-2 ALT. 0









PRINCIPAL CHARACTERISTICS

LENGTH BET. PERP.	98'-6 1/2"
LENGTH ON DECK	104'-0"
MOLDED BEAM	28'-6"
MOLDED DEPTH	11'-0"
MOLDED DRAFT @DWL	7'-0"

ALT	DESCRIPTION	DATE	NAME

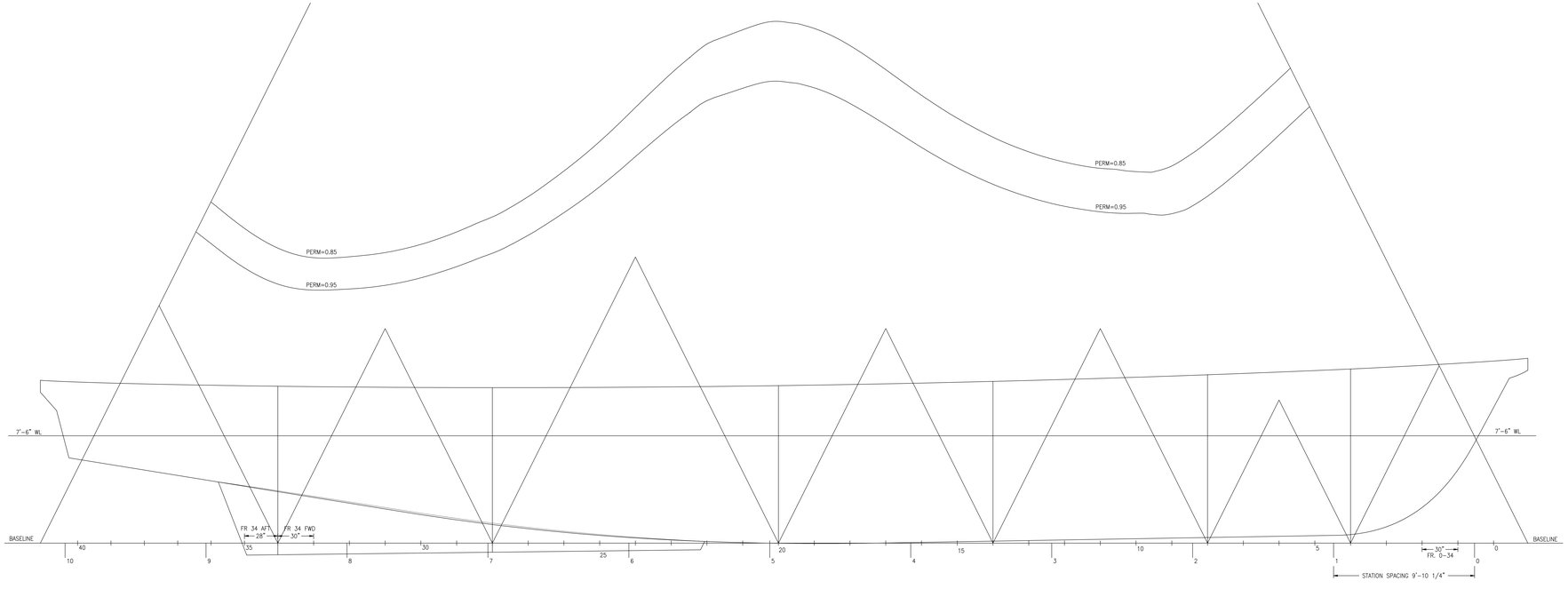
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

LINES PLAN

DRAWN BY JG, KC, GEG — DATE 7/1/2021
CHECKED BY JG — DATE 3/21/22
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-T1 — ALT. 0

SHEET 1 OF 1



ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

FLOODABLE LENGTH CURVES

DRAWN BY JG, KC, GEG — DATE 05/11/2021
CHECKED BY JG — DATE 3/21/22
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-T3 — ALT. 0

SHEET 1 OF 1

WELDING SCHEDULE – ABOVE MAIN DECK

MEMBER NAME	SCANTLING	TO	MEMBER NAME	SCANTLING	SIZE	LENGTH – SPACING	NOTES
SUPSTRC. BHD STIFNR	3/16", 1/4" PLT		MN+SS DK, BHDS	1/4",5/16",7/16" PLT	3/16"	DBL CONT.	
SUPSTRC. BHD STIFNR	3/8" PLT		MN+SS DK, BHDS	5/16", 3/4" PLT	1/4"	DBL CONT.	
SUPSTRC. BHD STIFNR	3"x3"x3/8" L		SUPSTR. SIDE	1/4" PLT	3/16"	DBL CONT.	
SUPSTRC. BHD STIFNR	3"x2"x1/4" L		SUPSTR.& DK.HS SIDE	1/4", 3/8" PLT	3/16"	2 1/2" – 12	STAGGERED (2)
SUPSTRC. BHD STIFNR	3"x3/8" F.B.		SUPSTR. SIDE	1/4" PLT	3/16"	DBL CONT.	
DK. HS. BHD STIFNR	5"x5/16" F.B.		PILOTHS. FRONT BHD	1/4" PLT	3/16"	2 1/2" – 12	STAGGERED (2)
S.STRC. DK. HS. BHD STFNR	3"x1/4" F.B.		DECK HS. & SUPSTR.	1/4" PLT	3/16"	2 1/2" – 12	STAGGERED (2)
SUPSTRC. BHD STIFNR	4"x3/8" F.B.		SUPR.STR. BHD	3/8" PLT	1/4"	DBL CONT.	
WINDOW SPIGOT	2"x2"x1/4" L		P. HOUSE FRONT	1/4" PLT	3/16"	DBL CONT.	
BULWARK STIFNR.	3"x1/4" F.B.		BULWARK PLT.	1/4" PLT	3/16"	DBL CONT.	
BULWARK CAP	4"x3/8" F.B.		BULWARK PLT.	1/4" PLT	3/16"	DBL CONT.	
FASHION PLT CAP	2"x5/16" F.B.		P. HOUSE FSHN PLT	1/4" PLT	3/16"	DBL CONT.	
BAR CAP	3/4" ROUND BAR		DECK HOUSE BHD	1/4" PLT	3/16"	DBL CONT.	
P. HOUSE DECK BEAM	2–1/2"x3/8" F.B.		PILOT HOUSE DECK	1/4" PLT	3/16"	DBL CONT.	
01 DECK BEAM	2"x2"x1/4" L		01 DECK	1/4" PLT	3/16"	2 1/2" – 12	STAGGERED
STANCHION	3" SCH 40		DBLR PLT	1/2" PLT	5/16"	CONT.	ALL AROUND
STANCHION	6" SCH 80		MN DECK	7/16" PLT	5/16"	CONT.	ALL AROUND
STANCH. DOUBLER	1/2" PLT		01 DECK	1/4" PLT	3/16"	CONT.	ALL AROUND
BRACKETS	1/4" PLT		BHD STF. TO DK,STF.	1/4" PLT	3/16"	DBL CONT.	
BRACKETS	5/16" PLT		BHD STF. TO DK,STF.	5/8", 3/8" PLT	1/4"	DBL CONT.	
02 DECK GIRDER	11"x3"x5/16" F.P.		PILOT HOUSE DECK	1/4" PLT	3/16"	DBL CONT.	
02 DECK GIRDER	8"x3"x1/4" F.P.		PILOT HOUSE DECK	1/4" PLT	3/16"	DBL CONT.	
PH TOP DECK GIRDER	SPLIT I–T 10x22#		PILOT HOUSE. TOP	1/4" PLT	3/16"	2 1/2" – 8	CHAIN
DAVIT GIRDER	SPLIT I–T 16x67#		01 DECK	3/4" PLT	1/2"	DBL CONT.	
DAVIT GIRDER	8"x4"x5/16" F.P.		01 DECK	3/4" PLT	1/4"	DBL CONT.	
DAVIT GIRDER	12"x4"x5/8" F.P.		01 DECK	3/4" PLT	1/2"	DBL CONT.	
BOW GATE STIFFENER	SPLIT I–T 12x26#		BOW GATE	3/8" PLT	1/4"	DBL CONT.	
BOW GATE STIFFENER	3/8",1/2",1–1/2"PL		BOW GATE	3/8" PLT	1/4"	DBL CONT.	
BOW GATE HINGE	3/4" PLT		HINGE POST	6" SCH 80 PIPE	1/2"	DBL CONT.	

WELDING SCHEDULE – SIDE SHELL & DECKS

MEMBER NAME	SCANTLING	TO	MEMBER NAME	SCANTLING	SIZE	LENGTH – SPACING	NOTES
DECK PLT	5/16" PLT		SIDE SHELL	5/16" PLT	1/4"	DBL CONT.	
DECK PLT	7/16" PLT		DECK PLT	5/16" PLT	1/4"	DBL CONT.	
SIDE SHELL	5/16" PLT		BTM SHELL	3/8" PLT	1/4"	DBL CONT.	
RUB STRAKE	10"x1" PLT		DK, SD, BHD	1/4", 5/16" PLT	1/4"	DBL CONT.	

WELDING SCHEDULE – BELOW MAIN DECK

MEMBER NAME	SCANTLING	TO	MEMBER NAME	SCANTLING	SIZE	LENGTH – SPACING	NOTES
N.C. CUT FRAME	7/16" PLT		SIDE, BOTTOM PLT	5/16", 3/8" PLT	5/16"	3" – 10"	CHAIN
N.C. FRM FLG	3"x5/16" F.B.		DECK PLT	7/16" PLT	1/4"	3" – 6"	PLUG WELD
N.C. FRM FLG	3"x5/16" F.B.		N.C. CUT FRAME	7/16" PLT	1/4"	3" – 12"	STAGGERED (2)
DEEP FLOOR	1/4" PLT		DECK, SIDE, BTM	5/16",3/8",7/16" PLT	3/16"	2 1/2" – 9"	CHAIN
VERT. STIFFENER	3"x5/16" F.B.		DEEP FLR. BHD.	1/4", 5/16" PLT	3/16",1/4"	2 1/2" – 12	STAGGERED (2)
VERT. STIFFENER	3"x2"x1/4" L		DEEP FLR. BHD.	1/4", 5/16" PLT	3/16",1/4"	2 1/2" – 12	STAGGERED (2)
PLT FLOOR	5/16" PLT		BOTTOM PLT	3/8" PLT	1/4"	3" – 9"	CHAIN
CHINE BRKT. STFNR	5/16" BRKT.W. 3" FLG.		SIDE, BOTTOM PLT	3/8" PLT	1/4"	3" – 12"	CHAIN (4)
HULL STIFFENER	6"x4"x5/16" L		SIDE, BOTTOM PLT	3/8" PLT	1/4"	3" – 12"	CHAIN (4)
HULL STIFFENER	4"x3"x5/16" L		SIDE, BOTTOM PLT	3/8" PLT	1/4"	3" – 12"	CHAIN (4)
CHINE BRKT. STFNR	5/16" BRKT.W. 3" FLG.		BTM. & SIDE FRAME	5/16" ANGLES	1/4"	DBL CONT.	
SPONSON BRKT	5/16" PLT		DECK, SIDE PLT	5/16",3/8",7/16" PLT	1/4"	DBL CONT.	
DECK STIFFENER	5"x3"x5/16" L		DECK PLT	5/16", 7/16" PLT	1/4"	3"–12"	CHAIN
DECK STIFFENER	4"x3"x5/16" L		DECK PLT	5/16" PLT	1/4"	3"–12"	CHAIN
BAR KEEL	1–1/2" PLT		BOTTOM PLT	3/8" PLT	1/4"	DBL CONT.	
SHOE	6"x1" PLT		BAR KEEL	1–1/2" PLT	5/8"	DBL CONT.	
CVK WEB	5/16" PLT		BAR KEEL	1–1/2" PLT	1/4"	DBL CONT.	GROOVE
CVK RIDER PLT	6"x3/4" F.B.		CVK WEB	5/16" PLT	1/4"	DBL CONT.	
LONG. SIDE GIRDER	10"x4"x5/16" F.P.		SIDE PLT	5/16" PLT	1/4"	3" – 9"	CHAIN
MAIN DK. LONG. GIRDER	10"x4"x3/8" F.P.		DECK PLT	7/16" PLT	1/4"	3" – 9"	CHAIN
LONG. BTM. GIRDER	15"x4"x5/16" F.P.		BOTTOM PLT	3/8" PLT	1/4"	3" – 9"	CHAIN
MAIN DK. LONG. GIRDER	12"x5"x3/8" F.P.		DECK PLT	7/16" PLT	1/4"	3" – 9"	CHAIN
LONG. BTM. GIRDER	18"x4"x5/16" F.P.		BOTTOM PLT, FLRS	5/16", 3/8" PLT	1/4"	3" – 9"	CHAIN
MN.DK. TRANSV. WEB FR.	10"x5"x3/8" F.P.		DECK PLT	5/16", 7/16" PLT	1/4"	3" – 9"	CHAIN
W.T. BHD	5/16" PLT		DECK, SIDE, BTM, BHD	5/16",3/8",7/16" PLT	1/4"	DBL CONT.	
W.T. BHD	1/4" PLT		DECK, SIDE, BTM, BHD	5/16",3/8",7/16" PLT	3/16"	DBL CONT.	
N.T. BHD	5/16" PLT		DECK, SIDE, BTM.	5/16", 7/16" PLT	1/4"	3" – 10"	CHAIN
N.T. BHD	5/16" PLT		N.T. BHD	1/4" PLT	3/16"	2 1/2" – 9	
N.T. BHD	1/4" PLT		DECK, SIDE, BTM.	5/16", 7/16" PLT	3/16"	2 1/2" – 9	CHAIN
O.T. BHD	5/16" PLT		O.T.DECK, SIDE, BTM.	5/16",3/8",7/16" PLT	1/4"	DBL CONT.	
BHD STIFFENER	4"x3"x5/16" L		WT/OT/NT BHD	1/4" PLT	3/16"	2 1/2" – 12	STAGGERED (1)
BHD STIFFENER	4"x3"x5/16" L		WT/OT/NT BHD	5/16" PLT	1/4"	3" – 12	CHAIN
BHD STIFFENER	3"x2"x1/4" L		WT/OT BHD	1/4" OR 5/16" PLT	3/16"	2 1/2" – 12	STAGGERED (1)
BHD STIFFENER	3"x5/16" F.B.		WT BHD	1/4" PLT	3/16"	2 1/2" – 12	STAGGERED (1)
BHD STIFFENER	3"x5/16" F.B.		WT BHD	5/16" PLT	1/4"	3" – 12	CHAIN
BHD STIFFENER	4"x3"x1/4" L		WT/OT BHD	1/4" OR 5/16" PLT	3/16"	2 1/2" – 12	STAGGERED (1)
DEEP FLR. FLANGE	3"x1/4" F.B.		DEEP FLR. BHD	1/4" PLT	3/16"	2 1/2" – 12	STAGGERED (1)
BRACKETS	1/4" PLT		BHD, DK, STIFF.	VARIES	3/16"	DBL CONT.	
STANCHION	4" SCH 80		DBLR PLT	1/2" PLT	5/16"	CONT.	ALL AROUND
STANCHION	3" SCH 80		DBLR PLT	1/2" PLT	5/16"	CONT.	ALL AROUND
STANCH. DOUBLER	6"x1/2" PLT		PLT FLOOR	5/16" PLT	1/4"	CONT.	ALL AROUND
TRANSV BTM FRM	6"x4"x5/16" L		BOTTOM PLT	3/8" PLT	1/4"	3" – 10"	CHAIN
TRANSV BTM FRM	8"x4"x3/8" FP		BOTTOM PLT	3/8" PLT	1/4"	3" – 11"	CHAIN
COAMING	8"x3/8" F.B.		DECK PLT	5/16" PLT	1/4"	DBL CONT.	
SKEG SIDE	3/8" PLT		BTM, SHOE	3/8", 1–1/2" PLT	5/16"	CONT.	ALL AROUND
SKEG FLRS	5/16" PLT		SKEG, BTM, SHOE	3/8", 1", 1–1/2" PLT	1/4"	3" – 10"	
SKEG FLR. FLG.	2 1/2"x 5/16" F.B		SKEG FLOOR	5/16" PLT	1/4"	DBL CONT.	
SKEG FLR. FLG.	2 1/2"x 5/16" F.B		SKEG SIDE PLT.	5/16" PLT	1/4"	3" – 6"	PLUG WELD
ENGINE GIRDER	1/2" PLT		BTM PLT	3/8" PLT	1/4"	DBL CONT.	
ENG. GIRD. RIDER	7"x1" PLT		ENG. GIRDER	1/2" PLT	5/16"	DBL CONT.	
ENG. GIRD. BRKTS	5/16" PLT		FLG, GIRD, RIDER	1/2", 1" PLT	1/4"	DBL CONT.	
STEERING FLAT	1/2" PLT		DF, STIFF	1/4" PLT	3/16"	CONT.	ALL AROUND
STERN FRAME	5/16" PLT		DF, DECK, BTM	1/4",7/16",3/8" PLT	5/16"	3" – 10"	CHAIN
ANCHOR REST	1–1/2" PLT		DECK PLT	5/16" PLT	1/4"	CONT.	ALL AROUND

NOTES:

1. UNBRACKETED STIFFENERS OF SHELL, WATERTIGHT, AND OILTIGHT BULKHEADS ARE TO HAVE DOUBLE CONTINUOUS WELDS FOR ONE–TENTH OF THEIR LENGTH AT EACH END
2. UNBRACKETED STIFFENERS OF NONTIGHT STRUCTURAL BULKHEADS ARE TO HAVE A PAIR OF MATCHED INTERMITTENT WELDS AT EACH END
3. ALL WELDING PROCEDURES, MATERIALS, AND MATERIAL PREPARATION SHALL BE AS REQUIRED BY THE AMERICAN BUREAU OF SHIPPING AND U.S. COAST GUARD.
4. BOTTOM AND SIDE INTERCOSTALS WELDED TO THE SHELL PLATE LOCATED FWD OF 0.125*L ARE TO BE WELDED WITH 10" CHAIN WELDS.
5. ALL EXTERIOR STRUCTURE SHALL RECEIVE CONTINUOUS WELDING TO AVOID COATING FAILURE AND CORROSION BROUGHT ABOUT BY GAPS AND INCLUSIONS.

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

104 FT LOA PASSSENGER/VEHICLE FERRY

WELD SCHEDULE

DRAWN BY KVC DATE 3/31/22
CHECKED BY JG DATE
APPROVED BY DATE
SCALE PRINT 1/2"=1'-0"
DWG. NO. D367-T9 ALT. 0

GENERAL NOTES:

1. THE PURPOSE OF THIS DRAWING IS TO PROVIDE DESIGN GUIDANCE FOR THE THE NEW VESSEL "MAINE DOT FERRY".

2. ALL MATERIALS, COMPONENTS, AND WORKMANSHIP SHALL BE ABS, UL, IEC EQUIVALENT STANDARD, AND/OR U.S.C.G. APPROVED AS REQUIRED.

3. SHIPYARD IS TO PROVIDE ALL EQUIPMENT AND CABLING, AS SPECIFIED, AND ACCORDING TO THE CONSTRUCTION CONTRACT.

4. CABLE SHOWN IS IEEE-45 STD. ALL POWER CABLES SHALL BE DRILMAR 90 BY CME CABLE OR APPROVED EQUAL.

5. SHORE POWER CONNECTION BOX SHALL BE CUSTOM MADE BY THE SWITCHBOARD MANUFACTURER OR APPROPRIATE VENDOR TO FIT THE AVAILABLE SPACE. THE ENCLOSURE SHALL BE NEMA 4X AND HEAVILY CONSTRUCTED TO BEAR THE WEIGHT AND TORSIONAL STRESS OF THE 200 AMP CORD AND CONNECTORS. A WHITE LED POWER AVAILABLE INDICATOR LIGHT SHALL BE PROVIDED.

6. THE INSTALLATION OF ALL ELECTRICAL SYSTEMS SHALL CONFORM TO THE REQUIREMENTS OF 46 CFR PART 183 (SUBCHAPTER T), APPLICABLE PARTS OF 46 CFR PARTS 110-113 (SUBCHAPTER J), AS WELL AS IEEE STANDARD 45.

7. LOAD REQUIREMENT OF EACH CIRCUIT SHALL BE VERIFIED AFTER FINAL SELECTION OF THE EQUIPMENT; AND CIRCUIT BREAKERS AND CABLE SIZES ADJUSTED ACCORDINGLY.

8. THE SHIPYARD SHALL BALANCE ALL SINGLE PHASE LOADS IN PANELS AT INSTALLATION.

9. THE VENTILATION FANS SHALL BE CAPABLE OF BEING SHUT DOWN AT THE ENTRANCE TO EACH SPACE SERVED AND REMOTELY FROM THE PILOT HOUSE. ENGINES SHALL BE CAPABLE OF BEING SHUT DOWN AT THE ENTRANCE TO THE ENGINE ROOM, VIA FM200 RELEASE, AND MAIN ENGINES STARTED/STOPPED AT PILOTHOUSE CONSOLE AND LOCALLY IN ENGINE ROOM. ENGINE ROOM VENTILATION FAN SHALL BE EQUIPPED WITH AUTOMATIC SHUTDOWN UPON RELEASE OF FIXED FIREFIGHTING SYSTEM.

10. THE LOCATION OF ALL FIXTURES AND WIRE RUNS SHALL BE DETERMINED ON BOARD TO BEST SUIT INSTALLATION AS WELL AS TO COMPLETE THE ELECTRICAL SYSTEMS.

11. ALL CABLES IN MAIN CABLEWAYS SHALL BE SINGLE BANKED. LOCAL RUNS MAY BE DOUBLE BANKED TO SUIT THE INSTALLATION.

12. INTERLOCKS SHALL BE PROVIDED IN THE SWITCHBOARD ALLOWING ONLY SHORE POWER OR A SINGLE GENERATOR TO BE CONNECTED TO THE BUS AT ANY ONE TIME. (NO TWO SOURCES SHALL OPERATE IN PARALLEL)

13. THE NUMBER AND LOCATION OF EMERGENCY LIGHTS AND EXIT LIGHTS, AS WELL AS THE POSITION AND INTENSITY OF THE NAVIGATION LIGHTS, AND ALL APPLICABLE DETAILS SHALL BE TO THE SATISFACTION OF THE U.S. COAST GUARD O.C.M.I.

14. THE INSTALLATION, WORKMANSHIP AND TESTING SHALL BE TO THE SATISFACTION OF THE U.S. COAST GUARD, OFFICER IN CHARGE MARINE INSPECTION (O.C.M.I.).

15. THE POSITION AND INTENSITY OF THE NAVIGATION LIGHTS SHALL BE IAW THE INLAND NAVIGATION RULES (SEE COMDINST M16672.2D) AND ALL APPLICABLE INSTALLATION DETAILS SHALL BE TO THE TO THE SATISFACTION OF THE U.S. COAST GUARD O.C.M.I.

16. ALL SWITCHES SHALL COMPLY WITH ARTICLE 404 OF NFPA NEC 2002. EACH SWITCH LOCATED IN WEATHER SHALL BE IN ENCLOSED WATERTIGHT ENCLOSURE AND BE EXTERNALLY OPERABLE.

17. FUSES SHALL COMPLY WITH 46 CFR 120.380(i). ALL FUSES TO COMPLY WITH ARTICLE 240 OF NFPA NEC 2002 OR IEC 60092-202. ALL FUSES TO BE OF CARTRIDGE TYPE AND BE UL-LISTED.

18. ALL CIRCUIT BREAKERS AND FUSED DISCONNECT SWITCHES SHALL BE UL 489 LISTED.

19. STEERING GEAR CIRCUIT BREAKERS SHALL COMPLY WITH 46 CFR 58.25-55. BREAKERS SHALL BE INSTANTANEOUS ONLY, SET TO AT LEAST 175% BUT NO MORE THAN 200% OF THE MOTOR'S LOCKER ROTOR CURRENT.

SWITCHBOARD DETAILS

SWITCHBOARD WILL BE CONSTRUCTED TO CONFORM WITH THE REQUIREMENTS OF DEAD-FRONT LOW-VOLTAGE SWITCHBOARDS CONTAINED IN 46 CFR-120.330, AND IN ANSI/IEEE STANDARD 45-2002, RECOMMENDED PRACTICE FOR ELECTRICAL INSTALLATIONS ON SHIPBOARD. THE FOLLOWING ITEMS ARE PRESENTED AS SUPPLEMENTAL QUALIFICATIONS SPECIFIC TO THE APPLICATION ABOARD THE MAINE DOT FERRY.

1. THE SWITCHBOARD ENCLOSURE WILL BE RATED NEMA 1, IP22 RATED, DRIPSHIELD PROTECTED, WHICH SHALL BE OF SUFFICIENT LENGTH TO PROTECT DEVICES MOUNTED ON THE DOORS FROM DRIPPING LIQUIDS. A DRAIN TUBE SHALL BE PROVIDED TO ALLOW LIQUID CAUGHT BY THE DRIPSHIELD TO REACH THE BILGE WITHOUT IMPINGING ON THE INTERIOR OF THE SWITCHBOARD.

2. THE SWITCHBOARD'S ELECTRICAL SYSTEM FEATURES WILL BE BASED ON THE ONE-LINE DIAGRAM OF THIS SHEET. THE OVERALL APPLICATION IS FOR A 3 WIRE 240 VOLT UNGROUNDED SYSTEM, IAW CFR46-120.378 THROUGH 120.390.

3. THE SWITCHBOARD WILL BE FURNISHED WITH CIRCUIT BREAKERS THAT ARE UL LISTED AND RATED FOR THE DUTY. FUSES WHERE REQUIRED SHALL ALSO BE UL LISTED. THE CIRCUIT BREAKERS DESIGNATED FOR SWITCHBOARD FEEDER APPLICATIONS SHALL HAVE THERMAL AND MAGNETIC ELEMENTS. THE MAIN FEEDER BREAKERS SHALL HAVE LSI ELECTRONIC TRIP UNITS, WITH ADJUSTABLE LONG TIME, SHORT TIME, AND INSTANTANEOUS. THE SHORE POWER CIRCUIT BREAKER SP1 SHALL HAVE AN LSI ELECTRONIC TRIP UNIT, WITH ADJUSTABLE LONG TIME, SHORT TIME, AND INSTANTANEOUS SETTINGS. G1, G2 AND SP1 BREAKERS SHALL BE ELECTRICALLY INTERLOCKED VIA UNDERVOLTAGE TRIP UNITS SUCH THAT ONLY ONE SOURCE MAY FEED THE SWITCHBOARD.

4. THE SWITCHBOARD SHALL HOUSE A BASLER MVC-300 MANUAL VOLTAGE REGULATOR FOR EACH DIESEL GENERATOR. THE SWITCHBOARD WILL ALSO IN CONJUNCTION WITH THE REGULATOR HAVE PROVIDED THE VOLTAGE ADJUSTING MEANS AND THE ABILITY TO SWITCH FROM AUTO TO MANUAL VOLTAGE REGULATION.

5. THE SWITCHBOARD WILL BE OUTFITTED WITH A CROMPTON GROUND DETECTION METER TO MONITOR GROUNDS ASSOCIATED WITH THE SHIPS 240 VOLT SYSTEM. THE METER SHALL HAVE A SPECIALIZED CURRENT TRANSFORMER FOR A NON-LINEAR METER, BOTH CAPABLE OF WITHSTANDING THE MAXIMUM AVAILABLE FAULT CURRENT WITHOUT HARM.

6. THE SWITCHBOARD WILL BE OUTFITTED WITH AN INSULATION RESISTANCE MONITOR.

7. LABEL-PLATES WILL BE PROVIDED FOR ALL THE CIRCUIT BREAKERS DETAILING THEIR PROTECTIVE FUNCTIONS, THEIR THERMAL TRIP RATING AND ASSOCIATED CIRCUIT NUMBER. LABEL-PLATES WILL BE PROVIDED TO ALL OTHER SWITCHBOARD DEVICES DETAILING THEIR FUNCTIONS ONLY.

8. ALL SWITCHBOARD CIRCUIT BREAKERS SHALL BE EQUIPPED WITH PLUG-IN TYPE BASES AND SHALL BE HARD BUSSED, WITH THE EXCEPTION OF SOURCE AND LOAD CABLE CONNECTIONS WHICH SHALL ACCEPT BOLT-ON, CRIMPED TERMINAL LUGS. WHERE MULTIPLE CABLES MUST BE ACCOMMODATED, SUFFICIENT CONNECTIONS SHOULD BE AVAILABLE TO PRECLUDE MORE THAN TWO TERMINAL LUGS PER BOLT. CIRCUIT BREAKERS SHALL BE UL 489 LISTED.

SWITCHBOARD DETAILS CONT'D

9. PREFERRED CABLE ENTRY INTO THE SWITCHBOARD WILL BE UP THROUGH THE BOTTOM. THE SECTIONS WILL BE OUTFITTED WITH SUFFICIENT BRACING TO SUPPORT THE CABLE, AND BRACE ALL BUSWORK FOR A MINIMUM OF SYMMETRICAL SHORT CIRCUIT CURRENT AS REQUIRED BY NEC AND IEEE-45. A UNIFORM SAFETY FACTOR OF 150% SHALL BE APPLIED FOR ALL EQUIPMENT AND BUSWORK, FOR LOAD CURRENT, AVAILABLE SHORT CIRCUIT CURRENT, CLEARANCE AND CREEPAGE DISTANCES.

10. SWITCHBOARD METERS SHOWN ON THIS SHEET FOR INCLUSION MAY HAVE ANALOG OR DIGITAL PRESENTATION, AND BE DESIGNED FOR ACCURACY OF + OR - 1%, OR LESS.

11. A 120V, 60HZ, 1ø LED, 4 FOOT TUBE TYPE LIGHT FIXTURE SHALL BE FURNISHED MOUNTED UNDER THE FRONT DRIP SHIELD OF THE SWITCHBOARD TO PROVIDE METER PANEL ILLUMINATION.

12. AT THE BOTTOM REAR OF THE SWITCHBOARD, A THREADED GROUNDING STUD SHALL BE PROVIDED FOR POTENTIAL CHASSIS GROUND STRAPPING TO THE CRAFT'S HULL STRUCTURE.

13. INTERNAL SWITCHBOARD CONTROL WIRING TO BE TYPE SIS RATED FOR 110 DEGREES CELSIUS OVER AMBIENT (AWG 14 MINIMUM) TESTED AND MARKED UL VW-1. INSTRUMENT WIRE MAY BE 18 AWG AND NO LESS. THE WIRING SHALL BE GRAY COLORED AND ALL CONDUCTORS SHALL RECEIVE A WHITE SHRINK SLEEVE, MARKED WITH MACHINE APPLIED INDELIBLE HEAT-SET INK, WITH IDENTIFICATION PER THE SWITCHBOARD SCHEMATIC WIRING DIAGRAM. A COPY OF THE WIRING DIAGRAM SHALL BE PROVIDED IN A STEEL POCKET MOUNTED BEHIND ONE OF THE SWITCHBOARD DOORS. COMMUNICATION WIRE SUCH AS FOR ETHERNET, CANBUS OR MODBUS MAY BE IAW CONNECTED EQUIPMENT MANUFACTURER'S RECOMMENDATION.

14. THE SWITCHBOARD WILL BE PAINTED THROUGHOUT IN STANDARD GRAY.

15. THE SWITCHBOARD VENDOR SHALL SUBMIT DRAWINGS AND OTHER APPLICABLE TECHNICAL INFORMATION RELATING TO THE OPERATION AND MAINTENANCE OF THE UNIT. THE DRAWINGS SHOULD FEATURE DIMENSIONED VIEWS OF THE ASSEMBLY AND ELECTRICAL ONE-LINES, SCHEMATICS, AND POINT-TO-POINT WIRING DIAGRAMS. TECHNICAL INFORMATION PROVIDED VIA TECHNICAL MANUAL FORMAT SHOULD PROVIDE BILL-OF-MATERIAL INFO, THEORY OF OPERATION, AND MAINTENANCE PROCEDURES RELATED TO THE VARIOUS SWITCHBOARD DEVICES. THREE PAPER AND ELECTRONIC COPIES OF ALL DRAWINGS AND TECHNICAL MANUALS SHALL BE PROVIDED.

MISCELLANEOUS SWITCHBOARD DEVICE SETTINGS

IN ORDER FOR THE SWITCHBOARD TO PERFORM ITS FUNCTIONS PROPERLY A NUMBER OF ITS DEVICES WILL REQUIRE A SETTING TO BE PERFORMED ON THEM FOR THIS PURPOSE. THE FOLLOWING IS A LISTING OF THE DEVICES AND THE SETTINGS THAT SHOULD BE APPLIED TO THEM:

GENERATOR CIRCUIT BREAKERS:
LONG-TIME DELAY ELEMENT PICKUP SET TO
340 AMPS, SHORT TIME DELAY AND INSTANTANEOUS MAGNETIC ELEMENT PICKUP SET PER COORDINATION STUDY.

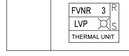
SHORE POWER CIRCUIT BREAKER SP1:
LONG-TIME DELAY ELEMENT PICKUP SET TO
200 AMPS, SHORT TIME DELAY AND INSTANTANEOUS MAGNETIC ELEMENT PICKUP SET PER COORDINATION STUDY.

SYMBOL LIST

(6)	ELECTRIC MOTOR, HORSEPOWER INDICATED
(#)	ELECTRIC LOAD, KW INDICATED
LVP	LOW VOLTAGE PROTECTION
LVR	LOW VOLTAGE RELEASE
DISC.	DISCONNECT SWITCH
100 3P	CIRCUIT BREAKER
	RECEPTACLE
	INDICATOR LIGHT COLOR INDICATED
UV	UNDERVOLTAGE TRIP
J	JUNCTION BOX
	TRANSFORMER

CONTROLLER DATA

FVNR	FULL VOLTAGE NON REVERSING
FVR	FULL VOLTAGE REVERSING
3	NEMA SIZE 3
LVP	LOW VOLTAGE PROTECTED
LVR	LOW VOLTAGE RELEASE
LVRE	LOW VOLTAGE RELEASE-EFFECT
R	REMOTE CONTROL
S	START/STOP PUSHBUTTON
	WITH INDICATOR LIGHTS
17.5 A	AMPS - THERMAL OVERLOAD RUNNING PROTECTION



CABLE DESIGNATIONS

S - #	STNIU
D - #	DTNIU
T - #	TTNIU
F - #	FTNIU

NOTE: # DESIGNATES CONDUCTOR AREA IN 1000 C/M

16	CONTRACT SPECIFICATIONS	D367-T8
15	RESCUE BOAT DAVIT ARRANGEMENT	D367-M5
14	PILOTHOUSE HVAC SYSTEM ARRANGEMENT	D367-P13
13	HVAC BOILER WATER PIPE SCHEMATIC	D367-P15
12	LUBE OIL AND WASTE OIL PIPING SCHEMATIC	D367-P11
11	COMPRESSED AIR PIPING SCHEMATIC	D367-P10
10	BILGE SYSTEM PIPING SCHEMATIC & SEACHEST DETAILS	D367-P9
9	POTABLE WATER PIPING SCHEMATIC	D367-P5
8	FIRE MAIN PIPING SCHEMATIC	D367-P7
7	FUEL OIL ONE-LINE PIPING SCHEMATIC & DETAILS	D367-P4
6	DRAIN, WASTE & VENT ONE-LINE PIPING SCHEMATIC	D367-P6
5	ENGINE ROOM VENTILATION PLAN	D367-M7
4	RUDDER ARRGT & DETAILS	D367-M2
3	NAVIGATION LIGHTS AND COLREGS PLANS	D367-A8
2	LIGHTING GUIDANCE PLAN	D367-E2
1	ELECTRICAL LOAD ANALYSIS	D367-E3
	REFERENCES	

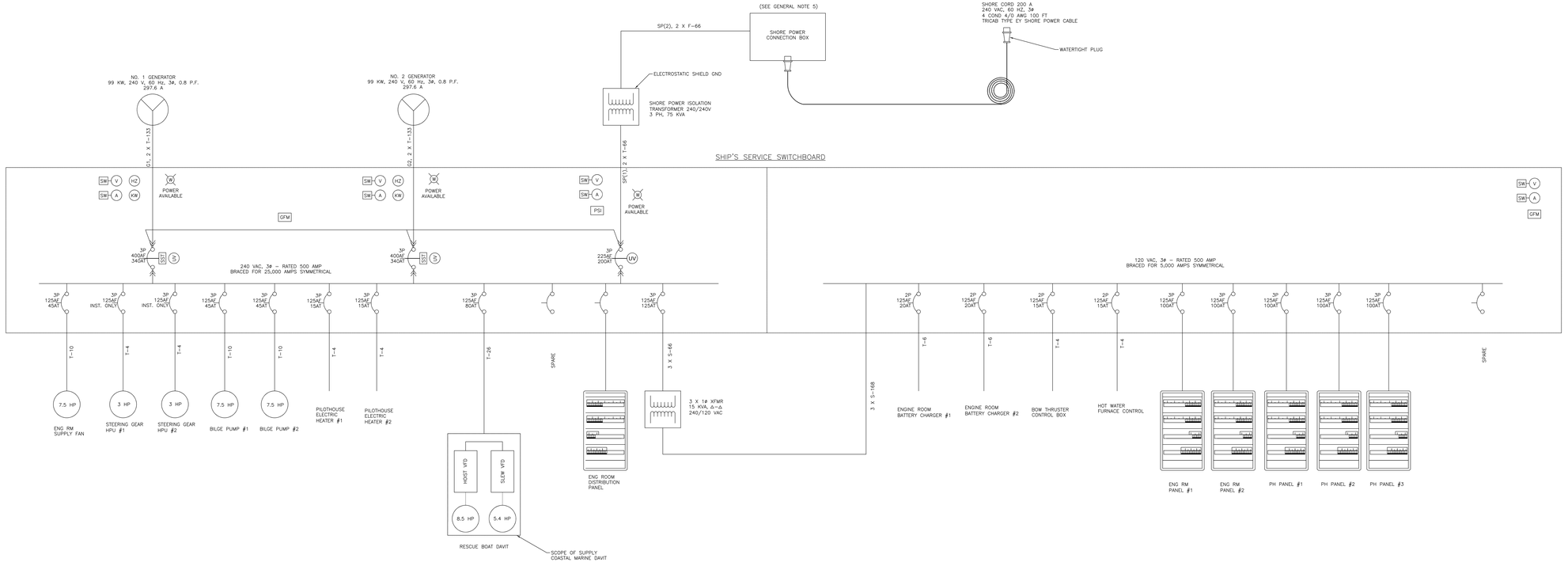
ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

ELECTRICAL AC ONE-LINE DIAGRAM & DC DISTRIBUTION PANELS

DRAWN BY BKG DATE 4/5/22
CHECKED BY GEG DATE
APPROVED BY DATE
SCALE 3/16" = 1'-0" SHEET 1 OF 7
DWG. NO. D367-E1-1 ALT. 0



LEGEND:

- (V) VOLTMETER
- (A) AMMETER & CURRENT TRANSFORMER
- (HZ) FREQUENCY METER
- (KW) KILOWATT METER
- [SW] SWITCH
- [SST] SOLOID STATE TRIP
- [PSI] PHASE SEQUENCE INDICATOR
- [GFM] GROUND FAULT MONITOR

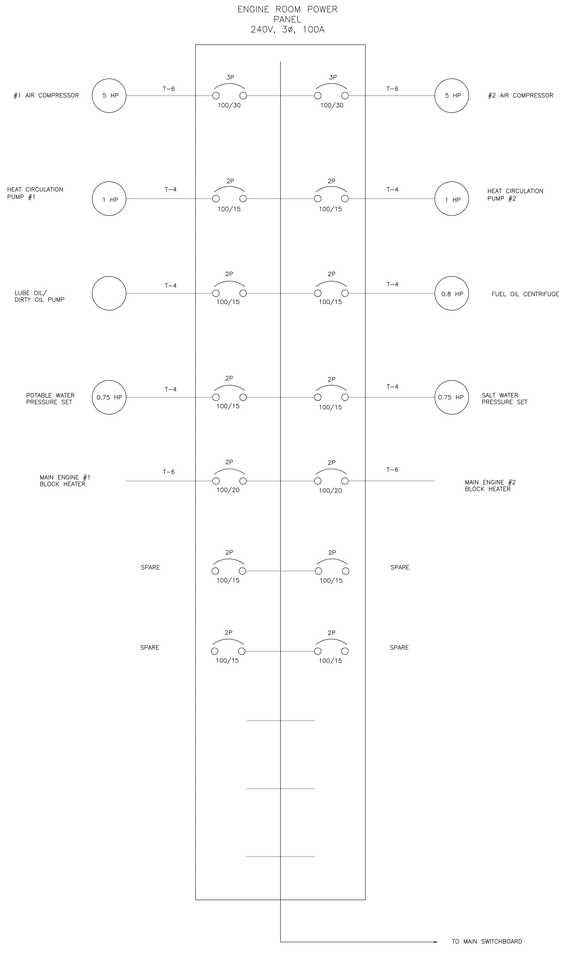
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GILBERT ASSOCIATES, INC.
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MARINE ENGINEERS
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BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

ELECTRICAL AC ONE-LINE DIAGRAM & DC DISTRIBUTION PANELS

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SCALE 3/16" = 1'-0"
DWG. NO. D367-E1-2 ALT. 0



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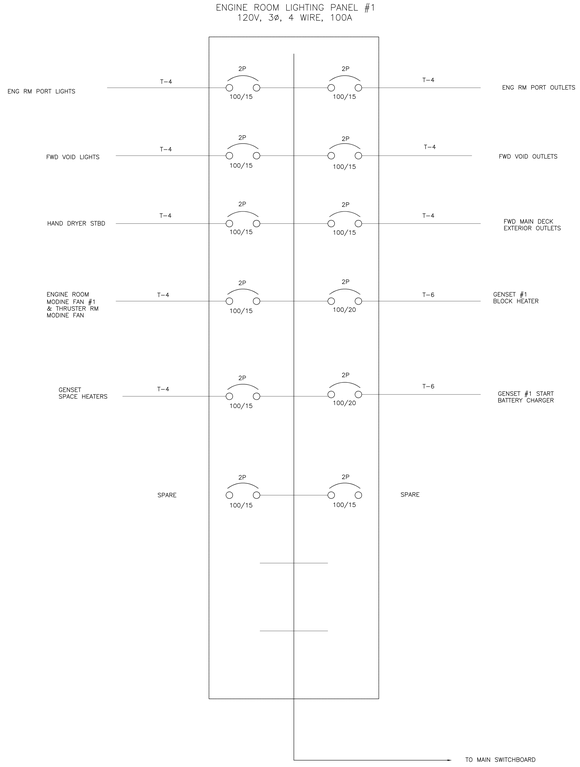
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MARINE ENGINEERS

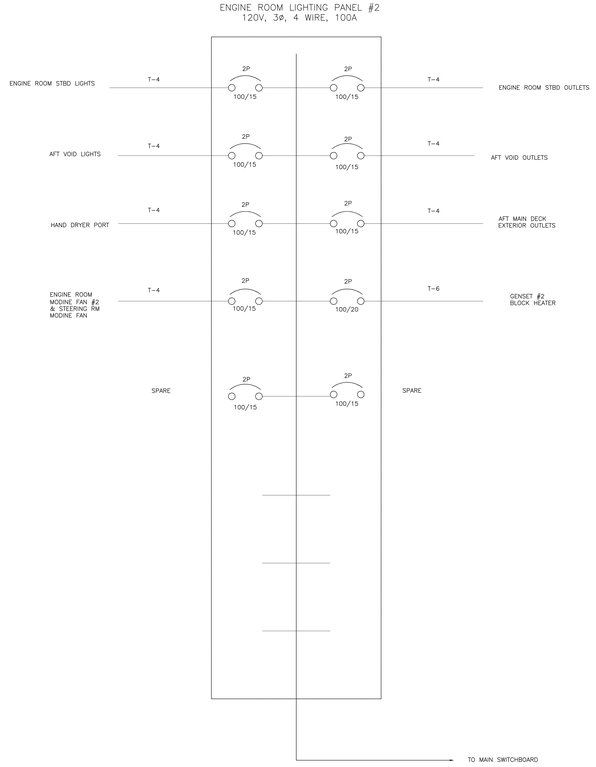
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BRAINTREE, MA 02184

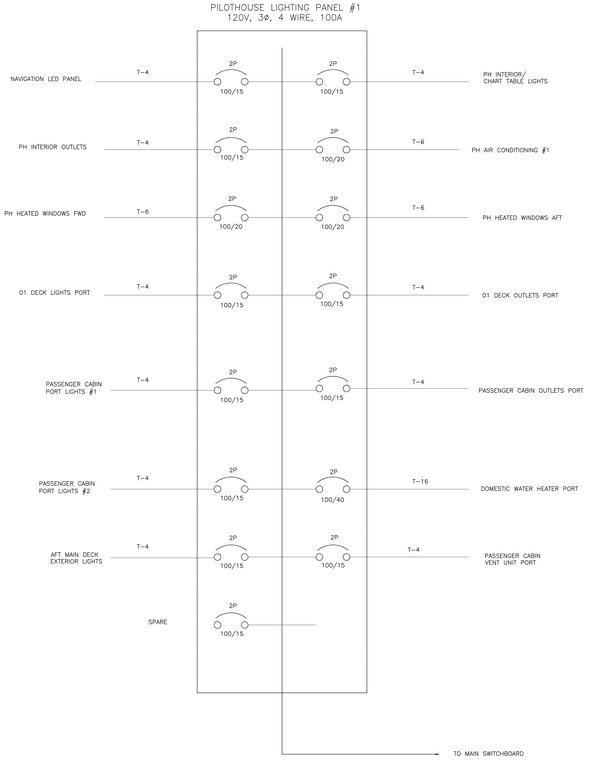
104 FT LOA PASSENGER/VEHICLE FERRY

ELECTRICAL AC ONE-LINE DIAGRAM & DC DISTRIBUTION PANELS

DRAWN BY BKG DATE 4/5/22
CHECKED BY GEG DATE
APPROVED BY DATE
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DWG. NO. D367-E1-3 ALT. 0







ALT	DESCRIPTION	DATE	NAME

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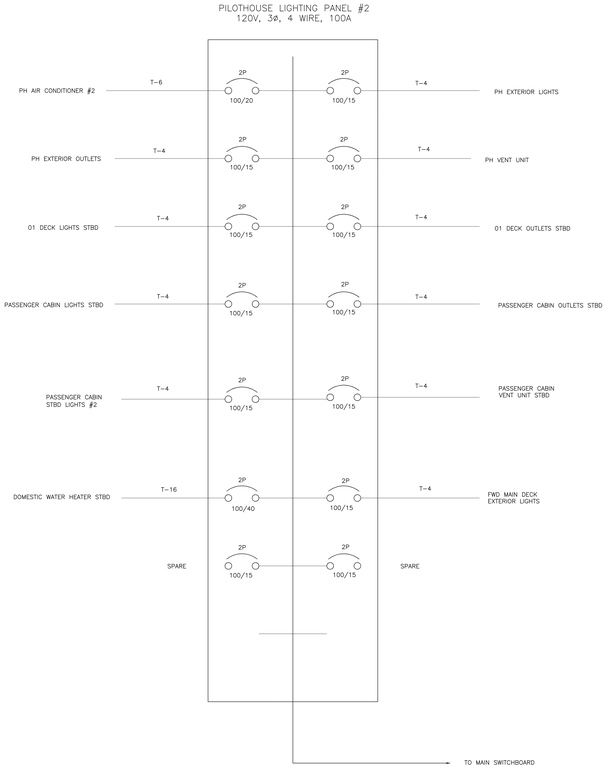
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MARINE ENGINEERS

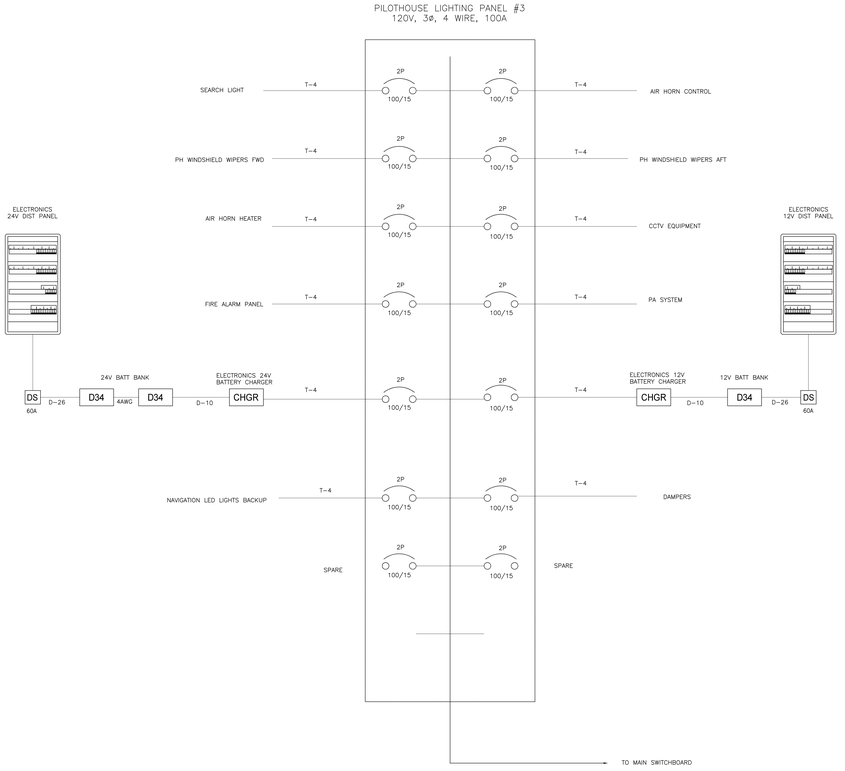
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BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

ELECTRICAL AC ONE-LINE DIAGRAM & DC DISTRIBUTION PANELS

DRAWN BY BKG	DATE 4/5/22
CHECKED BY GEG	DATE
APPROVED BY	DATE
SCALE 3/16" = 1'-0"	
DWG. NO. D367-E1-4	ALT. 0





ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

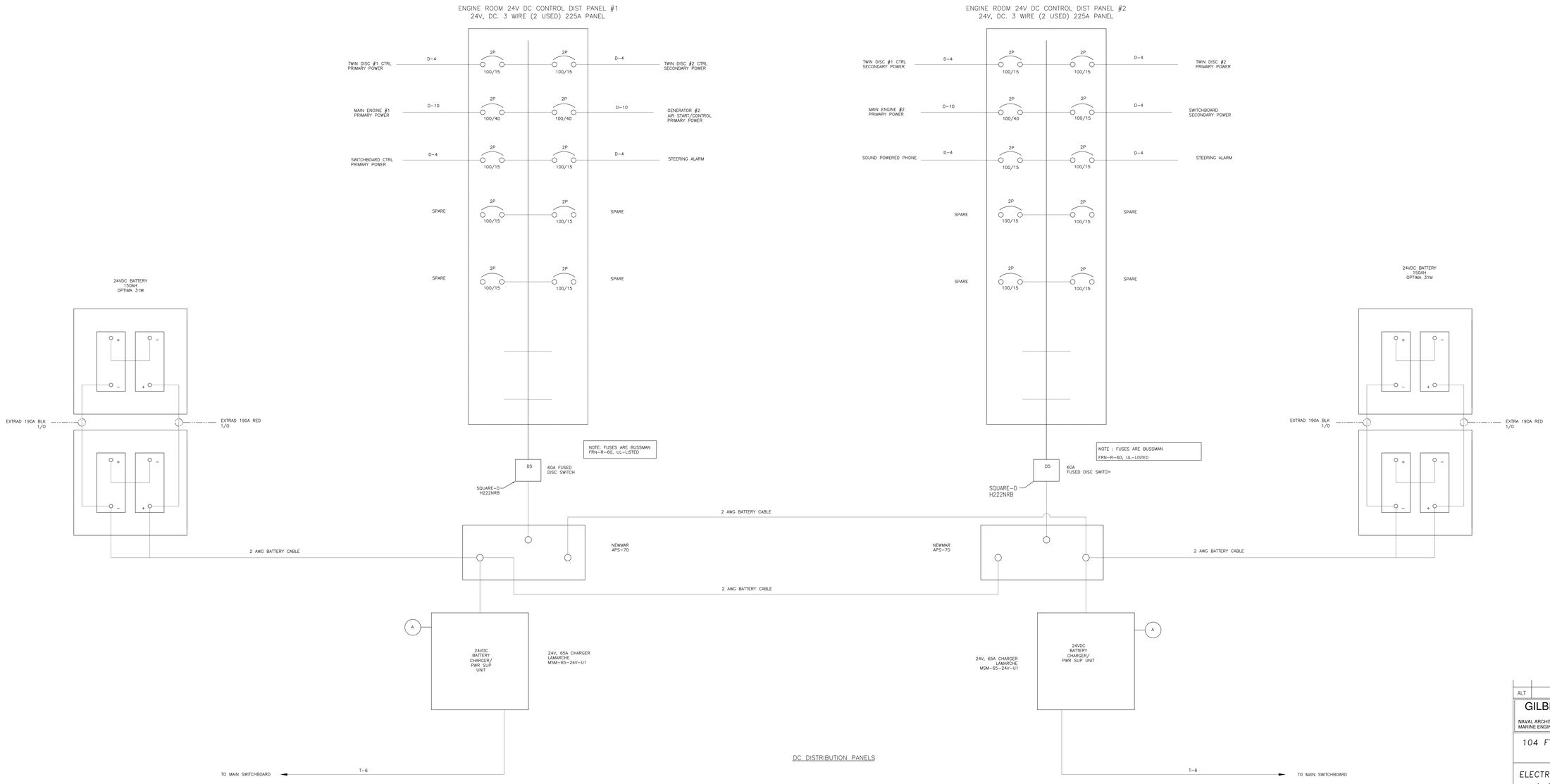
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BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

ELECTRICAL AC ONE-LINE DIAGRAM & DC DISTRIBUTION PANELS

DRAWN BY BKG	DATE 4/5/22
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APPROVED BY	DATE
SCALE 3/16" = 1'-0"	
DWG. NO. D367-E1-5	ALT. 0

SHEET 5 OF 7



ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

100 GROSSMAN DRIVE
BRAINTREE, MA 02184

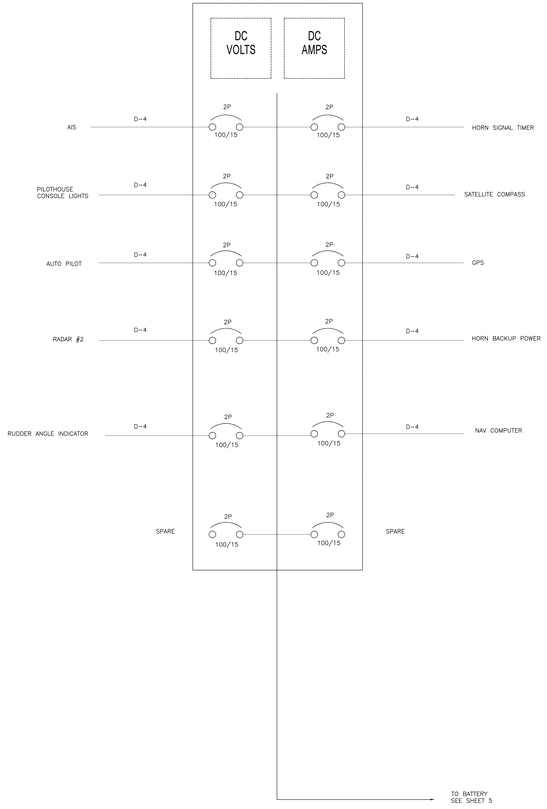
104 FT LOA PASSENGER/VEHICLE FERRY

ELECTRICAL AC ONE-LINE DIAGRAM & DC DISTRIBUTION PANELS

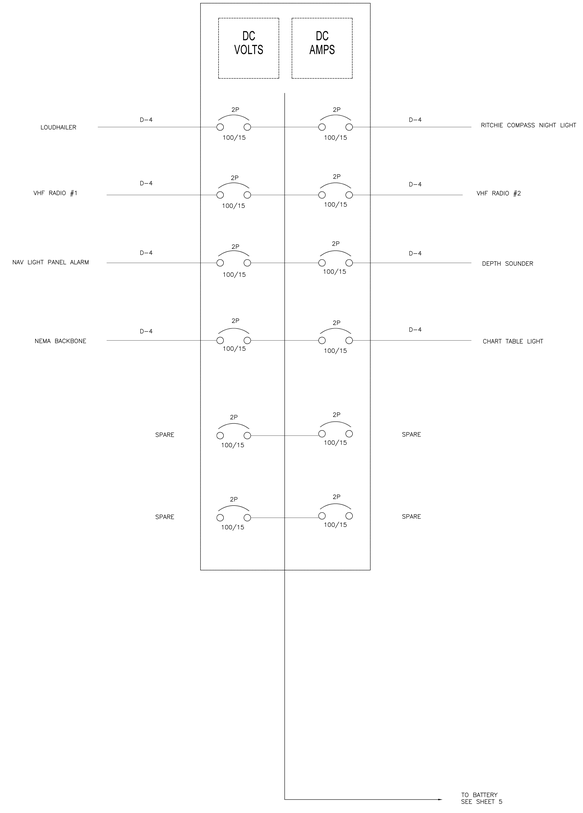
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CHECKED BY GEG DATE
APPROVED BY DATE
SCALE 3/16" = 1'-0"
DWG. NO. D367-E1-6 ALT. 0

SHEET 6 OF 7

PILOTHOUSE 24VDC ELECTRONICS DIST PANEL
24V, DC, 100A



PILOTHOUSE 12VDC ELECTRONICS DIST PANEL
12V, DC, 100A



ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.

NAVAL ARCHITECTS
MARINE ENGINEERS

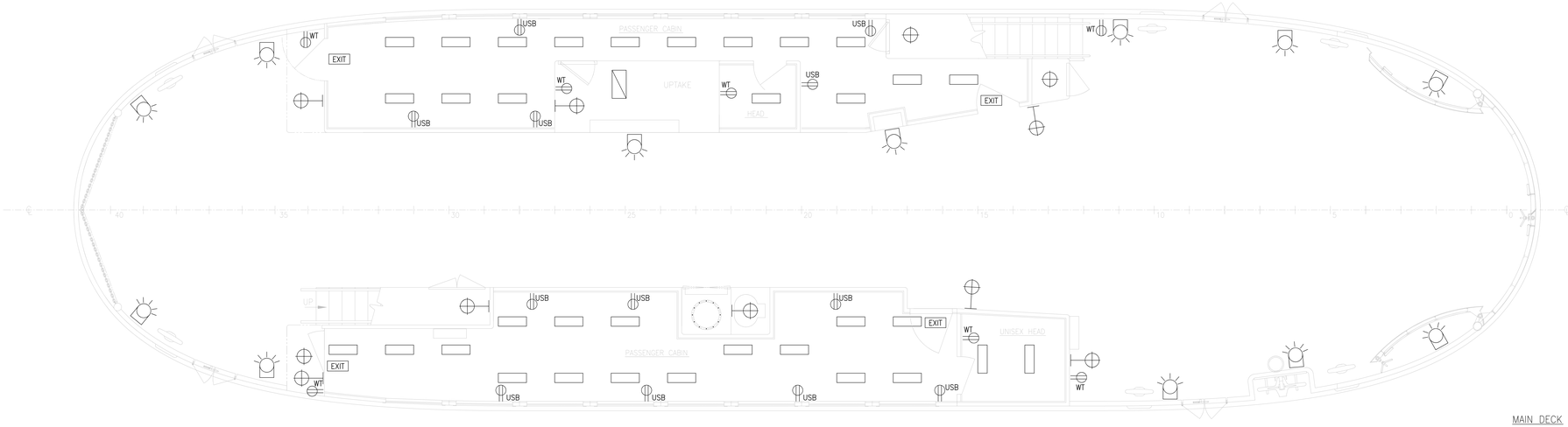
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BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

ELECTRICAL AC ONE-LINE DIAGRAM & DC DISTRIBUTION PANELS

DRAWN BY BKG DATE 4/5/22
CHECKED BY GEG DATE
APPROVED BY DATE
SCALE 3/16" = 1'-0"
DWG. NO. D367-E1-7 ALT. 0

SHEET 7 OF 7



MAIN DECK



HOLD

SYMBOLS

- PAULUHN INTREPID LED LINEAR FIXTURE FPS2L
- PAULUHN LRS22L LED FLUSH PANEL
- (R) PAULUHN MERIDIAN DOWNLIGHT MODEL DL-EM-DIM-RV-F-14
- PAULUHN LED DOWNLIGHT MODEL DL-EL-DIM-F-14
- EXIT CROUSE-HINDS EX-LITE ZE EXIT LIGHT
- WT DUPLEX OUTLET, WATERTIGHT
- USB DUPLEX OUTLET, NOT WATERTIGHT, WITH USB
- PAULUHN DFLA15L LED FLOOD LIGHT
- C PAULUHN FE215CV/2 CHART LIGHT-W/RED FILTER
- CROUSE-HINDS CHAMP PAK CPMVFB BHD MOUNT
- CROUSE-HINDS LED DOWNLIGHT OUTDOOR VAPORGARD V3L
- EXTERIOR RAIL MOUNTED LIGHT

NOTE: 1. ALL EXTERNAL LIGHTS NOT FLOOD LIGHTS TO HAVE ORANGE LED BULBS
2. SEE D367-A8 NAVIGATION LIGHTS & COLREGS PLAN FOR ADDITIONAL LIGHTING REQUIREMENTS.
3. ALL EXTERIOR LIGHTS ARE TO BE CONTROLLED FROM THE PILOTHOUSE

ALT	DESCRIPTION	DATE	NAME

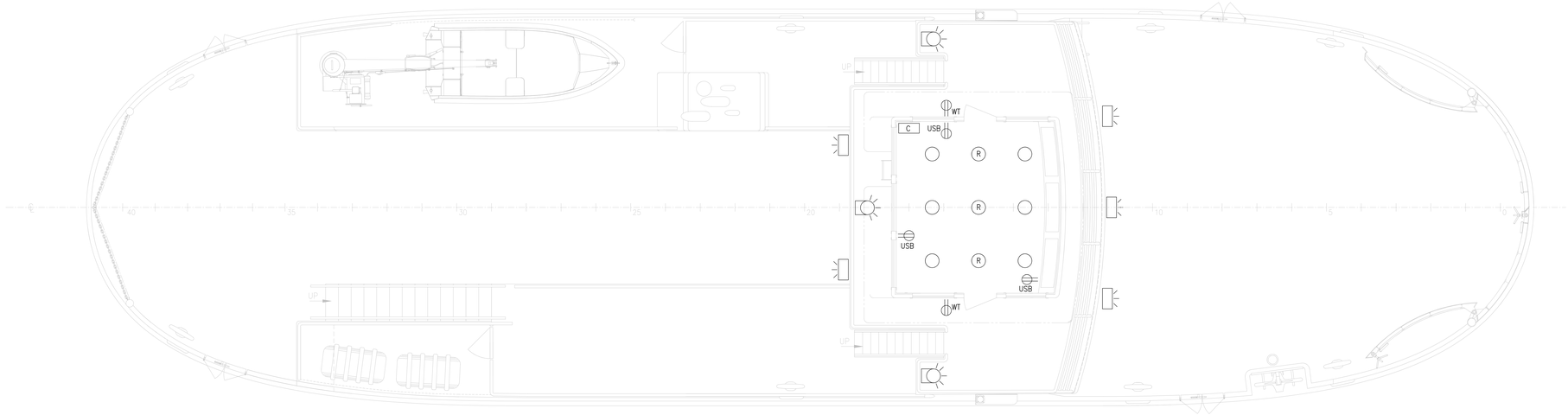
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA FERRY VESSEL

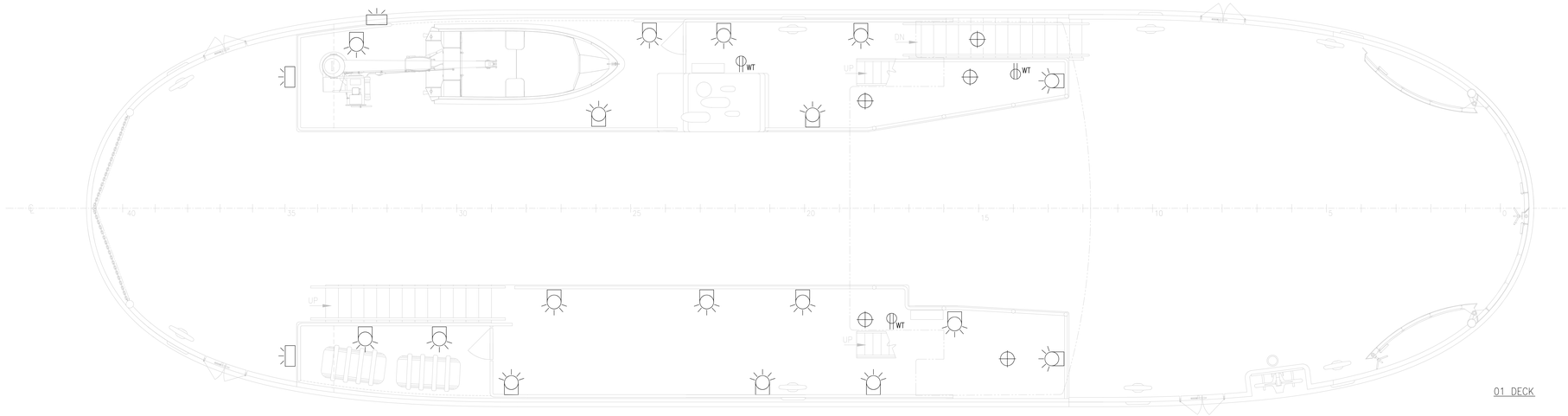
LIGHTING GUIDANCE
HOLD & MAIN DECK

DRAWN BY BKG — DATE 7/29/2021
CHECKED BY JC — DATE
APPROVED BY — DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-E2-1 — ALT. 0

SHEET 1 OF 2



PILOTHOUSE DECK



01 DECK

SYMBOLS

- PAULUHN INTREPID LED LINEAR FIXTURE FPS2L
- PAULUHN LRS22L LED FLUSH PANEL
- (R) PAULUHN MERIDIAN DOWNLIGHT MODEL DL-EM-DIM-RV-F-14
- PAULUHN LED DOWNLIGHT MODEL DL-EL-DIM-F-14
- EXIT CROUSE-HINDS EX-LITE ZE EXIT LIGHT
- WT DUPLEX OUTLET, WATERTIGHT
- USB DUPLEX OUTLET, NOT WATERTIGHT, WITH USB
- PAULUHN DFLA15L LED FLOOD LIGHT
- C PAULUHN FE215CV/2 CHART LIGHT-W/RED FILTER
- CROUSE-HINDS CHAMP PAK CPMVFB BHD MOUNT
- CROUSE-HINDS LED DOWNLIGHT OUTDOOR VAPORGARD V3L
- EXTERIOR RAIL/BHD MOUNTED LIGHT

NOTE: 1. ALL EXTERNAL LIGHTS NOT FLOOD LIGHTS TO HAVE ORANGE LED BULBS
2. SEE D367-A8 NAVIGATION LIGHTS & COLREGS PLAN FOR ADDITIONAL LIGHTING REQUIREMENTS.
3. ALL EXTERIOR LIGHTS ARE TO BE CONTROLLED FROM THE PILOTHOUSE

ALT	DESCRIPTION	DATE	NAME

GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

104 FT LOA PASSENGER/VEHICLE FERRY

LIGHTING GUIDANCE
01 AND PILOTHOUSE DECK

DRAWN BY BKG DATE 7/29/2021
CHECKED BY JC DATE
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D367-E2-2 ALT. 0

SHEET 2 OF 2