# State of Maine Department of Transportation
# 154 Foot LOA Passenger Vehicle Ferry
# Project No. WIN 022194.00
# State Ferry Vessel Replacement

## CONTRACT DRAWINGS

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|---|---|
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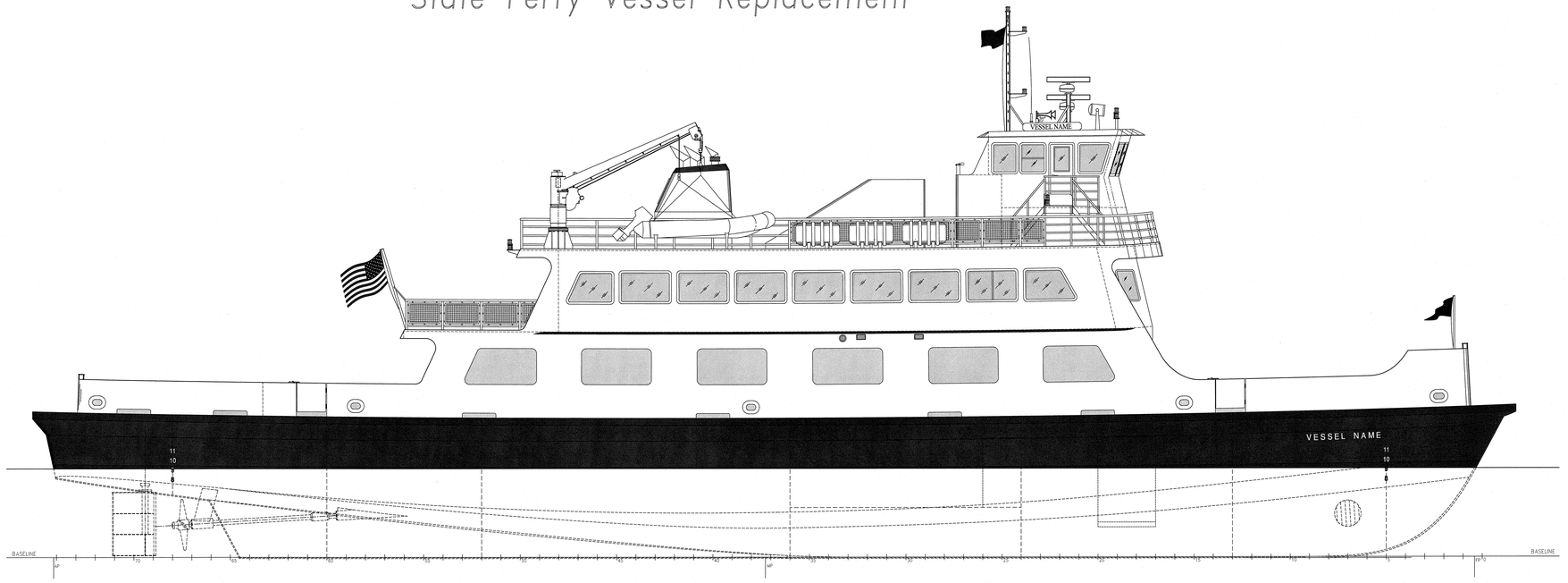


## PRINCIPAL CHARACTERISTICS

| | |
|---|---|
| LENGTH BET. PERP. | 147'-6" |
| LENGTH ON DECK | 154'-0" |
| MOLDED BEAM | 38'-0" |
| MOLDED DEPTH | 14'-6" |
| MOLDED DRAFT @DWL | 9'-3" |
| NUMBER OF PASSENGERS | 250 |
| APPLICABLE USCG REG | SUBCHAPTER K |

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

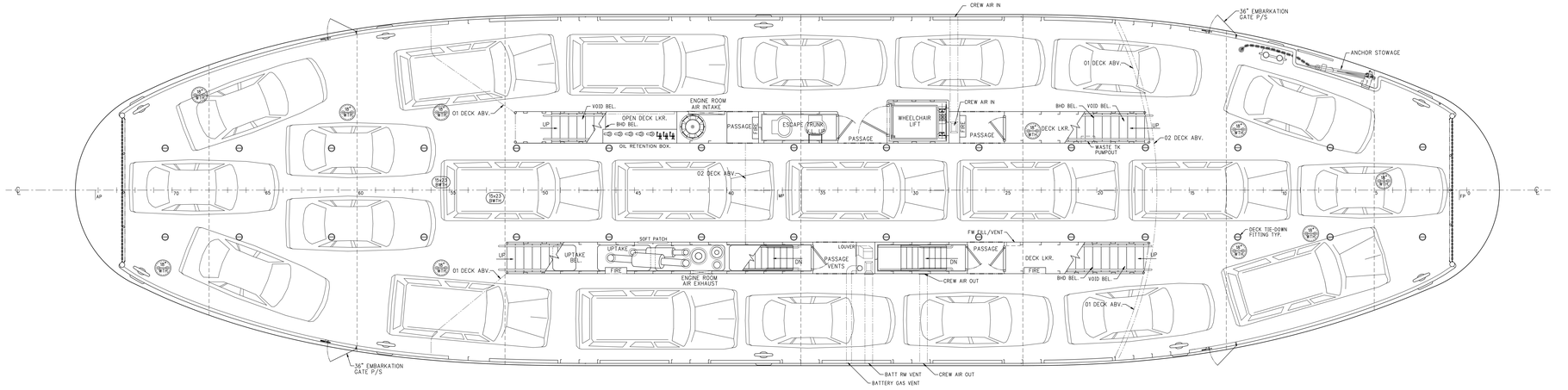
154 FT LOA FERRY VESSEL

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

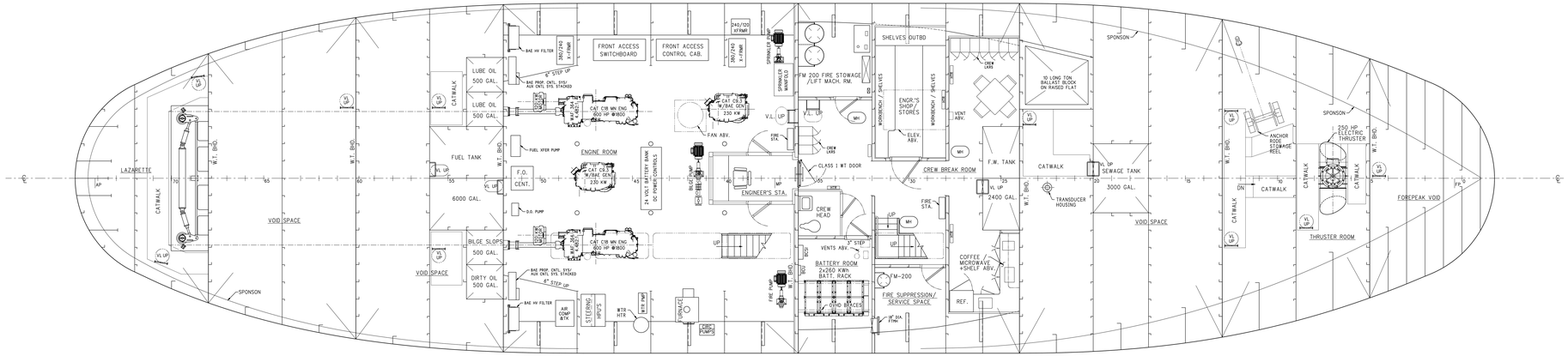
| | APPROVED | DATE |
|---|---|---|
| COMMISSIONER: | | 5-21-21 |
| CHIEF ENGINEER: | | 5-20-2021 |

CONTRACT DRAWINGS
COVER PAGE

DRAWN BY GEG DATE 12/2020
CHECKED BY JWG DATE 5/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D-358A-A0 ALT. A




MAIN DECK

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NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

## GENERAL ARRANGEMENTS HOLD AND MAIN DECK

| | |
|---|---|
| **DRAWN BY** GEG | **DATE** 12/2020 |
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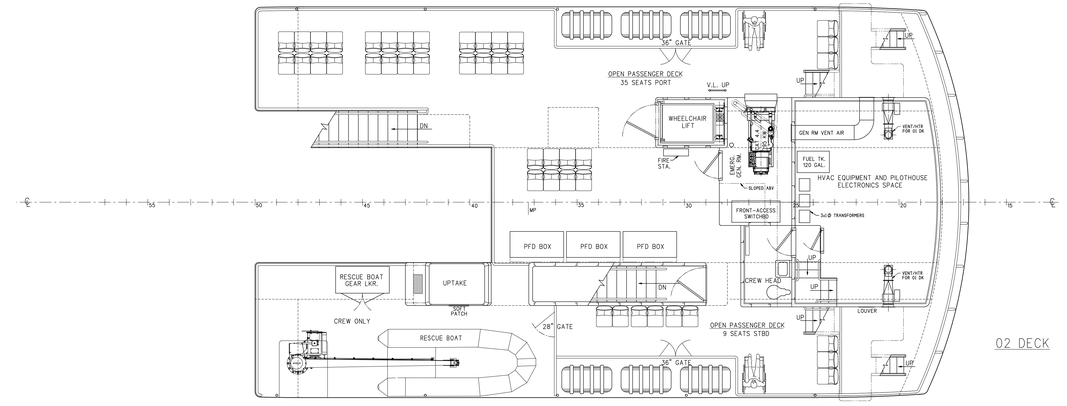
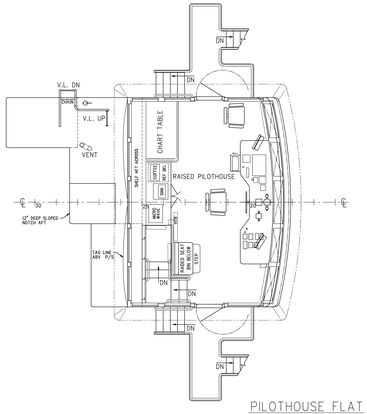
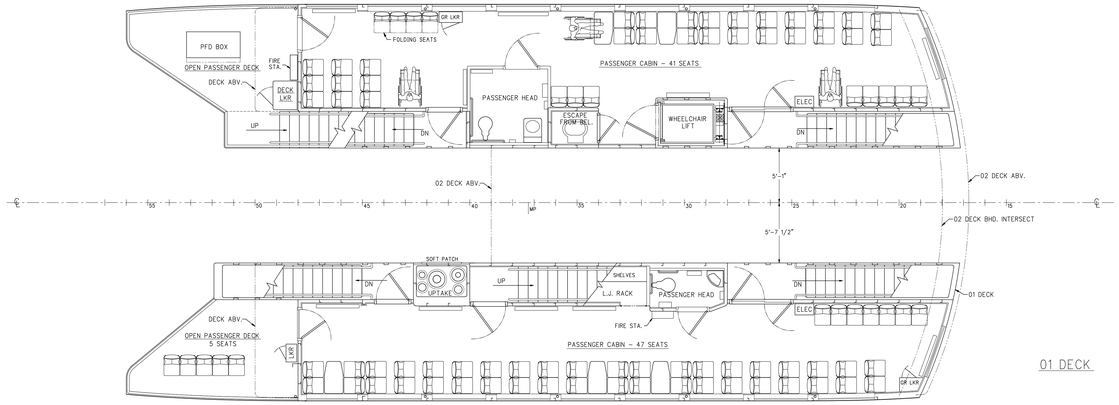
| **APPROVED BY** | **DATE** |
| **SCALE** 1/4" = 1'-0" | |
| **DWG. NO.** D358A-A1-1 | **ALT.** A |




02 DECK




PILOTHOUSE FLAT




01 DECK

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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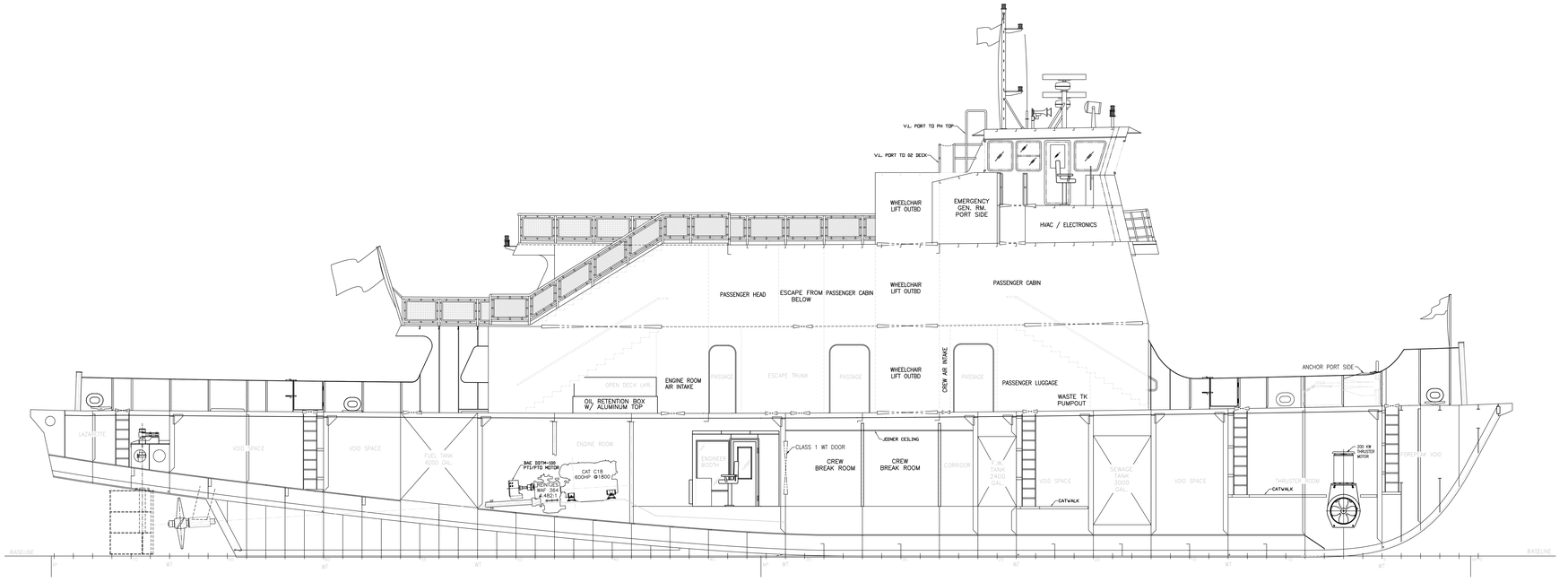
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

## GENERAL ARRANGEMENTS
## 01, 02 DECKS & PILOTHOUSE

**DRAWN BY** GEG **DATE** 12/2020
**CHECKED BY** GEG **DATE** 5/2021
**APPROVED BY** **DATE**
**SCALE** 1/4" = 1'-0"
**DWG. NO.** D358A-A1-2 **ALT.** A

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|---|---|---|---|

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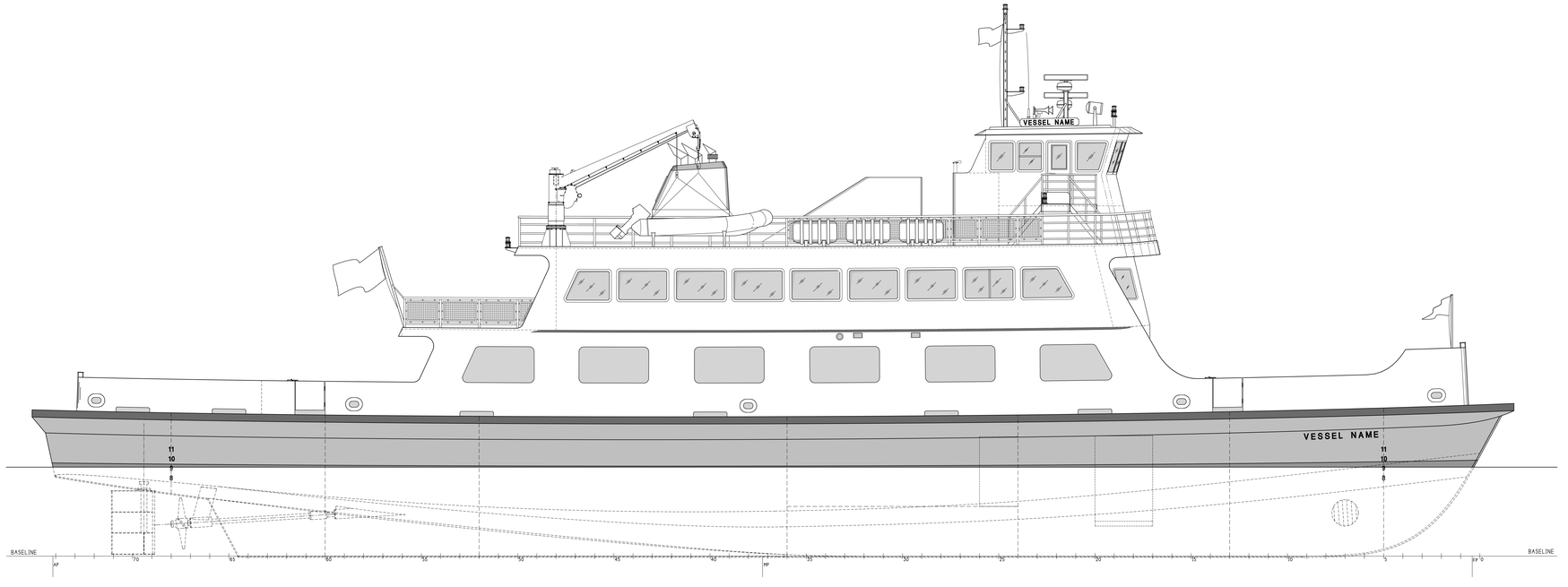
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

## INBOARD PROFILE

DRAWN BY MBM, GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-A2 ALT. A

SHEET 1 OF 1

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|---|---|---|---|

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100 GROSSMAN DR.

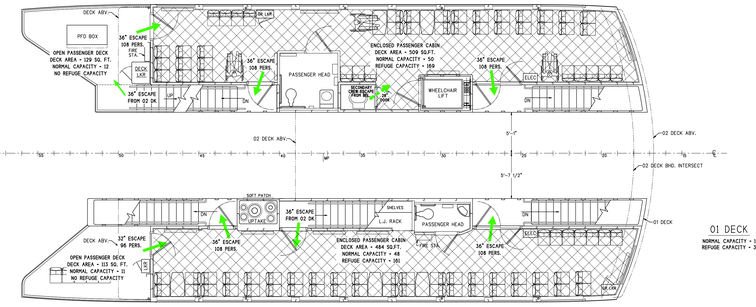
MARINE ENGINEERS
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

## OUTBOARD PROFILE

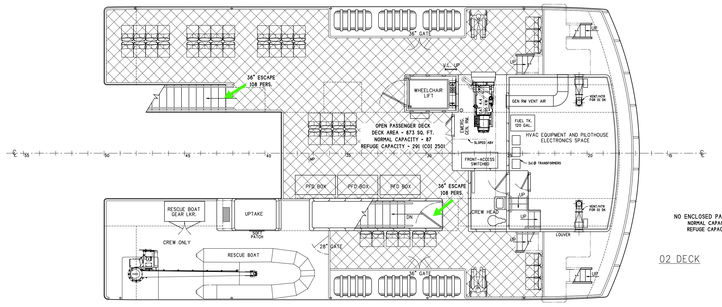
**DRAWN BY** GEG — **DATE** 12/2020
**CHECKED BY** GEG — **DATE** 5/2021
**APPROVED BY** — **DATE**
**SCALE** 1/4" = 1'-0"
**DWG. NO.** D358A-A3 — **ALT.** A

SHEET 1 OF 1



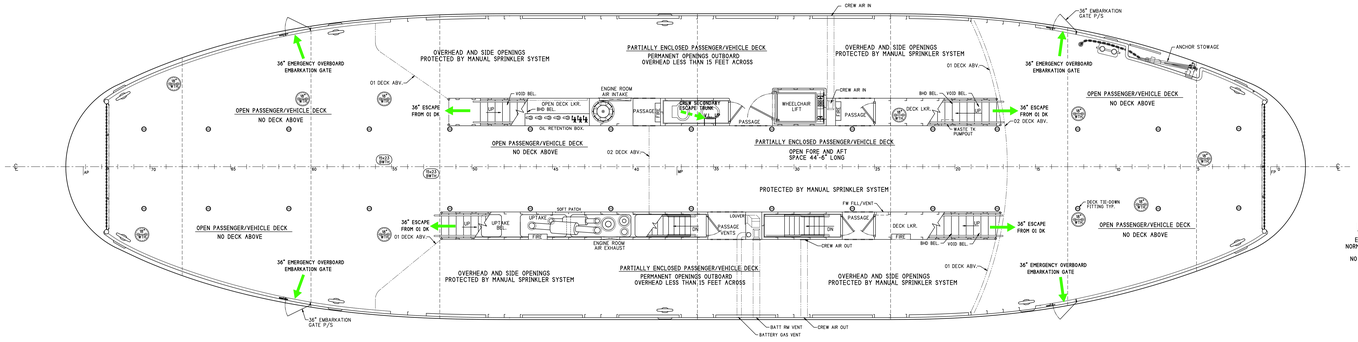

01 DECK

NORMAL CAPACITY = 121
REFUGE CAPACITY = 330 ICGI 2501




NO ENCLOSED PASSENGER ACCOMMODATIONS
NORMAL CAPACITY = 87
REFUGE CAPACITY = 290 ICGI 2501

02 DECK




MAIN DECK

EMBARKATION DECK
NORMAL CAPACITY = 100
125 CARS X 41
NO REFUGE CAPACITY

VESSEL CHARACTERISTICS

SUBCHAPTER K
PASSENGER-VEHICLE FERRY
250 PASSENGERS CAPACITY
PARTIALLY PROTECTED WATERS

EMBARKATION AND REFUGE PROCEDURE

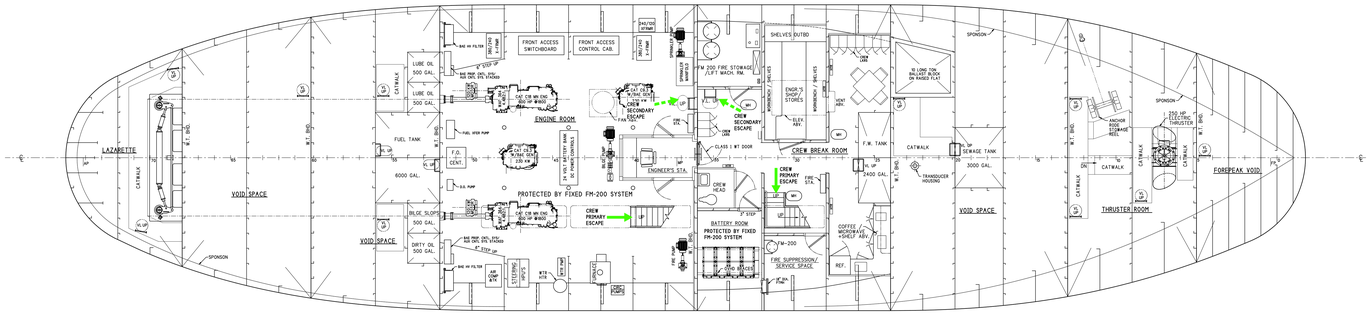
1. Main Deck is provided with 4 Exterior Embarkation Stations.
2. Embarkation Stations are accessed from 4 Stairways exiting to the Open Main Deck from the 01 Deck Cabins.
3. Primary Qualified Refuge Areas are located in the 01 Deck Cabins on the Port and Starboard side of the vessel.
4. In the event of a fire in either of the Port or Starboard Cabins, refuge will be made on the exterior 02 Deck, on the side of the vessel away from the fire.
5. In the event of a fire on the vehicle deck, the manual sprinkler system will be engaged and passengers will be refuged on the 01 or 02 Decks, at the Captain's direction. If necessary, the passengers will use the stairways to the Main Deck that are least affected by the effects of the fire for embarkation.
6. In the event of a fire on the vehicle deck near a stairway discharge area, the passengers shall use the stairways at the opposite end of the vessel for embarkation.

SYMBOL KEY

QUALIFIED REFUGE AREA DESIGNATION

PRIMARY MEANS OF ESCAPE

SECONDARY MEANS OF ESCAPE




HOLD
NO PASSENGERS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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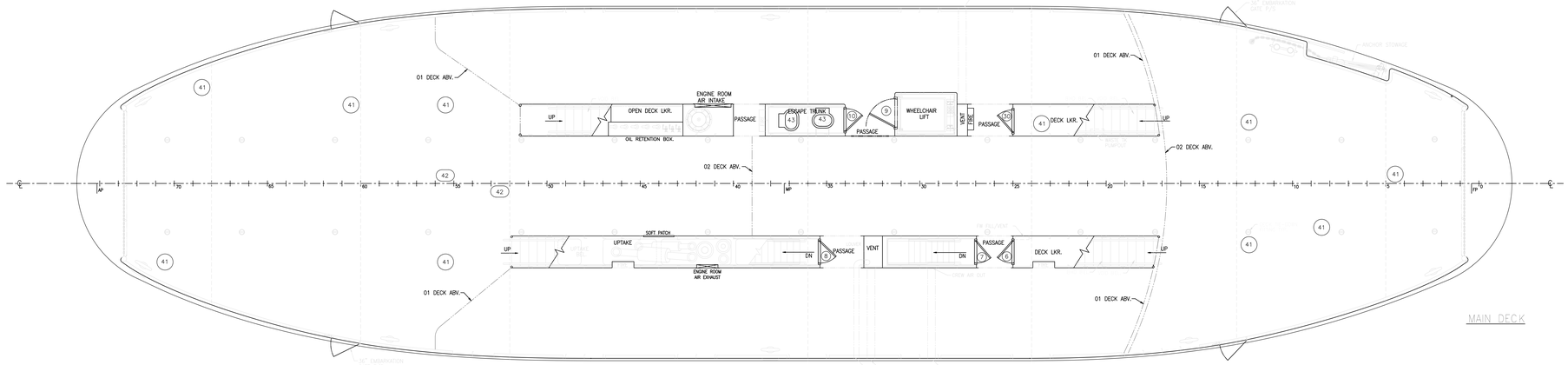
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

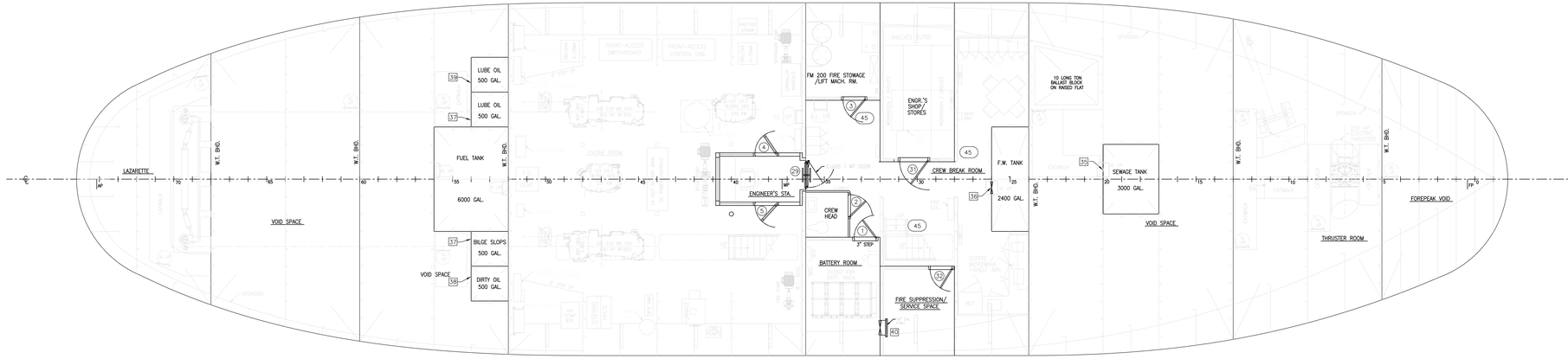
## EMERGENCY EVACUATION PLAN

| | |
|---|---|
| **DRAWN BY** AD,GEG,ESG,JG | **DATE** 12/2020 |
| **CHECKED BY** GEG | **DATE** 5/2021 |
| **APPROVED BY** | **DATE** |
| **SCALE** 3/16" = 1'-0" | |
| **DWG. NO.** D358A-A4 | **ALT.** A |

SHEET 1 OF 1




MAIN DECK

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NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

# DOOR AND WINDOW SCHEDULE HOLD & MAIN DECK

DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-A7-1 ALT. A

## –WINDOW SCHEDULE–

| WINDOW NO. | | QTY | DECK | GLAZING SIZE | GLASS TYPE | LOCATION | REMARKS | CORNER RADIUS | STEEL RETAINER CLIPS |
|---|---|---|---|---|---|---|---|---|---|
| 27 | | 13 | 01 DECK | 60"x36" THERMOPANE | 3/8" SAFETY GLASS | PASSENGER CABIN | BECLAWAT OR EQUAL ALUMINUM FIXED PARALLELOGRAM SHP. | 3" | YES |
| 28 | | 2 | 01 DECK | 36" HIGH RAKED AFT END P/S OPPOSITE THERMOPANE | 3/8" SAFETY GLASS | PASSENGER CABIN | BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED | 3" | YES |
| 29 | | 2 | 01 DECK | 36" HIGH RAKED FWD END P/S OPPOSITE THERMOPANE | 3/8" SAFETY GLASS | PASSENGER CABIN | BECLAWAT OR EQUAL ALUMINUM FIXED TRAPEZOID SHAPED | 3" | YES |
| 30 | * | 3 | 01 DECK | 60" x 36" THERMOPANE | 3/8" SAFETY GLASS | PASSENGER CABIN | BECLAWAT OR EQUAL ALUMINUM SLIDING RECTANGULAR SHAPED | 3" | YES |
| 31 | * | 2 | 02 DECK | 33" x 39" HEATED | 3/8" SAFETY GLASS | PILOTHOUSE FRONT | BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED | 2" | YES |
| 32 | * | 2 | 02 DECK | 34" x39" HEATED | 3/8" SAFETY GLASS | PILOTHOUSE FRONT | BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED | 2" | YES |
| 33 | * | 1 | 02 DECK | 45" x 39" HEATED | 3/8" SAFETY GLASS | PILOTHOUSE FRONT | BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED | 2" | YES |
| 34 | | 2 | 02 DECK | 34" HIGH RAKED P/S OPPOSITE HANDED | 3/8" SAFETY GLASS | PILOTHOUSE SIDE | BECLAWAT OR EQUAL ALUMINUM FIXED TRAPEZOID SHAPED | 2" | YES |
| 35 | | 2 | 02 DECK | 28"x34" | 3/8" SAFETY GLASS | PILOTHOUSE SIDE | BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED | 2" | YES |
| 36 | * | 4 | 02 DECK | 35"X34" (HEATED) | 3/8" SAFETY GLASS | PILOTHOUSE BACK | BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED | 2" | YES |
| 37 | * | 1 | 02 DECK | 45"X34" HEATED | 3/8" SAFETY GLASS | PILOTHOUSE BACK | BECLAWAT OR EQUAL ALUMINUM FIXED RECTANGULAR SHAPED | 2" | YES |
| 38 | | 2 | 02 DECK | 28"x34" HALF–DROP | 3/8" SAFETY GLASS | PILOTHOUSE SIDE | BECLAWAT OR EQUAL ALUMINUM OPENING RECTANGULAR SHAPED | 2" | YES |

*NOTE – ALL WINDOWS 31,32,33,37 SHALL ALSO BE FITTED WITH WIPERS.
2 OF WINDOWS (36) SHALL ALSO BE FITTED WITH WIPERS.
ALL PILOTHOUSE WINDOWS SHALL BE FITTED WITH SOLA–CURE ANTI–GLARE FILM SHADES.
SLIDING WINDOWS (01 DECK) SHALL BE FITTED WITH LOCKING RESTRICTORS TO LIMIT OPENING DISTANCE.

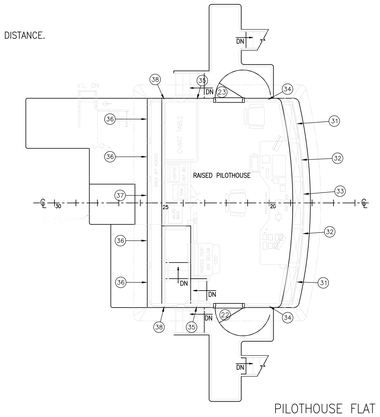
## –MANHOLE AND HATCH SCHEDULE–

| M.H. NO. | QTY | TYPE | SIZE | DECK | TANK | REMARKS |
|---|---|---|---|---|---|---|
| 35 | 1 | RAISED | 18" DIA | HOLD | SEWAGE TK. @FR. 20 | MOUNTED ON TANK BHD. W.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 308–SS STAINLESS STEEL |
| 36 | 1 | RAISED | 15"x23" | HOLD | F.W. TK. @FR. 26 | MOUNTED ON TANK BHD., W.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS |
| 37 | 2 | RAISED | 15"x23" | HOLD | LUBE OIL TK. @FR. 54 P/S | MOUNTED AFT BHD, O.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS |
| 38 | 1 | RAISED | 15"x23" | HOLD | DIRTY OIL TK. @FR. 54 | MOUNTED AFT BHD, O.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS |
| 39 | 1 | RAISED | 15"x23" | HOLD | BILGE SLOPS TK @FR. 54 | MOUNTED AFT BHD, O.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 302–MS |
| 40 | 1 | RAISED | 18" DIA | HOLD | BATTERY ROOM | MOUNTED ON DP FLR, F.T. HATCH ON RAISED FRAME. CEN–TEX DWG. NO. 308–MS OR EQUAL (A–CLASS TIGHT ONLY REQ'D) |
| 41 | 10 | FLUSH | 18" DIA. | MAIN DECK | DECK HATCH | FREEMAN MARINE EQUIPMENT ROUND LIFT–OUT HATCH S–C, DUCTILE IRON COVER. PART NO. 2481–0107 |
| 42 | 2 | FLUSH | 15"x23" | MAIN DECK | DECK HATCH. FUEL TK. ACCESS @ FR. 52 1/2 AND 55 1/2 | MOUNTED ON DECK. FLUSH BOLTED MANHOLE. CEN–TEX DWG. NO. 303–MS |
| 43 | 2 | FLUSH | 15"x23" | MAIN DECK | DECK HATCH. ESCAPE TRUNK @FR. 36 | MOUNTED ON DECK. QUICK ACTING SPRING LOADED HATCH CEN–TEX DWG. NO. 223–MS |
| 44 | 1 | FLUSH | 15"x23" | 01 DECK | DECK HATCH. ESCAPE FROM BEL. @FR. 35 | MOUNTED ON DECK. QUICK ACTING SPRING LOADED HATCH CEN–TEX DWG. NO. 223–MS |
| 45 | 3 | FLUSH | 15"x24" | CREW FLT | ACCESS THROUGH NON–TIGHT FLAT | BOWMAR ALUMINUM COVER, STEEL WELD–IN RING QUICK–ACTING FLUSH |

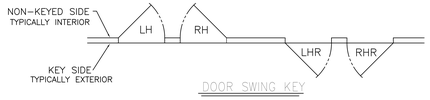
## –DOOR SCHEDULE–

| | DOOR NO. | FIRE RATING | DECK | ROOM NAME | HANDAGE | CLEAR OPENING WIDTH | CLEAR OPENING HEIGHT | LOCK | LOUVER | SELF–CLSR. | WINDOW CLR. OPEN | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | A–15 | HOLD | BATTERY ROOM | LHR | 28" | 80" | NO | NO | NO | | STEEL JOINER, DEAN STEEL |
| | 2 | B–0 | HOLD | CREW HEAD | LHR | 28" | 80" | YES | YES | YES | | STEEL JOINER, DEAN STEEL |
| | 3 | A–15 | HOLD | PORT WC LIFT MACHINERY RM. | RHR | 28" | 80" | NO | NO | NO | | |
| | 4 | C | HOLD | ENGINEER'S STA. @FR 38 | LHR | 28" | 80" | NO | NO | NO | 38.5" x 16" | ACOUSTIC DOOR W/ENCLOSURE, QUIETSTAR |
| | 5 | C | HOLD | ENGINEER'S STA. @FR 38 | RHR | 28" | 80" | NO | NO | NO | 38.5" x 16" | ACOUSTIC DOOR W/ENCLOSURE, QUIETSTAR |
| | 6 | A–15 | MAIN DECK | STBD. DECK LKR. @ FR 25 | LHR | 28" | 78" | YES | NO | NO | | WEATHERTIGHT. DEAN STEEL |
| | 7 | A–15 | MAIN DECK | CREW QTRS. ACCESS @ FR 27 | RHR | 28" | 78" | YES | NO | NO | | 2 DOG WEATHER TIGHT. 6" SILL, DEAN STEEL |
| | 8 | A–15 | MAIN DECK | ENG. RM. ACCESS @ FR 35 | RHR | 28" | 78" | YES | NO | NO | | 2 DOG WEATHER TIGHT. 6" SILL, DEAN STEEL |
| | 9 | A–15 | MAIN DECK | MAIN DECK WC LIFT @FR 32 | RHR | 36" | 80" | YES | NO | YES | | WEATHERTIGHT. GILLESPIE / DEAN STEEL |
| | 10 | A–15 | MAIN DECK | ESCAPE TRUNK @ FR 34 | LHR | 28" | 78" | YES | NO | YES | | 2 DOG WEA. TIGHT, LATCH, 6" SILL, DEAN STEEL |
| * | 11 | A–15 | 01 DECK | STBD. PASS. CABIN STAIRWAY @ FR. 27 | RHR RHR | 36"+30" | 80" | YES | NO | YES | 10" x 10" WIRE INSERTED GLASS | WEATHER T. DBL. DOOR WITH FLUSH BOLTS TOP AND BOTTOM ON THE NARROW DOOR LEAF |
| * | 12 | A–15 | 01 DECK | PORT PASS. CABIN STAIRWAY @ FR. 27 | LHR LHR | 36"+30" | 80" | YES | NO | YES | 10" x 10" WIRE INSERTED GLASS | WEATHER T. DBL. DOOR WITH FLUSH BOLTS TOP AND BOTTOM ON THE NARROW DOOR LEAF |
| * | 13 | B–0 | 01 DECK | STBD. PASSENGER HEAD @FR 30 | RHR | 32" | 80" | YES | YES | YES | | STEEL JOINER, DEAN STEEL |
| * | 14 | A–15 | 01 DECK | 01 DECK WC LIFT @FR 31 | RHR | 36" | 80" | YES | NO | YES | | STEEL JOINER, GILLESPIE / DEAN STEEL |
| | 15 | A–15 | 01 DECK | 01 DECK ESCAPE FROM BEL. @ FR 34 | LHR | 28" | 80" | YES | NO | YES | | STEEL JOINER, DEAN STEEL |
| * | 16 | B–0 | 01 DECK | PORT PASSENGER HEAD @ FR 38 | LHR | 36" | 80" | YES | YES | YES | | STEEL JOINER, DEAN STEEL |
| * | 17 | A–15 | 01 DECK | STBD PASSENGER CABIN STAIRWAY @ FR 39 | RH | 36" | 80" | YES | NO | YES | 10" x 10" WIRE INSERTED GLASS | WEATHERTIGHT, LATCH, DEAN STEEL |
| * | 18 | A–15 | 01 DECK | PORT PASSENGER CABIN STAIRWAY @ FR 41 | RHR | 36" | 80" | YES | NO | YES | 10" x 10" WIRE INSERTED GLASS | WEATHERTIGHT, LATCH, DEAN STEEL |
| * | 19 | A–15 | 01 DECK | STBD. PASSENGER CABIN @FR 43 | LHR | 36" | 80" | YES | NO | YES | 10" x 10" WIRE INSERTED GLASS | WEATHERTIGHT. LATCH, DEAN STEEL |
| * | 20 | A–0 | 01 DECK | PORT. PASS. WEATHR DECK @FR 48 | LH | 36" | 80" | YES | NO | YES | 20"x15" | WEATHERTIGHT. LATCH, DEAN STEEL |
| * | 21 | A–0 | 01 DECK | STBD. PASS. WEATHR. DECK @FR 48 | RH | 32" | 80" | YES | NO | YES | 20"x15" | WEATHERTIGHT. LATCH, DEAN STEEL |
| | 22 | A–0 | 02 DECK | STBD. PILOTHOUSE @FR 22 | RHR | 28" | 76" | YES | NO | NO | 29" x 18" | WEATHERTIGHT. 2 DOGS, LATCH, 5" SILL, DEANSTEEL 2 SETS HOLDBACK HOOKS – OPEN AND 6" OPEN |
| | 23 | A–0 | 02 DECK | PORT PILOTHOUSE @FR 22 | LHR | 28" | 76" | YES | NO | NO | 29" x 18" | WEATHERTIGHT. 2 DOGS, LATCH, 5" SILL, DEANSTEEL 2 SETS HOLDBACK HOOKS – OPEN AND 6" OPEN |
| | 24 | A–0 | 02 DECK | CREW HEAD @FR 25 | RH | 28" | 80" | YES | NO | YES | | STEEL JOINER, DEAN STEEL |
| | 25 | A–0 | 02 DECK | EMERGENCY GEN. RM. @FR 28 | LHR | 28" | 78" | YES | NO | NO | | WEATHERTIGHT LATCH, DEAN STEEL |
| * | 26 | A–0 | 02 DECK | STBD. PASSENGER STAIRWAY @FR 29 | LH | 36" | 80" | YES | NO | YES | 20" x 15" | WEATHERTIGHT. LATCH, DEAN STEEL |
| * | 27 | A–0 | 02 DECK | WC LIFT @FR 31 | RHR | 36" | 80" | YES | NO | YES | | WEATHERTIGHT. LATCH, GILLESPIE / DEAN STEEL |
| | 28 | A–0 | 02 DECK | ACCESS UNDER PILOTHOUSE FLAT | LHR | 24" | 36" | NO | NO | NO | | STEEL JOINER, DEAN STEEL |
| | 29 | A–0 | HOLD | ENG RM FWD QAWT DOOR | RHR | 30" | 66" | NO | NO | NO | | CLASS 1 QAWT 6–DOG, CEN–TEX 104–MS |
| | 30 | A–15 | MAIN DECK | STBD. DECK LKR. @ FR 25 | RHR | 28" | 78" | YES | NO | NO | | WEATHERTIGHT. DEAN STEEL |
| | 31 | A–15 | HOLD | ENGR'S SHOP / STORES | RHR | 36" | 78" | NO | NO | YES | | STEEL JOINER, DEAN STEEL |
| | 32 | A–15 | HOLD | STORAGE RM STBD | LH | 28" | 76" | YES | NO | YES | | STEEL JOINER, DEAN STEEL |

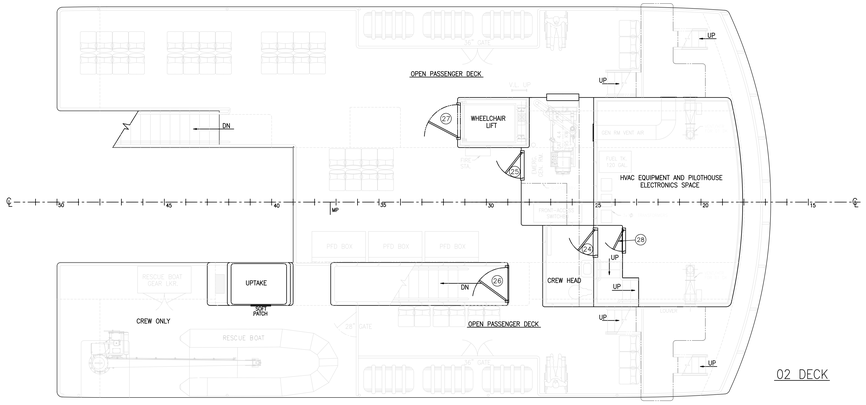
*NOTE – ALL DOORS ACCESSIBLE BY PASSENGERS SHALL BE FITTED WITH FINGER GUARD PROTECTORS.
INTERIOR SELF–CLOSING DOORS ACCESSIBLE BY PASSENGERS SHALL HAVE PULL FORCE NO GREATER THAN 5 LBS OR AS REQ'D BY USCG. EXTERIOR SELF–CLOSING DOOR FORCE BY USCG REGS.



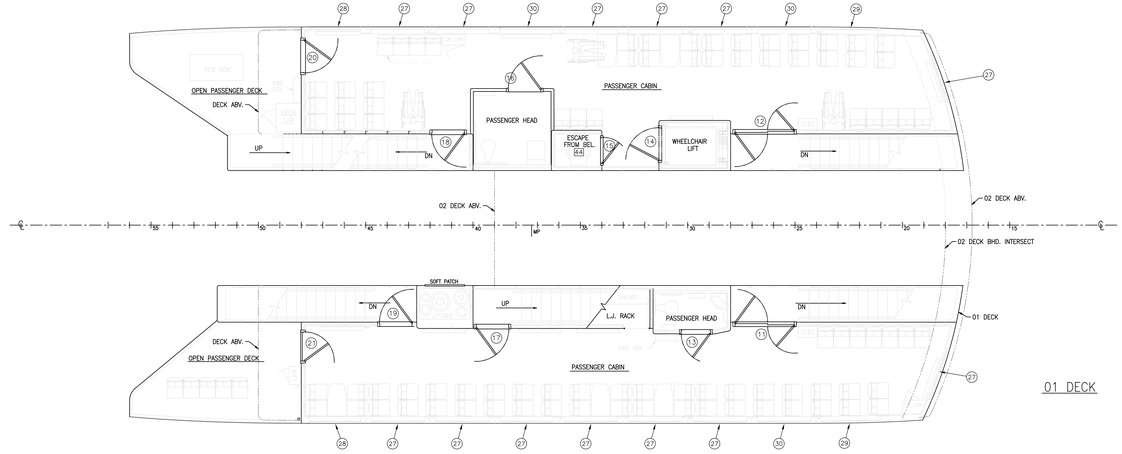

PILOTHOUSE FLAT




DOOR SWING KEY




02 DECK




01 DECK

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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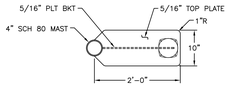
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

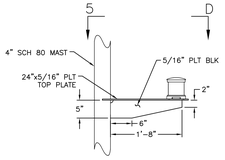
DOOR AND WINDOW SCHEDULE
01, 02 AND PILOTHOUSE DECK

DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 1/4" = 1'–0"
DWG. NO. D358A–A7–2 ALT. A

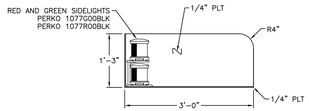
SHEET 2 OF 2



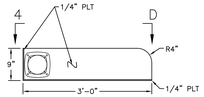

PLAN VIEW 5D
SCALE: 1"=1'-0"



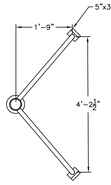

ELEVATION VIEW 5C
SCALE: 1"=1'-0"



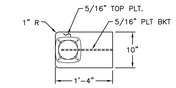

SIDELIGHTS PROFILE VIEW 4D
SCALE 1"=1'-0"



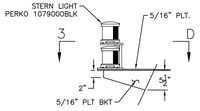

SIDELIGHTS PLAN VIEW 4C
SCALE: 1"=1'-0"



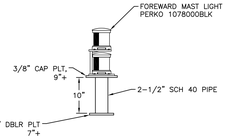

MAST PLAN VIEW
SCALE: 1/2"=1'-0"



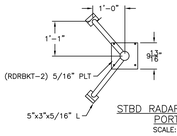

STERNLIGHT PLAN VIEW 3D
SCALE: 1"=1'-0"



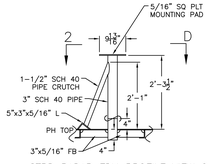

STERNLIGHT PROFILE VIEW 3C
SCALE: 1"=1'-0"



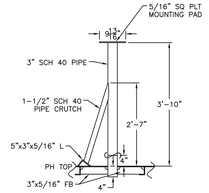

MASTHEAD LIGHT PROFILE VIEW 3B
SCALE: 1"=1'-0"



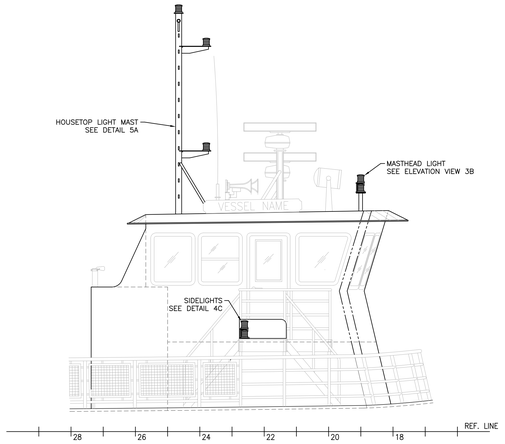

STBD RADAR PLAN VIEW 2D
PORT SIMILAR
SCALE: 1/2"=1'-0"



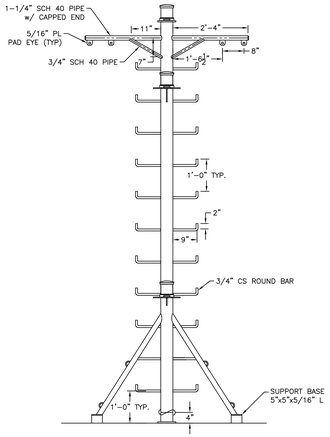

STBD RADAR FDN PROFILE VIEW 2C
SCALE: 1/2"=1'-0"



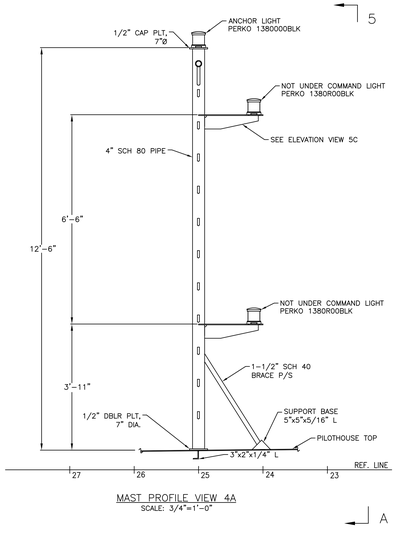

PORT RADAR FDN PROFILE VIEW 2B
SCALE: 1/2"=1'-0"



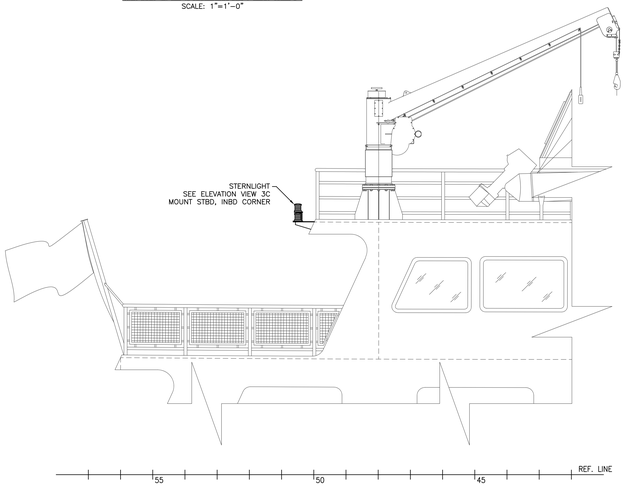

STBD PILOTHOUSE PROFILE



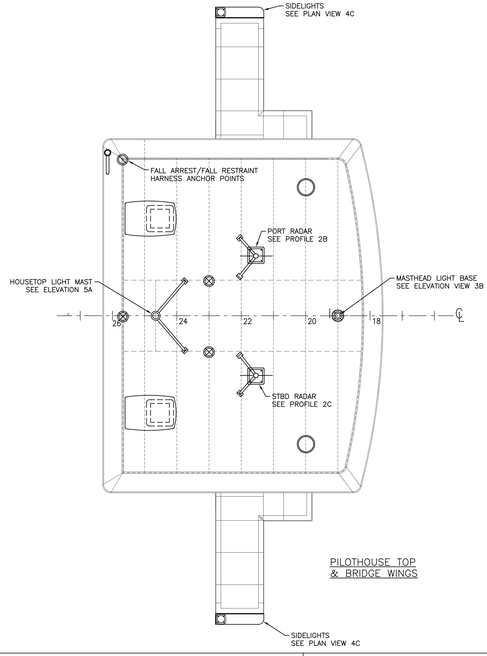

MAST SECTION VIEW 5A
SCALE: 3/4"=1'-0"




MAST PROFILE VIEW 4A
SCALE: 3/4"=1'-0"




STERN LIGHT PROFILE




PILOTHOUSE TOP
& BRIDGE WINGS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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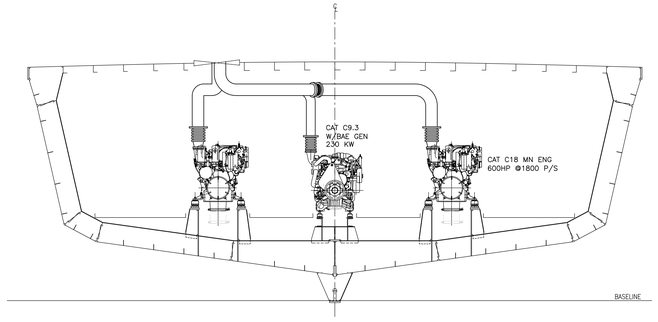
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

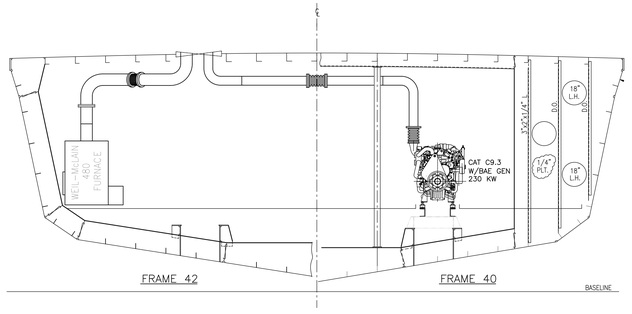
154 FT LOA FERRY VESSEL

COLREGS PLAN AND NAVIGATION
LIGHT MAST DETAILS

| | | | |
|---|---|---|---|
| DRAWN BY | JVL, BKG + GEG | DATE | 12/2020 |
| CHECKED BY | GEG | DATE | 3/2021 |
| APPROVED BY | | DATE | |
| SCALE | 3/8" = 1'-0" OR AS NOTED | | |
| DWG. NO. | D358A-A8-1 | ALT. | A |



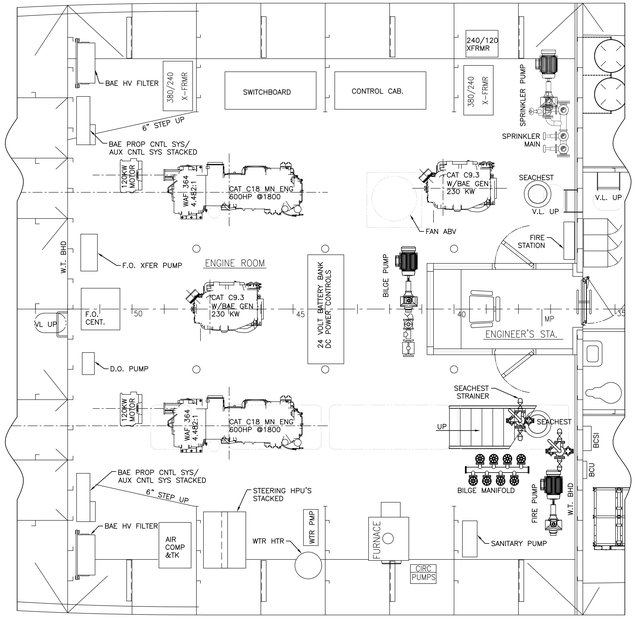

ENGINE ROOM SECTION
WEB FRAME 46 LOOKING AFT




ENGINE ROOM SECTIONS
LOOKING AFT

## EQUIPMENT LIST

| NO. | QTY. | DESCRIPTION | SPECIFICATIONS |
|---|---|---|---|
| 1 | 2 | MAIN ENGINE | CAT C18 600 HP @ 1800 RPM |
| 2 | 2 | PROPULSION MOTOR | BAE SYSTEMS DDTM-100 |
| 3 | 2 | REDUCTION GEAR | WAF 364 4.482:1 W/ PTO+PTI |
| 4 | 2 | GENERATOR SET | CAT C9.3 W/ BAE GENERATOR 230 KW |
| 5 | 1 | FURNACE | WEIL MCLAIN MODEL 480 |
| 6 | | SWITCH BOARD | ELECTRONIC POWER DESIGN INC. |
| 7 | | CONTROL CABINET | ELECTRONIC POWER DESIGN INC. + BAE SYSTEMS |
| 8 | | BATTERY CONTROLS | |
| 9 | 2 | TRANSFORMER: 380/240 VAC | MADDOX 112.5 kVA, 3 PH., 60 Hz., DELTA-DELTA |
| 10 | 1 | TRANSFORMER: 240/120 VAC | MADDOX 45 kVA, 3 PH., 60 Hz., DELTA-DELTA |
| 11 | 2 | PROPULSION CONTROL SYSTEM | BAE SYSTEMS |
| 12 | 2 | HIGH VOLTAGE FILTER | BAE SYSTEMS |
| 13 | 1 | FIRE STATION | |
| 14 | 1 | FIRE PUMP | GOULDS, MODEL 7AI/BF<br>SELF-PR CENTRIF, 2.5X3X6.38", 15 HP |
| 15 | 1 | FIRE STRAINER | KRAISSL |
| 16 | 1 | SPRINKLER PUMP | CRANE-BARNES MODEL 25ICU-1<br>SELF-PR CENTRIF, 3"x3", 175 GPM 10 HP |
| 17 | 1 | SPRINKLER MANIFOLD | |
| 18 | 1 | FUEL OIL TRANSFER PUMP | VIKING HL4195, 30 GPM, 2 HP |
| 19 | 1 | FUEL OIL STRAINER | KRAISSL |
| 20 | 1 | FUEL OIL CENTRIFUGE | ALFA LAVAL MAB-103 |
| 21 | 1 | DIRTY OIL DISCHARGE, LO XFER, AND BILGE SLOPS PUMP | TUTHILL CC9, 9 GPM, 1/2 HP |
| 22 | 1 | WATER HEATER | RHEEM 40 GAL ELEC. HW HEATER |
| 23 | 1 | POTABLE WATER PUMP | GRUNDFOS BMQE 15 |
| 24 | 2 | SEACHEST | |
| 25 | 2 | SEACHEST STRAINER | KRAISSL |
| 26 | 1 | BILGE PUMP<br>(TO BE LOCATED WITHIN 11 FT OF CL) | MP PUMPS, MODEL FLOWMAX 15<br>SELF-PR CENTRIF, 3"x3", 150 GPM, 5 HP |
| 27 | 1 | BILGE STRAINER | KRAISSL |
| 28 | 1 | BILGE MANIFOLD<br>(TO BE LOCATED WITHIN 11 FT OF CL) | |
| 29 | 1 | AIR COMPRESSOR AND TANK | QUINCY QR-25, MODEL V310, 2 HP, 80 GAL. TK. |
| 30 | 2 | STEERING HPU'S | JASTRAM 5 HP, 20 GAL. RESERVOIRS |




| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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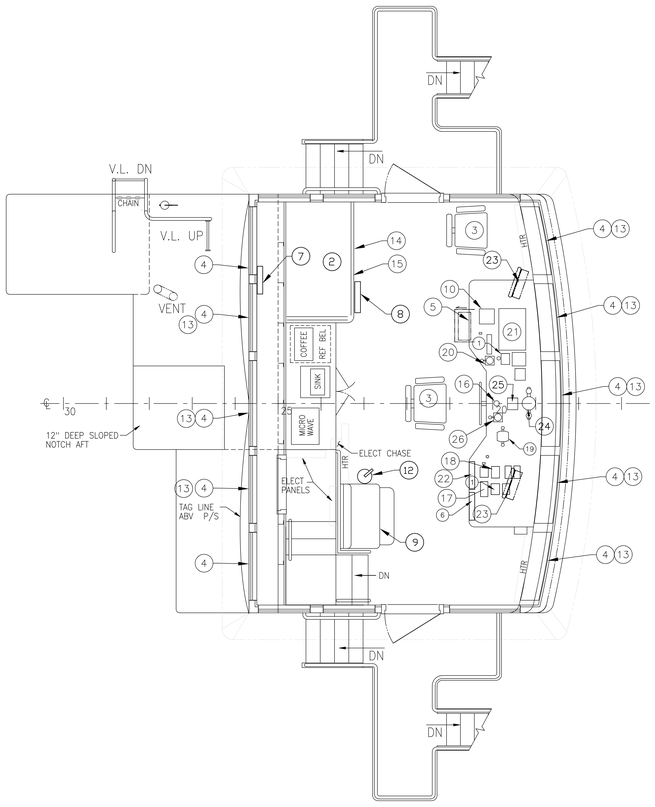
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

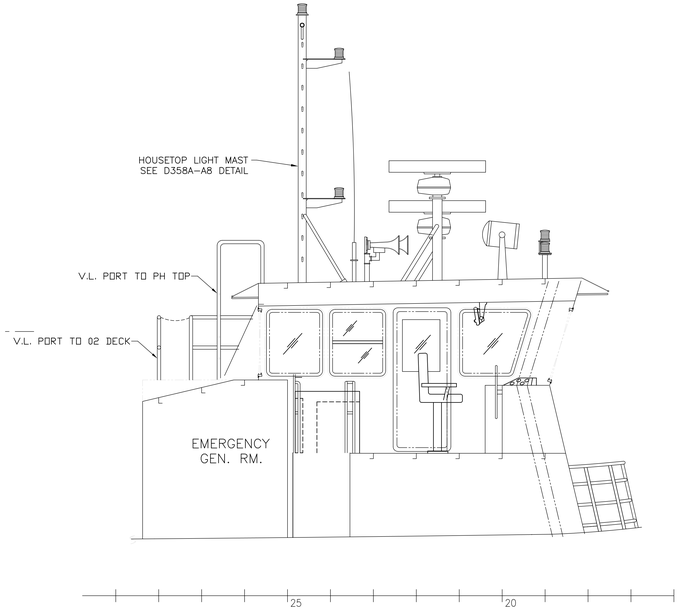
154 FT LOA FERRY VESSEL

ENGINE ROOM ARRANGEMENT

DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-A9 ALT. A




PILOTHOUSE FLAT
PLAN VIEW




PILOTHOUSE FLAT
PROFILE VIEW

| KEY | | |
|---|---|---|
| ITEM | QTY | DESCRIPTION |
| 1 | 2 | SEARCH LIGHT MANUAL CONTROL |
| 2 | 1 | CHART TABLE |
| 3 | 2 | FIXED PILOT CHAIR |
| 4 | 10 | HEATED WINDOW |
| 5 | 1 | MAIN PILOTHOUSE CONSOLE |
| 6 | 1 | NAV. LIGHT PANEL |
| 7 | 1 | NOTICE BOARD, CLOCK & BAROMETER |
| 8 | 1 | FIRE ALARM PANEL |
| 9 | 1 | RAISED SETTEE, BIN BELOW WITH STEP |
| 10 | 1 | DEPTH SOUNDER |
| 11 | 1 | AUTO PILOT |
| 12 | 1 | FIRE EXTINGUISHER 5# DRY CHEMICAL |
| 13 | 8 | WIPERS |
| 14 | 1 | GENERAL ALARM |
| 15 | 1 | VENT SHUTDOWN, FIRE DOOR RELEASE AND INDICATOR, FIRE PUMP CONTROL |
| 16 | 2 | RUDDER ANGLE INDICATOR (OVERHEAD) |
| 17 | 1 | LOUD HAILER / PA SYSTEM |
| 18 | 1 | AIR HORN CONTROL |
| 19 | 2 | ENGINE THROTTLE / DIRECTION CONTROL |
| 20 | 2 | BOW THRUSTER CONTROL |
| 21 | 1 | CHARTPLOTTER DISPLAY |
| 22 | 1 | DC DISTRIBUTION PANEL |
| 23 | 2 | RADAR IN OVERHEAD |
| 24 | 1 | MAGNETIC COMPASS |
| 25 | 1 | SATELLITE COMPASS |
| 26 | 2 | STEERING JOG LEVER |

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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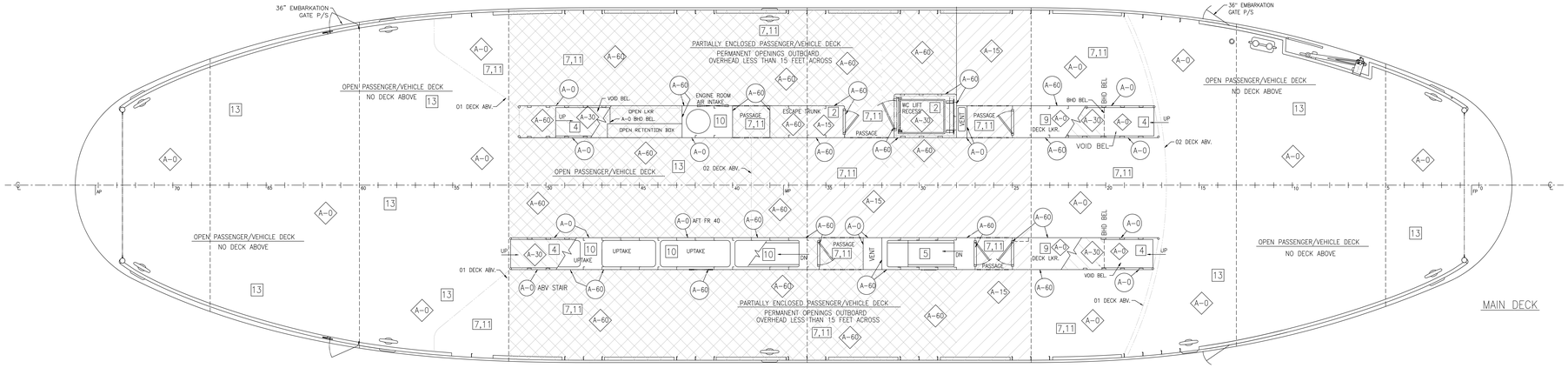
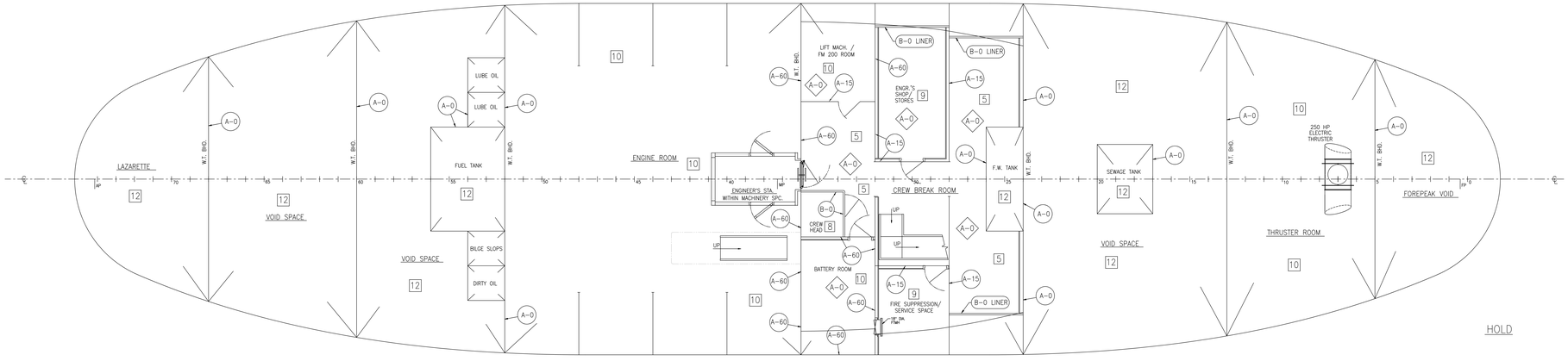
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

PILOTHOUSE ARRANGEMENTS

DRAWN BY JVL+GEG DATE 12/2020
CHECKED BY JG DATE 3/2021
APPROVED BY DATE
SCALE 1/2" = 1'-0"
DWG. NO. D358A-A10 ALT. A




VESSEL CHARACTERISTICS

SUBCHAPTER K
PASSENGER-VEHICLE FERRY
250 PASSENGERS CAPACITY
PARTIALLY PROTECTED WATERS

SYMBOL KEY

- □ – USCG SPACE TYPE DESIGNATOR
- ◇ – DECK FIRE RATING
- ○ – BULKHEAD FIRE RATING
- ▨ – A-60 DECK INSULATION DESIGNATION
- ▨ – A-15 & A30 DECK INSULATION DESIGNATION

U.S. COAST GUARD SPACE DESIGNATORS
TABLE 46 CFR 116.415

1. CONTROL SPACES
2. STAIRWAY
3. CORRIDORS
4. EMBARKATION STATIONS
5. LOW RISK ACCOMMODATION SPACES
6. HIGH RISK ACCOMMODATION SPACES LESS THAN 538 SQ. FT.
7. HIGH RISK ACCOMMODATION SPACES GREATER THAN 538 SQ. FT.
8. LOW RISK SERVICE SPACES
9. HIGH RISK SERVICE SPACES
10. MACHINERY SPACES
11. CARGO SPACE
12. AUXILIARY MACHINERY SPACE, VOIDS, TANKS
13. OPEN DECKS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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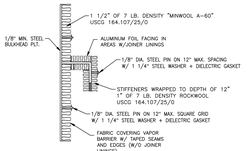
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

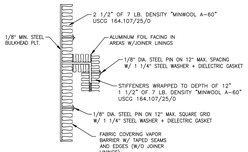
# 154 FT LOA FERRY VESSEL

## STRUCTURAL FIRE PROTECTION
## HOLD & MAIN DECK

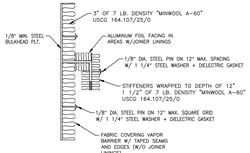
DRAWN BY AD,GEG,ESG,JG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-A11-1 ALT. A



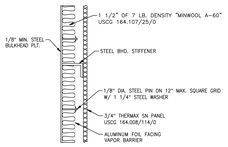

A-15 BULKHEAD INSULATION
NOT TO SCALE



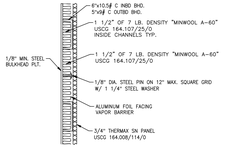

A-30 BULKHEAD INSULATION
NOT TO SCALE



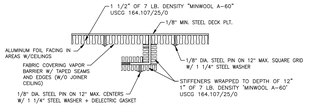

A-60 BULKHEAD INSULATION
FOR AREAS WITHOUT SPACE RESTRICTION
NOT TO SCALE



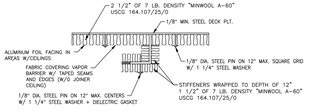

A-60 BULKHEAD INSULATION
FOR AREAS WITH RESTRICTED SPACE
NOT TO SCALE



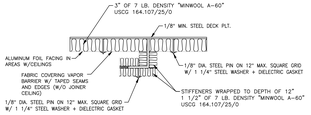

A-60 BULKHEAD INSULATION
INSIDE ELEVATOR TRUNK ONLY
NOT TO SCALE



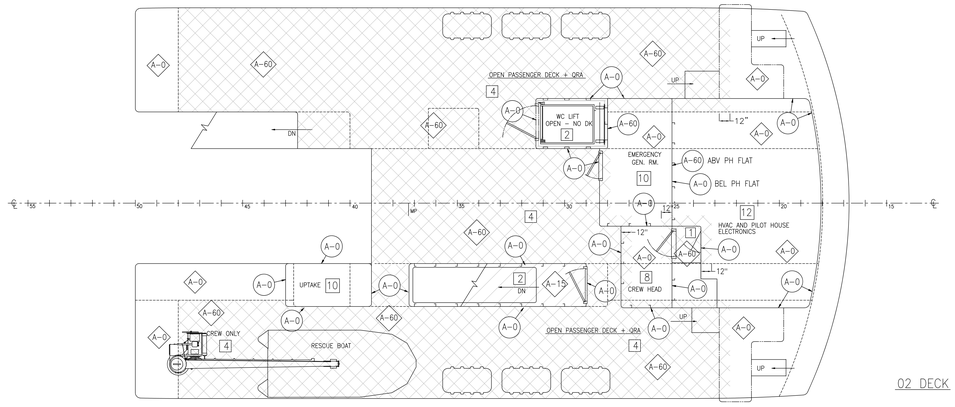

A-15 DECK INSULATION
NOT TO SCALE



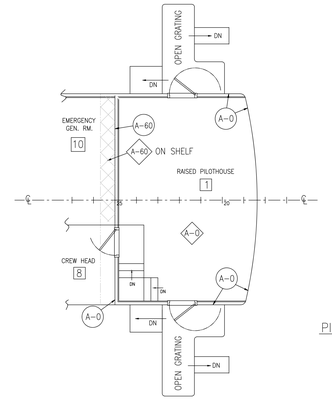

A-30 DECK INSULATION
NOT TO SCALE



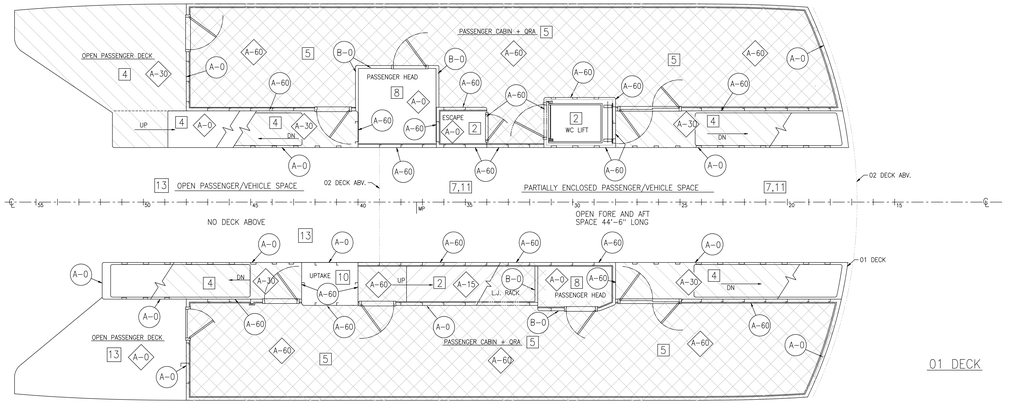

A-60 DECK INSULATION
NOT TO SCALE




02 DECK




PILOTHOUSE




01 DECK

VESSEL CHARACTERISTICS

SUBCHAPTER K
PASSENGER-VEHICLE FERRY
250 PASSENGERS CAPACITY
PARTIALLY PROTECTED WATERS

SYMBOL KEY

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| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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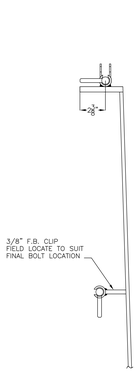
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

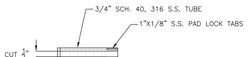
STRUCTURAL FIRE PROTECTION
01 & 02 DECKS

DRAWN BY AD,GEG,JG — DATE 12/2020
CHECKED BY GEG — DATE 3/2021
APPROVED BY — DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-A11-2 — ALT. A



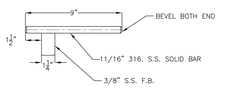

SECTION VIEW THRU UPPER AND LOWER BOLT ASSEMBLIES

SCALE 3"=1'-0"



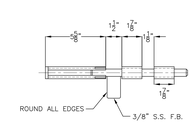

MAIN CLEAT PLAN VIEW

SCALE 3"=1'-0"



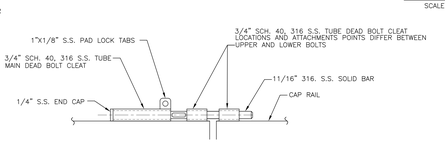

DEAD BOLT DETAILS

SCALE 3"=1'-0"




PLAN VIEW GATE BOLT ASSEMBLY

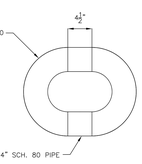
SCALE 3"=1'-0"




PROFILE VIEW GATE BOLT ASSEMBLY

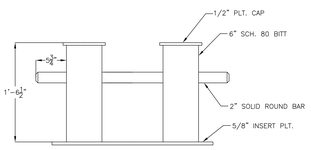
UPPER BOLT SHOWN LOWER SIMILAR

SCALE 3"=1'-0"



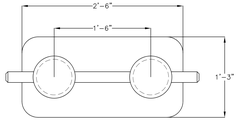

HAWSE PIPE DETAIL

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



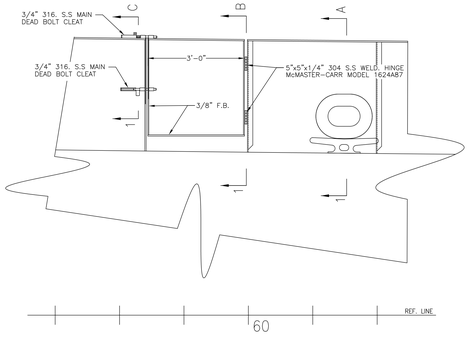

PROFILE VIEW OF ANCHOR RODE BITTS

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



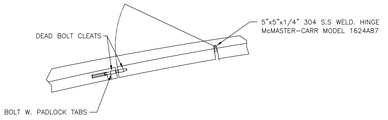

PLAN VIEW OF ANCHOR RODE BITTS

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



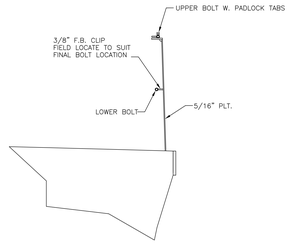

PROFILE VIEW 2-D

SCALE 3/4"=1'-0"



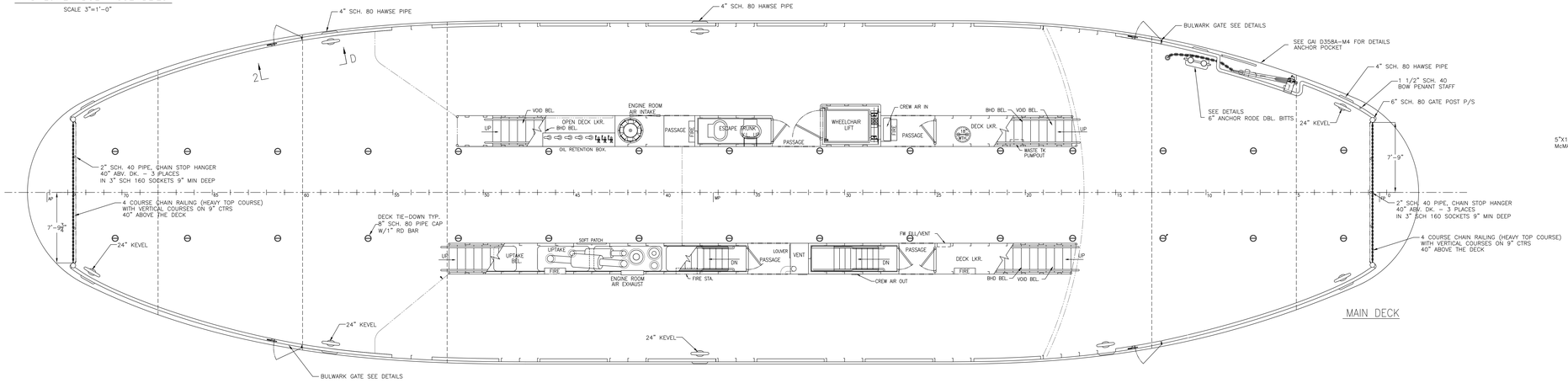

PLAN VIEW OF BULWARK GATE

SCALE 3/4"=1'-0"




SECTION VIEW 1-C

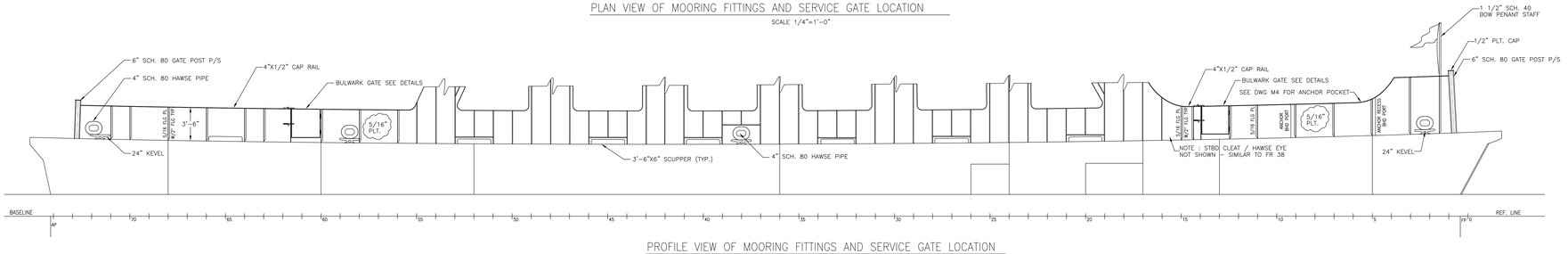
SCALE 3/4"=1'-0"




MAIN DECK

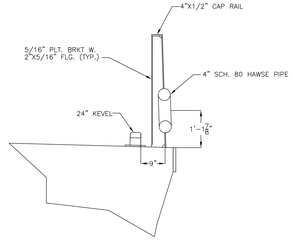
PLAN VIEW OF MOORING FITTINGS AND SERVICE GATE LOCATION

SCALE 1/4"=1'-0"




PROFILE VIEW OF MOORING FITTINGS AND SERVICE GATE LOCATION

SCALE 1/4"=1'-0"




SECTION VIEW 1-B

SCALE 3/4"=1'-0"




SECTION VIEW 1-A

SCALE 3/4"=1'-0"

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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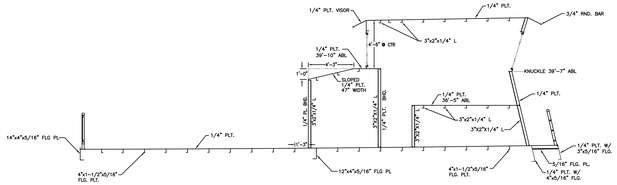
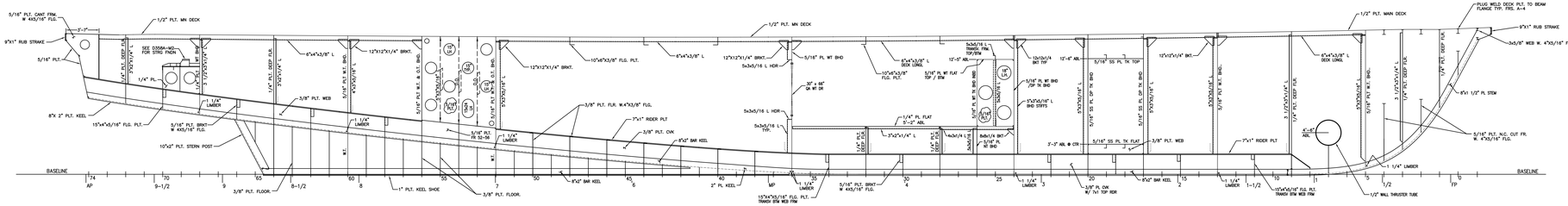
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

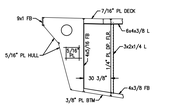
154 FT LOA FERRY VESSEL

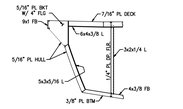
MOORING AND BULWARK ARRANGEMENT & DETAILS

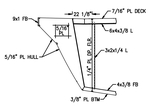
DRAWN BY JG, GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0" OR AS NOTED
DWG. NO. D358A-A12 ALT. A

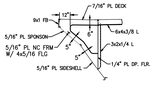


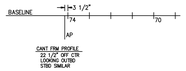



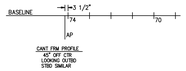



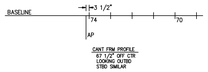



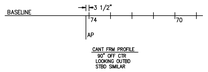

CANT FRM PROFILE
22 1/2" OFF CTR
1200 MLD. STRD
STBD SIMILAR




CANT FRM PROFILE
45° OFF CTR
1200 MLD. STRD
STBD SIMILAR




CANT FRM PROFILE
67 1/2° OFF CTR
1200 MLD. STRD
STBD SIMILAR




CANT FRM PROFILE
90° OFF CTR
1200 MLD. STRD
STBD SIMILAR

| ALT | DESCRIPTION | DATE | NAME |
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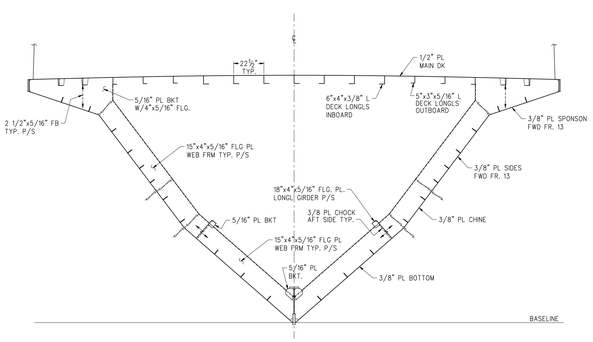
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

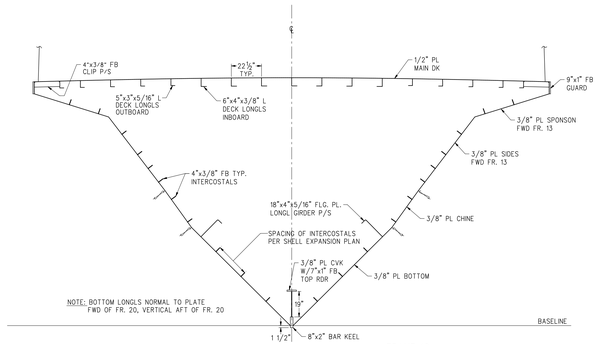
## STRUCTURAL PROFILE

DRAWN BY JG, GEG — DATE 12/2020
CHECKED BY GEG — DATE 5/2021
APPROVED BY — DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-S1 — ALT. A

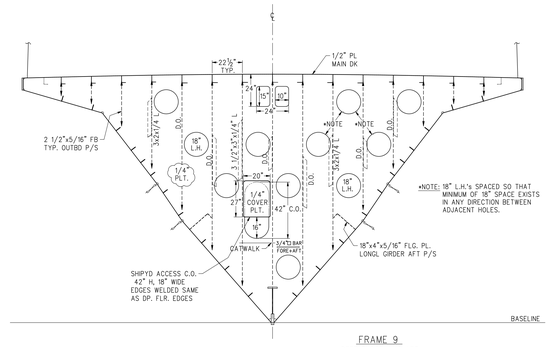
SHEET 1 OF 1



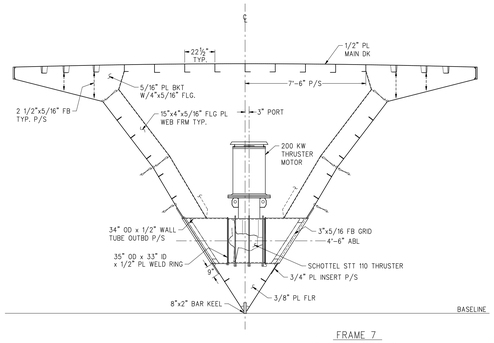

FRAME 11
WEB FRM, LKG AFT



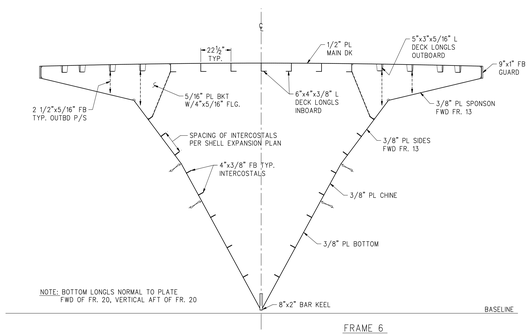

FRAME 10
INTERMEDIATE FRM, LKG AFT



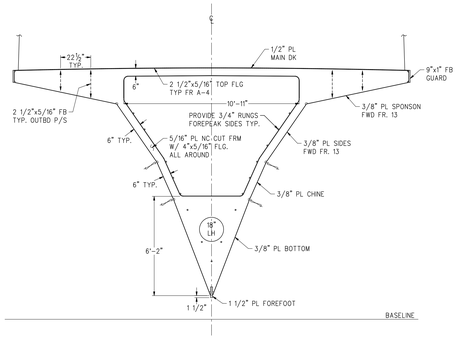

FRAME 9
DEEP FLOOR, LKG AFT



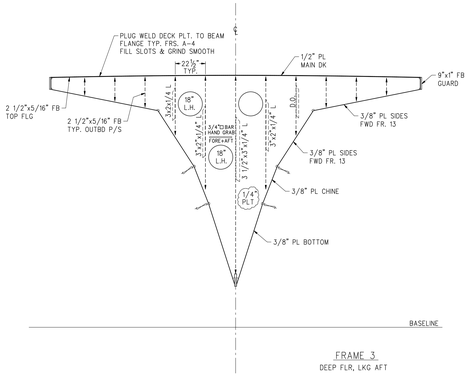

FRAME 7
THRUSTER WEB FRAME, LKG AFT



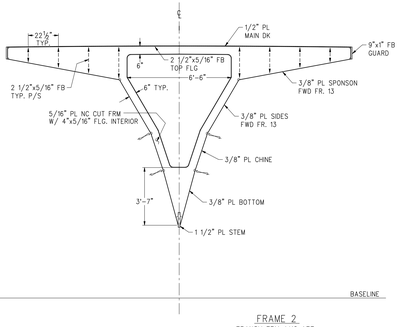

FRAME 6
INTERMEDIATE FRM, LKG AFT



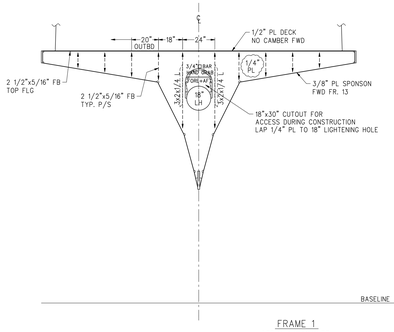

FRAME 4
TRANSV FRM, LKG AFT



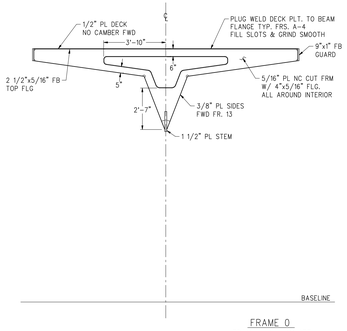

FRAME 3
DEEP FLR, LKG AFT



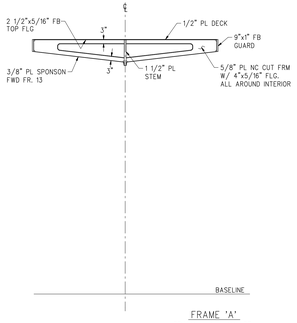

FRAME 2
TRANSV FRM, LKG AFT




FRAME 1
DEEP FLR, LKG AFT




FRAME 0
TRANSV FRM, LKG AFT




FRAME 'A'
TRANSV FRM, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND.

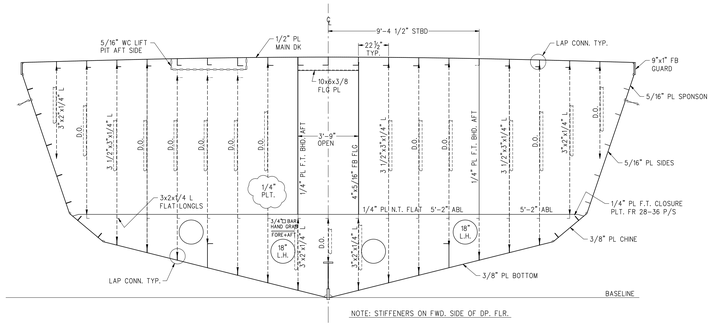
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

## CONSTRUCTION SECTIONS

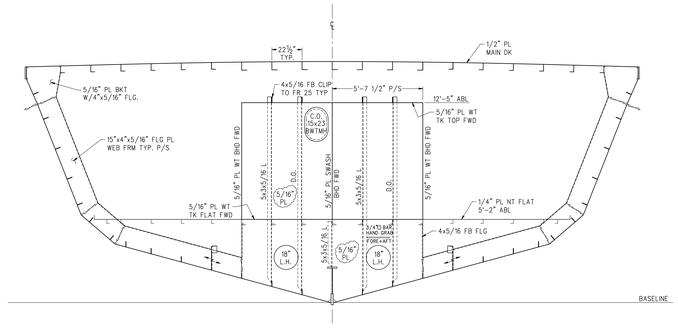
## FRS. 0,1,2,3,4,6,7,9,10,11

| | |
|---|---|
| DRAWN BY MBM,JG,GEG | DATE 12/2020 |
| CHECKED BY GEG | DATE 5/2021 |
| APPROVED BY | DATE |
| SCALE 3/8" - 1'-0" | |
| DWG. NO. D358A-S2-1 | ALT. A |

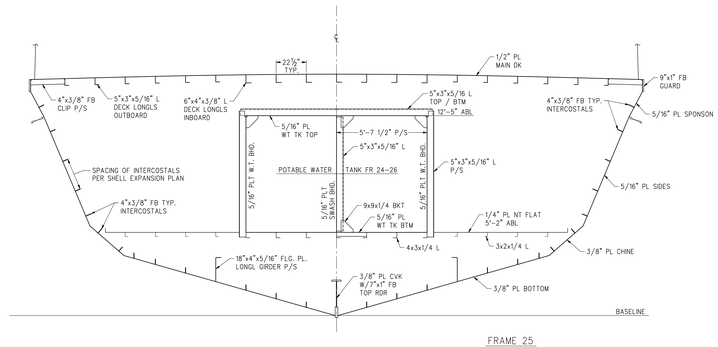



NOTE: STIFFENERS ON FWD. SIDE OF DP. FLR.

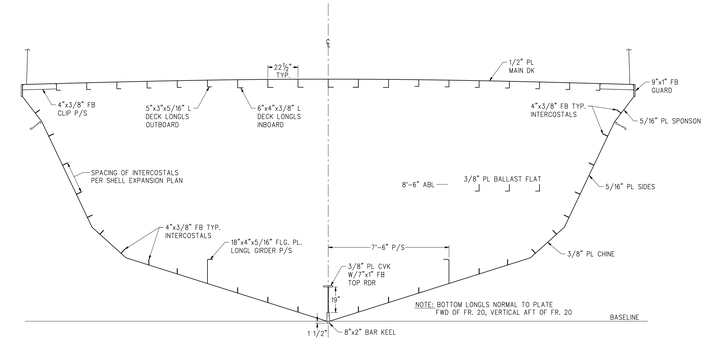
FRAME 28
DEEP FLR, LKG FWD



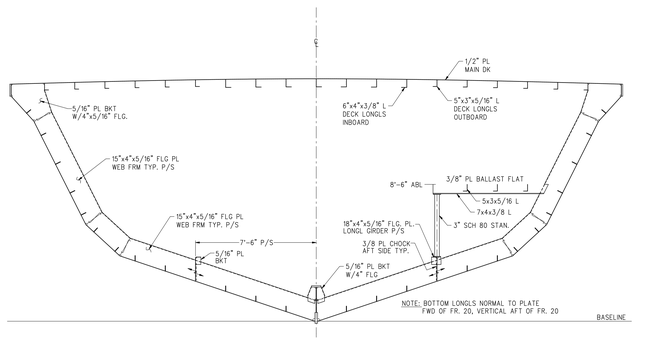

FRAME 26
WEB FRM, DP TK BHD
LKG AFT



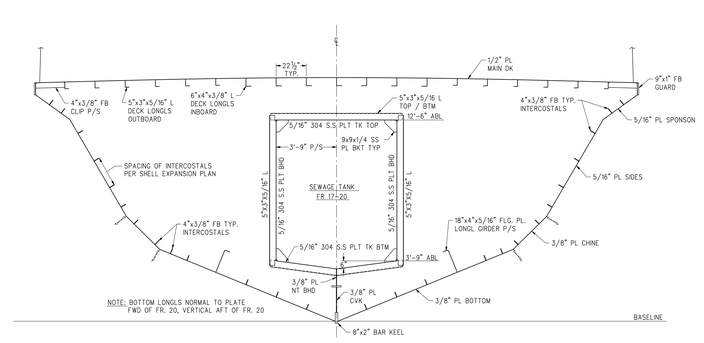

FRAME 25
INTERMEDIATE FRM, LKG AFT



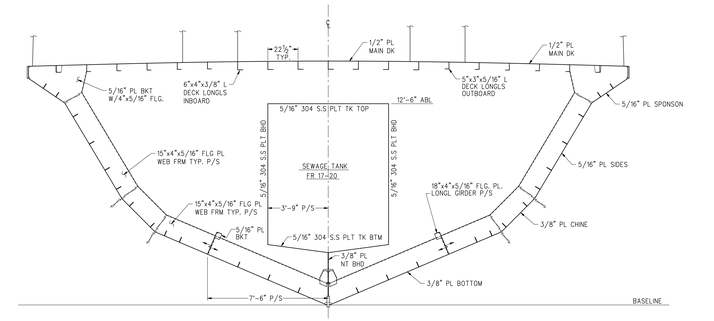

FRAME 23
INTERMEDIATE FRM, LKG AFT



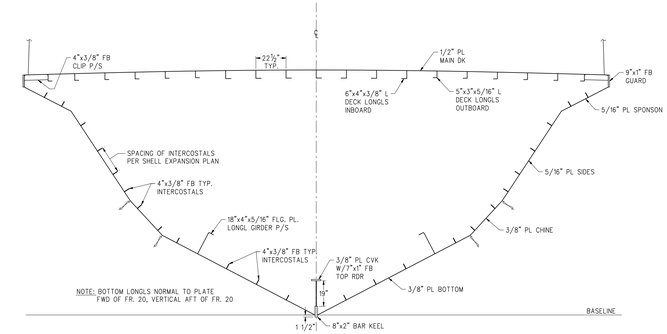

FRAME 22
WEB FRM, LKG AFT



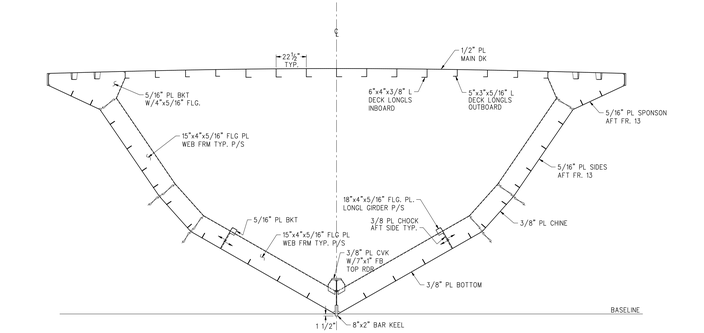

FRAME 19
INTERMEDIATE FRM, LKG AFT
FRAME 18 SMLAR




FRAME 18 1/2
WEB FRM, LKG AFT




FRAME 16
INTERMEDIATE FRM, LKG AFT




FRAME 15
WEB FRAME, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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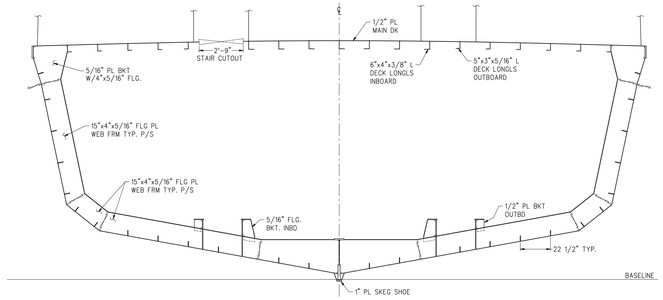
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

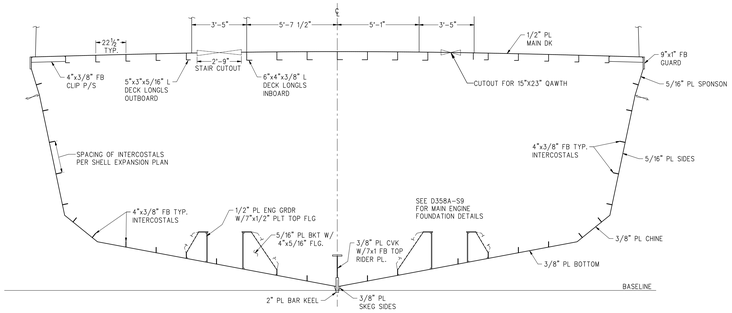
## CONSTRUCTION SECTIONS

FRS. 15,16,18.5,19,22,23,25,28

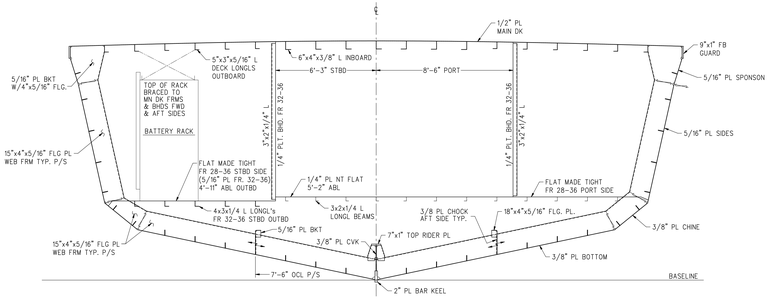
| | |
|---|---|
| **DRAWN BY** MBM,JG,GEG | **DATE** 12/2020 |
| **CHECKED BY** GEG | **DATE** 5/2021 |
| **APPROVED BY** | **DATE** |
| **SCALE** 3/8" - 1'-0" | |
| **DWG. NO.** D358A-S2-2 | **ALT.** A |



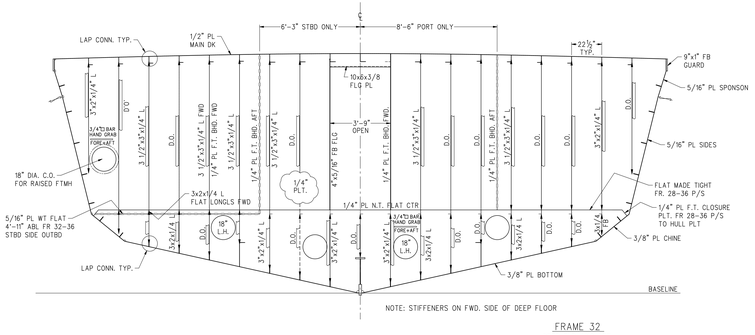

FRAME 38
WEB FRM, LKG AFT




FRAME 37
INTERMEDIATE FRM, LKG AFT

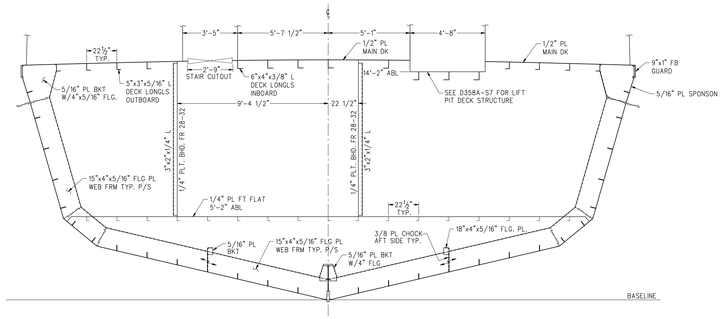



FRAME 34
WEB FRM, LKG AFT

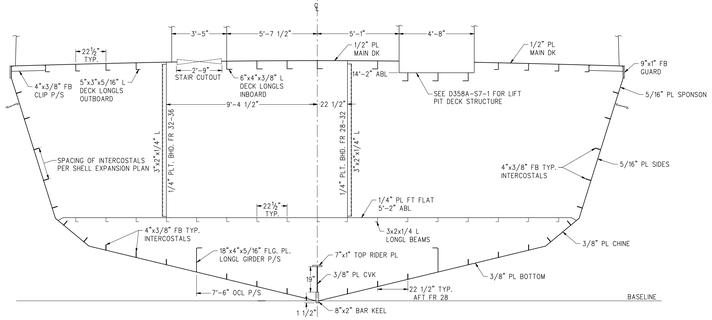



NOTE: STIFFENERS ON FWD. SIDE OF DEEP FLOOR

FRAME 32
DEEP FLR, LKG AFT




FRAME 30
WEB FRM, LKG AFT




FRAME 29
INTERMEDIATE FRM, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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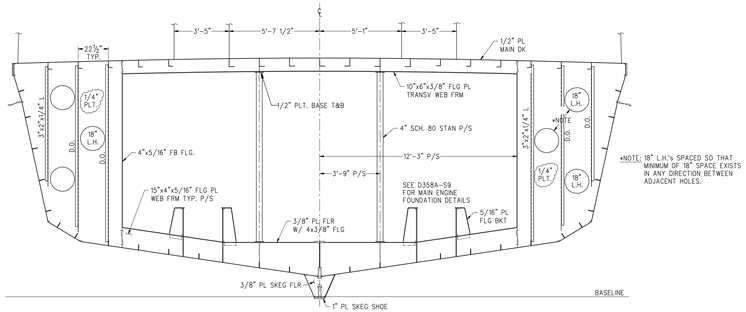
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS — MARINE ENGINEERS
100 GROSSMAN DR. — BRAINTREE, MA 02184

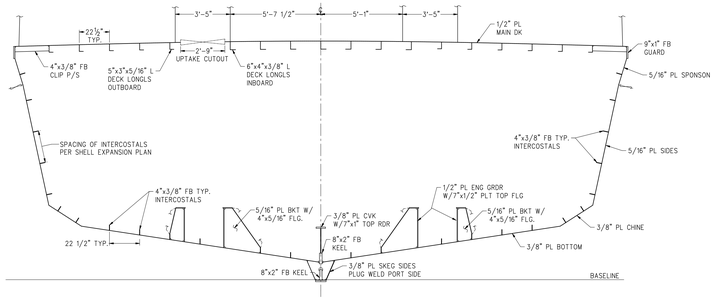
154 FT LOA FERRY VESSEL

CONSTRUCTION SECTIONS
FRS. 29,30,32,34,37,38

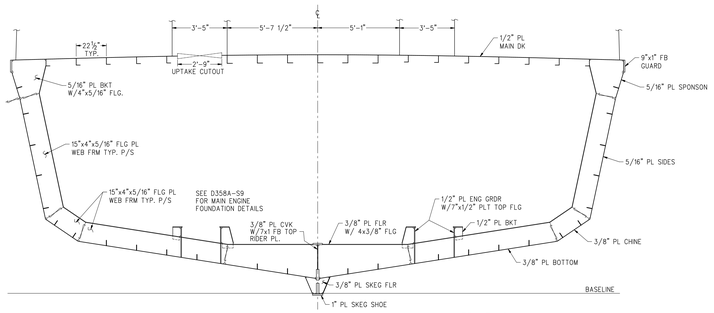
| | |
|---|---|
| **DRAWN BY** MBM,JG,GEG | **DATE** 12/2020 |
| **CHECKED BY** GEG | **DATE** 5/2021 |
| **APPROVED BY** | **DATE** |
| **SCALE** 3/8" - 1'-0" | |
| **DWG. NO.** D358A-S2-3 | **ALT.** A |



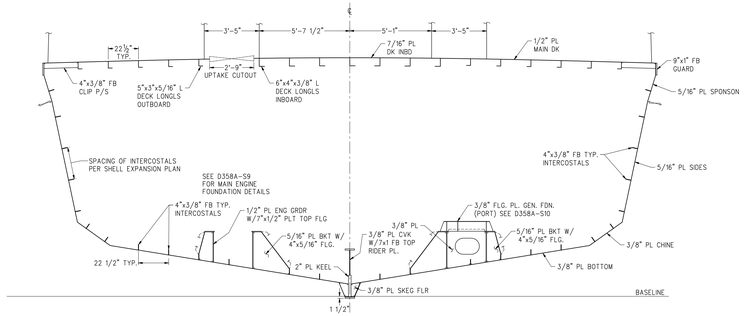

FRAME 44
DEEP FLR, LKG AFT



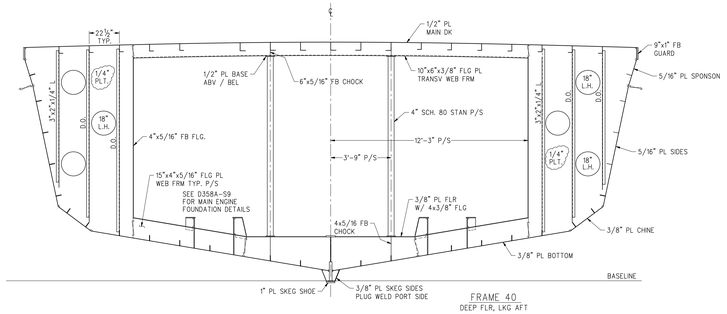

FRAME 43
INTERMEDIATE FRM, LKG AFT



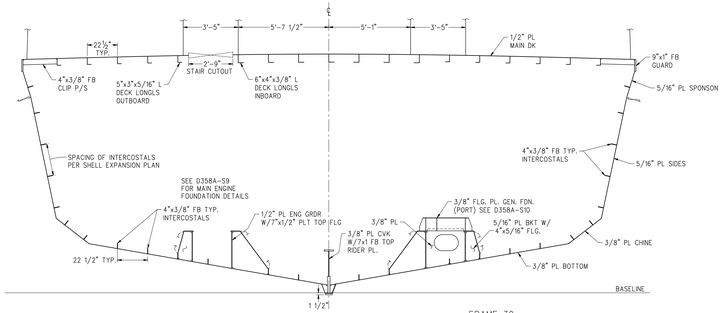

FRAME 42
WEB FRM, LKG AFT




FRAME 41
INTERMEDIATE FRM, LKG AFT




FRAME 40
DEEP FLR, LKG AFT




FRAME 39
INTERMEDIATE FRM, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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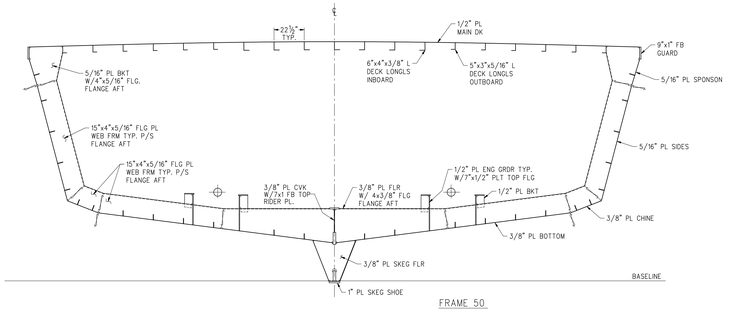
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS — MARINE ENGINEERS
100 GROSSMAN DR. — BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

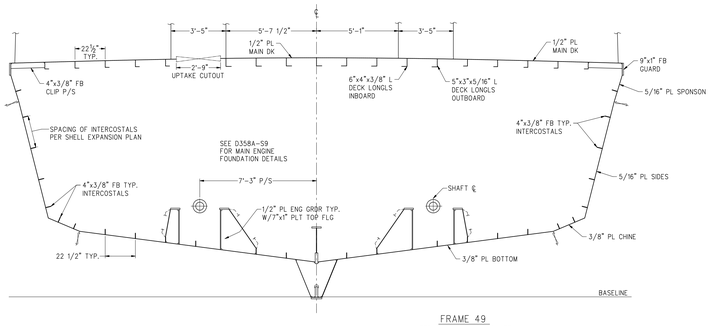
CONSTRUCTION SECTIONS

FRS. 39,40,41,42,43,44

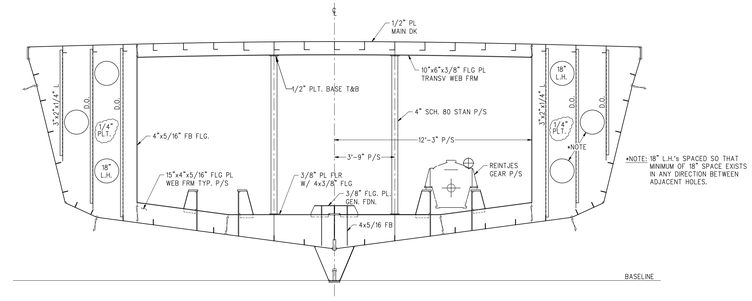
| | |
|---|---|
| **DRAWN BY** MBM,JG,GEG | **DATE** 12/2020 |
| **CHECKED BY** GEG | **DATE** 5/2021 |
| **APPROVED BY** | **DATE** |
| **SCALE** 3/8" - 1'-0" | |
| **DWG. NO.** D358A-S2-4 | **ALT.** A |



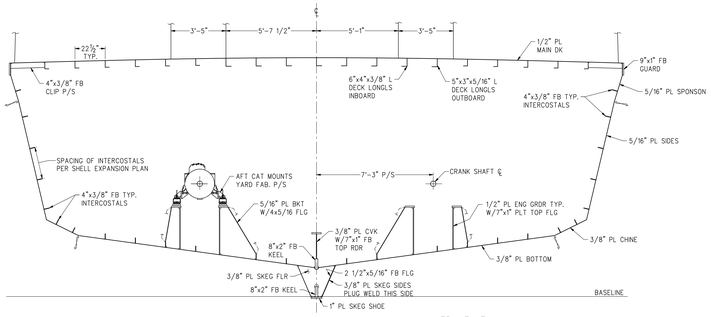

FRAME 50
WEB FRM, LKG AFT



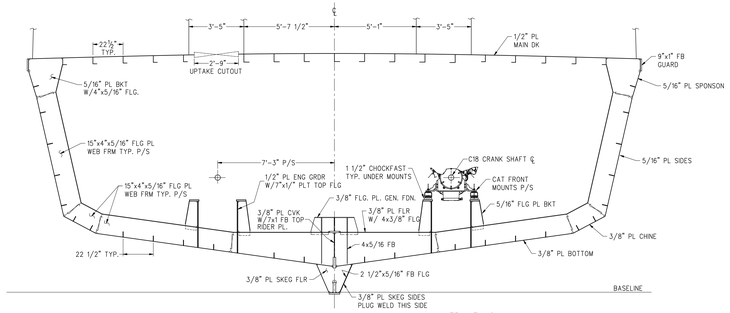

FRAME 49
INTERMEDIATE FRM, LKG AFT



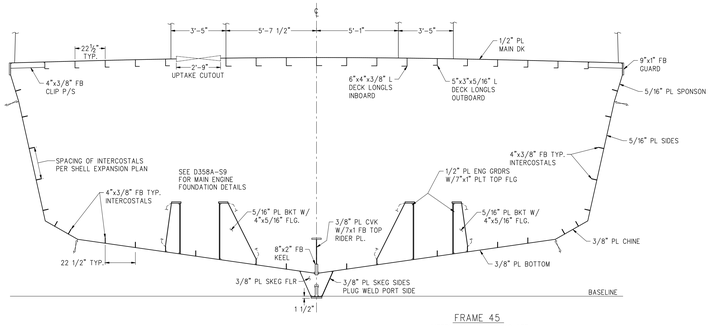

FRAME 48
DEEP FLR, LKG AFT




FRAME 47
INTERMEDIATE FRM, LKG AFT




FRAME 46
WEB FRM, LKG AFT




FRAME 45
INTERMEDIATE FRM, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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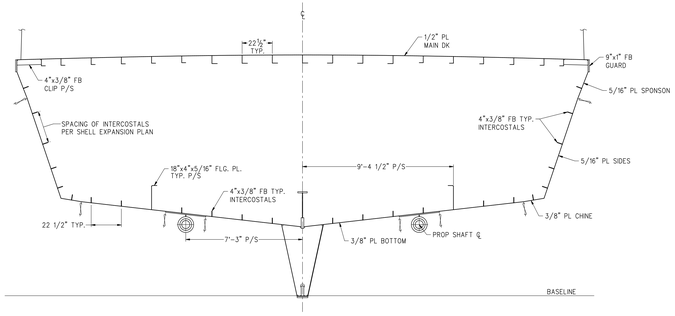
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DR. BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

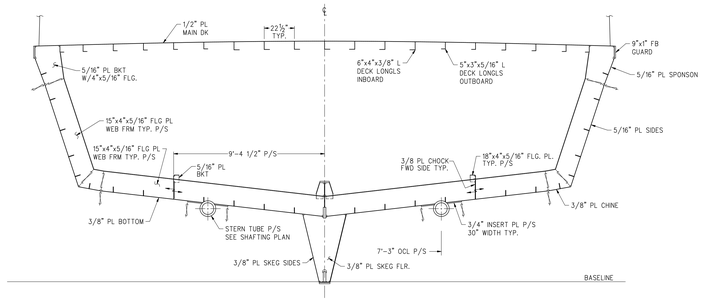
CONSTRUCTION SECTIONS

FRS, 45,46,47,48,49,50

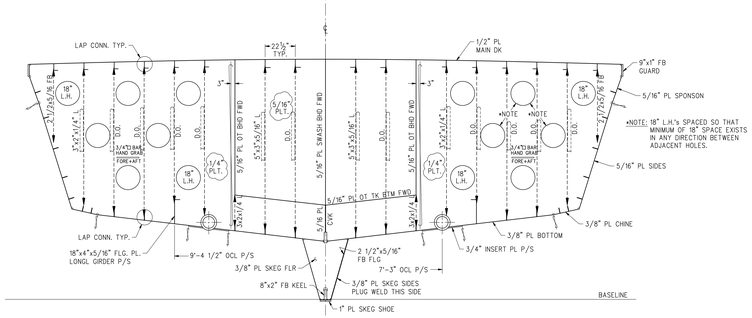
| | |
|---|---|
| DRAWN BY MBM,JG,GEG | DATE 12/2020 |
| CHECKED BY GEG | DATE 5/2021 |
| APPROVED BY | DATE |
| SCALE 3/8" - 1'-0" | |
| DWG. NO. D358A-S2-5 | ALT. A |



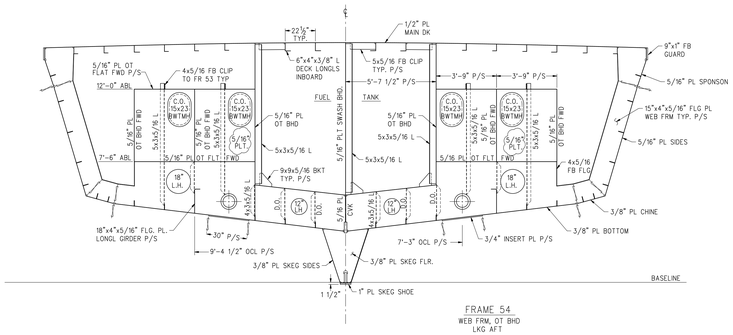

FRAME 59
INTERMEDIATE FRM, LKG AFT



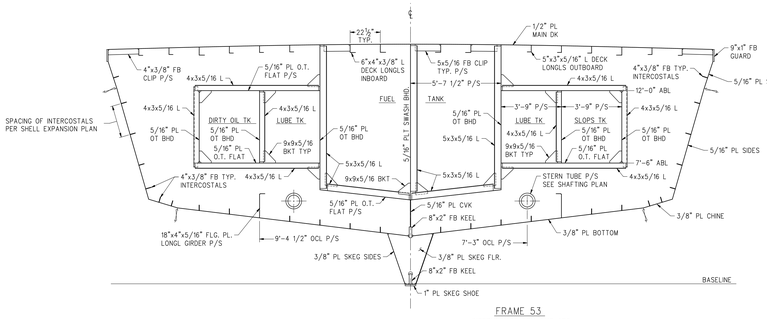

FRAME 58
WEB FRM, LKG AFT



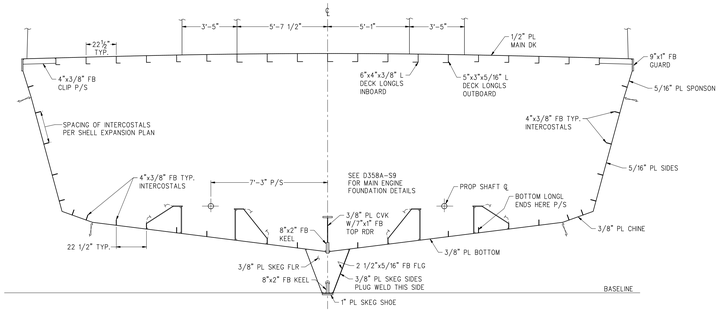

FRAME 56
DEEP FLR, OT BHD
LKG AFT




FRAME 54
WEB FRM, OT BHD
LKG AFT




FRAME 53
INTERMEDIATE FRM, LKG AFT




FRAME 51
INTERMEDIATE FRM, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND.

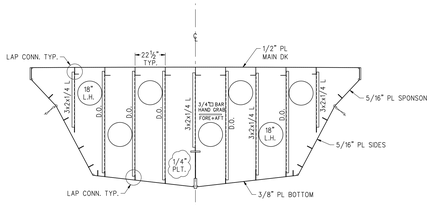
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS — MARINE ENGINEERS
100 GROSSMAN DR. — BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

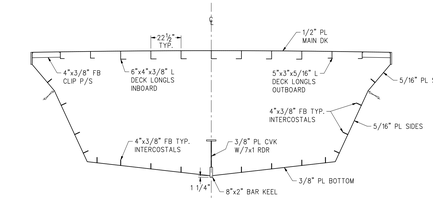
CONSTRUCTION SECTIONS

FRAMES 51,53,54,56,58,59

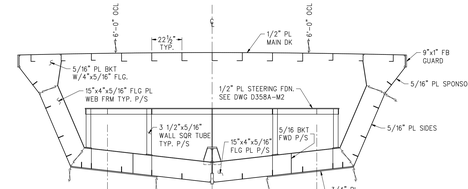
| | |
|---|---|
| **DRAWN BY** MBM,JG,GEG | **DATE** 12/2020 |
| **CHECKED BY** GEG | **DATE** 5/2021 |
| **APPROVED BY** | **DATE** |
| **SCALE** 3/8" - 1'-0" | |
| **DWG. NO.** D358A-S2-6 | **ALT.** A |



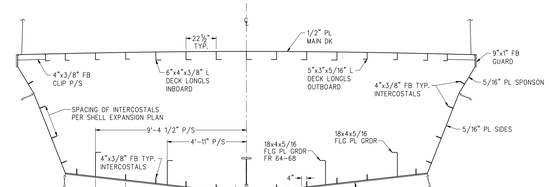

FRAME 72
DEEP FLR, LKG AFT



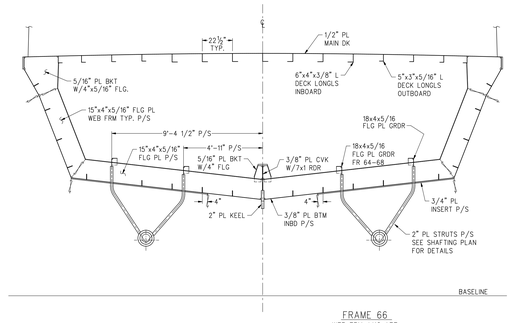

FRAME 71
FWD SIDE, LKG AFT



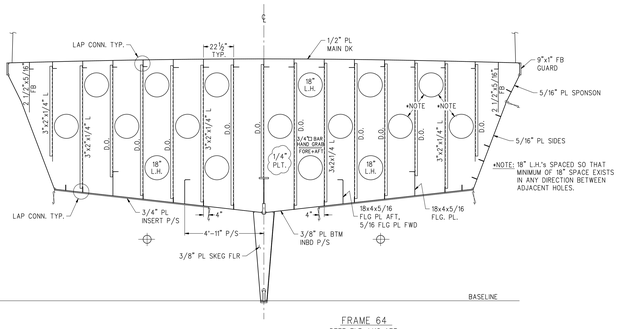

FRAME 70
WEB FRM, LKG AFT



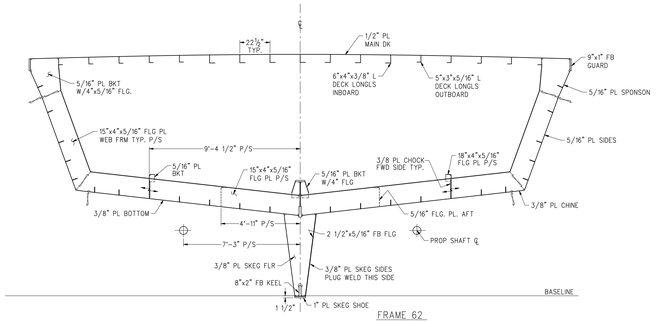

FRAME 67
INTERMEDIATE FRM, LKG AFT




FRAME 66
WEB FRM, LKG AFT




FRAME 64
DEEP FLR, LKG AFT




FRAME 62
WEB FRM, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

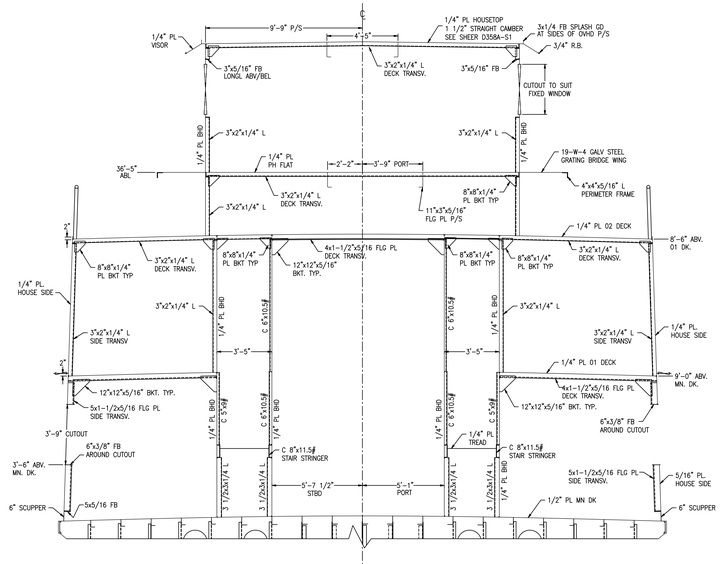
THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND.

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

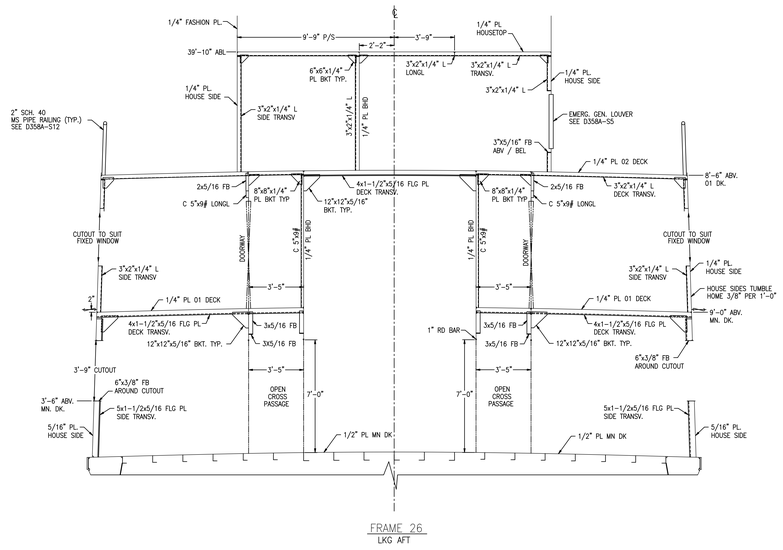
154 FT LOA FERRY VESSEL

CONSTRUCTION SECTIONS
FRAMES 62,64,66,67,70,71,72

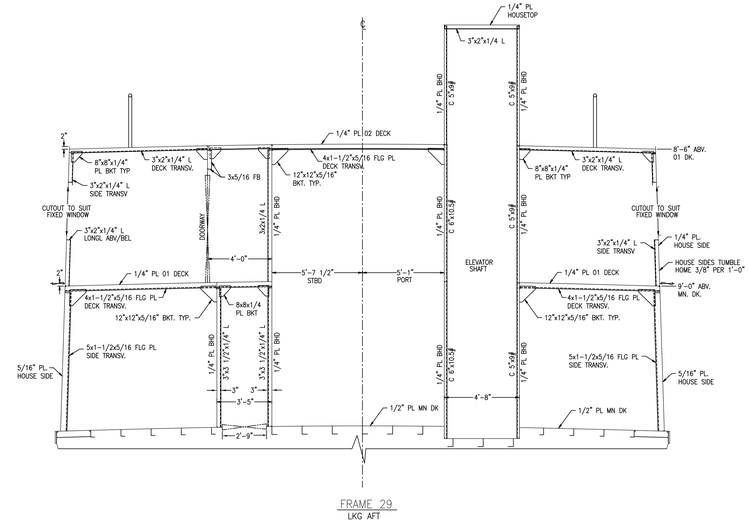
| | |
|---|---|
| **DRAWN BY** MBM,JG,GEG | **DATE** 12/2020 |
| **CHECKED BY** GEG | **DATE** 5/2021 |
| **APPROVED BY** | **DATE** |
| **SCALE** 3/8" - 1'-0" | |
| **DWG. NO.** D358A-S2-7 | **ALT.** A |



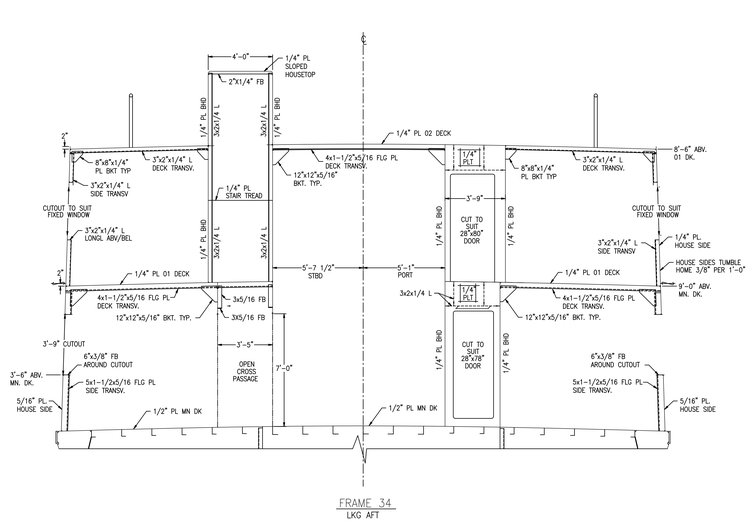

FRAME 20
LKG AFT




FRAME 26
LKG AFT




FRAME 29
LKG AFT




FRAME 34
LKG AFT

GENERAL NOTES

1. 01 AND 02 DECKS CURVED CAMBER TO MATCH MATCH MAIN DECK CAMBER. PILOTHOUSE TOP TO HAVE 1 1/2" STRAIGHT CAMBER.
2. TEMPLATE ALL WINDOW AND DOOR CUTOUTS FROM MANUFACTURERS DIMENSIONAL DATA.
3. SEE D358A-A7 FOR DOOR AND WINDOW SCHEDULE
4. PROVIDE RADII ON BULKHEAD CORNERS IN WAY OF PASSENGER AND CREW AREAS, 1 1/2" MIN.

NOTE: SEE DRAWINGS D358A-S2-1, S2-7 FOR CONSTRUCTION DETAILS BELOW MN DK. SEE ALSO D358A-S14 FOR MIDSHIP SECTION.

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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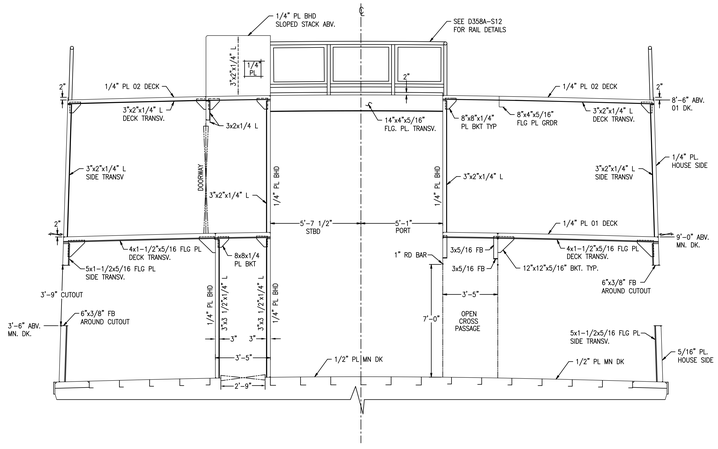
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

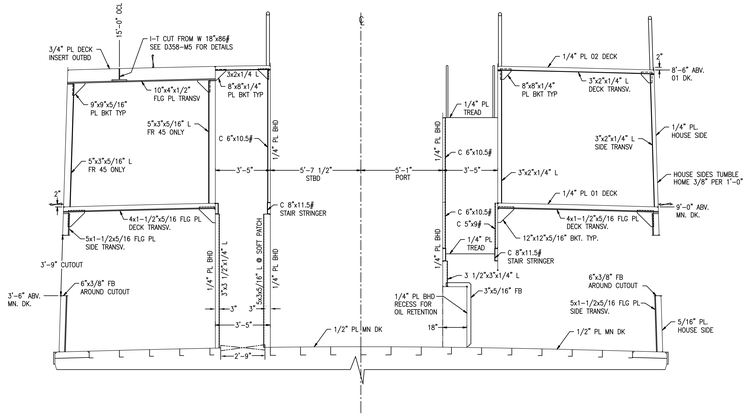
# 154 FT LOA FERRY VESSEL

## CONSTRUCTION SECTIONS ABOVE MAIN DECK

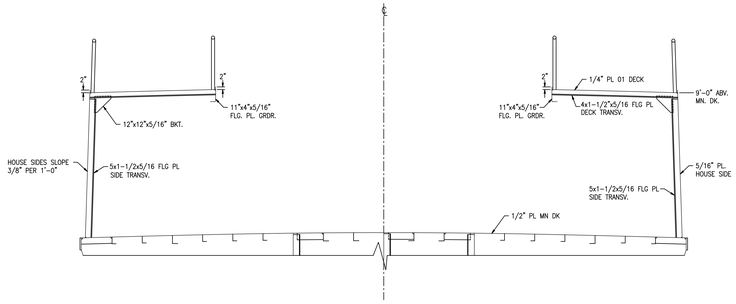
DRAWN BY KVC, GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-S3-1 ALT. A




FRAME 39
FWD SIDE, LKG AFT




FRAME 45
FWD SIDE, LKG AFT




FRAME 53
LKG AFT

GENERAL NOTES

1. 01 AND 02 DECKS CURVED CAMBER TO MATCH MATCH MAIN DECK CAMBER. PILOTHOUSE TOP TO HAVE 1 1/2" STRAIGHT CAMBER.
2. TEMPLATE ALL WINDOW AND DOOR CUTOUTS FROM MANUFACTURERS DIMENSIONAL DATA.
3. SEE D358A-A7 FOR DOOR AND WINDOW SCHEDULE
4. PROVIDE RADII ON BULKHEAD CORNERS IN WAY OF PASSENGER AND CREW AREAS, 1 1/2" MIN.

NOTE: SEE DRAWINGS D358A-S2-1, S2-7 FOR CONSTRUCTION DETAILS BELOW MN DK. SEE ALSO D358A-S14 FOR MIDSHIP SECTION.

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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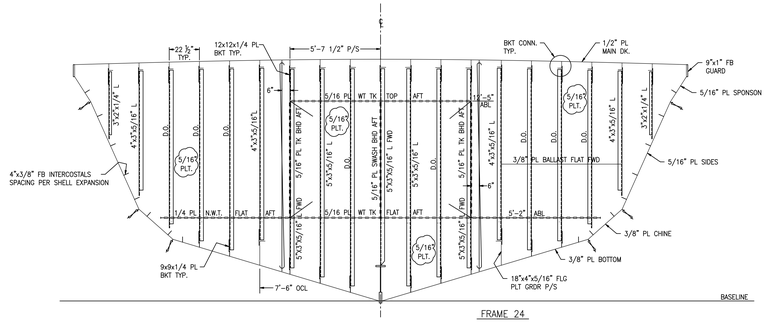
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

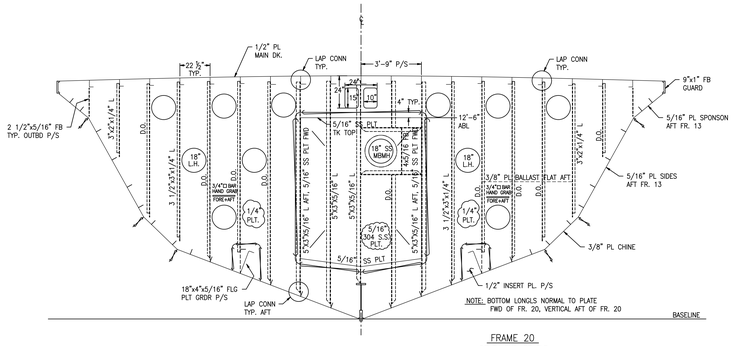
154 FT LOA FERRY VESSEL

CONSTRUCTION SECTIONS
ABOVE MAIN DECK

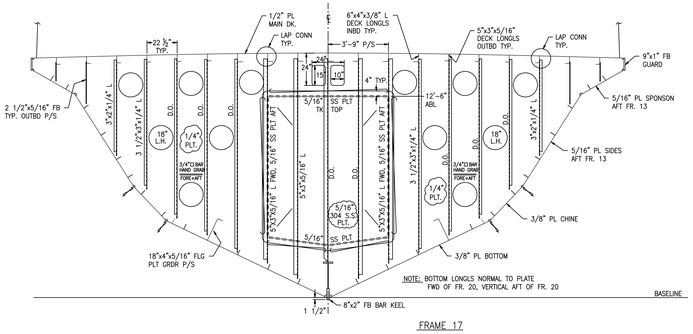
DRAWN BY KVC, GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-S3-2 ALT. A



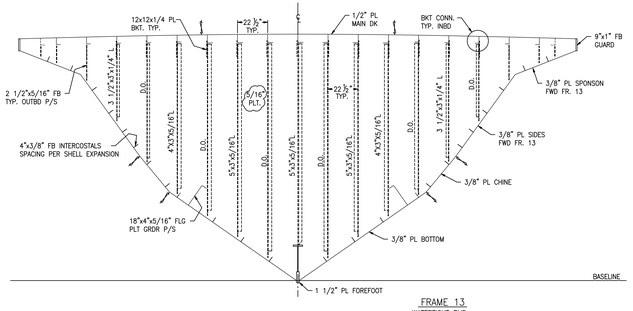

FRAME 24
WT BHD, DP TK BHD
LKG AFT



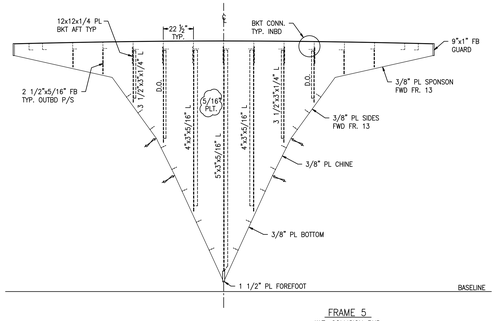

FRAME 20
DP TK BHD, DP FLR
LKG AFT




FRAME 17
DP TK BHD, DP FLR
LKG AFT




FRAME 13
WATERTIGHT BHD.
LKG. AFT




FRAME 5
W.T. COLLISION BHD.
LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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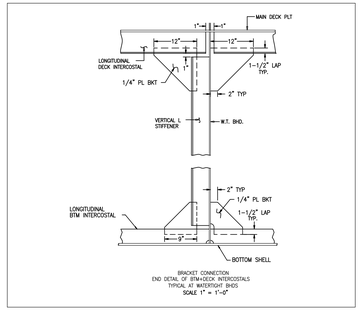
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

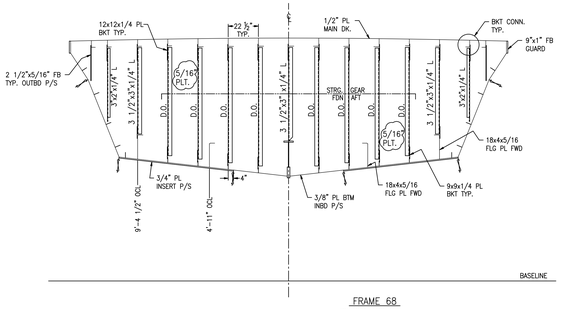
154 FT LOA FERRY VESSEL

TRANSVERSE BHD FRAMES
5,13,17,20,24

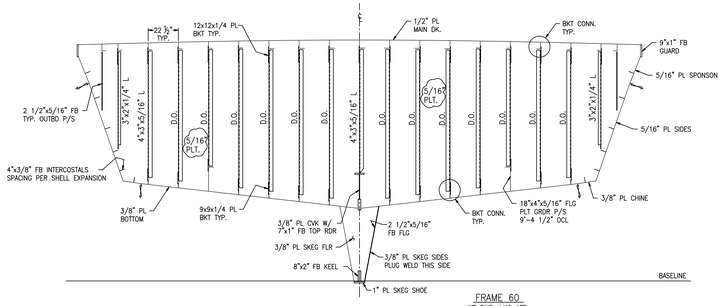
DRAWN BY TMH + GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-S4-1 ALT. A



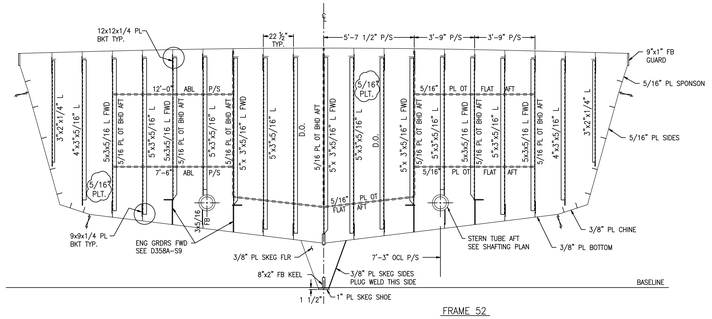

BRACKET CONNECTION
END DETAIL OF BTM+DECK INTERCOSTALS
TYPICAL AT WATERTIGHT BHDS
SCALE 1" = 1'-0"



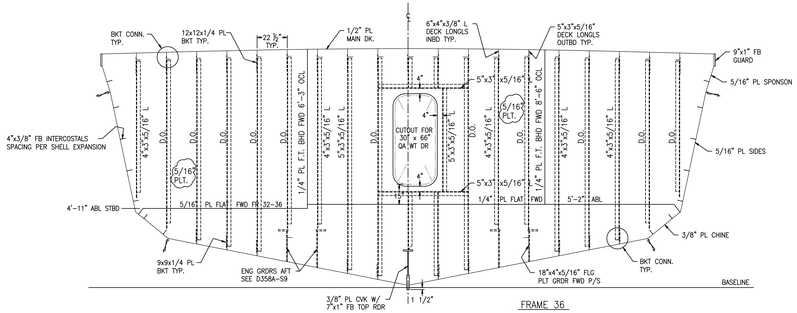

FRAME 68
WT BHD, LKG AFT




FRAME 60
WT BHD, LKG AFT




FRAME 52
WT BHD, DP TK BHD
LKG AFT




FRAME 36
WT BHD, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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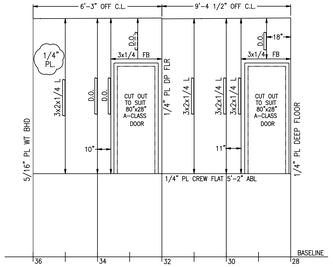
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

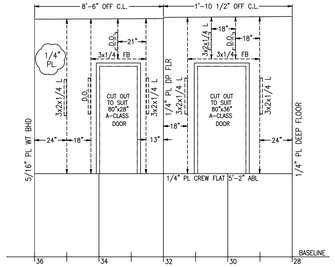
154 FT LOA FERRY VESSEL

TRANVERSE BHD FRAMES
36,52,60,68

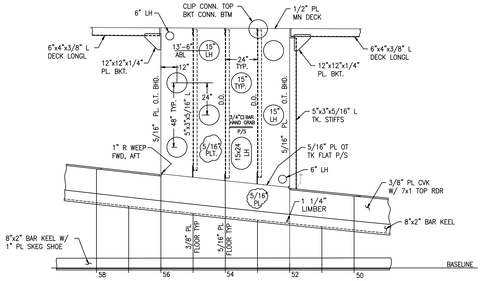
DRAWN BY TMH + GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-S4-2 ALT. A



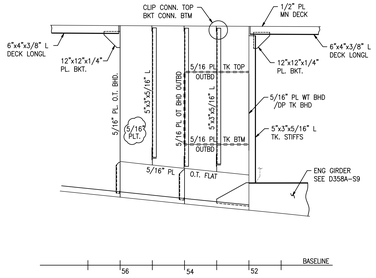

CREW SPACE DIVISION BHDS
STBD SIDE, OFFSET AS SHOWN
LOOKING INBD



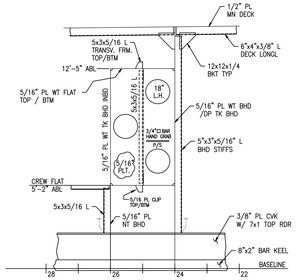

CREW SPACE DIVISION BHDS
PORT SIDE, OFFSET AS SHOWN
LOOKING OUTBD



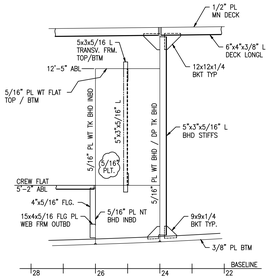

CENTERLINE FUEL OIL TANK SWASH BHD
LKG. TO PORT



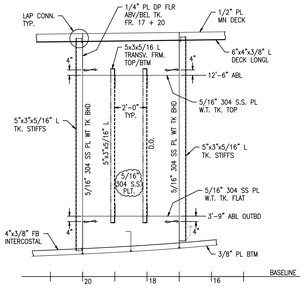

F.O. TANK BHD. 5'-7-1/2" OFF CTR
PORT BHD SHOWN, STBD BHD SIMILAR
LOOKING TO PORT




CENTERLINE F.W. TANK SWASH BHD.
LOOKING TO PORT




F.W. TANK BHD. 5'-7-1/2" OFF CTR
PORT BHD SHOWN, STBD BHD SIMILAR
LOOKING TO PORT




SEWAGE TANK BHD. 3'-9" OFF CTR.
PORT BHD SHOWN, STBD BHD SIMILAR
LOOKING TO PORT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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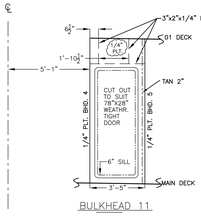
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

LONGITUDINAL BULKHEADS – HULL

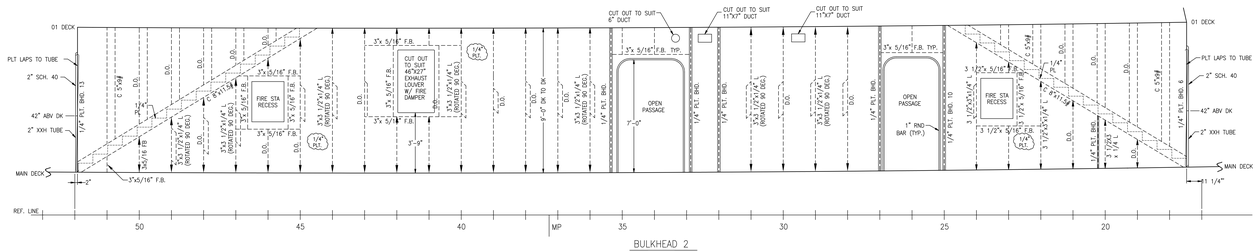
DRAWN BY TMH + GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-S4-3 ALT. A




BULKHEAD 11

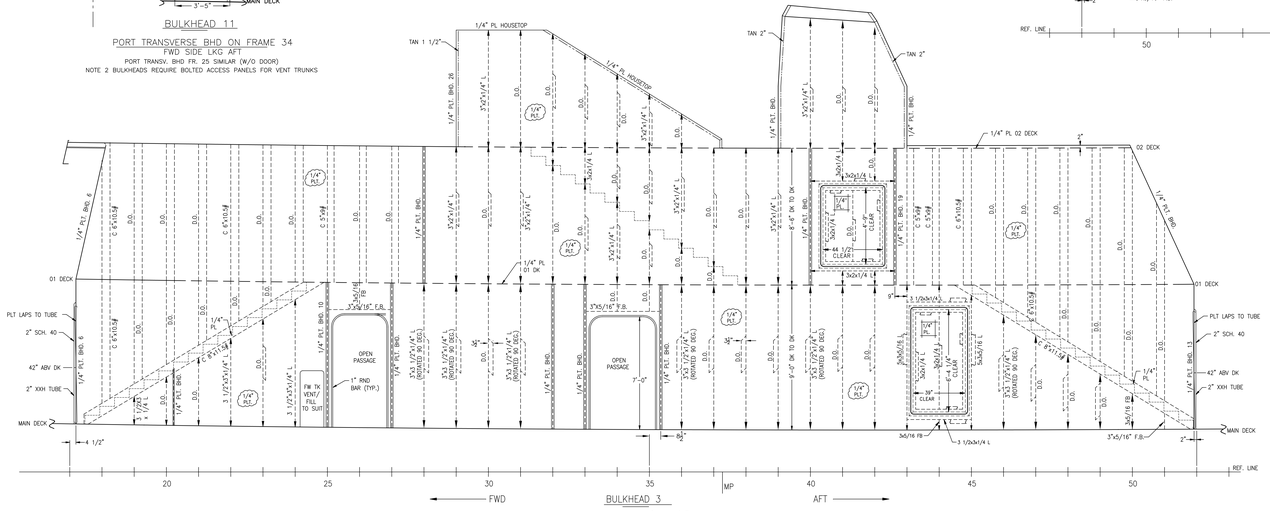
PORT TRANSVERSE BHD ON FRAME 34
FWD SIDE LKG AFT

PORT TRANSV. BHD FR. 25 SIMILAR (W/O DOOR)
NOTE 2 BULKHEADS REQUIRE BOLTED ACCESS PANELS FOR VENT TRUNKS



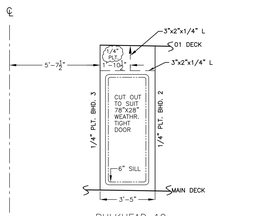

BULKHEAD 2

STBD. LONGITUDINAL BHD 9'-1/2" OFF CTR
LKG. INBD. (TO PORT)




BULKHEAD 3

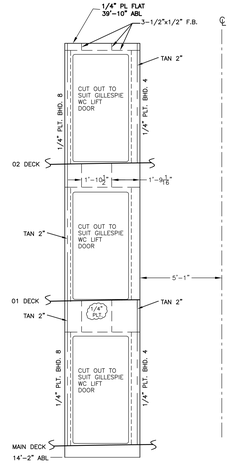
STBD. LONGITUDINAL BHD 5'-7 1/2" OFF CTR.
LKG. OUTBD. (TO STBD)




BULKHEAD 10

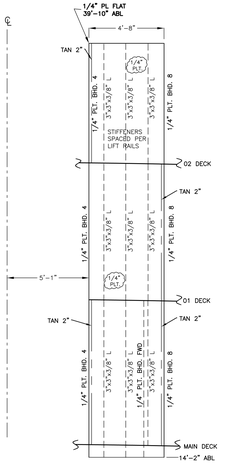
STBD. TRANSVERSE BHD ON FRAME 25
AFT SIDE LKG FWD

STBD. TRANSV. BHD. FR 27
AND STBD. TRANSV. BHD. 8 1/2" AFT OF FR. 35
SIMILAR
NOTE 2 BULKHEADS REQUIRE BOLTED ACCESS PANELS FOR VENT TRUNKS



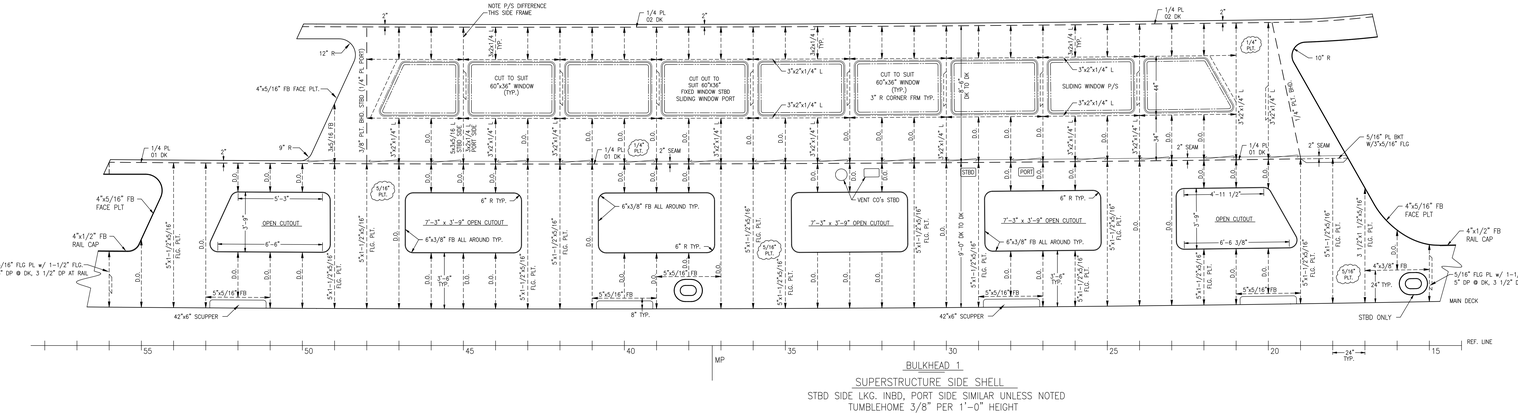

BULKHEAD 9

PORT TRANSVERSE BHD 8" AFT OF FRAME 31
AFT SIDE LKG FWD




BULKHEAD 7

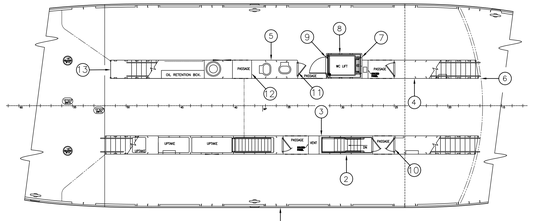
PORT TRANSVERSE BHD ON FRAME 28
FWD. SIDE LKG. AFT




BULKHEAD 1

SUPERSTRUCTURE SIDE SHELL

STBD SIDE LKG. INBD, PORT SIDE SIMILAR UNLESS NOTED
TUMBLEHOME 3/8" PER 1'-0" HEIGHT




MAIN DECK KEY PLAN
NOT TO SCALE

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

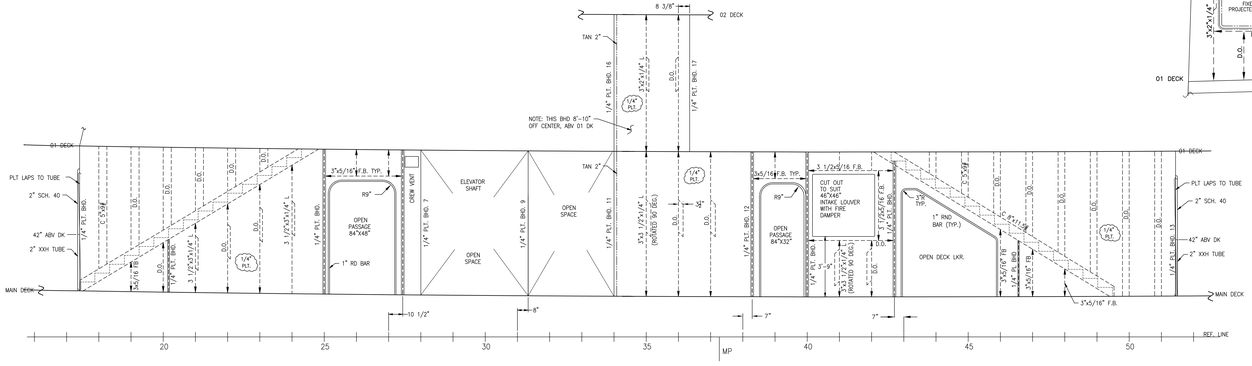
THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND

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

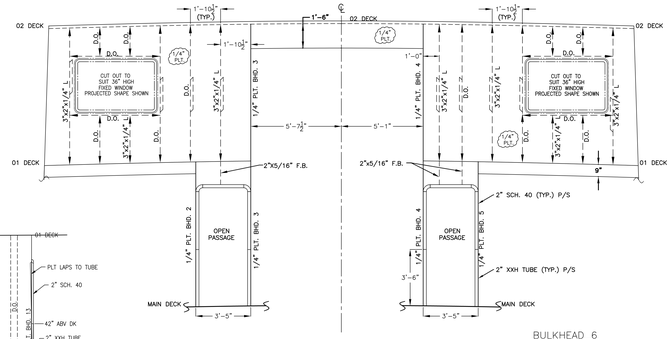
154 FT LOA FERRY VESSEL

TRANSVERSE & LONGITUDINAL BULKHEADS ABOVE MAIN DECK

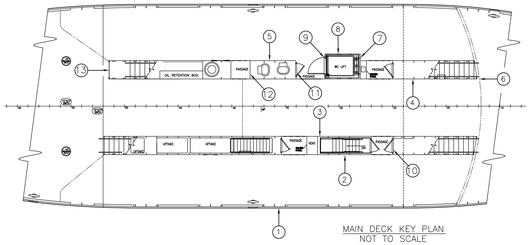
DRAWN BY TMH/JG, GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D-358A-S5-1 ALT. A

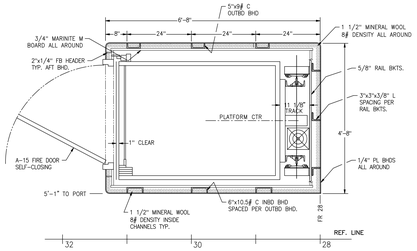



BULKHEAD 5
PORT LONGITUDINAL BHD 8'-6" OFF CTR
OUTBD. SIDE LKG. INBD.

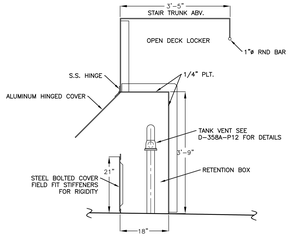


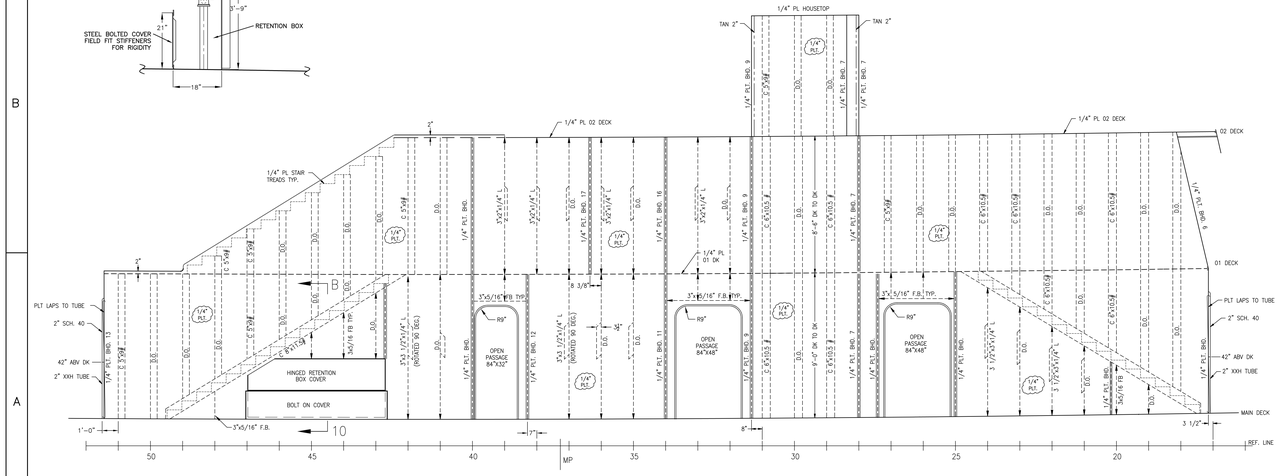

BULKHEAD 6
FORWARD SUPERSTRUCTURE BHD.
CURVED – PROJECTED VIEW SHOWN



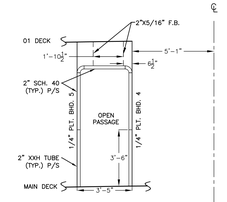




SECTION 6–C
WHLCHR LIFT TRUNK DETAIL
SCALE 3/4" = 1'-0"

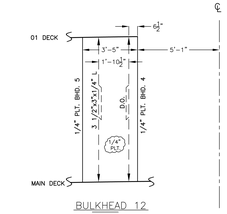


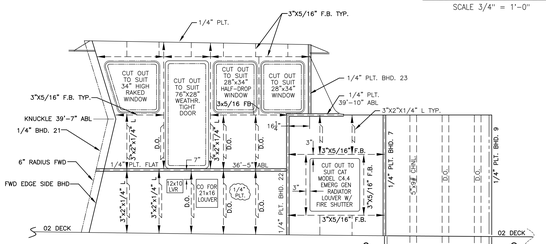

BULKHEAD 4
PORT LONGITUDINAL BHD 5'-1" OFF CL
LKG OUTBD. (TO PORT)



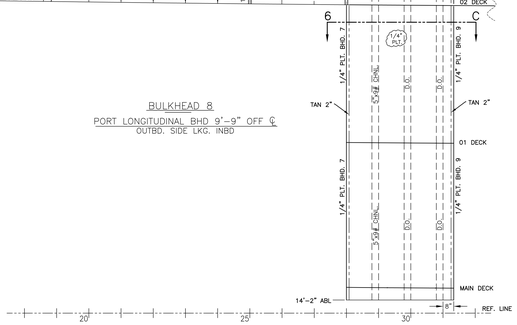

BULKHEAD 13
PORT TRANSVERSE BHD 10 1/2" AFT OF FRAME 51
AFT SIDE LKG FRWD
STBD. SIDE OPPOSITE & SIMILAR




BULKHEAD 12
PORT TRANSVERSE BHD 7" AFT FRAME 38
LKG FWD
PORT TRANSV. BHD. 7" FWD OF FR. 43,
AND PORT TRANSV. BHD. FR. 40 SIMILAR
NOTE 2 BULKHEADS REQUIRE BOLTED ACCESS PANELS FOR VENT TRUNKS




BULKHEAD 8
PORT LONGITUDINAL BHD 9'-9" OFF ℄
OUTBD. SIDE LKG. INBD




| ALT | DESCRIPTION | DATE | NAME |
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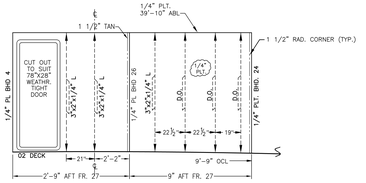
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

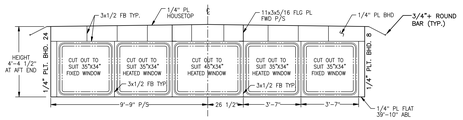
154 FT LOA FERRY VESSEL

TRANSVERSE & LONGITUDINAL BULKHEADS ABOVE MAIN DECK

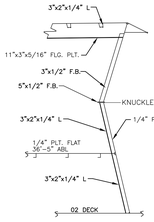
DRAWN BY TMH, GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-S5-2 ALT. A



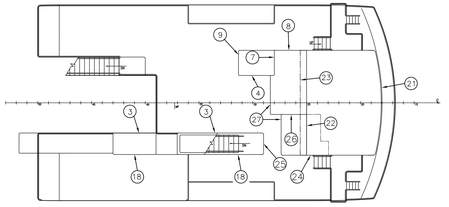

BULKHEAD 27
TRANSVERSE STEPPED BHD AFT OF FRAME 27
AFT SIDE LKG. FWD



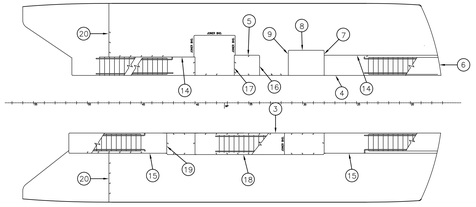

BULKHEAD 23
TRANSVERSE BHD 1'-2 1/4" AFT OF FRAME 25
FWD. SIDE LKG. AFT



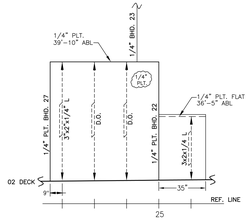

SECTION 13-D
26 1/2" OFF CTR



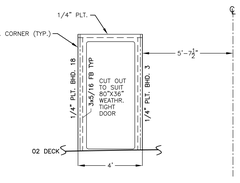

02 DECK KEY PLAN
NOT TO SCALE



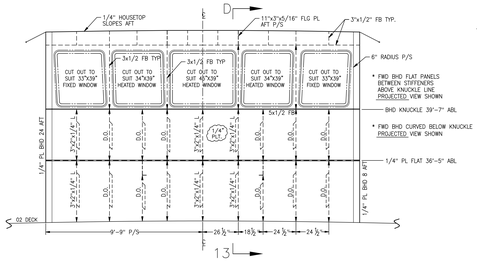

01 DECK KEY PLAN
NOT TO SCALE



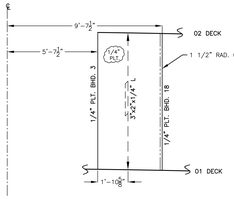

BULKHEAD 26
STBD LONGITUDINAL BHD 2'-2" OFF CTR.
OUTBD SIDE LKG INBD.



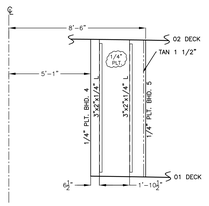

BULKHEAD 25
TRANSVERSE BHD FRAME 29
FWD SIDE LKG AFT



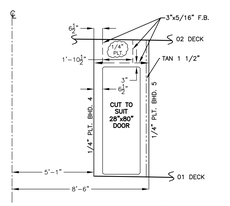

BULKHEAD 21
TRANSVERSE PILOTHOUSE FRONT BHD
FWD. SIDE LKG AFT.



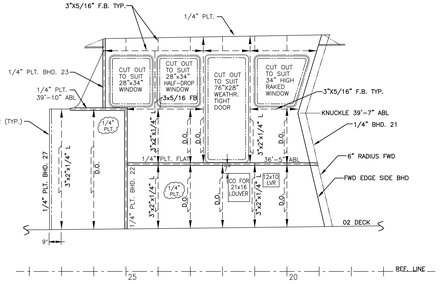

BULKHEADS 19
STBD. TRANSVERSE BHD 9" FWD. OF FRAME 43
AFT SIDE LKG FWD
BHD ON FR. 32, 40 & 9 7/8 " FWD. OF FR. 28 SIMILAR



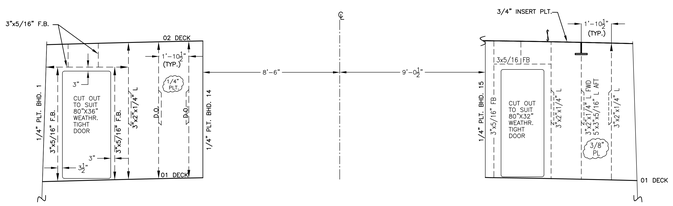

BULKHEAD 17
PORT TRANSVERSE BHD 8 3/8" AFT. OF FR. 36
FWD. SIDE LKG AFT



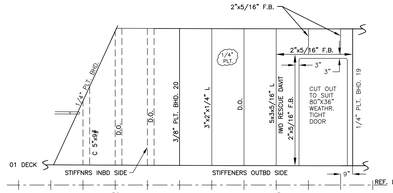

BULKHEAD 16
PORT TRANSVERSE BHD ON FRAME 34
FWD SIDE LKG AFT

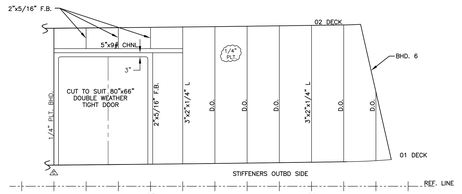



BULKHEAD 24
STBD. LONGITUDINAL BHD 9'-9" OFF ℄
OUTBD. SIDE LKG. INBD

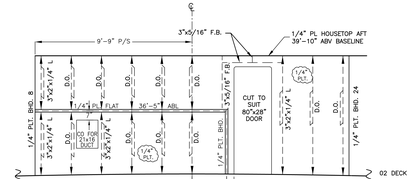



BULKHEADS 20
TRANSVERSE BHDS ON FRAME 48
AFT SIDE LKG FWD.

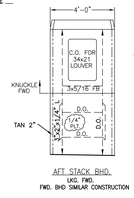


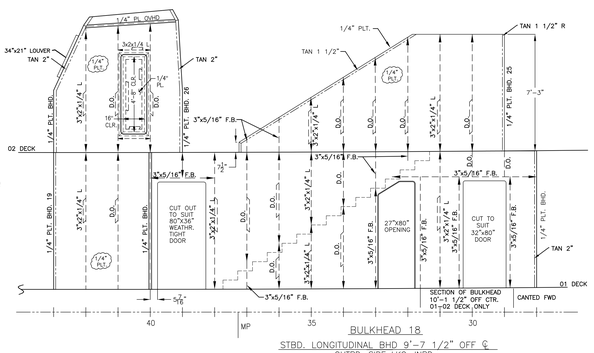




BULKHEADS 15
STBD. LONGITUDINAL BHD 9'-0 1/2" OFF ℄
OUTBD. SIDE LKG. INBD.

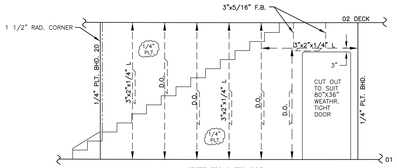


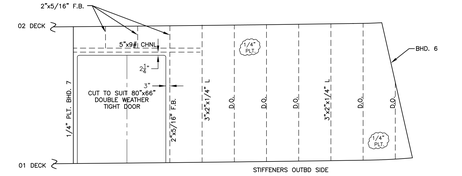

BULKHEAD 22
TRANSVERSE BHD ON FRAME 25
AFT SIDE LKG FRWD




BULKHEAD 18
STBD. LONGITUDINAL BHD 9'-7 1/2" OFF ℄
OUTBD. SIDE LKG. INBD.




BULKHEADS 14
PORT LONGITUDINAL BHDS. 8'-6" OFF ℄
INBD. SIDE LKG. OUTBD.

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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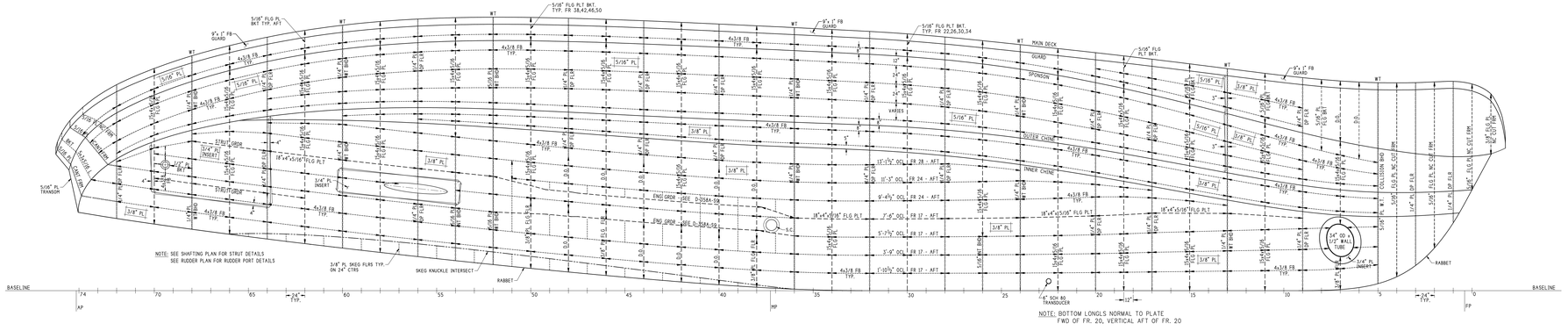
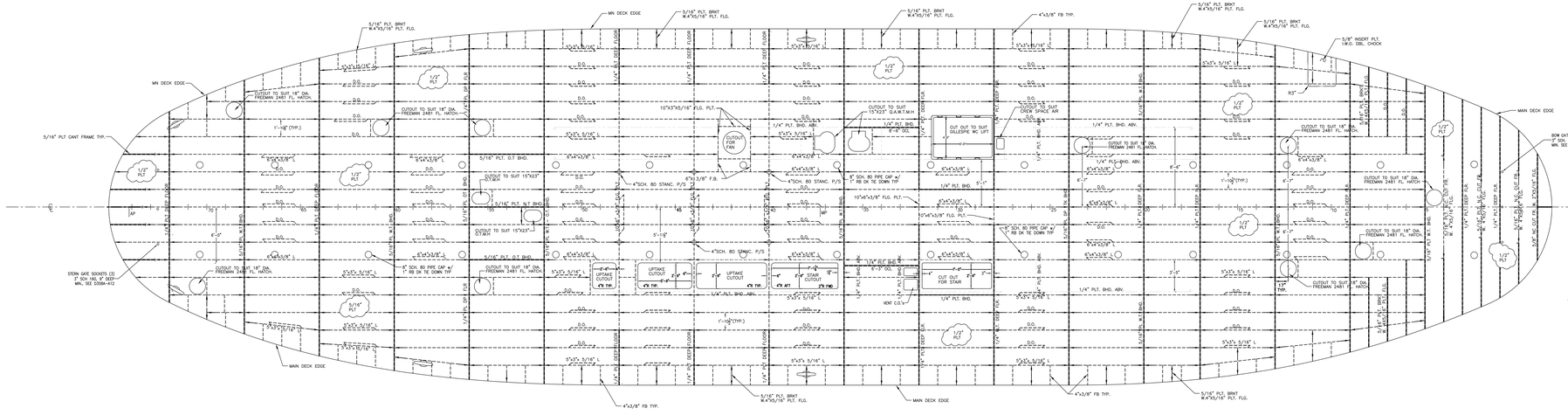
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

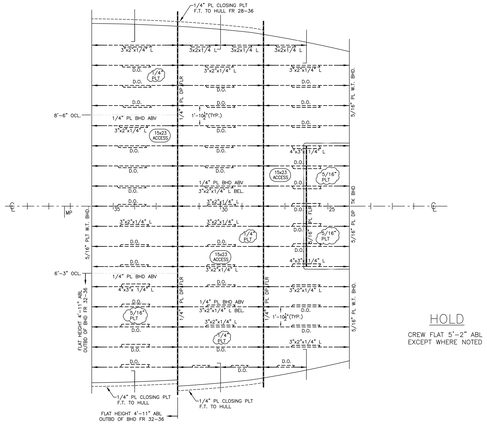
TRANSVERSE & LONGITUDINAL BULKHEADS ABOVE MAIN DECK

DRAWN BY TMH, GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-S5-3 ALT. A


5/16" FLG PL BKT TYP. AFT
8" L" FB GUARD
5/16" FLG PLT BKT. TYP. FR 38,42,46,50
8" L" FB GUARD
5/16" FLG PLT BKT. TYP. FR 22,26,30,34
MAIN DECK
GUARD
SPONSON
KNEE
OUTER CHINE
INNER CHINE
5/16" FLG PLT BKT.
8" L" FB GUARD
WT
4x3/8 FB TYP.
5/16" PL
3/8" PL
1/2" PL BKT
18"x4"x5/16" FLG PLT
3/8" PL INSERT
27 RUT GROVE
57 RUT GROOVE
ENG GROV SEE D-358A-S8
13'-1½" OCL FR 26 - AFT
11'-3" OCL FR 24 - AFT
9'-4½" OCL FR 24 - AFT
7'-0" OCL FR 37 - AFT
5'-7½" OCL FR 37 - AFT
3'-9" OCL FR 37 - AFT
1'-10½" OCL FR 37 - AFT
5/16" PL BKT
5/16" PL FLG
5/16" PL WT
5/16" PL BP
1/4" PL BP FLG
1/4" PL WT BKT
1/4" PL BP BKT
5/16" FLG PL NC CUT FRM
1/4" PL WT COLLISION BHD
5/16" PL WT COLLISION BHD
5/16" FLG PL NC CUT FRM
1/4" PL BP FLG
1/4" PL BP BKT
5/16" FLG PL NC CUT FRM
1/4" PL BP FLG
1/4" PL BP BKT
5/16" PL TRANSOM
5/16" PL TRANSOM
WT
SCARFED
SCARFED
GUTTER BAR
3/8" PL
3/8" PL
3/8" PL

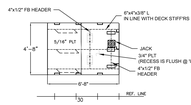



MAIN DECK



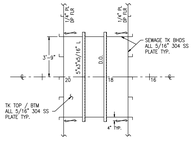

HOLD

CREW FLAT 5'-2" ABL
EXCEPT WHERE NOTED



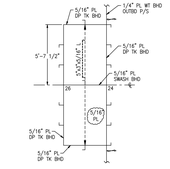

WC LIFT WELL RECESS

RECESS PLT 14'-2" ABL
PER MFG. REQUIREMENTS



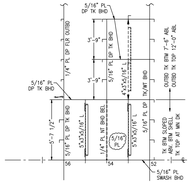

SEWAGE TANK TOP SCANTLINGS

TANK TOP 12'-4" ABL
TANK BTM SIMILAR CONSTRUCTION (3'-3" ABL @ CTR, 3'-8" ABL @ SIDE)




FRESH WATER TANK TOP SCANTLINGS

TANK TOP 12'-3" ABL




FUEL OIL, DIRTY OIL, & BILGE SLOPS TANK BOTTOM SCANTLINGS

STARBOARD SIDE SIMILAR

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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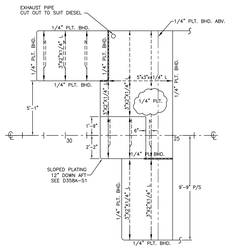
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

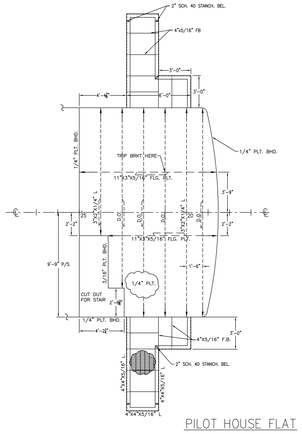
## DECK SCANTLINGS
## HOLD & MAIN DECK

DRAWN BY MBM, GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-S7-1 ALT. A



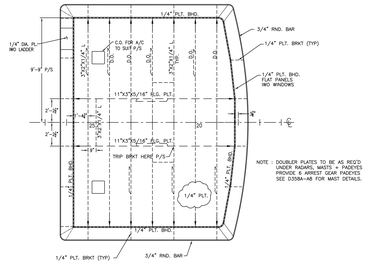

AFT 03 DECK HOUSE TOP

- 39'-10" ABL
- NO CAMBER



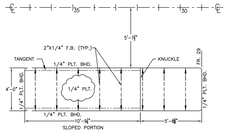

PILOT HOUSE FLAT

- 36'-5" ABL
- NO CAMBER

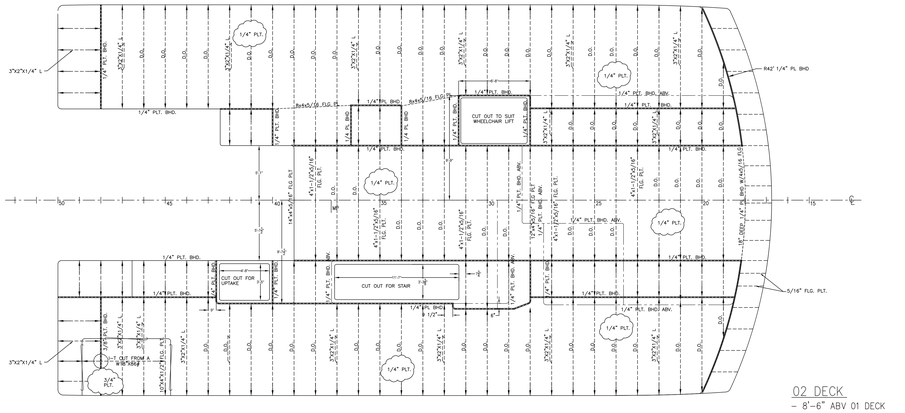



PILOT HOUSE TOP

- SEE STR. PROFILE FOR SLOPE AFT
- 1 1/2" STRAIGHT CAMBER

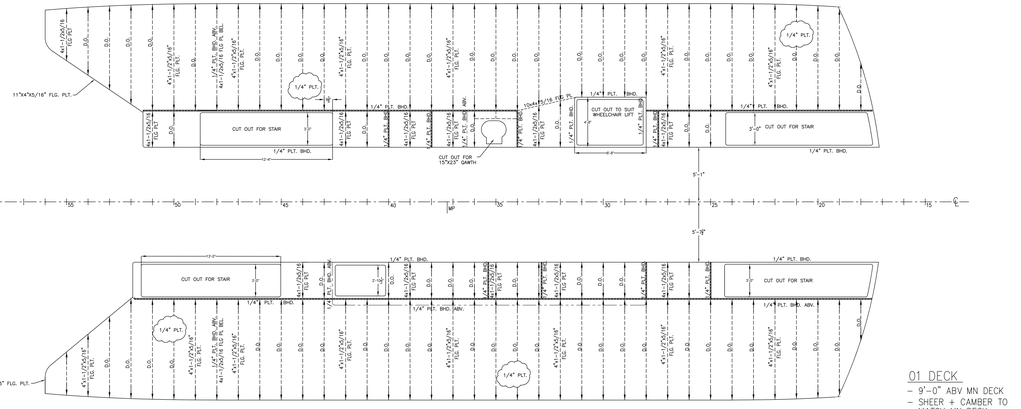



STBD. 02 DECK COMPANIONWAY TOP




02 DECK

- 8'-6" ABV 01 DECK
- SHEER + CAMBER TO MATCH 01 DECK




01 DECK

- 9'-0" ABV MN DECK
- SHEER + CAMBER TO MATCH MN DECK

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

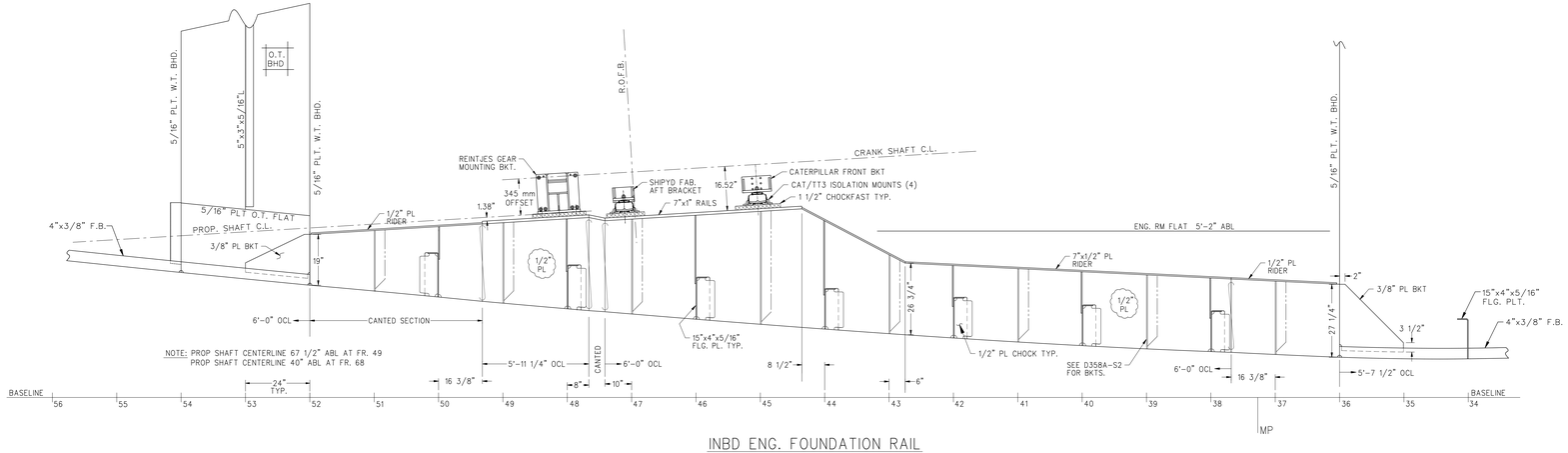
THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND

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

154 FT LOA FERRY VESSEL

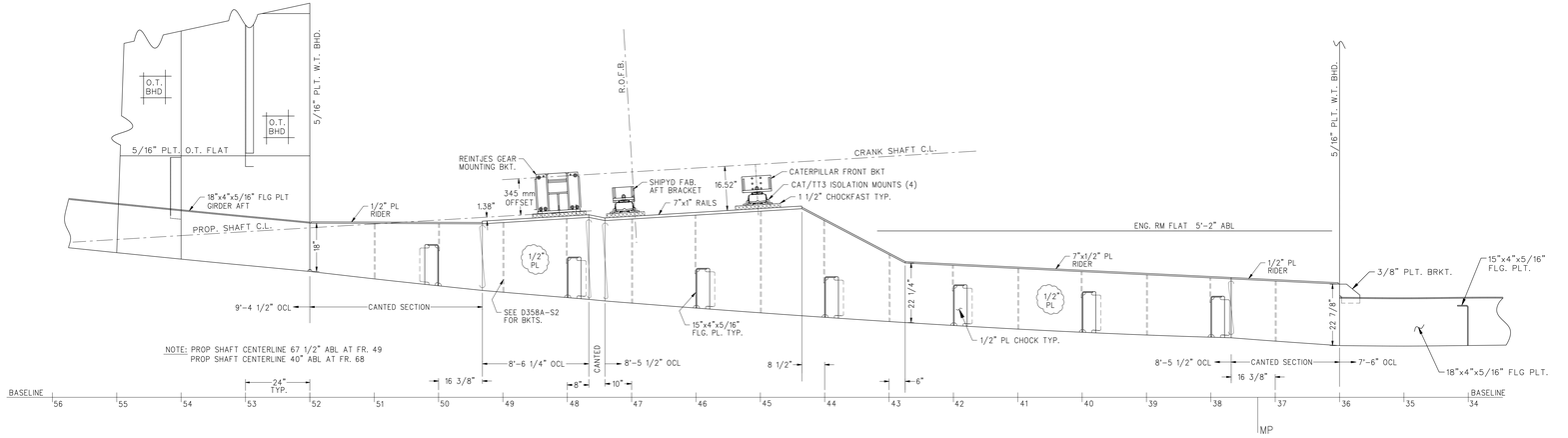
DECK SCANTLINGS 01,02 DECKS & PILOTHOUSE FLAT AND TOP

DRAWN BY JG, GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-S7-2 ALT. A




## INBD ENG. FOUNDATION RAIL

PORT SIDE – LOOKING OUTBD
OFFSET VARIES – SEE SHEET 2




## OUTBD ENG. FOUNDATION RAIL

PORT SIDE – LOOKING OUTBD
OFFSET VARIES – SEE SHEET 2

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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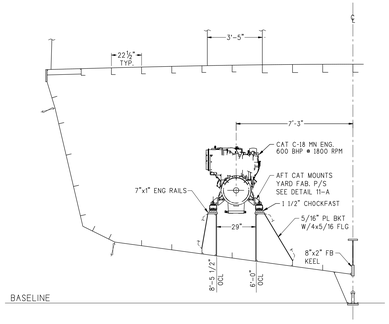
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS — MARINE ENGINEERS
100 GROSSMAN DR. — BRAINTREE, MA 02184

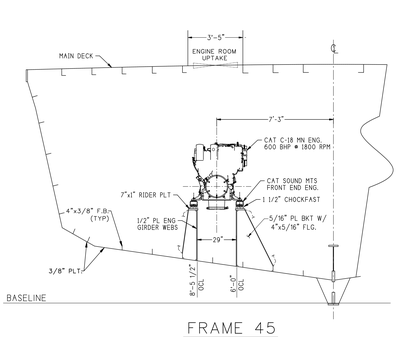
# 154 FT LOA FERRY VESSEL

## MAIN ENGINE FOUNDATIONS ARRANGEMENTS & DETAILS

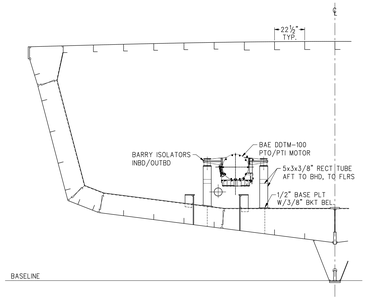
**DRAWN BY** ZS,GEG — **DATE** 12/2020
**CHECKED BY** GEG — **DATE** 5/2021
**APPROVED BY** — **DATE**
**SCALE** 3/4" = 1'-0"
**DWG. NO.** D358A-S9-1 — **ALT.** A



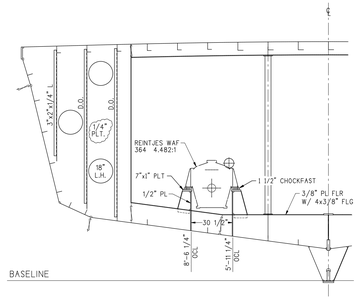

FRAME 47
MN ENG AFT MOUNTS
STBD SIDE, LKG AFT



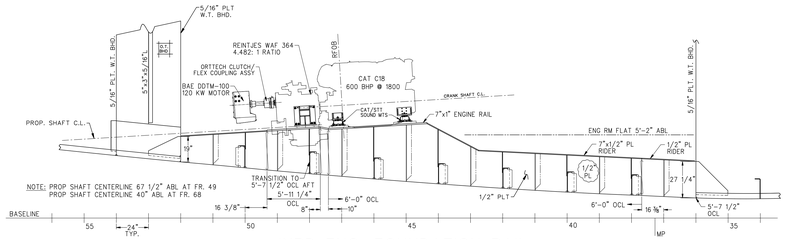

FRAME 45
MN ENG FWD MOUNTS
STBD SIDE, LKG AFT



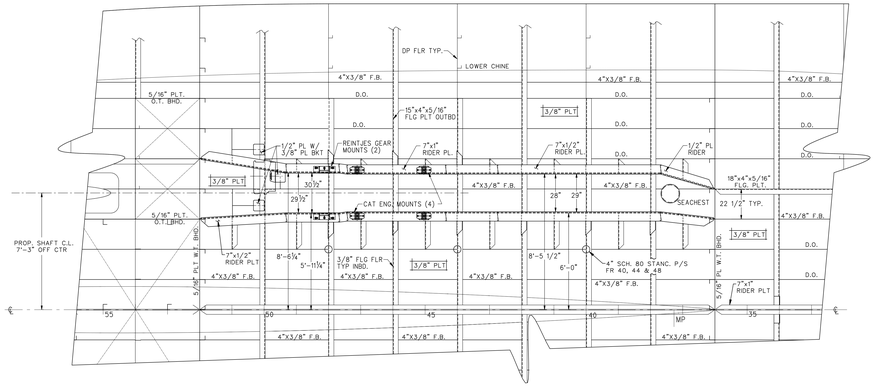

FRAME 50
STBD SIDE, LKG AFT



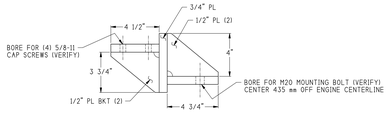

FRAME 48
AT REDUCTION GEAR
STBD SIDE, LKG AFT

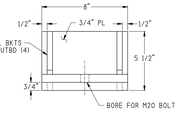


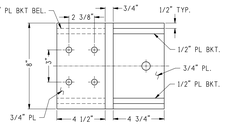

INBD ENG. FOUNDATION RAIL
PORT SIDE SHOWN, LOOKING OUTBD




MAIN ENGINE FOUNDATION STRUCTURE DETAIL
PORT SIDE, STBD SIMILAR




DETAIL 11-A
AFT ENGINE MOUNTS
SHIPYD FAB., 2 REQ'D PER ENGINE
SCALE 3"=1'-0"

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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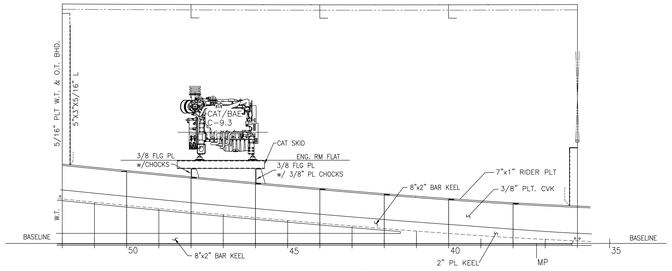
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS — MARINE ENGINEERS
100 GROSSMAN DR. — BRAINTREE, MA 02184

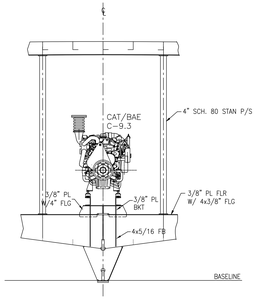
154 FT LOA FERRY VESSEL

MAIN ENGINE FOUNDATIONS
ARRANGEMENTS & DETAILS

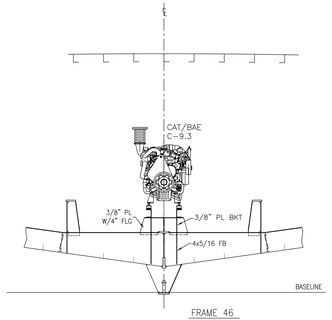
DRAWN BY ZS,GEG — DATE 12/2020
CHECKED BY GEG — DATE 5/2021
APPROVED BY — DATE
SCALE 3/4" = 1'-0"
DWG. NO. D358A-S9-2 — ALT. A



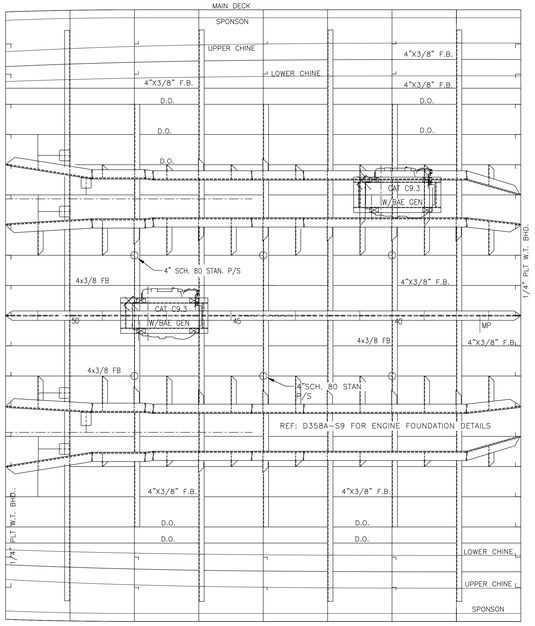

PROFILE VIEW AT CENTERLINE
LOOKING OUTBD



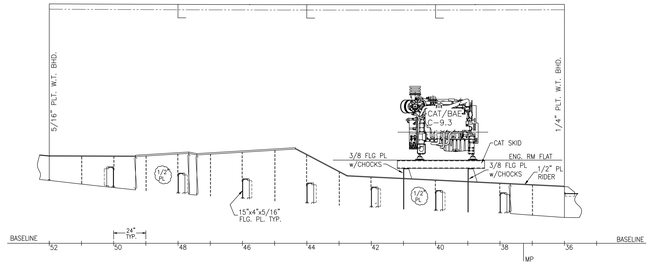

FRAME 48
LOOKING AFT

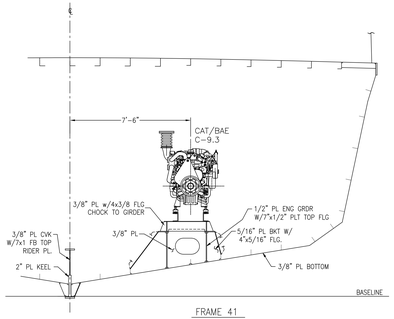



FRAME 46
WEB FRM, LKG AFT

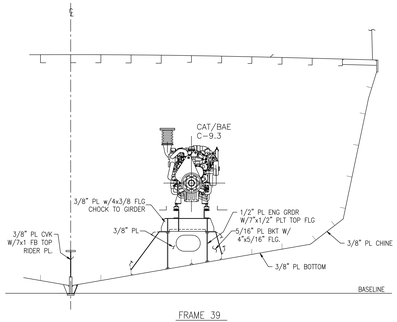



PLAN VIEW




FRAME 41
INTERMEDIATE FRM, LKG AFT




FRAME 39
INTERMEDIATE FRM, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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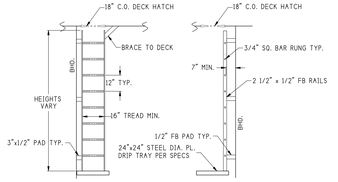
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

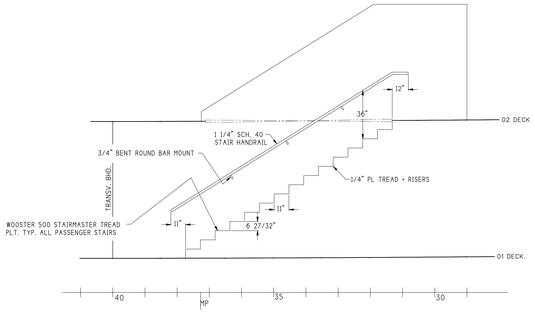
# 154' LOA FERRY VESSEL

## AUX ENGINE ARRANGEMENT & FOUNDATION DETAILS

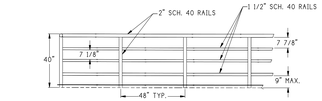
DRAWN BY JFM, GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-S10-1 ALT. A



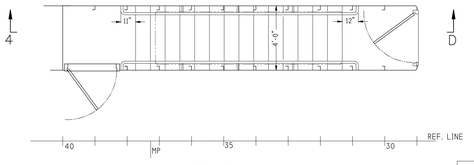

TYPICAL VERTICAL LADDERS



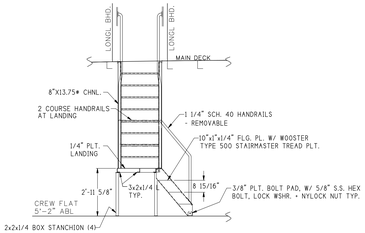

STAIR 4
SECTION 4-D
STBD 01 TO 02 DECK



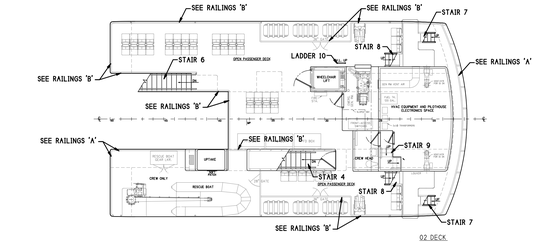

PROFILE VIEW OF TYP. TYPE "A" RAILINGS

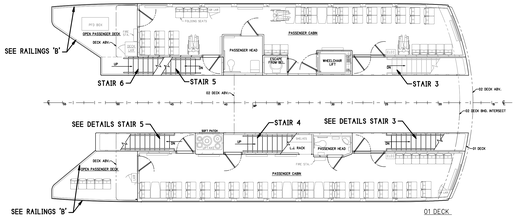


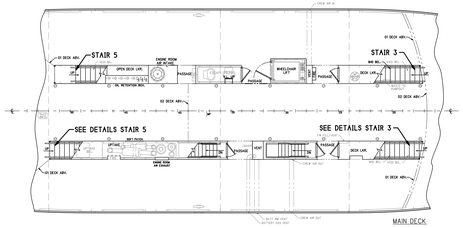

STAIR 4
PLAN VIEW
STBD 01 TO 02 DECK

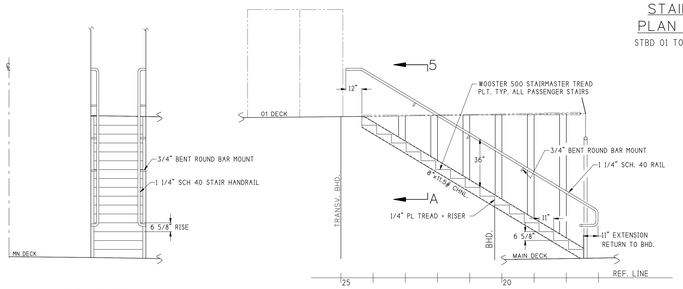



STAIR 1
SECTION 2-C
STBD HOLD TO MN DECK



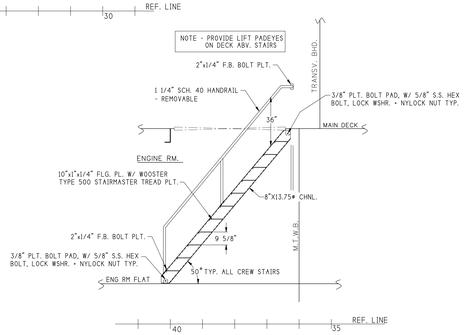



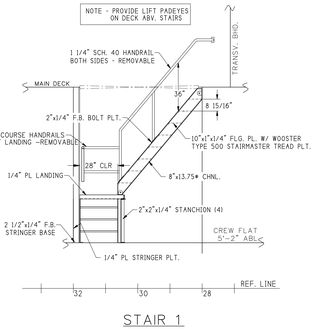




STAIR 3
SECTION VIEW
FWD. SIDE LOOKING AFT
PORT MN TO 01 DECK SHOWN

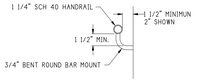
STAIR 3
SECTION 4-B
PORT MN TO 01 DECK SHOWN



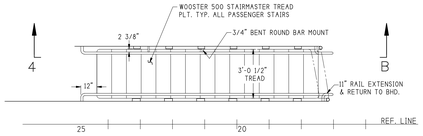

STAIR 2
SECTION 3-B
STBD HOLD TO MN DECK



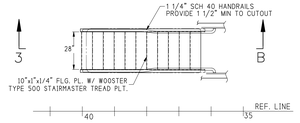

STAIR 1
PROFILE VIEW
STBD HOLD TO MN DECK
LOOKING INBD.



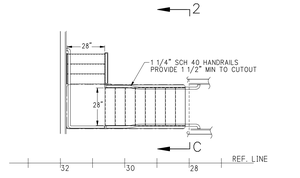

SECTION 5-A
SCALE 1 1/2" = 1'-0"



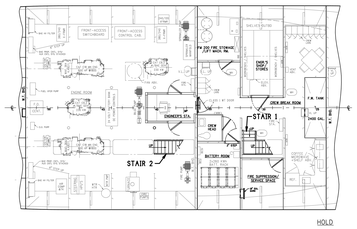

STAIR 3
PLAN VIEW
PORT MN TO 01 DECK SHOWN




STAIR 2
PLAN VIEW
STBD HOLD TO MN DECK




STAIR 1
PLAN VIEW
STBD HOLD TO MN DECK




KEY PLAN
NO SCALE

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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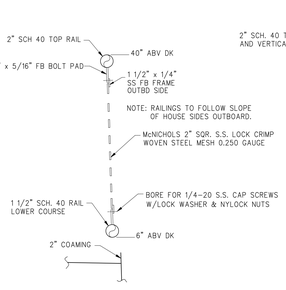
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

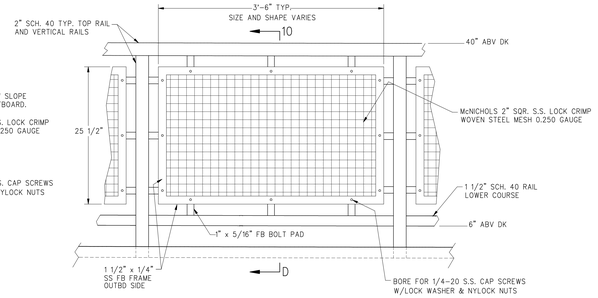
STAIRS, LADDERS & RAILINGS ARRANGEMENTS & DETAILS

**DRAWN BY** JG,GEG **DATE** 12/2020
**CHECKED BY** GEG **DATE** 5/2021
**APPROVED BY** **DATE**
**SCALE** 3/8" = 1'-0"
**DWG. NO.** D358A-S12-1 **ALT.** A



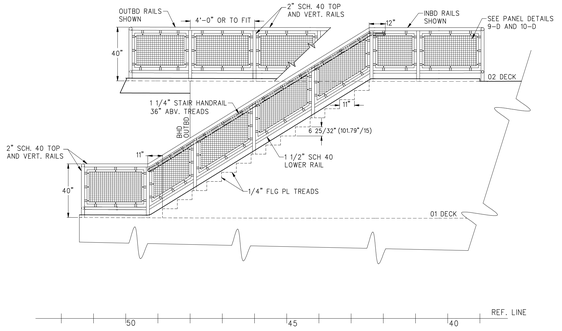

SECTION 10-D

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

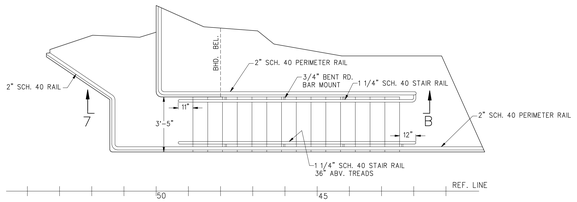



DETAIL ELEVATION OF RAILING "B" SCREEN

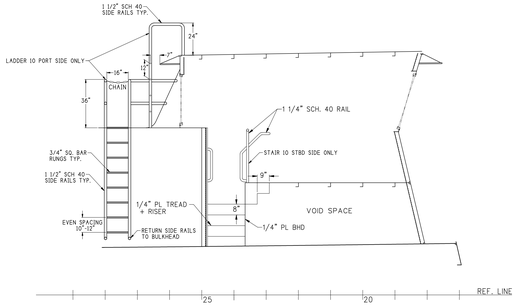
SCALE 1 1/2" = 1'-0"



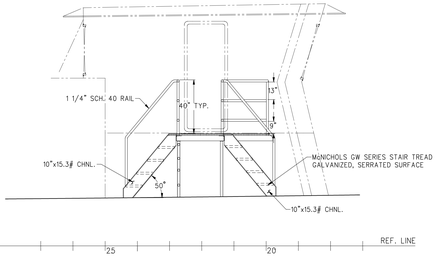

PROFILE VIEW OF TYPE "B" RAILINGS + STAIR 6 RAILS INBD SIDE



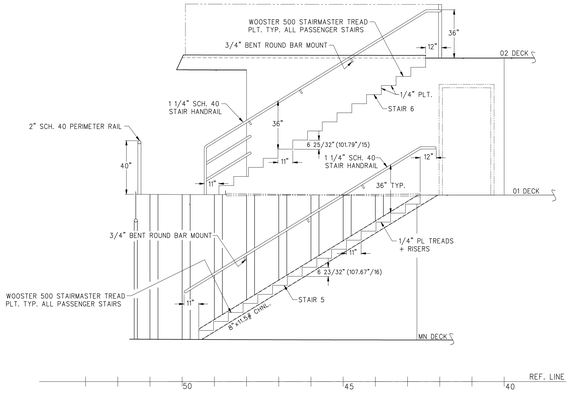

STAIR 6
PLAN VIEW



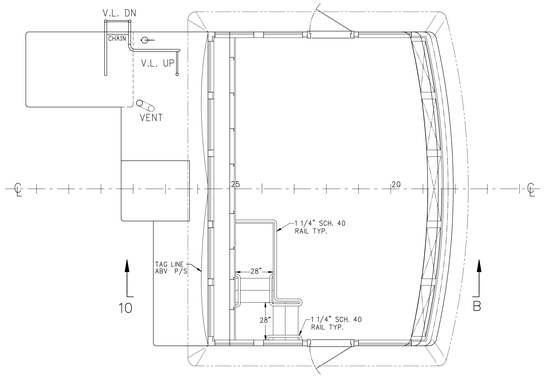

STAIR 9 AND LADDER 10
SECTION 10-B



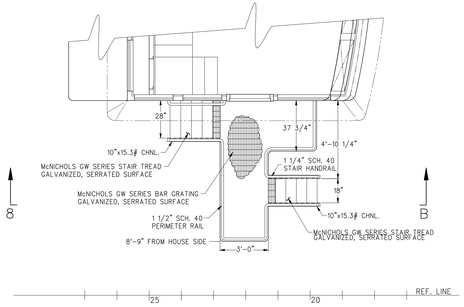

STAIR 7 & 8
SECTION 8-B




STAIR 5 & 6
SECTION 7-B

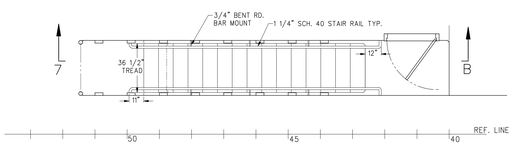



STAIR 9 AND LADDER 10
PLAN VIEW




STAIR 7 & 8
PLAN VIEW

STBD. STAIRWAYS SHOWN, PORT STAIR SIMILAR




STAIR 5
PLAN VIEW

PORT STAIRWAY SHOWN, STBD. STAIR SIMILAR
(STBD STAIRWAY LOCATION PER ARRANGEMENTS)

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND.

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

154 FT LOA FERRY VESSEL

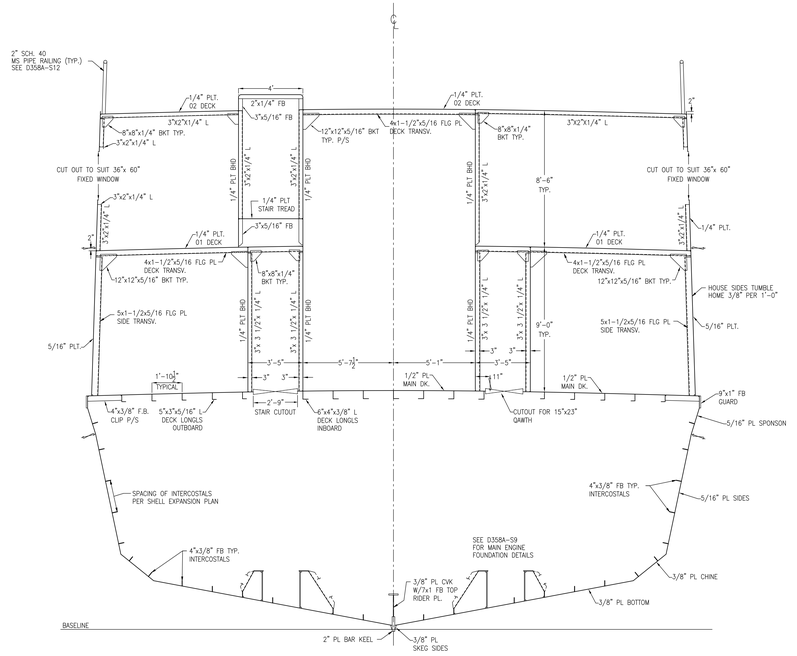
STAIRS, LADDERS & RAILINGS ARRANGEMENTS & DETAILS

**DRAWN BY** JG, GEG **DATE** 12/2020
**CHECKED BY** GEG **DATE** 4/2021
**APPROVED BY** **DATE**
**SCALE** 3/8" - 1'-0"
**DWG. NO.** D358A-SI2-2 **ALT.** A

## GENERAL NOTES

1. 01 AND 02 DECKS CURVED CAMBER TO MATCH MATCH MAIN DECK CAMBER. PILOTHOUSE TOP TO HAVE 1 1/2" STRAIGHT CAMBER.
2. TEMPLATE ALL WINDOW AND DOOR CUTOUTS FROM MANUFACTURERS DIMENSIONAL DATA.
3. SEE D358A-A7 FOR DOOR AND WINDOW SCHEDULE
4. PROVIDE RADII ON BULKHEAD CORNERS IN WAY OF PASSENGER AND CREW AREAS, 1 1/2" MIN.

NOTE: SEE DRAWINGS D358A-S2-1, S2-7 FOR CONSTRUCTION DETAILS BELOW MN DK. SEE ALSO D358A-S3 FOR MORE DECKHOUSE SECTIONS.




FRAME 37
INTERMEDIATE FRM, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|
| | | | |

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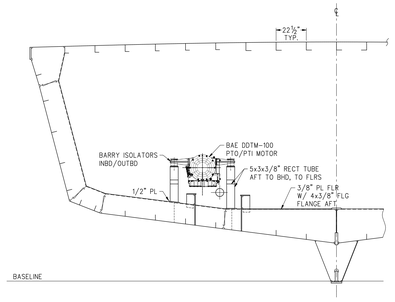
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

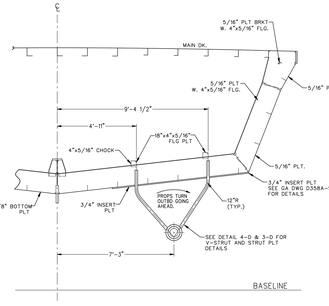
MIDSHIP SECTION

DRAWN BY KVC, GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-14 ALT. A

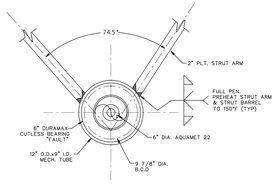
SHEET 1 OF 1



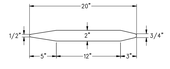

FRAME 50
PORT SIDE–LKG FWD
(STBD SIDE SIMILAR)
SCALE: 3/8"=1'-0"



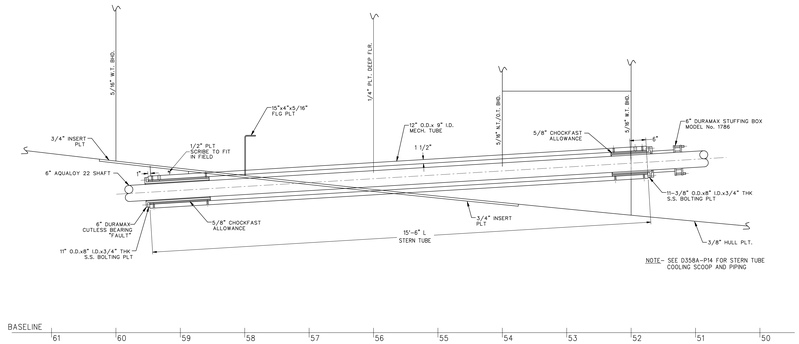

FRAME 66
PORT SIDE–LKG AFT
(STBD SIDE SIMILAR)
SCALE: 3/8"=1'-0"



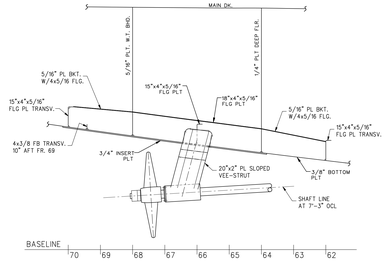

DETAIL 4–D
V–STRUT & STRUT BARREL
SCALE: 1-1/2"=1'-0"



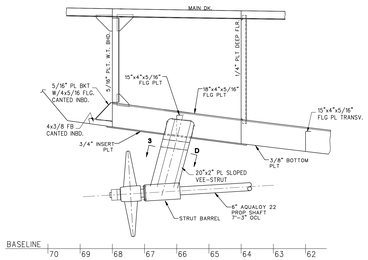

DETAIL 3–D
STRUT SECTION
SCALE: 3"=1'-0"



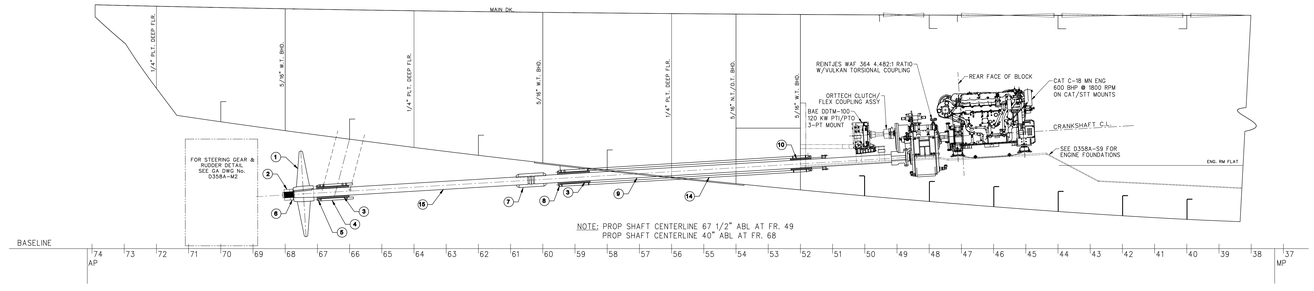

STERN TUBE INSTALLATION
7'-3" OFF CENTERLINE
PORT SIDE, LOOKING OUTBD
SCALE: 3/4"=1'-0"




INBD STRUT GIRDER
4'-11" OFF C.L.
SCALE: 3/8"=1'-0"




OUTBD STRUT GIRDER
9'-4 1/2" OFF C.L.
SCALE: 3/8"=1'-0"




SHAFT CENTER LINE ENGINE PROFILE
7'-3" OFF CENTERLINE
PORT SIDE SHOWN, LOOKING OUTBD

## MATERIAL LIST

| No. | QTY* | SIZE | DESCRIPTION | MATERIAL SPECIFICATIONS |
|---|---|---|---|---|
| 1 | 2 | 64"Ø | PROPELLER | 4 BLADE, 64" DIA, FINAL DAR & PITCH TBD - SOUND PROPELLER OR EQUIVALENT |
| 2 | 2 | 4 1/4-4 | PROP NUT | BRONZE, 4 1/4" THICKNESS |
| 3 | 4 | 6"Ø | CUTLESS BEARING | STRUT BARREL AND AFT STERN TUBE BRASS/FLANGED CUTLESS BEARING - DURAMAX MARINE MODEL CODE "FAULT" |
| 4 | 2 | 12"Ø | STRUT BARREL | 12" O.D. x9" I.D. x 2' 1 3/4" L MECHANICAL TUBE AISI 1026 ASTM A519 |
| 5 | 2 | | S.S. BOLTING PLT | S.S. BOLTING PLT 11" O.D.x8" I.D.x3/4" THK |
| 6 | 2 | 4 1/4-4 | JAM NUT | BAE GRADE 5 BRASS, 2 1/4" THICKNESS |
| 7 | 2 | 6"Ø | "MUFF" COUPLING | S.S. KAHLENBERG "MUFF" COUPLING FOR 6"Ø SHAFT - VERIFY MODEL No. WITH MANUFACTURER |
| 8 | 2 | | S.S. BOLTING PLT | S.S. BOLTING PLT 11" O.D.x8" I.D.x3/4" THK |
| 9 | 2 | 6"Ø | LINE SHAFT | 6"Ø AQUALOY 22, S.S. |
| 10 | 2 | 6"Ø | FWD STERN TUBE CUTLESS BEARING | FWD STERN TUBE BRASS/FLANGED CUTLESS BEARING - DURAMAX MARINE MODEL No. 600 |
| 11 | 2 | | S.S. BOLTING PLT | S.S. BOLTING PLT 11-3/8" O.D.x8" I.D.x3/4" THK |
| 12 | 2 | 6"Ø | STUFFING BOX | DURAMAX MARINE - MODEL No. 1786 |
| 13 | 2 | — | RED. GEAR COUPLING | SUPPLIED BY REINTJES |
| 14 | 2 | | STERN TUBE | 12" O.D. x9" I.D. x 14' 3-1/2" L MECHANICAL TUBE AISI 1026 ASTM A519 |
| 15 | 2 | 6"Ø | TAIL SHAFT | 6"Ø AQUALOY 22, S.S. |

•MATERIAL LIST QUANTITIES REFLECT INSTALLATION OF 2 SHAFTLINES

### ABS SHAFTING CALCULATION
SHAFT DIAMETER

$D=100K\sqrt[3]{(H/R)(C_1/(U+C_2))}$

D (LINESHAFT) = 4.20" (REQUIRED)
D (LINESHAFT) = 6" (ACTUAL)

D (TAILSHAFT) = 4.99" (REQUIRED)
D (TAILSHAFT) = 6" (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), 1.26 (TAILSHAFT)
H=743 HP
R=401.6 RPM
$C_1$=3.850
$C_2$=23180

### ABS SHAFTING CALCULATION
KEYWAY SHEAR AREA SIZING

REDUCTION GEAR COUPLING

$A_{REQ}=(D^3/5.1r_a)*(Y_s/Y_k)$ — D= REQ'D LINE SHAFT DIA = 4.2", $r_a$= 2.57" ($Y_s$/$Y_k$)=1

$A_{REQ}$= 5.653 in²

A KEYWAYS ACTUAL = 2x6.75"x1.375"=18.563 in²

PROPELLER HUB

$A_{REQ}=(D^3/5.1r_a)*(Y_s/Y_k)$ — D= REQ'D LINE SHAFT DIA = 4.2", $r_a$= 2.68" ($Y_s$/$Y_k$)=1

$A_{REQ}$ =5.421 in²

$A_{KEYWAY\ ACTUAL}$ =11.50"x1.375"=15.813 in²

### ABS SHAFTING CALCULATION
COUPLING BOLTS

$d=.65\sqrt{D^3(U+c)/NBU_b}$

$d_{REQ}$ =.648"

$d_{ACTUAL}$=20.5 mm (0.807")

D = 4.2"
N = 16 BOLTS
U = 100,000
c = 23,180
B = 11.02"
$U_b$ = 145,000

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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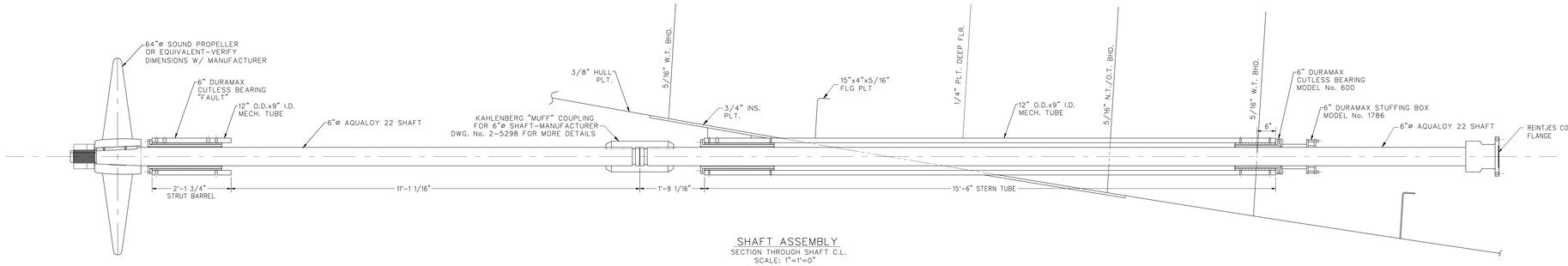
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

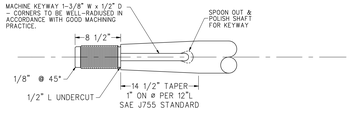
SHAFTING ARRANGEMENTS
& STRUT DETAILS

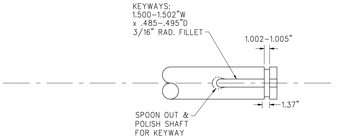
DRAWN BY ZS & GEG — DATE 12/2020
CHECKED BY GEG — DATE 5/2021
APPROVED BY — DATE
SCALE 3/8" = 1'-0"

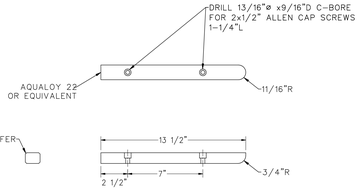

DWG. NO. D358A-M1-1 — ALT. A



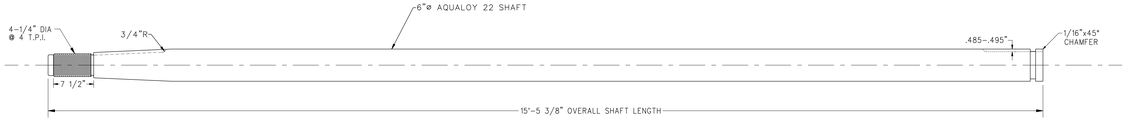

## SHAFT ASSEMBLY
SECTION THROUGH SHAFT C.L.
SCALE: 1"=1'=0"

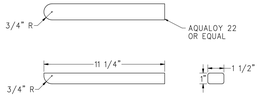


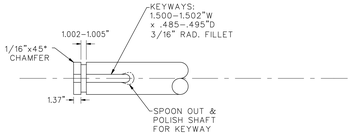




## PROP HUB KEY DETAILS
2 REQ'D
SCALE: 3"=1'=0"

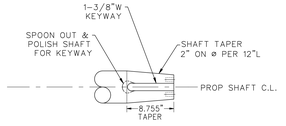


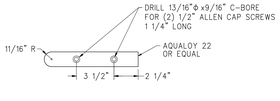




## "MUFF" COUPLING KEY DETAILS
SCALE: 3"=1'=0"

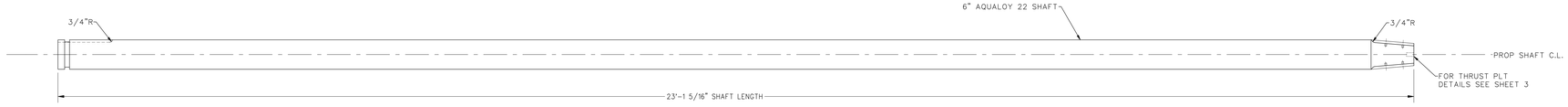



## TAIL SHAFT MACHINING DETAILS
SCALE: 1-1/2"=1'=0"



## RED. GEAR COUPLING KEY DETAILS
2 REQ'D
SCALE: 3"=1'=0"




## LINE SHAFT MACHINING DETAILS
SCALE: 1-1/2"=1'=0"

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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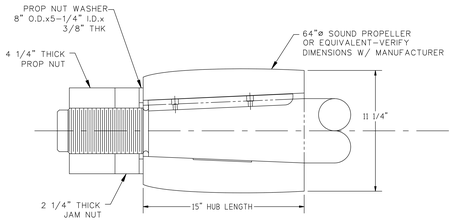
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

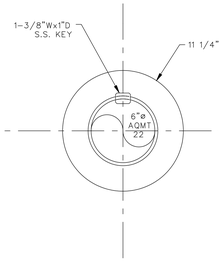
154 FT LOA FERRY VESSEL

SHAFTING ARRANGEMENTS
STERN TUBE & SHAFT DETAIL

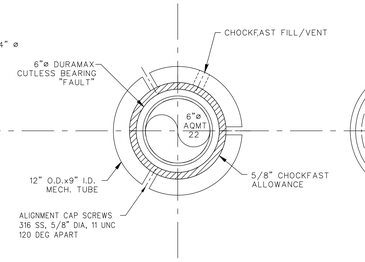
| | |
|---|---|
| **DRAWN BY** ZS & GEG | **DATE** 12/2020 |
| **CHECKED BY** GEG | **DATE** 5/2021 |
| **APPROVED BY** | **DATE** |
| **SCALE** 1 1/2" = 1'-0" | |
| **DWG. NO.** D358A-M1-2 | **ALT.** A |



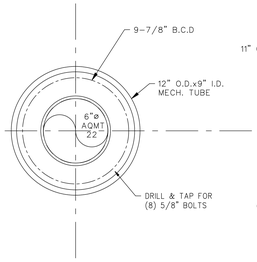

PROPELLER HUB ASSEMBLY
SCALE: 3"=1'-0"



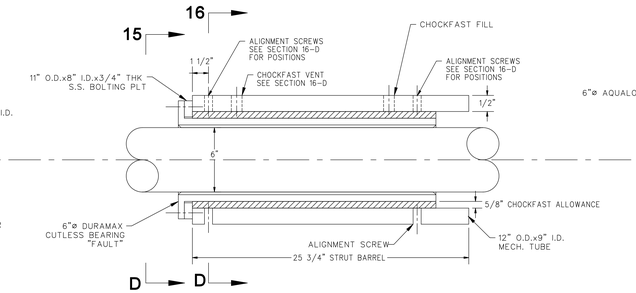

PROP HUB FWD FACE
SCALE: 3"=1'-0"



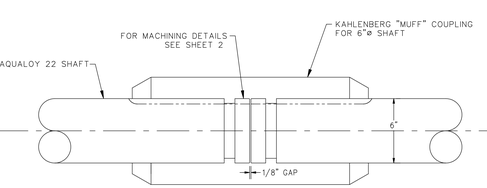

SECTION 16-D
AFT END STRUT BARREL
ALIGNMENT SCREWS
SCALE: 3"=1'-0"



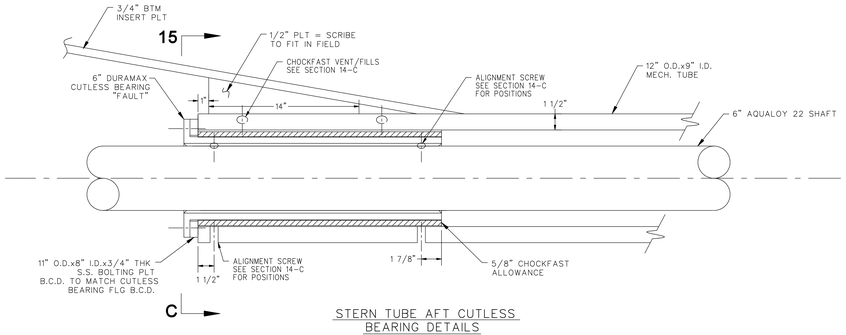

SECTION 15-D
SCALE: 3"=1'-0"



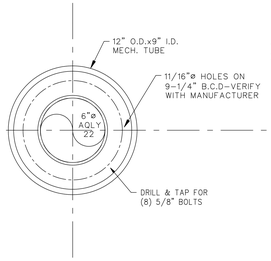

STRUT BARREL MACHINING DETAILS
CUTLESS BEARING CHOCKAST INSTALL
SCALE: 3"=1'-0"



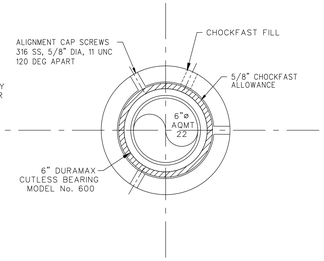

KAHLENBERG "MUFF" COUPLING DETAIL
SCALE: 3"=1'-0"



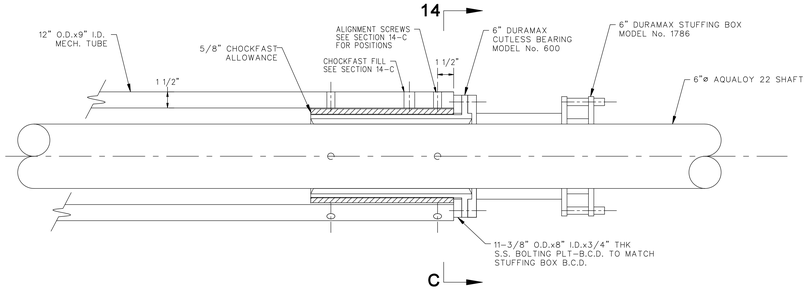

STERN TUBE AFT CUTLESS
BEARING DETAILS
SCALE: 3"=1'-0"



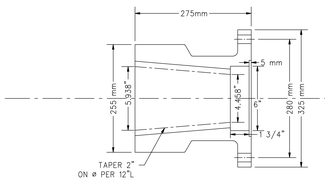

SECTION 15-C
AFT FACE OF STERN TUBE
SCALE: 3"=1'-0"



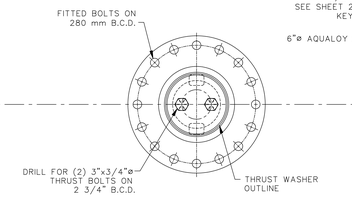

SECTION 14-C
FWD END STERN TUBE
ALIGNMENT SCREWS
SCALE: 3"=1'-0"



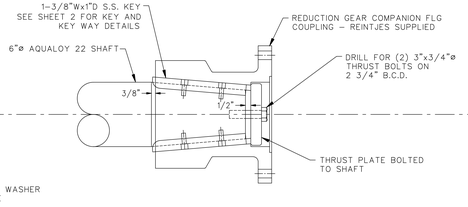

STERN TUBE FWD CUTLESS
BEARING DETAILS
SCALE: 3"=1'-0"



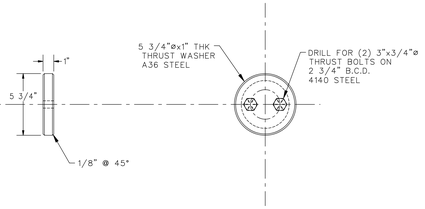

RED. GEAR COUPLING DETAILS
SCALE: 3"=1'-0"




RED. GEAR COUPLING FWD FACE
SCALE: 3"=1'-0"




RED. GEAR COUPLING ASSEMBLY
SCALE: 3"=1'-0"




THRUST PLATE DETAILS
SCALE: 3"=1'-0"

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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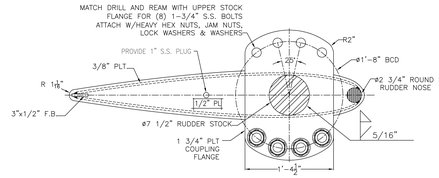
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS — MARINE ENGINEERS
100 GROSSMAN DR. — BRAINTREE, MA 02184

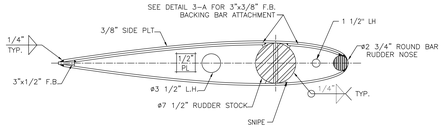
154 FT LOA FERRY VESSEL

SHAFTING ARRANGEMENTS
STRUT BARREL & HARDWARE DETAILS

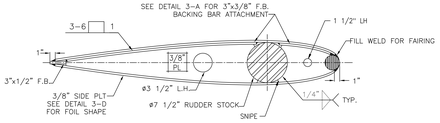
| | |
|---|---|
| **DRAWN BY** ZS & GEG | **DATE** 12/2020 |
| **CHECKED BY** GEG | **DATE** 3/2021 |
| **APPROVED BY** | **DATE** |
| **SCALE** 3" - 1'-0" | |
| **DWG. NO.** D358A-MI-3 | **ALT.** A |



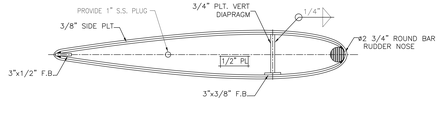

SECTION 6-E
RUDDER TOP PLT.




SECTION 4-E
DIAPHRAGM PLT.



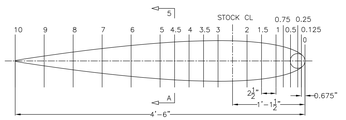

SECTION 6-D
DIAPHRAGM PLT.




SECTION 4-D
RUDDER BOTTOM PLT.

RUDDER OFFSETS TO OUTSIDE OF PLATING FROM RUDDER CENTERLINE

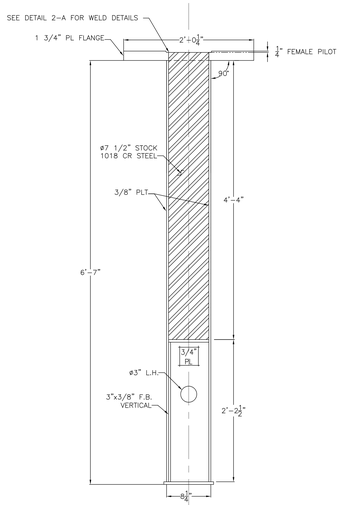
| | STA. 0 | STA. 0.125 | STA. 0.25 | STA. 0.5 | STA. 0.75 | STA. 1 | STA. 1.5 | STA. 2 | STA. 2.5 | STA. 3 | STA. 3.5 | STA. 4 | STA. 4.5 | STA. 5 | STA. 6 | STA. 7 | STA. 8 | STA. 9 | STA. 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OFFSET FROM ℄ | 0" | 1.198" | 1.652" | 2.244" | 2.653" | 2.956" | 3.377" | 3.623" | 3.75" | 3.790" | 3.745" | 3.665" | 3.536" | 3.343" | 2.880" | 2.312" | 1.656" | 0.913" | 0.080" |



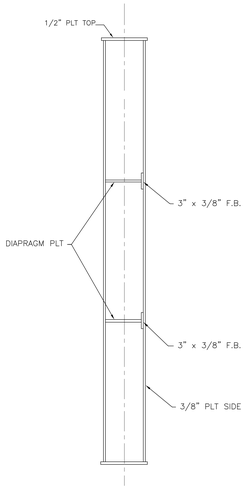

DETAIL 3-D
SECTION VIEW INSIDE LINE OF THE RUDDER

## BILL OF MATERIALS

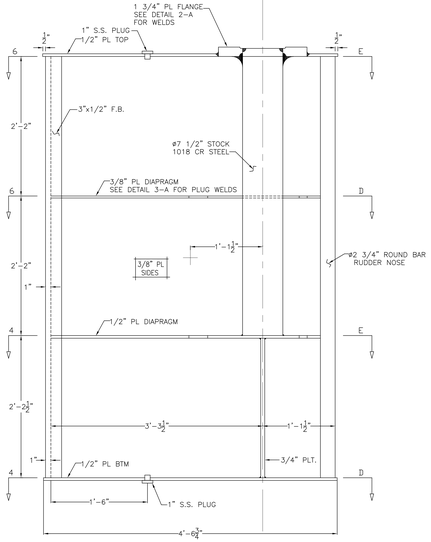
| ITEM | QUANTITY | SIZE | DESCRIPTION | MATERIAL | MATERIAL SPECIFICATION |
|---|---|---|---|---|---|
| 1 | 2 | 7-1/2"ø | UPPER RUDDER STOCK | AQUALOY22 | SEE SHEET 2 FOR DETAILS |
| 2 | 4 | 3/8" | RUDDER SIDE PLT | STEEL | ASTM A36 |
| 3 | 2 | 3/8" | RUDDER DIAPHRAGM | STEEL | ASTM A36 |
| 4 | 2 | 1/2" | RUDDER DIAPHRAGM | STEEL | ASTM A36 |
| 5 | 2 | 3/4" | RUDDER VERTICAL DIAPHRAGM | STEEL | ASTM A36 |
| 6 | 2 | 1/2" | RUDDER TOP PLT | STEEL | ASTM A36 |
| 7 | 2 | 1/2" | RUDDER BOTTOM PLT | STEEL | ASTM A36 |
| 8 | 2 | 1/2" | RUDDER TRAILING EDGE BAR | STEEL | ASTM A36 |
| 9 | 2 | 7-1/2"ø | RUDDER LOWER BEARING | ——— | THORDON SXL BEARING 8.352" HOUSING DIAMETER |
| 10 | 2 | 2-3/4"ø | RUDDER NOSE | STEEL | 2-3/4"ø ROUND BAR |
| 11 | AS NEEDED | 3/8" | FB PLUG WELD BACKER PLT | STEEL | ASTM A36, 3"X3/8" |
| 12 | 2 | 7-1/2"ø | LOWER RUDDER STOCK | STEEL | 1018 CR STEEL |
| 13 | 4 | 1" | RUDDER PLUG | ST. STEEL | ASTM A316 |
| 14 | 2 | 1-3/4" | LOWER RUDDER PALM | STEEL | ASTM A36 |
| 15 | 2 | 1-3/4" | UPPER RUDDER PALM | ST. STEEL | ASTM A316 |
| 16 | 8 | 1-3/4" | PALM BOLTS | ST. STEEL | ASTM A316 |
| 17 | 16 | 1-3/4" | PALM NUTS | ST. STEEL | ASTM A325 HEAVY HEX NUT & JAM NUT |
| 18 | 24 | 1-3/4" | PALM WASHER | ST. STEEL | ASTM A316 (16) WASHERS & (8) LOCK WASHERS |
| 19 | 2 | 11-1/2"ø | RUDDER PORT | STEEL | ASTM A519 MECH. TUBE, 11-1/2"O.D. x 7-1/2"I.D. x 1'-8 1/8"L |
| 20 | 2 | 2" | RUDDER PORT FLANGE | STEEL | ASTM A36, 15" O.D. x 7-3/4" x 2" THICK |
| 21 | 2 | 1/2" | LOWER STOCK RETAINER RING | ST. STEEL | 11-1/2" O.D. x 7-1/2"I .D. x 1/2" THICK |
| 22 | 16 | 5/8"ø | LOWER STOCK RETAINER RING SCREWS | ST. STEEL | 5/8" x 2-1/2" A316 S.S. HEX HEAD CAP SCREWS |
| 23 | 4 | 1/4" | KEEPER BAR | ST. STEEL | 1/2" x 1/4" BAR |
| 24 | 2 | ——— | TILLER HUB | STEEL | JASTRAM SUPPLIED S-400-12 |
| 25 | 4 | ——— | TILLER HUB KEYS | STEEL | ABS GR. 2 KEYSTOCK OR EQUIV. |
| 26 | 4 | ——— | TILLER HUB PINS | ST. STEEL | JASTRAM SUPPLIED S-400 TILLER PIN KIT |
| 27 | 2 | ——— | TIE-BAR ROD ENDS | ST. STEEL | JASTRAM SUPPLIED S-400 ROD END |
| 28 | 2 | ——— | TIE BAR STUDS | STEEL | JASTRAM SUPPLIED TIE-BAR STUD KIT |
| 29 | 16 | 13/16" | STUFFING BOX THREADED STUDS & NUTS | ST. STEEL | 13/16" x 4" A316 S.S. DOUBLE ENDED STUD, JAM NUT, HEX NUT |
| 30 | 2 | 7-1/2" | STUFFING BOX | ——— | JOHNSON 1786 AIR-WATER-GREASE STUFFING BOX |
| 31 | 1 | ——— | JOCKEY BAR | STEEL | PER JASTRAM RECOMMENDATION |
| 32 | 4 | ——— | HYDRAULIC CYLINDER | ——— | JASTRAM SUPPLIED S-400-12 STEEL ACTUATORS |
| 33 | 2 | 4 15/16" | CARRIER BEARING | ——— | DODGE EFC-S2-415R PILOTED FLANGE ROLLER BEARING PT# 071522 |
| 34 | 2 | 4-7/16" | CARRIER BEARING THRUST COLLAR | ——— | DODGE SPLIT IRON SHAFT COLLAR PT# 010117 |
| 35 | 12 | 7/8" | CARRIER BEARING HOUSING BOLTS | ST. STEEL | 7/8" S.S. BOLTS W/NUTS & JAM NUTS ASTM GR320 |
| 36 | 2 | ——— | UPPER RUDDER STOCK KEY | STEEL | ABS GR. 2 KEYSTOCK OR EQUIV. |
| 37 | 2 | 3-1/4" | UPPER RUDDER STOCK NUT | ST. STEEL | ASTM A325 HEAVY HEX NUT |
| 38 | 2 | 3/8" | UPPER RUDDER STOCK WASHER | STEEL | ASTM A36 |
| 39 | 1 | 1" | JOCKEY BAR SUPPORT PAD | TEFLON | TEFLON PAD 6" x 9" |
| 40 | AS NEEDED | ——— | ZINCS | ALUMINUM | |



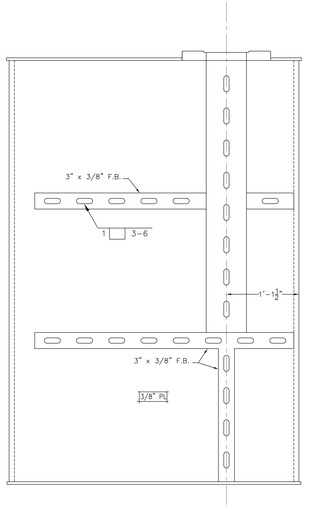

DETAIL 6-A
RUDDER CENTERLINE STRUCTURAL SECTION
SCALE: 1 1/2" = 1'-0"




DETAIL 5-A
SECTION AT 45% OF RUDDER
SCALE: 1 1/2" = 1'-0"

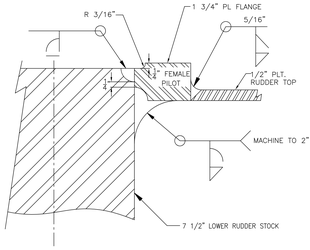



DETAIL 4-A
RUDDER PROFILE
SCALE: 1 1/2" = 1'-0"




DETAIL 3-A
PLUG WELD DETAIL
SCALE: 1 1/2" = 1'-0"

NOTE: SLOTS TO BE FILL WELDED AND GROUND SMOOTH AFTER ASSEMBLY.




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

GENERAL NOTES

1. THIS DRAWING SHALL BE READ TOGETHER WITH D358A-M2-2 & D358A-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 ZINCS EACH 9"x5"x1" APPROX., 18" FWD OF TRAILING EDGE.
7. STEERING APPARATUS SHALL MEET THE REQUIREMENTS OF 46 CFR 119.600 AND THE APPLICABLE PORTIONS OF SUBCHAPTERS F AND J OF 46 CFR

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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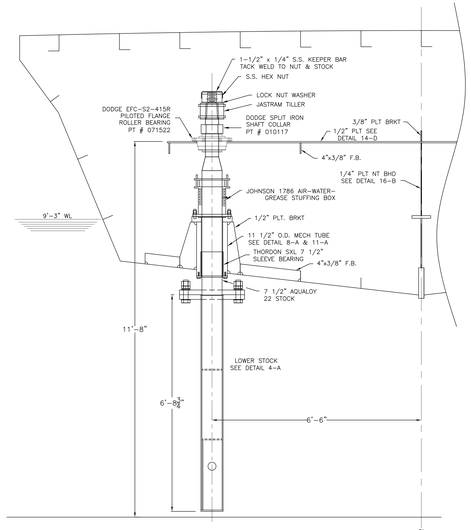
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

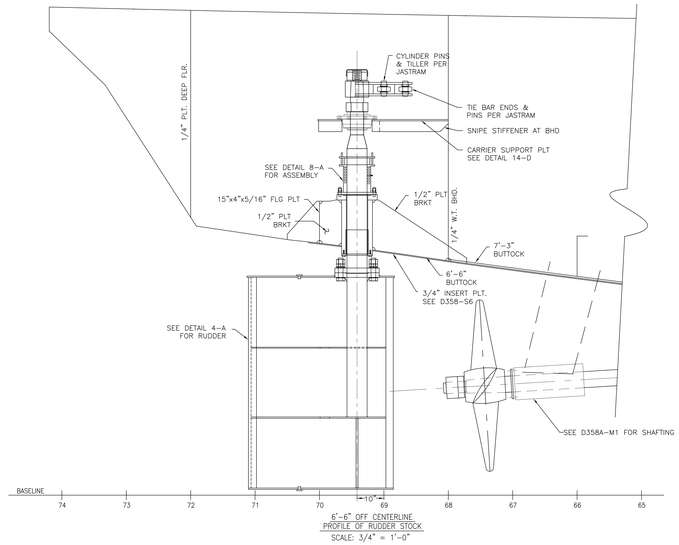
# RUDDER AND STEERING ARRANGEMENT & DETAILS

DRAWN BY KVC + GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 1 1/2" = 1'-0" OR AS NOTED
DWG. NO. D358A-M2-1 ALT. A

SHEET 1 OF 3




10" AFT OF FR 69
SECTION THROUGH RUDDER STOCK
SCALE: 3/4" = 1'-0"



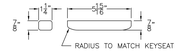

6'-6" OFF CENTERLINE
PROFILE OF RUDDER STOCK
SCALE: 3/4" = 1'-0"

RUDDER STOCK CALCULATIONS

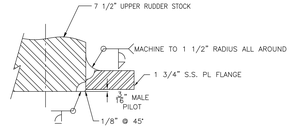
RUDDER PORT: THICKNESS = 1.875"
UPPER LOCKING NUT: EXT THREAD DIA = 5"
UPPER LOCKING NUT: HEIGHT = 3"
UPPER LOCKING NUT: OD = 7.5"
UPPER SHAFT: DIAMETER = 5" AQ 22
LOWER SHAFT: DIAMETER = 7.5" 1018 CR STEEL
COUPLING FLANGE: THICKNESS = 1.75"
COUPLING FLANGE: BOLTS = 1.75" ø
COUPLING FLANGE: NUMBER OF BOLTS = 8

GENERAL NOTES

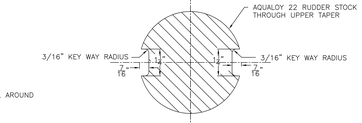
1. THIS DRAWING SHALL BE READ TOGETHER WITH D358A-M2-1 & D358A-M2-3
2. ALL WELDING MATERIALS AND PROCEDURES SHALL BE ACCORDING TO ABS RULES AND TO SATISFACTION OF OCMI.
3. STEERING APPARATUS SHALL MEET THE REQUIREMENTS OF 46 CFR 119.600 AND THE APPLICABLE PORTIONS OF SUBCHAPTERS F AND J OF 46 CFR
4. ALL COMPONENT DIMENSIONS AND ATTACHMENT DETAILS ARE TO BE REVIEWED AND APPROVED BY MANUFACTURERS



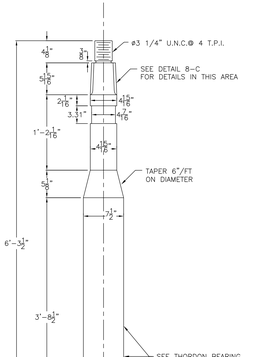

DETAIL 8-E
TILLER HUB KEYS
SCALE : 3" = 1'-0"



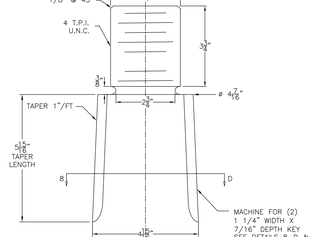

DETAIL 9-D
UPPER-PALM FLANGE WELDS
SCALE : 3" = 1'-0"



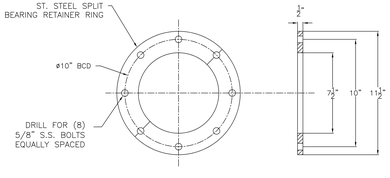

DETAIL 8-D
SECTION THROUGH STOCK
SCALE : HALF FULL SIZE



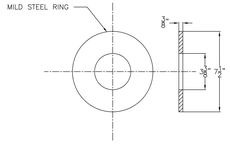

DETAIL 9-B
RUDDER STOCK
SCALE: 1 1/2" = 1'-0"



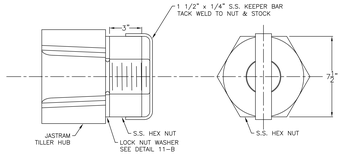

DETAIL 8-C
UPPER STOCK TAPER & THREAD
SCALE : HALF FULL SIZE



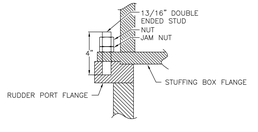

DETAIL 12-B
RETAINER RING
SCALE: 3" = 1'-0"



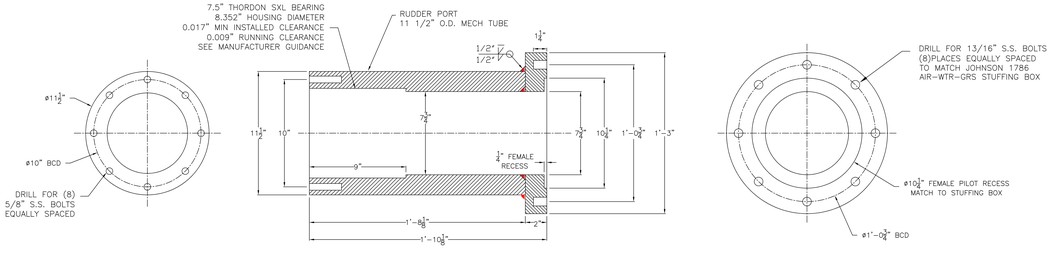

DETAIL 11-B
LOCK NUT WASHER
SCALE: 3" = 1'-0"



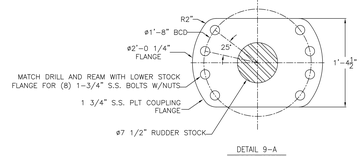

DETAIL 10-B
TILLER HUB LOCK NUT
SCALE: 3" = 1'-0"



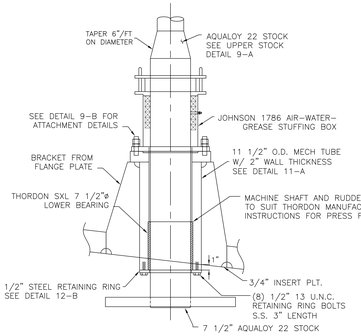

DETAIL 9-B
STUFFING BOX ATTACHMENT DETAIL
SCALE: 3" = 1'-0"




DETAIL 11-A
RUDDER PORT
SCALE: 3" = 1'-0"




DETAIL 9-A
UPPER STOCK




DETAIL 8-A
RUDDER PORT ASSEMBLY
SECTION VIEW
SCALE: 1 1/2" = 1'-0"

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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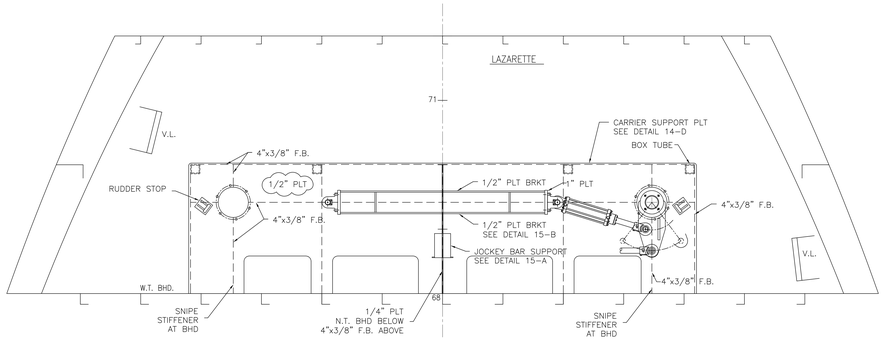
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

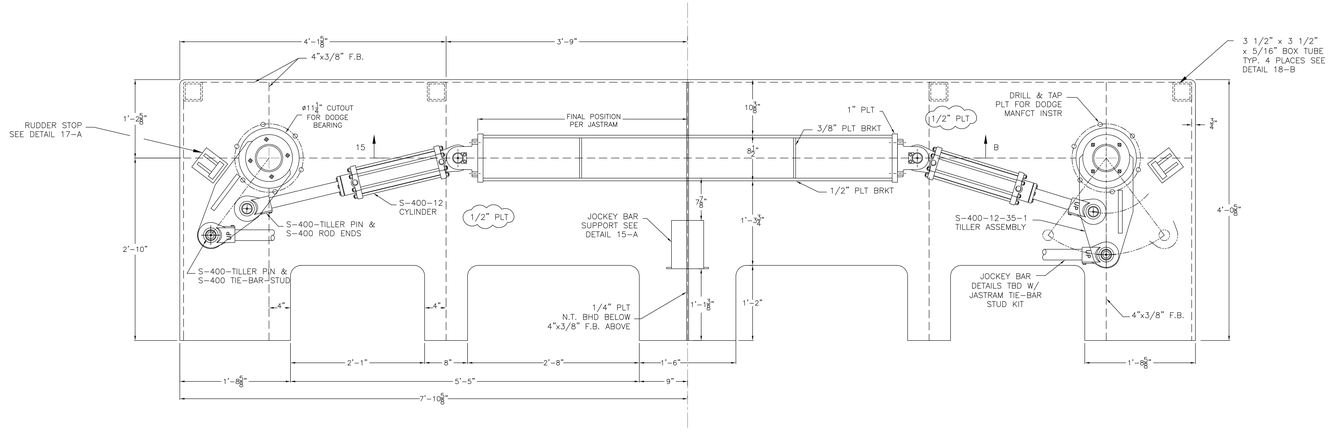
154 FT LOA FERRY VESSEL

# RUDDER AND STEERING ARRANGEMENT & DETAILS

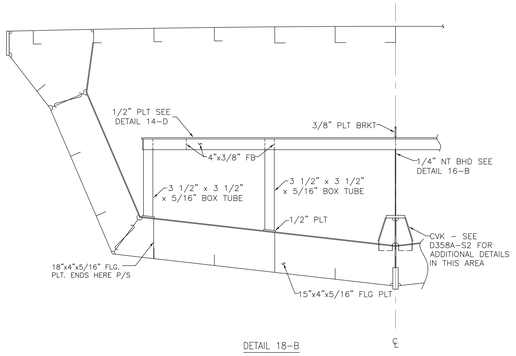
DRAWN BY KVC + GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 1 1/2" = 1'-0" OR AS NOTED
DWG. NO. D358A-M2-2 ALT. A



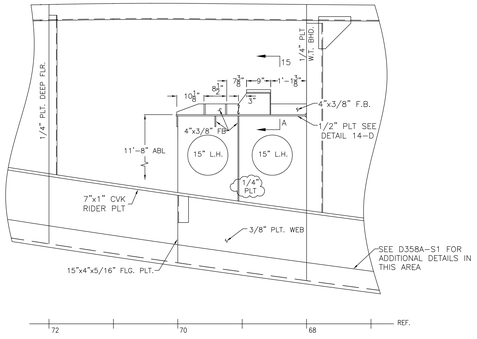

DETAIL 17-D
PLAN VIEW OF LAZARETTE
SCALE: 3/4" = 1'-0"



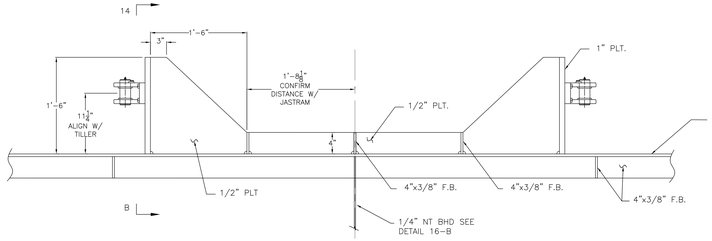

DETAIL 14-D
CARRIER BEARING SUPPORT PLATE



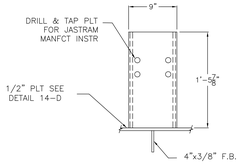

DETAIL 18-B
SECTION AT FR 70 LKG FORWARD
SCALE: 3/4" = 1'-0"



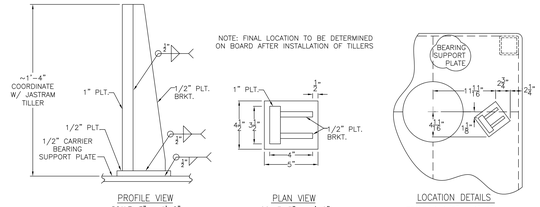

DETAIL 16-B
CENTERLINE STRUCTURAL PROFILE
SCALE: 3/4" = 1'-0"




DETAIL 15-B
CYLINDER SUPPORT BRACKETS




SECTION 14-B
CYLINDER SUPPORT BRACKET




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

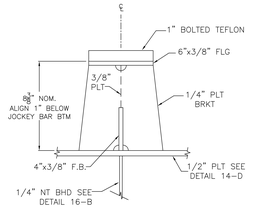



PLAN VIEW
SCALE: 3" = 1'-0"

DETAIL 17-A
RUDDER STOP




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




DETAIL 15-A
JOCKEY BAR SUPPORT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND.

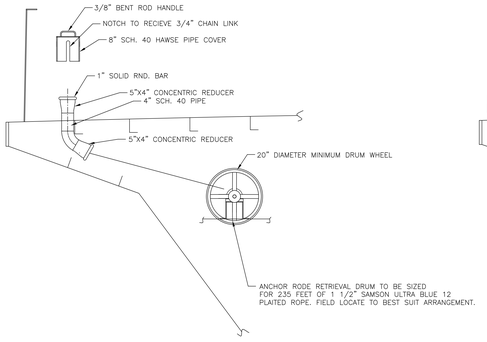
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

RUDDER AND STEERING ARRANGEMENT & DETAILS

DRAWN BY KVC + GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 1 1/2" = 1'-0" OR AS NOTED
DWG. NO. D358A-M2-3 ALT. A

SHEET 3 OF 3

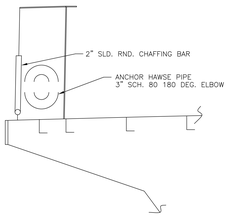



SECTION VIEW IN WAY OF DECK HAWSE PIPE

APPROX. 3" AFT FRM. 12

LOOKING FWD

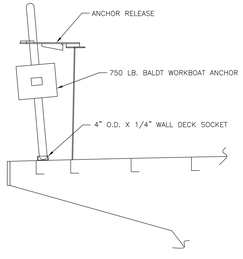
SCALE 3/4"=1'-0"




SECTION VIEW 6" AFT FRM. 9

LOOKING FWD.

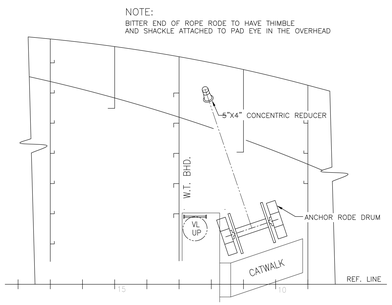
SCALE 3/4"=1'-0"




SECTION VIEW 6" AFT FRM. 5

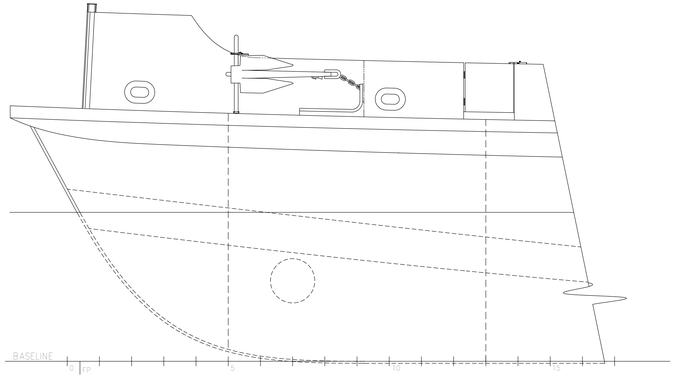
LOOKING FWD.

SCALE 3/4"=1'-0"



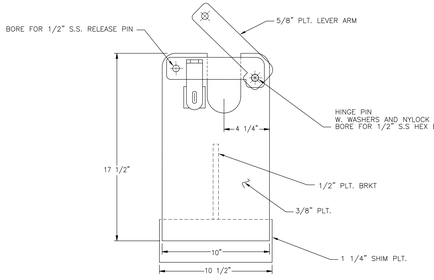

PLAN VIEW OF HOLD

SCALE 3/8"=1'-0"



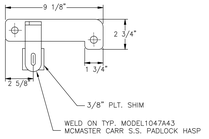

OUTBOARD PROFILE VIEW OF ANCHOR STOWAGE

SCALE 3/8"=1'-0"



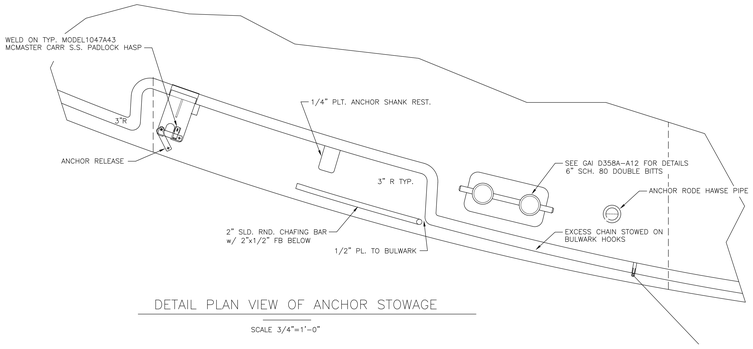

PLAN VIEW OF ANCHOR RELEASE LEVER AND FRAME

SCALE 3"=1'-0"



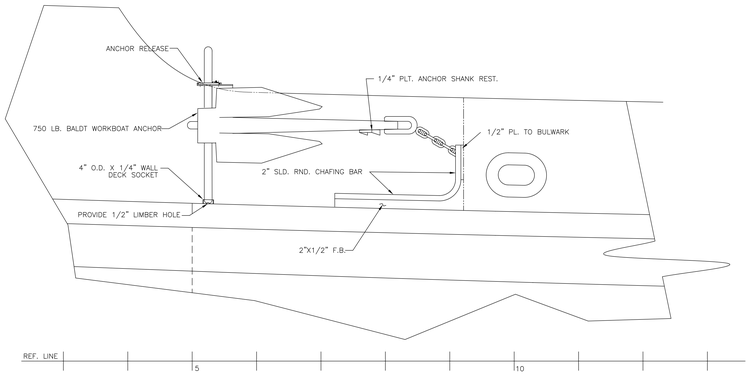

PLAN VIEW OF ANCHOR RELEASE LEVER

SCALE 3"=1'-0"



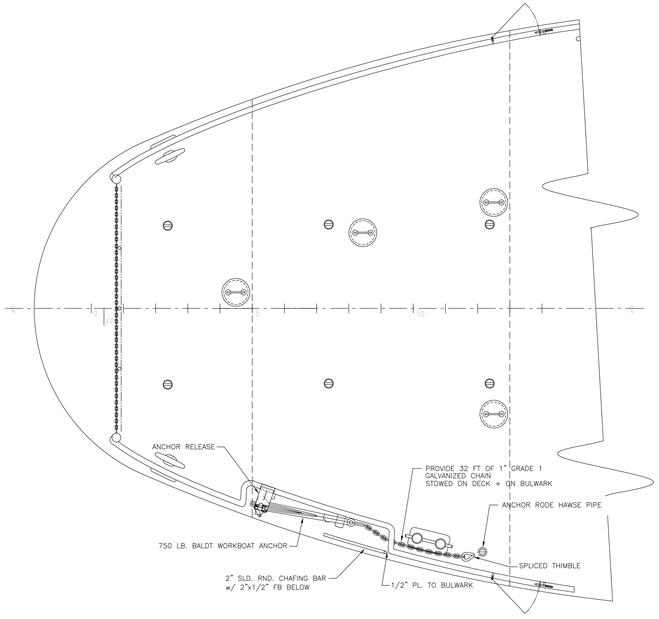

DETAIL PLAN VIEW OF ANCHOR STOWAGE

SCALE 3/4"=1'-0"




DETAIL PROFILE VIEW OF ANCHOR STOWAGE

SCALE 3/4"=1'-0"




GENERAL ARRANGEMENT VIEW OF ANCHOR STOWAGE

SCALE 3/8"=1'-0"

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

154 FT LOA FERRY VESSEL

# ANCHOR HANDLING ARRANGEMENT AND DETAILS

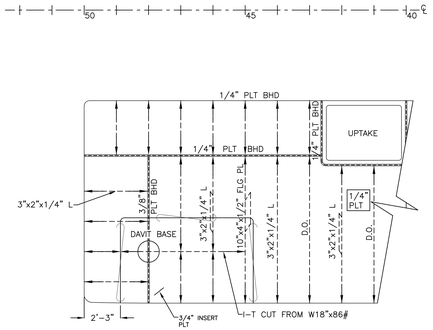
DRAWN BY JWG + GEG DATE 12/2020

CHECKED BY GEG DATE 5/2021

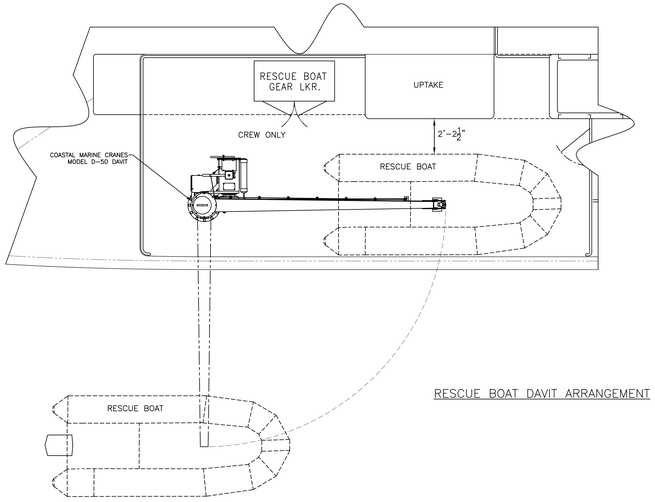
APPROVED BY DATE

SCALE 3/8" = 1'-0"

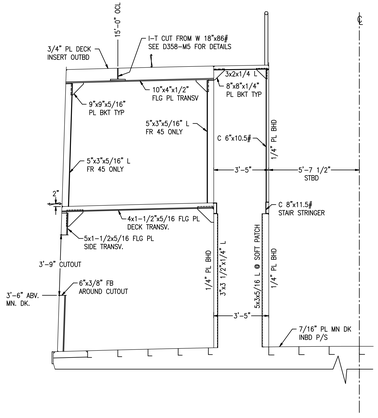
DWG. NO. D358A-M4-1 ALT. A



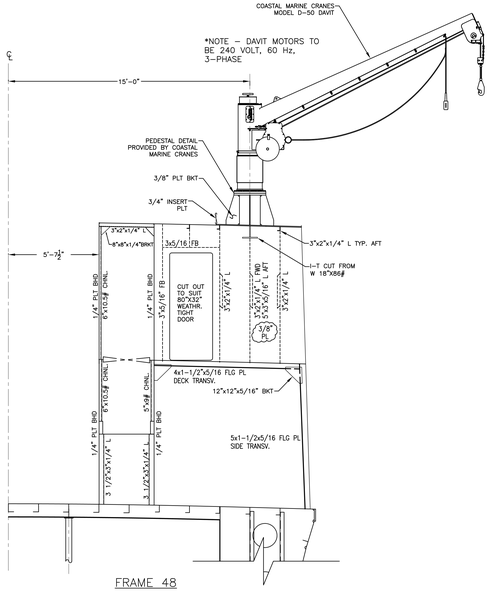

02 DECK STBD SCANTLINGS



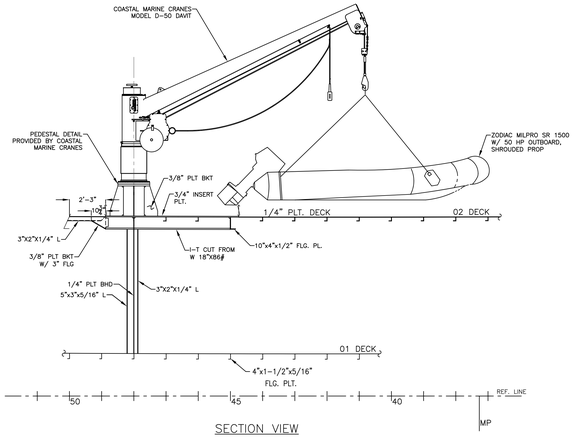

RESCUE BOAT DAVIT ARRANGEMENT




FRAME 45
FWD SIDE, LKG AFT




FRAME 48
AFT SIDE, LKG FWD




SECTION VIEW
15'-0" OFF CL, LKG TO PORT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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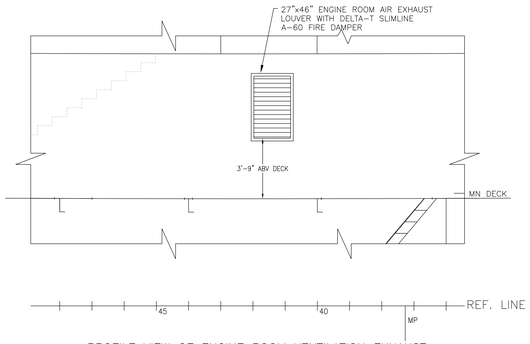
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

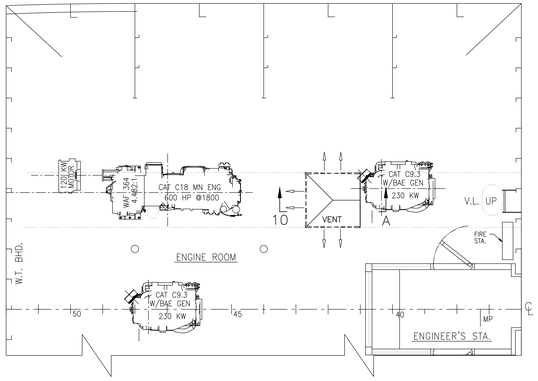
154 FT LOA FERRY VESSEL

# RESCUE BOAT ARRANGEMENTS & DAVIT FOUNDATION DETAILS

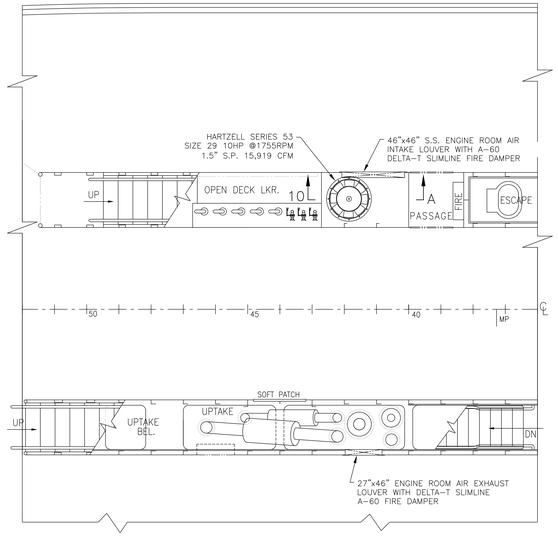
DRAWN BY TMH, GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-M5 ALT. A
SHEET 1 OF 1



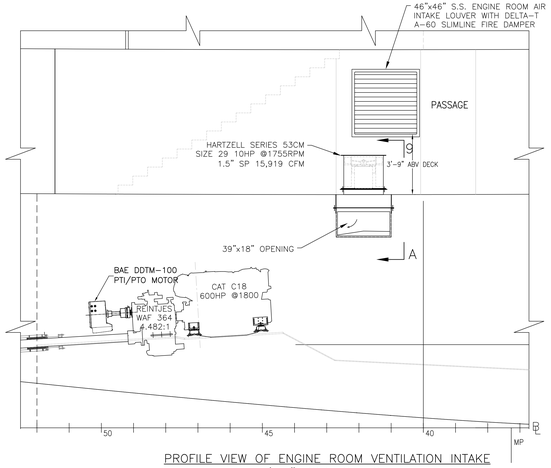

PROFILE VIEW OF ENGINE ROOM VENTILATION EXHAUST
9'-3" STBD OFF C.L.
LKG. INBD.



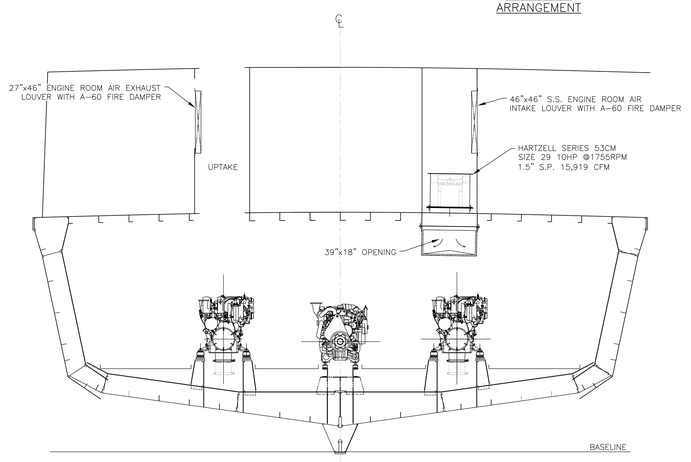

HOLD ARRANGEMENT




MAIN DECK
ARRANGEMENT




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




FRAME 42
FWD SIDE, LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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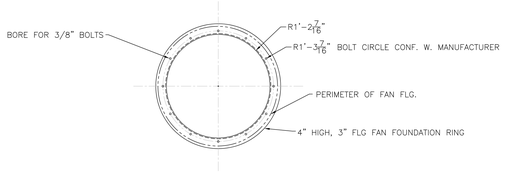
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

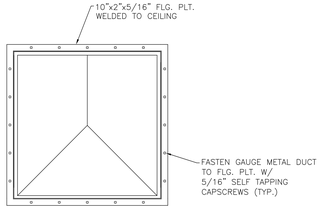
154 FT LOA FERRY VESSEL

# ENGINE ROOM & EMERGENCY GEN VENTILATION PLAN

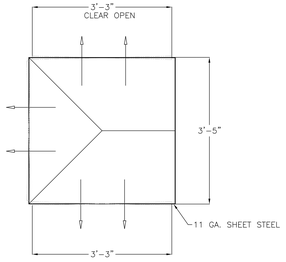
DRAWN BY JVL + GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0" OR AS NOTED
DWG. NO. D358A-M7-1 ALT. A



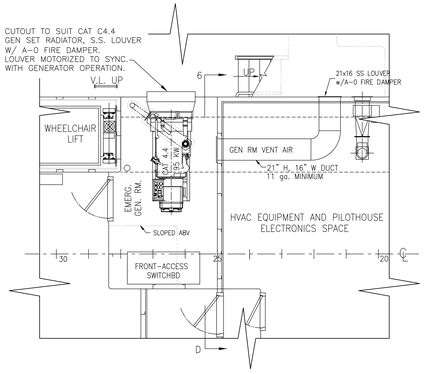

SECTION 9-D
FAN MOUNT
SCALE: 1"=1'



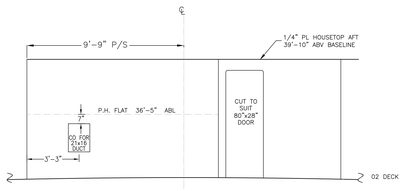

SECTION VIEW 10-C
AIR SPLITTER
SCALE: 1"=1'



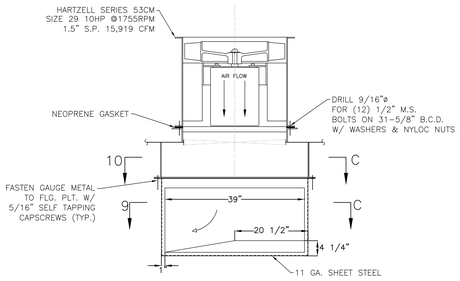

SECTION VIEW 9-C
AIR SPLITTER
SCALE: 1"=1'



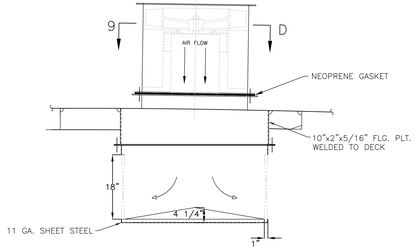

EMERGENCY GENERATOR VENTILATION
PLAN VIEW
02 DECK



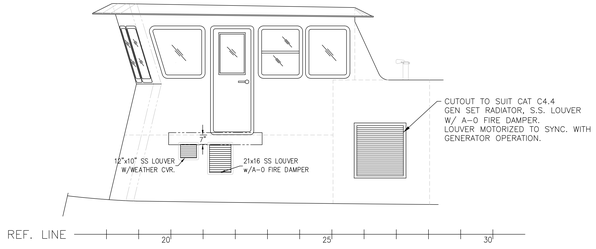

EMERGENCY GENERATOR VENTILATION
SECTION VIEW 6-D
02 DECK
LKG FWD




SECTION VIEW 10-A
STARBOARD SIDE LOOKING TO PORT
SCALE: 1"=1'




SECTION VIEW 9-A
FORWARD SIDE LOOKING AFT
SCALE 1"=1'




EMERGENCY GENERATOR VENTILATION
PROFILE VIEW
02 DECK

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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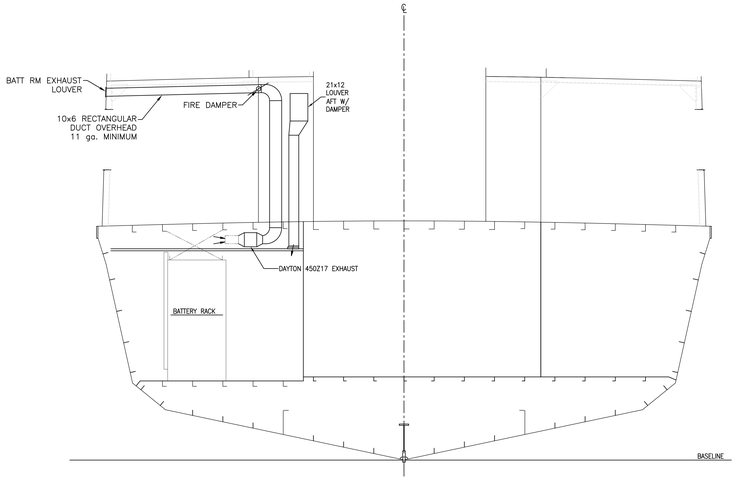
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

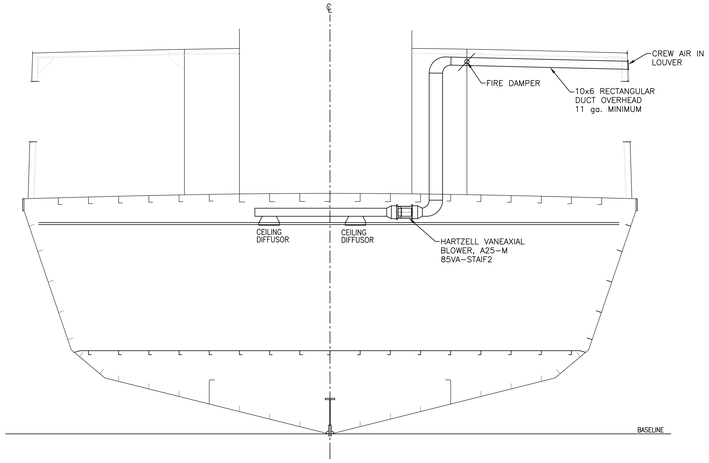
154 FT LOA FERRY VESSEL

# ENGINE ROOM & EMERGENCY GEN VENTILATION PLAN

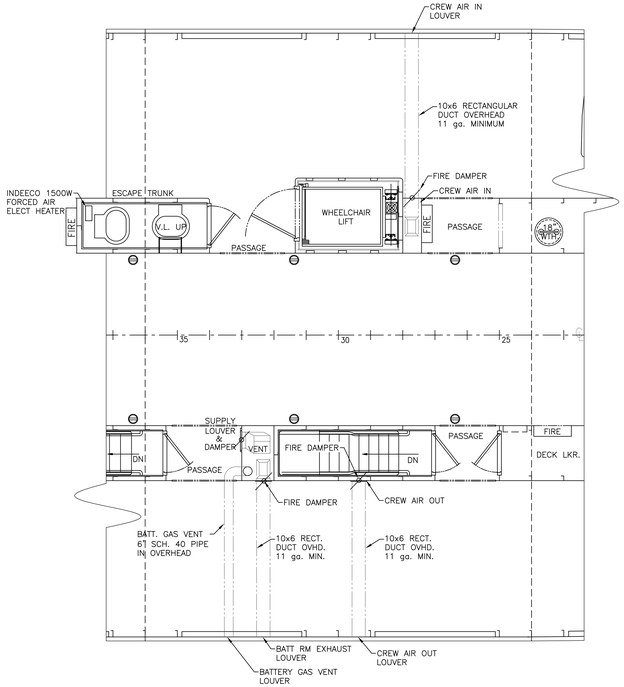
DRAWN BY JVL + GEG DATE 7/19
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0" OR AS NOTED
DWG. NO. D358A-M7-2 ALT. A



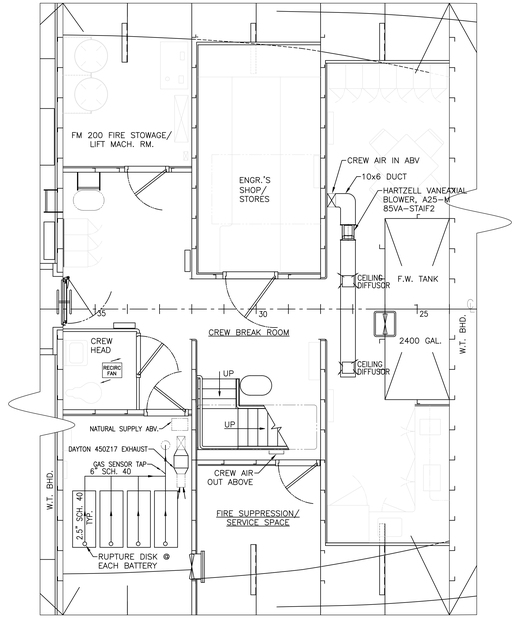

FRAME 32/33
LKG AFT




FRAME 27/28
LKG AFT




MAIN DECK DETAIL
DUCT LOCATIONS
PLAN VIEW




HOLD DETAIL
FAN LOCATION
PLAN VIEW

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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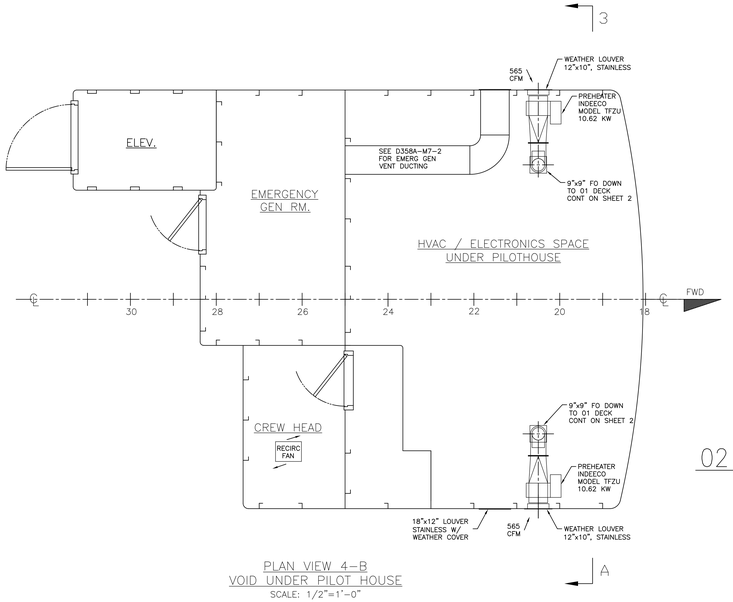
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

# CREW SPACE VENTILATION ARRANGEMENT

DRAWN BY BKG DATE 2/2021
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-M8 ALT. A

SHEET 1 OF 1




PLAN VIEW 4–B
VOID UNDER PILOT HOUSE
SCALE: 1/2"=1'–0"

02 DECK

## MATERIAL LIST

| DESCRIPTION | QTY | MODEL NUMBER | MANUFACTURER | MATERIAL | REMARKS |
|---|---|---|---|---|---|
| VANEAXIAL FAN | 2 | A25–M––85VA–––STFCFB | HARTZELL FAN | VARIOUS | |
| RECIRC FAN | 4 | 682 | BROAN–NUTONE | VARIOUS | W/ CHARCOAL FILTER |
| DUCT PREHEATER | 2 | TFZU – 10.62KW | INDEECO | VARIOUS | |
| THERMOSTAT | 2 | 1006998 | INDEECO | VARIOUS | |
| WEATHER LOUVER | 2 | 12" X 10" | AS REQ'D | STAINLESS STEEL | |
| RETURN GRILLE | 2 | TYPE APG – 12" X 12" | TUTTLE AND BAILEY | ALUMINUM | |
| SUPPLY TERMINAL | 6 | TYPE ARC – 9" X 9" | TUTTLE AND BAILEY | ALUMINUM | |
| VOLUME DAMPER | 6 | JE–129 | JUNIPER INDUSTRIES | ALUMINUM | |
| MN DK ESCAPE TRUNK HEATER | 1 | 1500 W ELEC FORCED AIR HTR | INDEECO | | W/ THERMOSTAT |

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 ON THE MAINE DOT FERRY

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.

4. THIS DRAWING IS BASED ON THE REQUIREMENTS, RULES AND REGULATIONS OF THE AMERICAN BUREAU OF SHIPPING (ABS) AND THE UNITED STATES COAST GUARD (U.S.C.G.) CODE OF FEDERAL REGULATIONS WHOSE PROVISIONS SHALL PREVAIL WHERE THIS DRAWING IS SILENT.

5. MOUNTING HARDWARE NOT ORDERED ON THIS DRAWING SHALL BE SUPPLIED BY THE INSTALLATION CONTRACTOR AND SHALL INCLUDE SELF LOCKING NUTS. ALL NUTS FOR DISSIMILAR METALS SHALL BE NYLOCK STYLE.

6. ALL EQUIPMENT AND FOUNDATIONS SHALL BE INSTALLED PARALLEL TO AND/OR PERPENDICULAR TO THE HORIZONTAL BASE PLAN 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 SHIP TO BEST SUIT INSTALLATION.

9. ALL DUCTWORK AND EQUIPMENT SHALL BE THERMALLY INSULATED USING UNITED STATES COAST GUARD APPROVED NON COMBUSTIBLE MATERIAL.

10. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND BALANCING OF THE HVAC SYSTEM.

12. ALL HVAC EQUIPMENT AND SYSTEMS SHALL HAVE INDENTIFYING MARKS AND LABELS.

13. GRIND SMOOTH ALL SHARP CORNERS AND ROUGH EDGES LIABLE TO CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

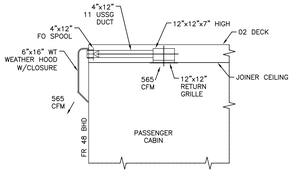
14. THE PART NUMBER IN THE LIST OF MATERIAL SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING PROCUREMENT.

15. DUCTS PENETRATING A–CLASS FIRE BOUNDARIES WILL BE A MINIMUM THICKNESS OF 3 MM (11 USSG).

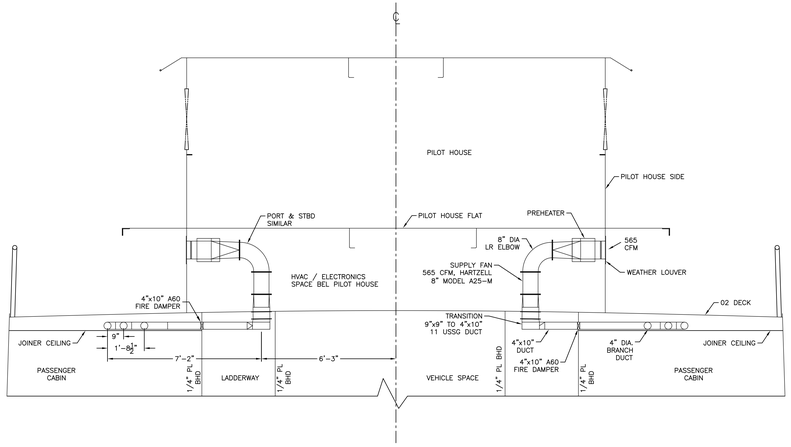
16. FIRE DAMPERS AT 02 DECK MUST BE CAPABLE OF MANUAL OPERATION OUTSIDE OF THE SPACE SERVED BY THE VENTILATION DUCT AND BE FITTED WITH AN OPEN/CLOSE INDICATOR.

17. FIRE DAMPERS AND DUCT INSTALLATION SHALL FOLLOW THE REQUIREMENTS OF 46 CFR 116.610.

18. A DUCT PENETRATING A FIRE CONTROL BOUNDARY MUST BE INSULATED WITH THE SAME TYPE AND THICKNESS AS THE BOUNDARY FOR A DISTANCE OF AT LEAST 12 INCHES ON THE INSULATED SIDE OF THE BOUNDARY.




ELEVATION VIEW 5–A
SCALE: 1/2"=1'–0"




ELEVATION VIEW 3–A
SCALE: 1/2"=1'–0"
LKG AFT

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

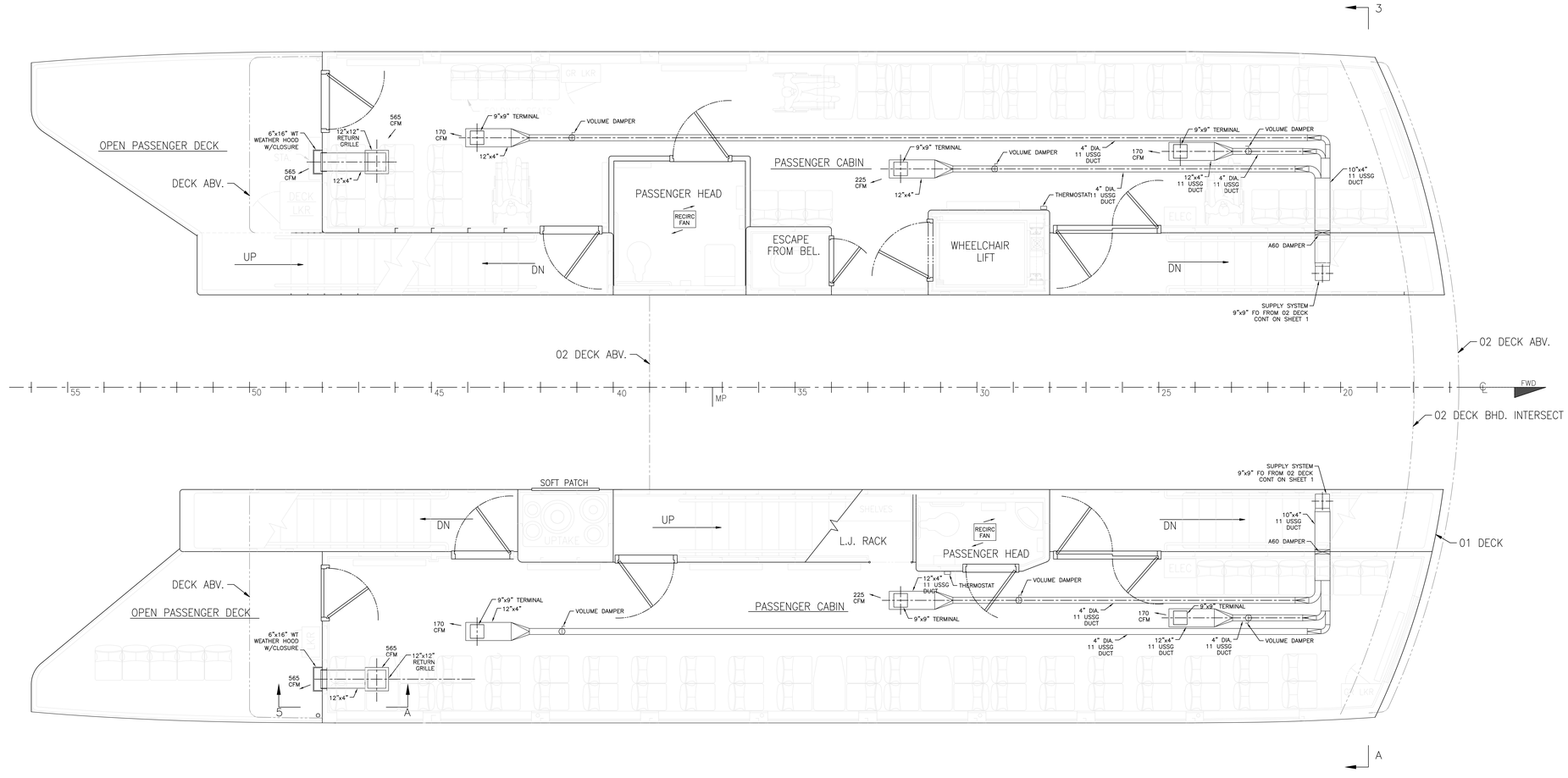
THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND

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

154 FT LOA FERRY VESSEL

HVAC ARRANGEMENT AND DETAILS

DRAWN BY GEG + MSCORP DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE AS NOTED
DWG. NO. D358A–M9–1 ALT. A




PLAN VIEW 6–A
PASSENGER AREA – 01 DECK
SCALE: 1/2"=1'-0"

01 DECK

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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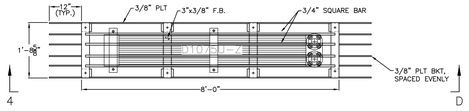
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

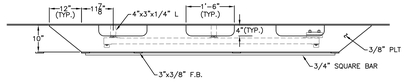
HVAC ARRANGEMENT AND DETAILS

DRAWN BY GEG + MSCORP DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE AS NOTED


DWG. NO. D358A-M9-2 ALT. A




DETAIL 4–D BOTTOM VIEW

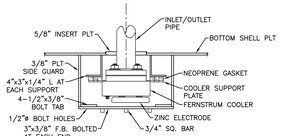



GRIDCOOLER PROFILE 4–D
D1075U–Z
SCALE: 3/4" = 1'–0"
OTHER SINGLE COOLERS SIMILAR CONSTRUCTION

| GRID COOLERS EQUIPMENT LIST | | | | | |
|---|---|---|---|---|---|
| ENGINES, GEARS, EQUIP. COOLED | | KEEL COOLERS | | | |
| QUANTITY | MODEL | UNITS PER MODEL | ITEM | MODEL | MANUFACTURER |
| 2 | MAIN ENGINE: CAT C18 RED'N GEAR: REINTJES WAF–364 (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 C9.3 | 1 | GRID COOLER | D28117W–Z | FERNSTRUM |
| 2 | INT. STARTER GENERATOR + PCS / APCS ELECTRONICS BAE SYSTEMS INC. | 1 | GRID COOLER | BN1651U–Z | FERNSTRUM |
| 1 | BATTERY LIQUID COOLING SPEAR POWER SYSTEMS INC. | 1 | GRID COOLER | D12123W–Z | FERNSTRUM |

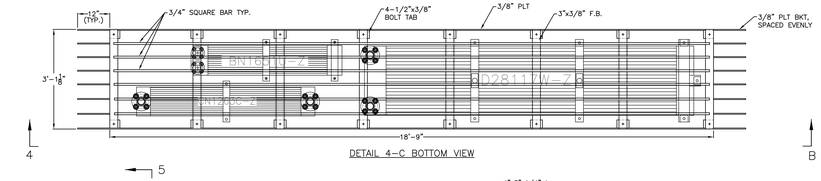
## GENERAL NOTES

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 TO 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. ALL CONNECTIONS BETWEEN PUMPS & PIPES SHALL BE FLEXIBLE "AEROQUIP" (MODEL FC234) OR EQUAL.
8. GAUGES INDICATING COOLING WATER DISCHARGE TEMPERATURE AND LUBRICATING OIL PRESSURE SHALL BE PROVIDED FOR ALL COOLANT LOOPS.
9. THE ENGINE COOLING SYSTEMS SHALL FULFILL ALL REQUIREMENTS OF THE ENGINE AND REDUCTION GEAR MANUFACTURER'S RECOMMENDATIONS.
10. LINES LEADING TO REMOTE EXPANSION TANKS REQUIRE AT LEAST 1/4" RISE PER 12" RUN OF DECLIVITY.
11. KEEL COOLERS TO BE ELECTRICALLY ISOLATED FROM HULL USING NEOPRENE DISKS AS SUPPLIED WITH COOLERS AND INSTALLED ACCORDING TO FERNSTRUM RECOMMENDATIONS.

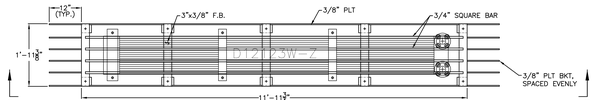



SECTION 5–C TYPICAL GRIDCOOLER

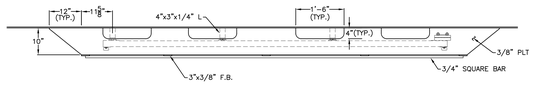
LOOKING AFT
SCALE: 1–1/2" = 1'–0"



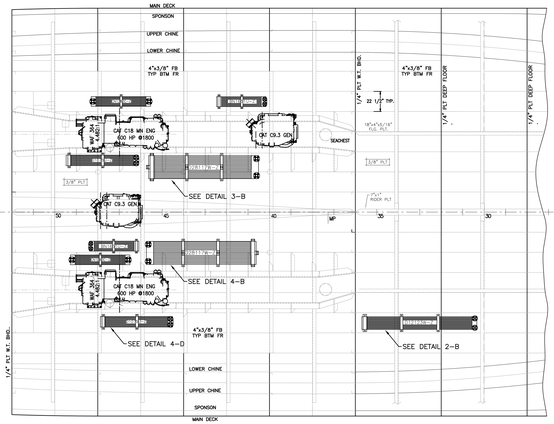

GRIDCOOLER PROFILE 4–B
BN1651U–Z, CN1263C–Z & D28117W–Z
SCALE: 3/4" = 1'–0"




DETAIL 2–C BOTTOM VIEW

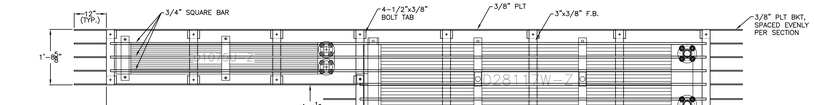



GRIDCOOLER PROFILE 2–B
D12123W–Z
SCALE: 3/4" = 1'–0"

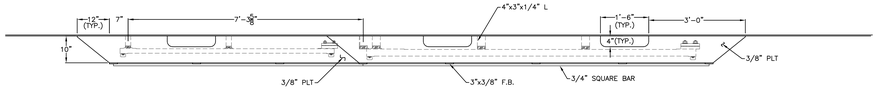



BOTTOM STRUCTURE I.W.O. GRIDCOOLERS

PLAN VIEW
SCALE: 1/4" = 1'–0"




DETAIL 3–B BOTTOM VIEW




GRIDCOOLER PROFILE 3–A
D1075U–Z & D28117W–Z
SCALE: 3/4" = 1'–0"

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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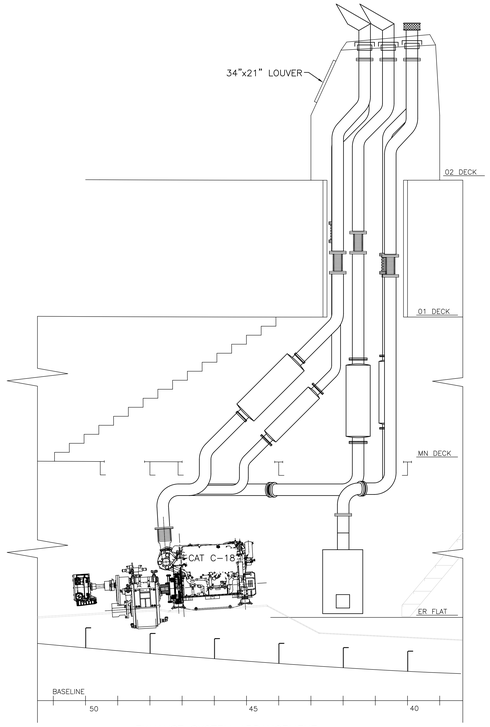
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

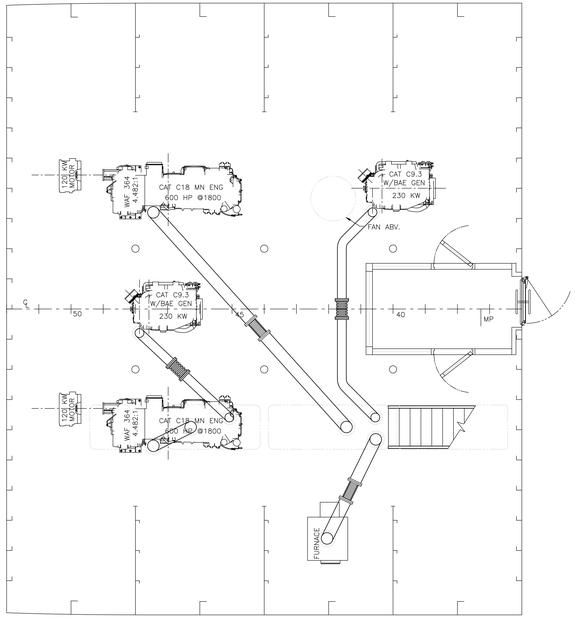
KEEL COOLER
ARRANGEMENT & DETAILS

DRAWN BY MBM+GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 1/4" = 1'–0" OR AS NOTED
DWG. NO. D358A–M10 ALT. A

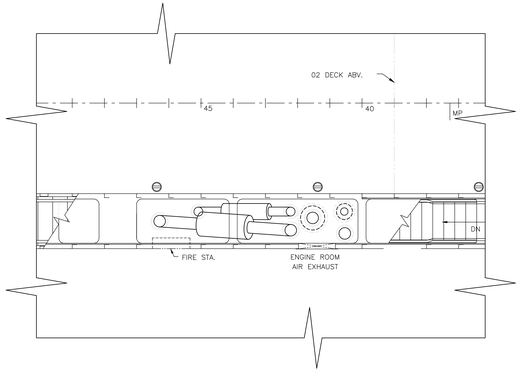
SHEET 1 OF 1



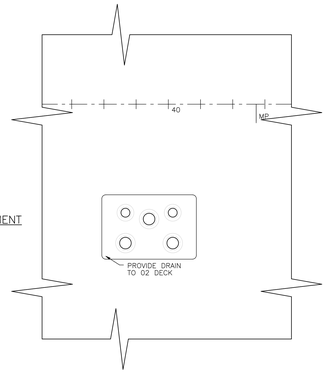

EXHAUST SYSTEM ARRANGEMENT
INBOARD PROFILE



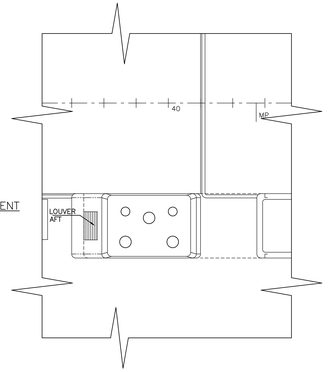

EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW
HOLD-ENGINE ROOM



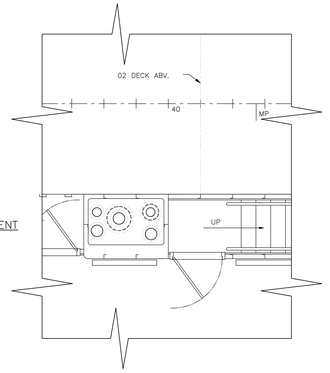

EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW
MAIN DECK




EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW
TOP OF STACK




EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW
02 DECK




EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW
01 DECK

## 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.

BILL OF MATERIALS

| NUMBER | DESCRIPTION | MATERIAL SPEC. |
|---|---|---|
| 1 | 6" SCH. 40 BLACK PIPE | ASTM A 53 GR. B |
| 2 | 8" SCH. 40 BLACK PIPE | ASTM A 53 GR. B |
| 3 | GT A202-4106 6" SPARK ARRESTING RESIDENTIAL GRADE SILENCER W/ANSI FLANGES | ALUMINIZED STEEL |
| 4 | GT A202-4108 8" SPARK ARRESTING RESIDENTIAL GRADE SILENCER W/ANSI FLANGES | ALUMINIZED STEEL |
| 5 | EXPANSION JOINT - DME TYPE 1L 6"ø, 13.5" LENGTH, LINED, MULTI PLY | T321 STAINLESS STL |
| 6 | EXPANSION JOINT - DME TYPE 1L 8"ø 15" LENGTH, LINED, MULTI PLY | T321 STAINLESS STL |
| 7 | DME 6" CAT VIBRATION ISOLATOR TYPE 13CL MULTI-PLY, LINED | T321 STAINLESS STL |
| 8 | DME FULL FLOW CAT ISOLATOR TYPE 37CV-L MULTI-PLY, LINED, W/ 6" INLET & 8" OUTLET | T321 STAINLESS STL |
| 9 | CAT C-9.3 EXHAUST ELBOW 6" OUTLET | |
| 10 | CAT C-18 EXHAUST ELOW 8" OUTLET | |
| 11 | 8" SCH. 40 PIPE - 4" LENGTH | ASTM A 53 GR. B |
| 12 | 10" SCH. 40 PIPE - 4" LENGTH | ASTM A 53 GR. B |
| 13 | 1/4" PLT W/ 3"X1/4" FLANGE | A36 STEEL |
| 14 | 8" RAIN CAP-WEATHERSHIELD CHIMNEY CAP NON AIR-COOLED - 1" MESH | |
| | 150 LB SLIP-ON FLANGES LADISH OR EQUAL | A36 STEEL |
| | 1" PIPE INSULATION FOR INTERIOR SECTIONS: GT 103-663 FOR 6"ø PIPE OR EQUAL, GT 106-600 FOR 6"ø FLANGES OR EQUAL, GT 103-863 FOR 8"ø PIPE OR EQUAL, GT 106-800 FOR 8"ø FLANGES OR EQUAL | |
| 1A | 6" SCH. 40 STAINLESS PIPE | 316L, ASTM A312 |
| 2A | 8" SCH. 40 STANILESS PIPE | 316L, ASTM A312 |

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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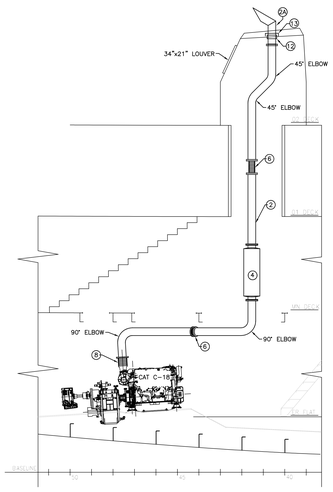
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

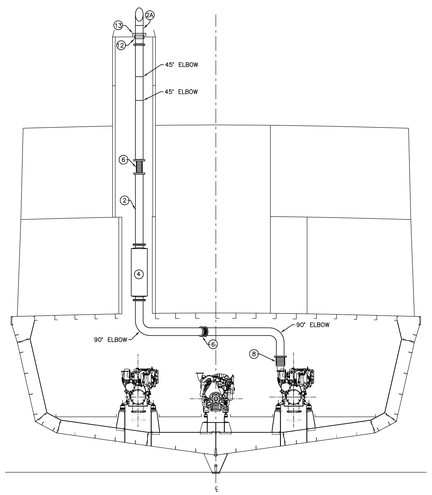
154 FT LOA FERRY VESSEL

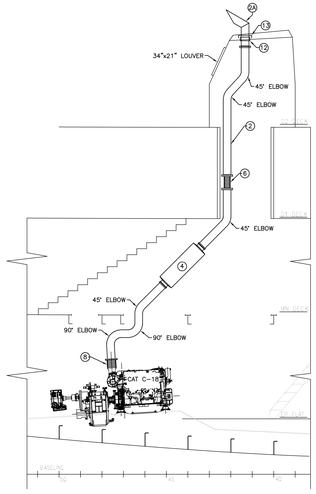
MAIN ENGINE & GENERATOR
EXHAUST ARRANGEMENTS

DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/8" = 1'-0"
DWG. NO. D358A-P1-1 ALT. A

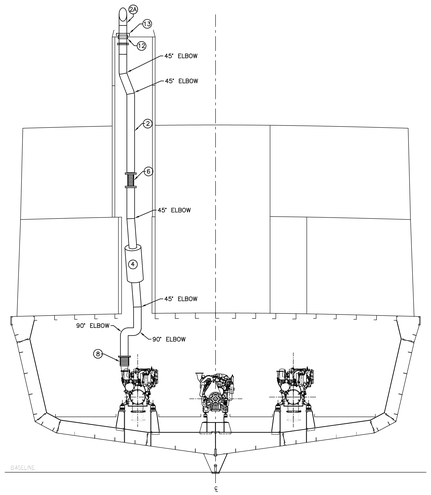


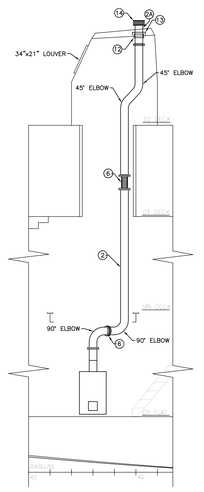

PORT CAT C-18 MAIN ENGINE
EXHAUST PROFILE

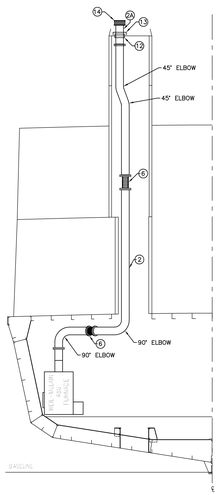


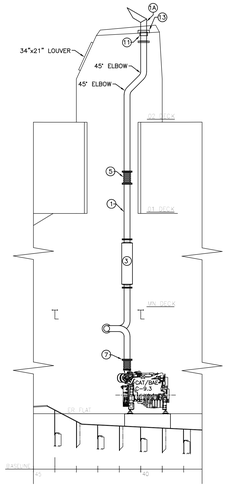

STARBOARD CAT C-18 MAIN ENGINE
EXHAUST PROFILE



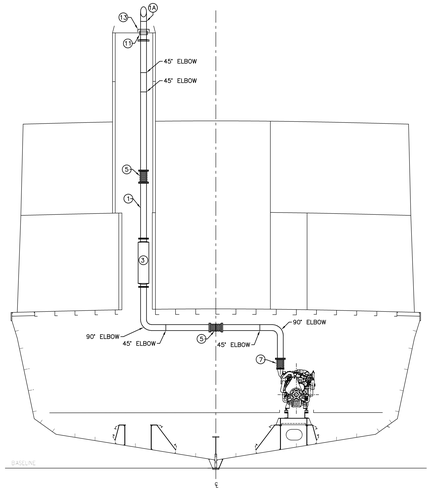



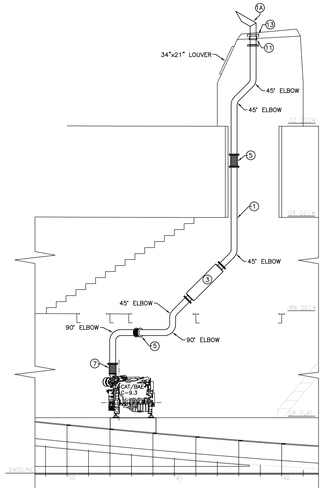




FURNACE EXHAUST PROFILE
STBD SIDE

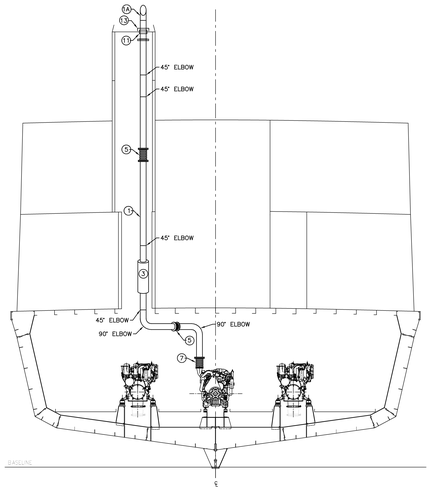



PORT/FWD CAT C-9.3 GENERATOR
EXHAUST PROFILE




CENTERLINE/AFT CAT C-9.3 GENERATOR
EXHAUST PROFILE




BILL OF MATERIALS

| NUMBER | DESCRIPTION | MATERIAL SPEC. |
|---|---|---|
| 1 | 6" SCH. 40 BLACK PIPE | ASTM A 53 GR. B |
| 2 | 8" SCH. 40 BLACK PIPE | ASTM A 53 GR. B |
| 3 | GT A202-4106 6" SPARK ARRESTING RESIDENTIAL GRADE SILENCER W/ANSI FLANGES | ALUMINIZED STEEL |
| 4 | GT A202-4108 8" SPARK ARRESTING RESIDENTIAL GRADE SILENCER W/ANSI FLANGES | ALUMINIZED STEEL |
| 5 | EXPANSION JOINT – DME TYPE 1L 6"ø, 13.5" LENGTH, LINED, MULTI PLY | T321 STAINLESS STL |
| 6 | EXPANSION JOINT – DME TYPE 1L 8"ø 15" LENGTH, LINED, MULTI PLY | T321 STAINLESS STL |
| 7 | DME 6" CAT VIBRATION ISOLATOR TYPE 13CL MULTI-PLY, LINED | T321 STAINLESS STL |
| 8 | DME FULL FLOW CAT ISOLATOR TYPE 37CV-L MULTI-PLY, LINED, W/ 6" INLET & 8" OUTLET | T321 STAINLESS STL |
| 9 | CAT C-9.3 EXHAUST ELBOW 6" OUTLET | |
| 10 | CAT C-18 EXHAUST ELOW 8" OUTLET | |
| 11 | 8" SCH. 40 PIPE – 4" LENGTH | ASTM A 53 GR. B |
| 12 | 10" SCH. 40 PIPE – 4" LENGTH | ASTM A 53 GR. B |
| 13 | 1/4" PLT W/ 3"x1/4" FLANGE | A36 STEEL |
| 14 | 8" RAIN CAP-WEATHERSHIELD CHIMNEY CAP NON AIR-COOLED – 1" MESH | |
| | 150 LB SLIP-ON FLANGES LADISH OR EQUAL | A36 STEEL |
| | 1" PIPE INSULATION FOR INTERIOR SECTIONS: GT 103-663 FOR 6"ø PIPE OR EQUAL, GT 106-600 FOR 6"ø FLANGES OR EQUAL, GT 103-863 FOR 8"ø PIPE OR EQUAL, GT 106-800 FOR 8"ø FLANGES OR EQUAL | |
| 1A | 6" SCH. 40 STAINLESS PIPE | 316L, ASTM A312 |
| 2A | 8" SCH. 40 STAINLESS PIPE | 316L, ASTM A312 |

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND

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

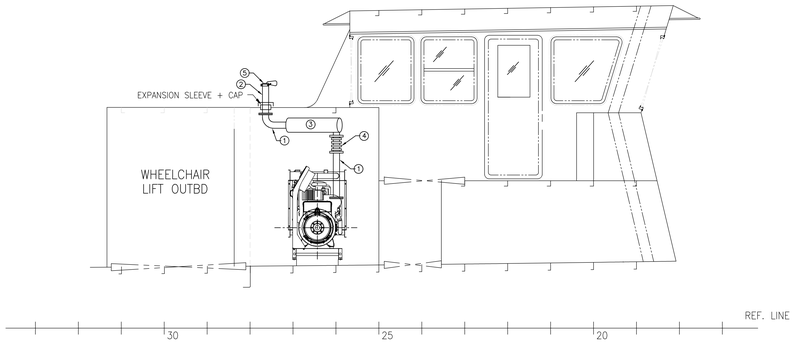
154 FT LOA FERRY VESSEL

MAIN ENGINE & GENERATOR
EXHAUST PROFILES

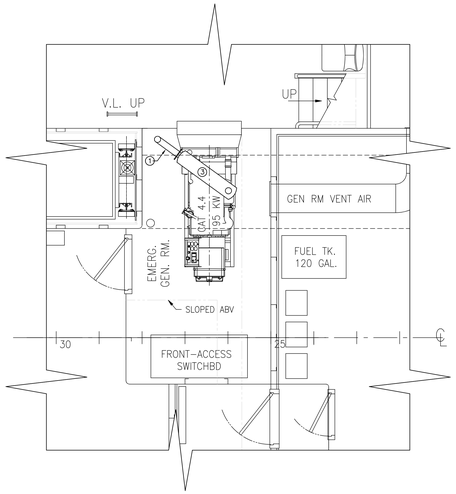
DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-P1-2 ALT. A

## BILL OF MATERIALS

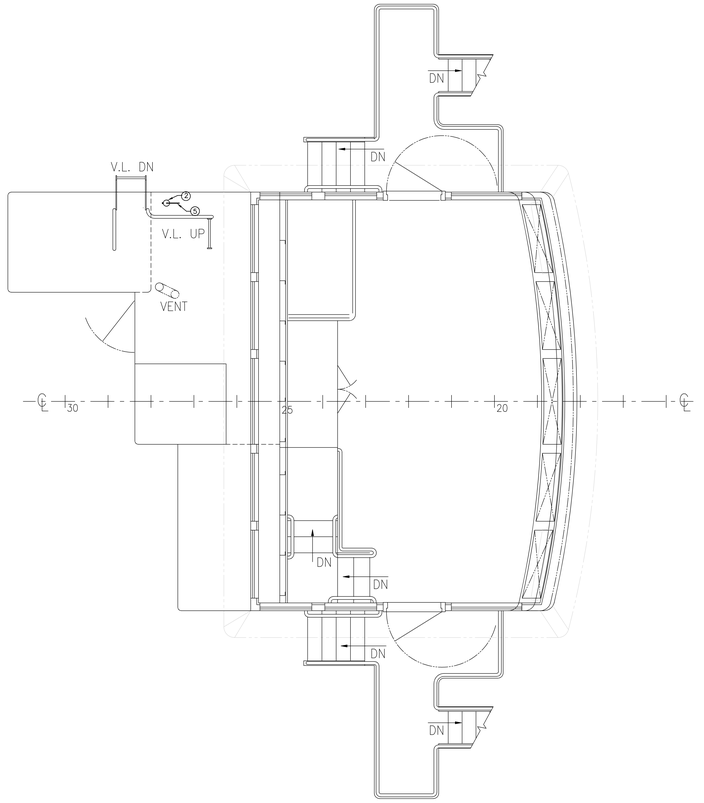
| NUMBER | DESCRIPTION | MATERIAL SPEC |
|---|---|---|
| 1 | 3" SCH. 40 BLACK PIPE | ASTM A 53 GR. B |
| 2 | 3" SCH. 40 STAINLESS STEEL PIPE | 316L, ASTM A312 |
| 3 | GT A202–4103 3" SPARK ARRESTING RESIDENTIAL GRADE SILENCER TYPE 2 | ALUMINIZED STEEL |
| 4 | EXPANSION JOINT – DME TYPE 1L 3" DIA., LINED, MULTI PLY | |
| 5 | GT 3ACI–22–300–S304 3" EXHAUST RAIN CAP | |
| | 150 LB SLIP–ON FLANGES LADISH OR EQUAL | A36 STEEL |
| | 1" PIPE INSULATION FOR INTERIOR SECTIONS: GT 103–300 FOR 3"ø PIPE OR EQUAL, GT 106–300 FOR 3"ø FLANGES OR EQUAL | |




EXHAUST SYSTEM ARRANGEMENT
PROFILE VIEW
02 DECK




EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW
02 DECK




EXHAUST SYSTEM ARRANGEMENT
PLAN VIEW
EMERGENCY GENERATOR RM HOUSETOP

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

154 FT LOA FERRY VESSEL

EMERGENCY GENERATOR
EXHAUST ARRANGEMENT

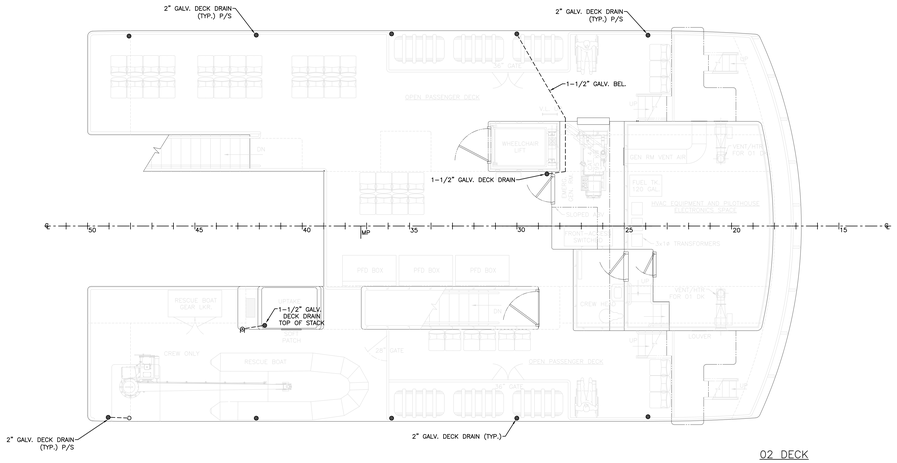
DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 1/2" = 1'-0"
DWG. NO. D358A-P1-3 ALT. A

## GENERAL NOTES

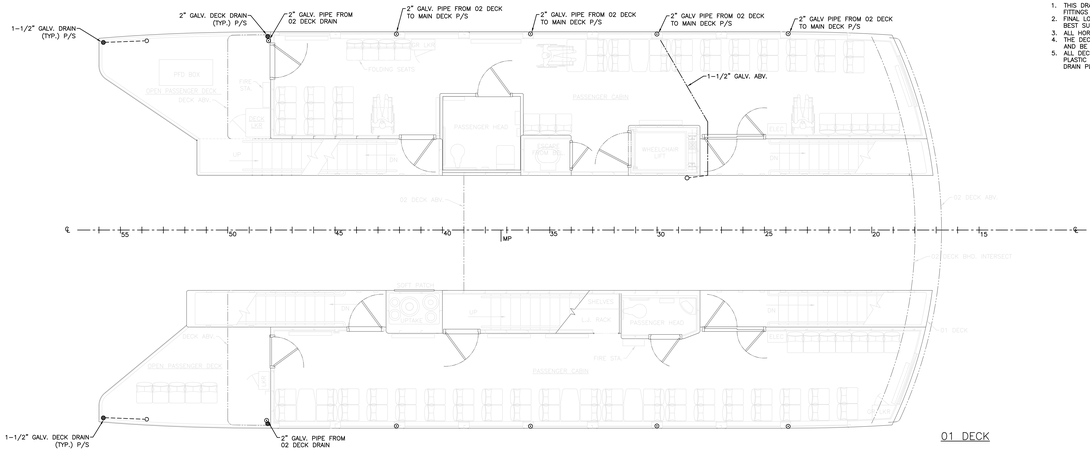
1. THIS DRAWING IS SCHEMATIC ONLY AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS EXCEPT IN GENERAL OR AS NOTED.
2. FINAL LOCATION OF ALL PIPE AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT INSTALLATION.
3. ALL HORIZONTAL PIPES SHALL BE INSTALLED WITH A SLOPE OF 1/4" PER FOOT.
4. THE 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 REMOVABLE BRASS OR APPROVED REINFORCED PLASTIC STRAINER PLATE HAVING A FREE AREA OF AT LEAST TWICE THE AREA OF THE DRAIN PLATE. THE STRAINERS SHALL BE SECURED AND SHALL BE FLUSH WITH THE DECK.

## SYMBOLS

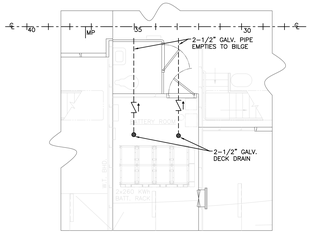
- DRAIN
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP & DOWN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- CHECK VALVE




02 DECK




01 DECK

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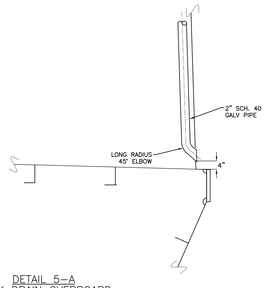
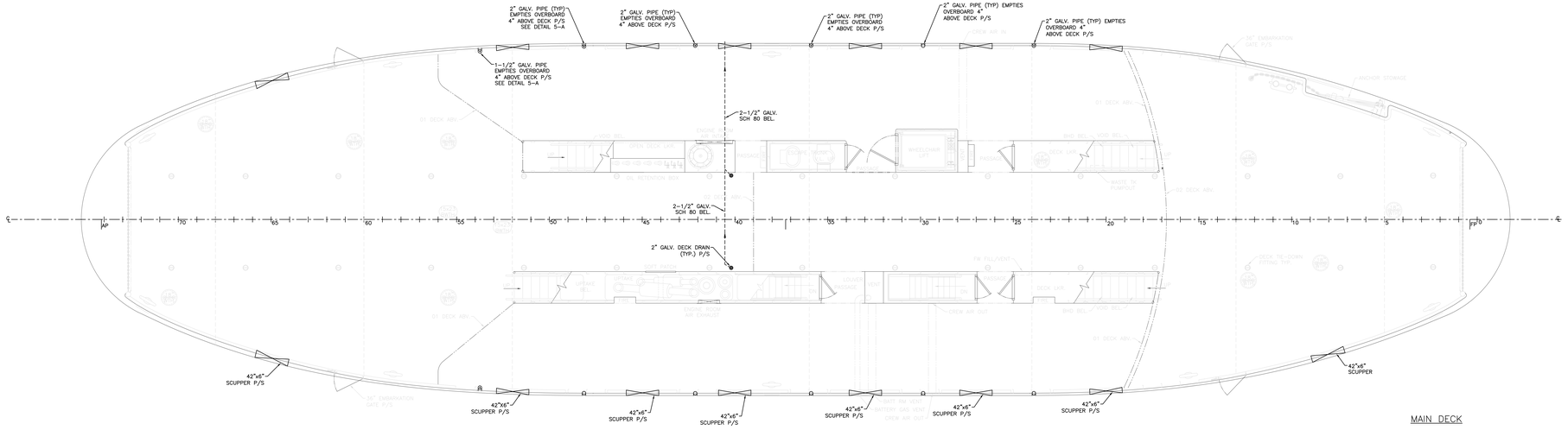



DETAIL 5-A
DECK DRAIN OVERBOARD
MAIN DECK
SCALE 1"=1'




MAIN DECK

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

154 FT LOA FERRY VESSEL

# DECK DRAIN ONE LINE PIPING SCHEMATIC MAIN, 01, 02 DECKS

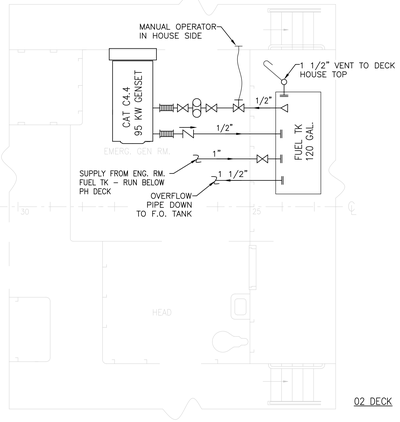
| | |
|---|---|
| DRAWN BY BKG | DATE 12/2020 |
| CHECKED BY GEG | DATE 5/2021 |
| APPROVED BY | DATE |
| SCALE NONE | |
| DWG. NO. D35A-P3 | ALT. A |

SHEET 1 OF 1

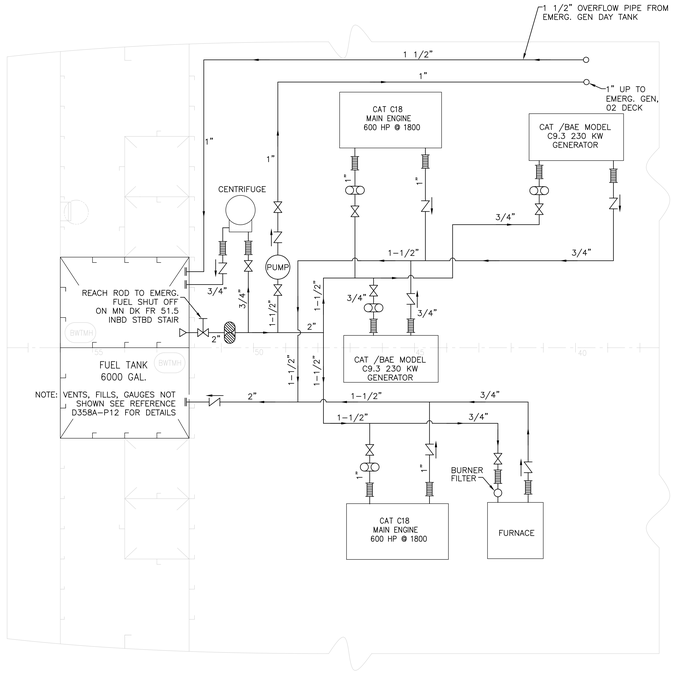
## SCHEDULE OF MATERIALS

| SERVICE | SIZE | PIPE | TAKEDOWN JOINTS | | | VALVES | | FITTINGS |
|---|---|---|---|---|---|---|---|---|
| | | | MATERIAL | GASKETS | BOLTING | BODY | TRIM | |
| FUEL OIL PIPING<br><br>MAWP: 100 PSIG<br><br>MAX TEMP: 120°F | 2½" & ABOVE | CARBON STEEL ASTM 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<br>NUTS: CARBON STEEL ASTM A563 GRADE A ANSI B18.2.2 | | | CARBON STEEL ASTM A234, GR WPB ANSI B16.9 BUTT WELD LONG RADIUS |
| | 2" & UNDER | CARBON STEEL ASTM 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<br><br>SEE NOTE 18 | CARBON STEEL ASTM A105 ANSI B16.11 3000# SOCKET WELD |

| DESCRIPTION | MATERIAL SPEC. |
|---|---|
| FUEL OIL TRANSFER PUMP | VIKING MODEL HL4195 30 GPM 2HP MOTOR @ 1750 RPM |
| 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 |




02 DECK




HOLD

## 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. EACH DRIP PAN SHALL BE FITTED WITH A LOW POINT DRAIN VALVE.
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. EMERGENCY GEN FUEL TANK SHALL BE EQUIPPED WITH HIGH & LOW LOW LEVEL ALARMS AND PROVIDED WITH FUEL TRANSFER PUMP CUTOFF.

### LEGEND

- GATE VALVE
- CHECK VALVE
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- FLEXIBLE CONNECTION
- DUPLEX STRAINER
- FUEL WATER SEPARATOR
- BELLMOUTH
- GATE VALVE W/ REMOTE ACTUATOR

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

154 FT LOA FERRY VESSEL

FUEL OIL
PIPING SCHEMATIC

| | | | |
|---|---|---|---|
| DRAWN BY | CS, MBM, GEG | DATE | 12/2020 |
| CHECKED BY | GEG | DATE | 5/2021 |
| APPROVED BY | | DATE | |
| SCALE | NONE | | |
| DWG. NO. | D358A-P4 | ALT. | A |

SHEET 1 OF 1

## BILL OF MATERIALS

| SERVICE | SIZE | PIPE | JOINTS | VALVE BODIES | VALVE MOUNTINGS | FITTINGS |
|---|---|---|---|---|---|---|
| POTABLE WATER PUMP SUCTION AND DISCHARGE UP TO HYDROPNEUMATIC TANKS | 2 IN. AND ABV. | COPPER TUBE ASTM B88 TYPE K OR L | STEEL SLIP-ON WELDED 125# STD GALVANIZED | 150# FLANGED ANSI B16.24 | BRONZE | VIEGA PROPRESS |
| | 1.5 IN AND BEL. | | MALLEABLE IRON UNION SCREWED 150# STD GALVANIZED | 150# THREADED OR SOLDER ENDS, ASTM B62 | | |
| POTABLE WATER FROM HYDROPNEUMATIC TANK (HOT & COLD) | 1.5 IN. AND ABV. | S.D. COPPER TUBING TYPE K ASTM B88 | BRONZE SILBRAZED 150# STANDARD | BRONZE SCREWED 150# STD | BRONZE | VIEGA PROPRESS |
| | 1.25 IN. AND BEL | | BRONZE SWEATED OR SILVER BRAZED UNION 150# | BRONZE HARD SOLDER 100# STD | | |
| POTABLE WATER FROM WATER HEATER | 1.5 IN AND ABV. | COPPER TUBE ASTM B88 TYPE K OR L | STEEL SLIP-ON WELDED 125# STD GALVANIZED | 150# FLANGED ANSI B16.24 | BRONZE | VIEGA PROPRESS |
| | 1.25 IN AND BEL. | | MALLEABLE IRON UNION SCREWED 150# STD GALVANIZED | 150# THREADED OR SOLDER ENDS, ASTM B62 | | |

## LEGEND

- GATE VALVE
- CHECK VALVE
- AQUAPURE F.W. FILTER (1"x1", STAINLESS BODY)
- PRESSURE GAUGE
- RELIEF VALVE
- HOSE CONNECTION
- HOSE CONNECTOR C/W CAP & KEEP CHAIN
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- —H— HOT POTABLE WATER
- —C— COLD POTABLE WATER

## GENERAL NOTES

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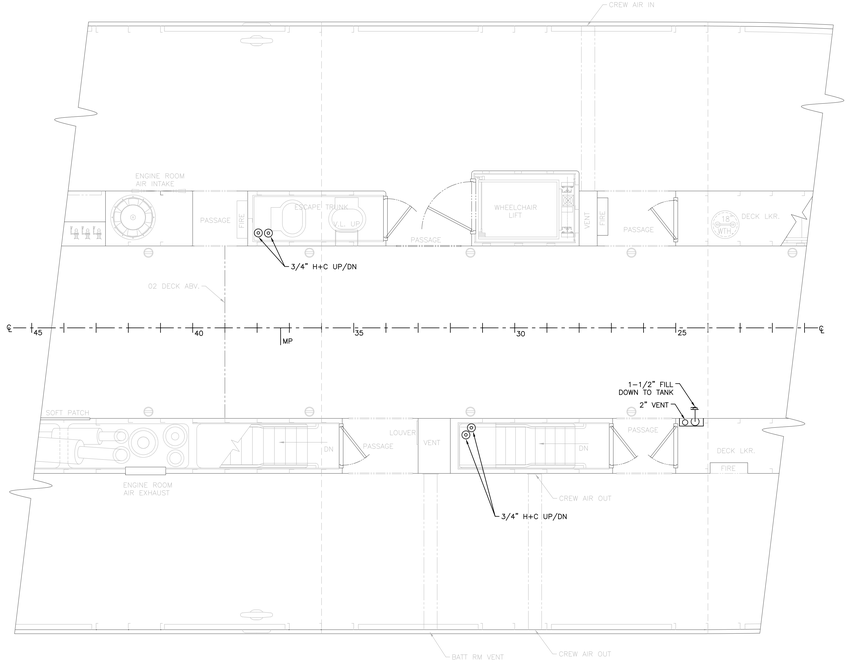
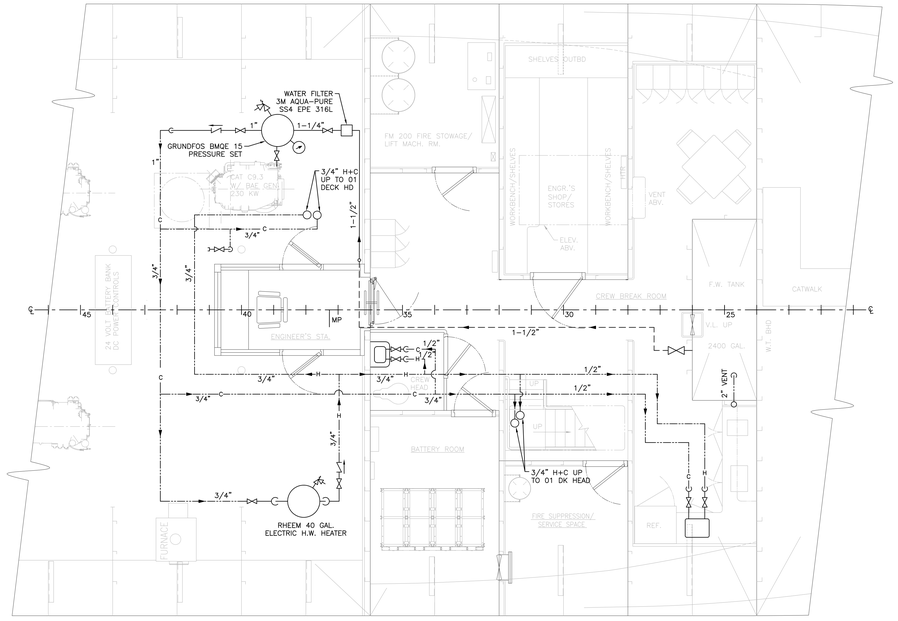
2. FINAL LOCATION OF ALL PIPE AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT A NEAT & EFFICIENT SYSTEM.
3. ALL VALVES AND SYSTEMS SHALL HAVE IDENTIFYING MARKS AND LABELS.
4. ALL VALVES CONTROLLING AN INDIVIDUAL SYSTEM SHALL BE GROUPED TOGETHER AS MUCH AS POSSIBLE
5. ALL VALVES SHALL BE LOCATED TO PROVIDE EASY ACCESS AT ALL TIMES.
6. ALL SYSTEMS SHALL BE INSTALLED WITH UNIONS OR FLANGES TO PROVIDE FOR REMOVAL.
7. ALL SYSTEMS SHALL HAVE PROVISION FOR COMPLETE DRAINAGE.
8. ALL PIPING DIAGRAMS, SPECIFICATIONS AND RECOMMENDATIONS FURNISHED BY MANUFACTURER OF EQUIPMENT SERVICED BY A SYSTEM SHALL SUPERSEDE.
9. THE POTABLE WATER SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND STANDARDS OF SANITATION FOR THE CONSTRUCTION.
10. ALL MATERIALS FOR POTABLE WATER SUPPLY SHALL BE OF MATERIALS APPROVED BY THE PUBLIC HEALTH SERVICE.
11. ON THE MAIN BRANCHES OF HOT AND COLD WATER, SHUT-OFF VALVES SHALL BE PROVIDED.
12. SIZES SHOWN ARE FOR GUIDANCE ONLY AND NECESSARY ADJUSTMENT SHALL BE AS REQUIRED BY THE EQUIPMENT AND SYSTEM TO INSURE SATISFACTORY OPERATION.
13. 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.
14. ALL WATER PIPES SHALL BE INSULATED AGAINST CONDENSATION AND FREEZING.
15. ALL PIPE LINES SHALL BE INSTALLED TO ALLOW FOR EXPANSION AND CONTRACTION.
16. PROPER SUPPORTS SHALL BE PROVIDED FOR ALL PIPE RUNS AS REQUIRED BY THE REGULATORY BODIES AND ESTABLISHED MARINE PRACTICE.
17. ALL POTABLE WATER RISERS ARE TO BE LOCATED WITHIN HEATED AREAS OF THE BOAT




MAIN DECK




HOLD

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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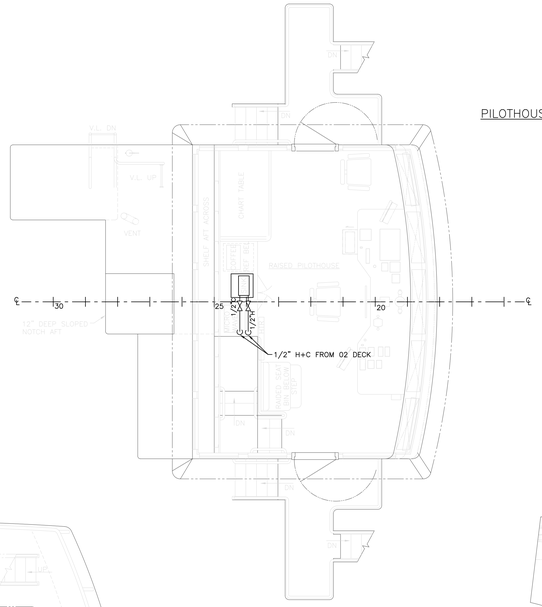
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

## POTABLE WATER PIPING SCHEMATIC HOLD & MAIN DECK

DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE NONE
DWG. NO. D358A-P5-1 ALT. A

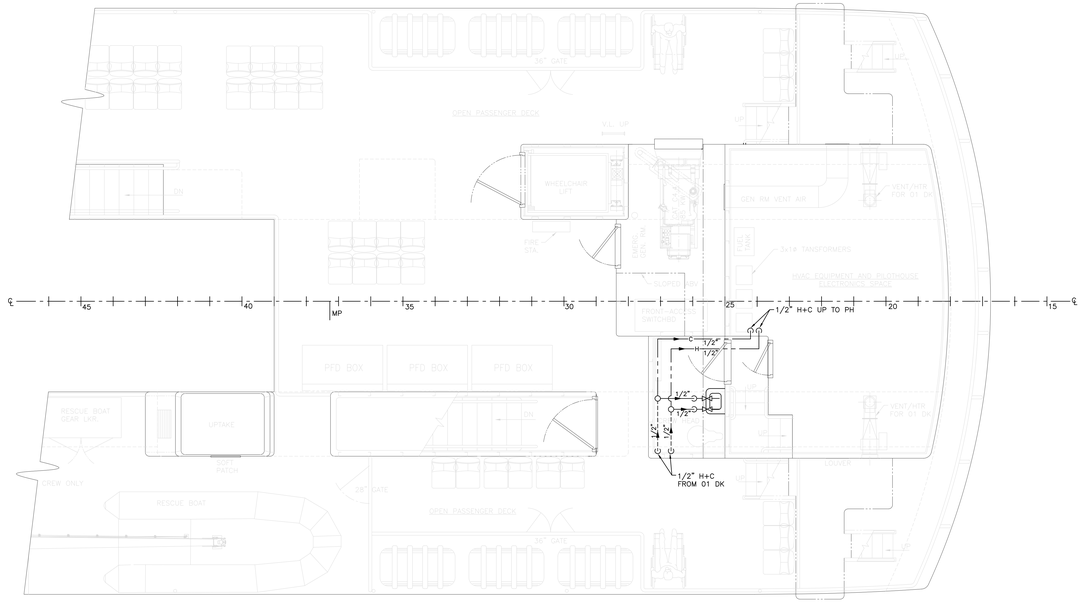
## PILOTHOUSE FLAT



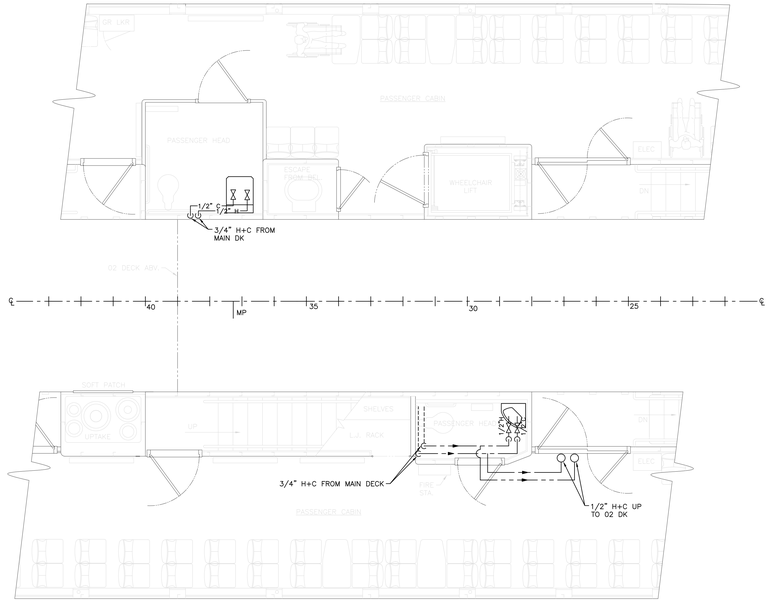

## LEGEND

- GATE VALVE
- CHECK VALVE
- RARITAN F.W. STRAINER
- PRESSURE GAUGE
- RELIEF VALVE
- HOSE CONNECTION
- HOSE CONNECTOR C/W CAP & KEEP CHAIN
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- —H— HOT POTABLE WATER
- —C— COLD POTABLE WATER

SEE SHEET 1 FOR GENERAL NOTES
SEE SHEET 1 FOR BILL OF MATERIALS




## 02 DECK




## 01 DECK

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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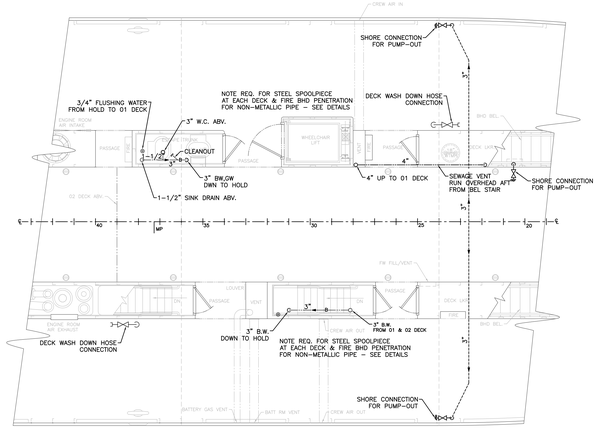
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

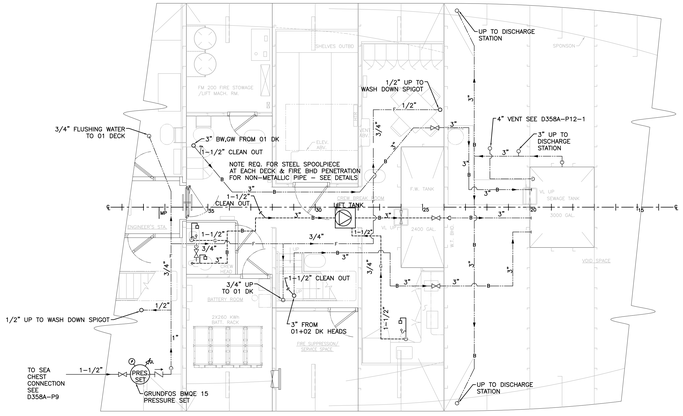
154 FT LOA FERRY VESSEL

POTABLE WATER PIPING SCHEMATIC
HOLD & MAIN DECK

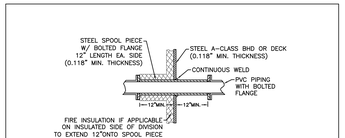
DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 4/2021
APPROVED BY DATE
SCALE NONE
DWG. NO. D358A-P5-2 ALT. A




MAIN DECK

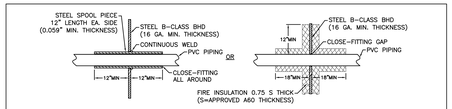



HOLD



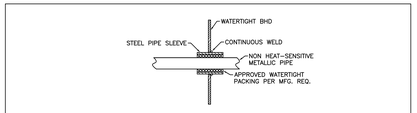

DETAIL – NON METALLIC PIPE PENETRATION THROUGH A-CLASS BULKHEAD OR DECK

NOT TO SCALE




DETAIL – NON METALLIC PIPE PENETRATION THROUGH B-CLASS BULKHEAD

NOT TO SCALE




DETAIL – NON HEAT-SENSITIVE METALLIC PIPE PENETRATION THROUGH WATERTIGHT BULKHEAD OR DECK

NOT TO SCALE

## 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 |
| LIFT STATION PUMP | ZOELLER 264 SEWAGE PUMP, 0.4 HP, 1725 RPM, 90 GPM | | | | | |

## 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 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 K.
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 DECK AND LAVATORY DRAINAGE SYSTEMS SHALL BE FITTED WITH TRAPS.
10. SLOPE SANITARY DRAIN PIPE RUNS BETWEEN 1/4" AND 1/2" PER FOOT.
11. ALL LAVATORY DRAIN PIPES SHALL BE 1-1/2", OR AS SHOWN ON THE DRAWING.
12. ALL WATER CLOSET DRAIN PIPES SHALL BE 3".
13. EACH WATER CLOSET DRAIN OR COMBINATION OF WATER CLOSETS SHALL BE VENTED TO THE ATMOSPHERE BY WAGER ANTI SIPHON VALVES.
14. ALL LAVATORY AND SINK DRAINS SHALL BE VENTED TO THE ATMOSPHERE BY WAGER ANTI-SIPHON VALVES
15. ALL MATERIALS FOR POTABLE AND SANITARY SYSTEMS SHALL BE STAMPED AND APPROVED BY NATIONAL SANITATION FOUNDATION TESTING LABORATORY (NSF)
16. THE DECK AND BULKHEAD PENETRATIONS SHALL HAVE PIPE NIPPLE REINFORCEMENT AROUND THE PIPING AND BE WELDED ON BOTH SIDES OF THE PENETRATION.
17. ALL NONMETALLIC PIPING MATERIALS SHALL MEET THE REQUIREMENTS OF 46 CFR 56.60-25.
18. PVC PIPING SHALL BE IN ACCORDANCE WITH IMO RESOLUTION A.753(18).
19. ALL PENETRATIONS THROUGH FIRE-RATED BULKHEADS BY NONMETALLIC PIPE SHALL BE IN ACCORDANCE WITH U.S. COAST GUARD NVIC 9-97 CH1. SEE SHEET 2 DETAILS.
20. ALL PENETRATIONS THROUGH WATERTIGHT BULKHEADS BY NONMETALLIC PIPE SHALL BE FITTED WITH METALLIC SHUTOFF VALVES.

## LEGEND

- ANTI-SIPHON VALVE
- GATE VALVE
- CHECK VALVE
- DECK DRAIN
- TRAP
- HOSE CONNECTOR C/W CAP & KEEP CHAIN
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- –G– GRAY WATER DRAIN
- –B– BLACK WATER DRAIN
- –F– FLUSH WATER SUPPLY
- DRAIN LIFT STATION
- PRESSURE GAUGE
- RELIEF VALVE
- THREADED CAP
- HOSE CONNECTION

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

154' LOA FERRY VESSEL

# DRAIN, WASTE, VENT, & FLUSHING WATER PIPING SCHEMATIC

| | |
|---|---|
| DRAWN BY BKG | DATE 12/2020 |
| CHECKED BY GEG | DATE 3/2021 |
| APPROVED BY | DATE |
| SCALE NONE | |

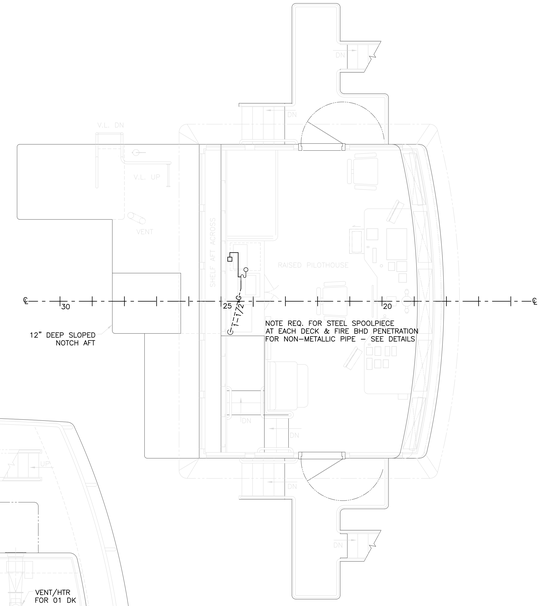

DWG. NO. D358A-P6-1 ALT. A

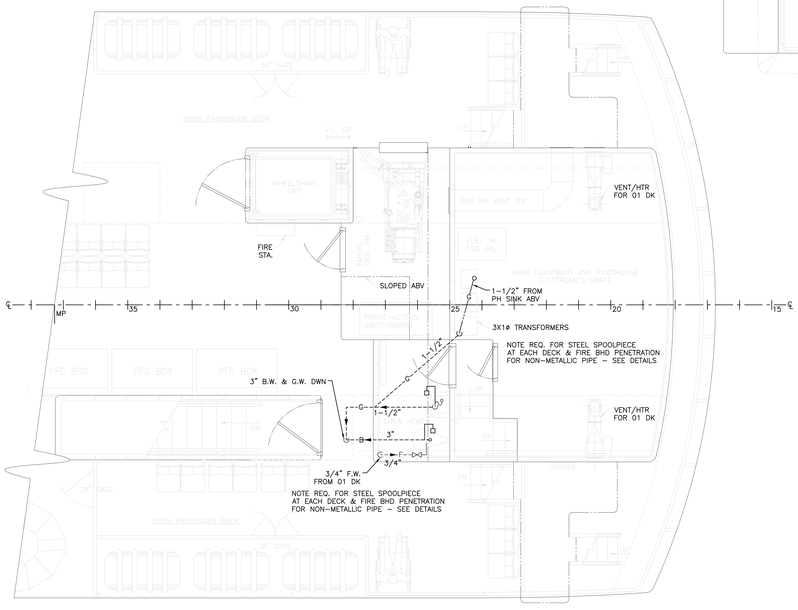
SEE SHEET 1 FOR BILL OF MATERIALS
SEE SHEET 1 FOR GENERAL NOTES
SEE SHEET 1 FOR FIRE AND WATERTIGHT BULKHEAD PENETRATION DETAILS.

## LEGEND

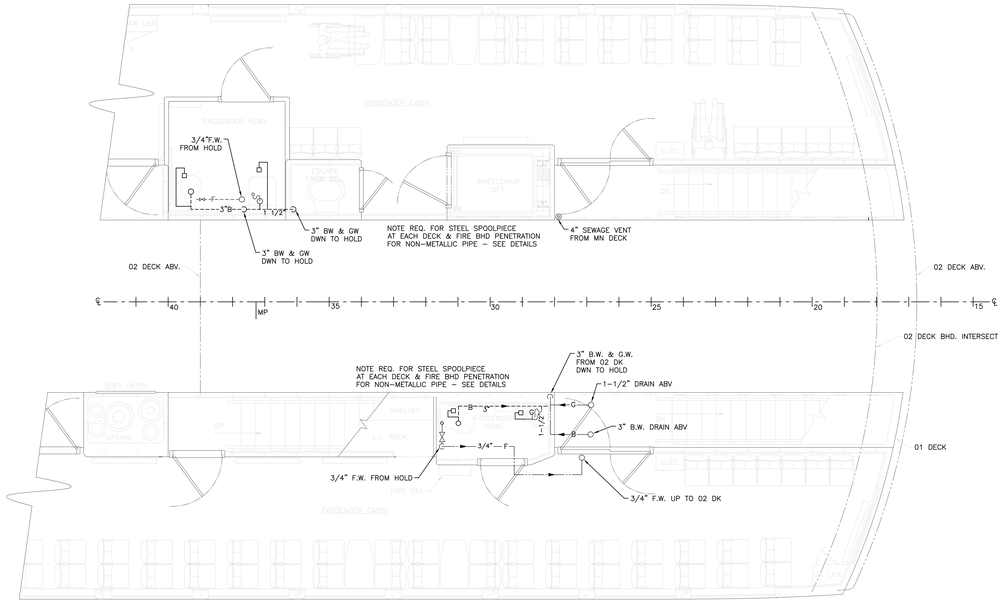
- AIR ADMITTANCE VALVE
- ANTI-SIPHON VALVE
- GATE VALVE
- CHECK VALVE
- DECK DRAIN
- TRAP
- HOSE CONNECTOR C/W CAP & KEEP CHAIN
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- PIPE RUN OVERHEAD
- PIPE RUN BELOW DECK
- —G— GRAY WATER DRAIN
- —B— BLACK WATER DRAIN
- —F— FLUSH WATER SUPPLY
- DRAIN LIFT STATION

## PILOTHOUSE FLAT




02 DECK




01 DECK

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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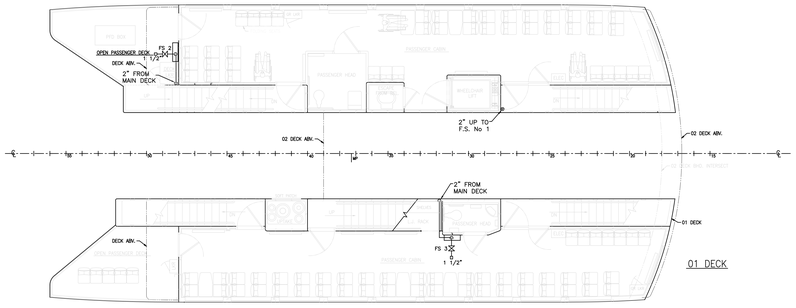
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

DRAIN, WASTE, VENT, & FLUSHING WATER PIPING SCHEMATIC

DRAWN BY BKG DATE 12/2020
CHECKED BY GEG DATE 4/2021
APPROVED BY DATE
SCALE NONE
DWG. NO. D358A-P6-2 ALT. A

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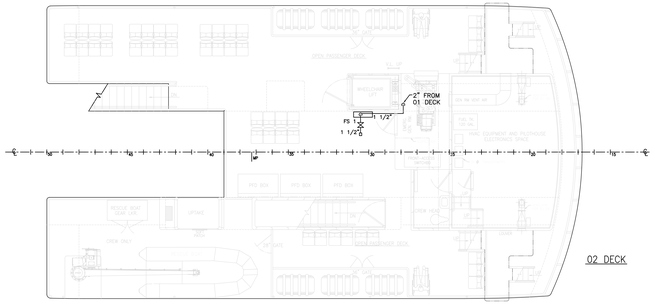


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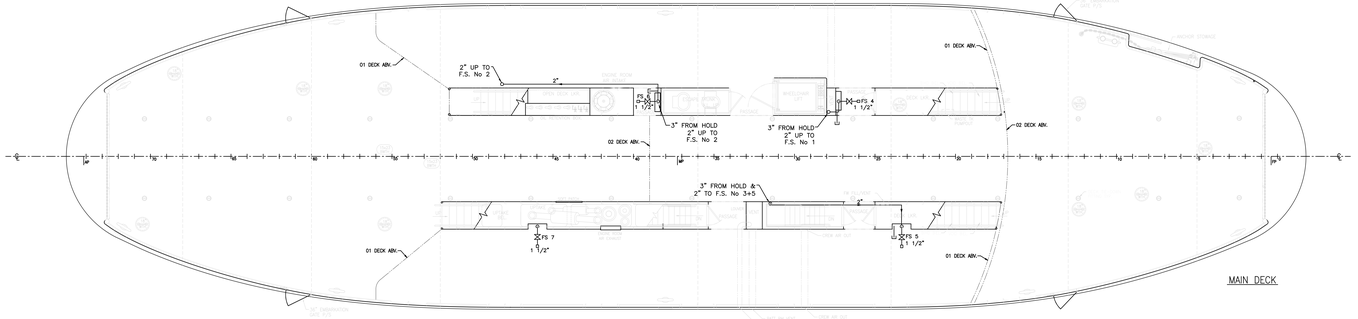
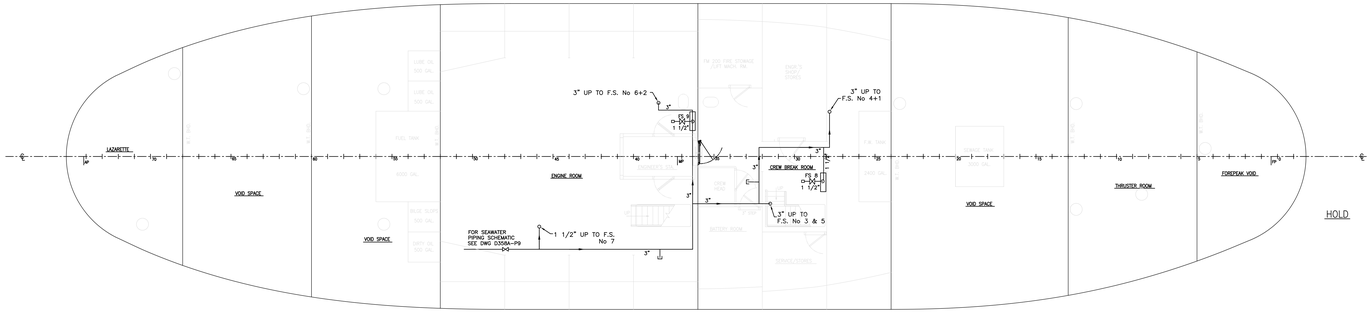



MAIN DECK




HOLD

## MATERIAL LIST

| ITEM | QUANTITY | SPECIFICATION | MATERIAL |
|---|---|---|---|
| 3", 2", 1 1/2" GALVANIZED STEEL PIPE (ABOVE SEA VALVE) | AS NEEDED | FURNACE BUTT-WELDED STEEL, SCH. 40 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 | MALLEABLE IRON, DUCTILE OR NODULAR CAST IRON, FORGED STEEL, OR CAST STEEL FLANGED, OR SCREWED ENDS, GALV. SCH 40 | ASTM A234 ASME B16.1 THRU ASME B16.11 |
| FIRE PUMP (P2) / STAND-BY BILGE PUMP | 1 | GOULDS, MODEL 7A/8F / 2 ½ X 3 X 6.375" IMPELR SELF-PR CENTRF, 200 GPM @ 170 FT.,15 HP, 3450 RPM | -- |
| 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 D358A-P9

## 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 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 K 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 A SINGLE HOSE STREAM FROM THE HIGHEST HYDRANT, THROUGH THE REQUIRED HOSE AND NOZZLE, AT A PITOT TUBE PRESSURE OF 50 PSI PER 46 CFR 118.300(b)
15. THE FIRE PUMP SHALL BE CAPABLE OF BOTH REMOTE OPERATION FROM THE OPERATING STATION IN PILOTHOUSE AND LOCAL OPERATION AT THE PUMP PER 46 CFR 118.300(e)

## SYMBOLS

- PIPE RUN
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP AND DOWN
- PENDANT SPRINKLER HEAD
- GATE VALVE
- CHECK VALVE
- PRESSURE RELIEF VALVE
- SC — SEA CHEST
- P — PRESSURE GAUGE
- P — PUMP
- DUPLEX STRAINER
- VENT
- N.C. — NORMALLY CLOSED
- 1 1/2" CONNECTION
- DRAIN

NOTE: FOR SEACHEST DETAILS SEE THE BILGE SYSTEM DRAWING D358A-P9

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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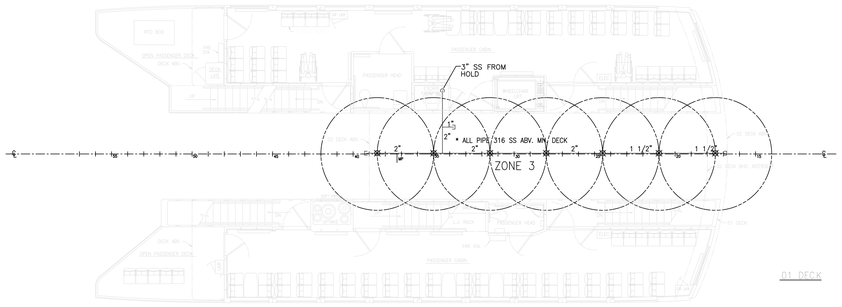
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

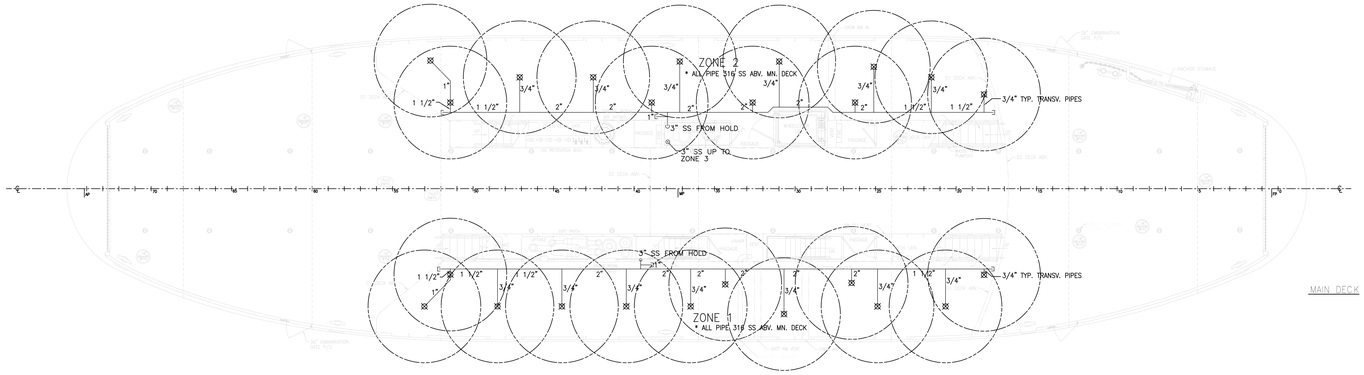
154 FT LOA FERRY VESSEL

# FIRE MAIN SYSTEM PIPING SCHEMATIC

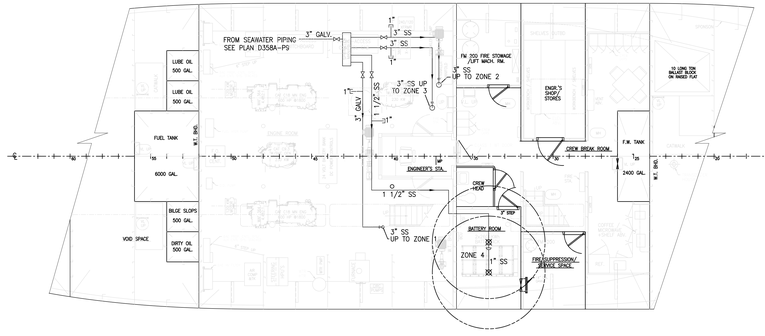
DRAWN BY KVC, GEG, JG — DATE 12/2020
CHECKED BY GEG — DATE 5/2021
APPROVED BY — DATE
SCALE 3/16" = 1'-0"
DWG. NO. D-358A-P7 — ALT. A




01 DECK




MAIN DECK




## SPRINKLER DECK AREA CAPACITY CALCULATION

MAIN DECK AREA = 900 + 950 + 500 = 2350 SQ.FT.
76.23-10(a)(1) : 12 GPM/100 SQ.FT DECK AREA
MINIMUM CAPACITY = 950 SQ.FT x 12 GPM/100 SQ.FT
MINIMUM CAPACITY = 114 GPM

ZONE 1: 12 HEADS FLOWRATE 14.5 GPM PER HEAD AT 20 PSI AND 950 SQ.FT. COVERAGE
REQUIRED SPRINKLER PUMP CAPACITY = 14.5 x 12 = 175 GPM
REQUIRED SPRINKLER PUMP HEAD = 121 FT

## MATERIAL LIST

| ITEM | QUANTITY | SPECIFICATION | ASTM |
|---|---|---|---|
| 3", 2", 2 1/2", 1 1/2" GALVANIZED STEEL PIPE | AS NEEDED IN HOLD | FURNACE BUTT-WELDED STEEL, SCH. 40 GALVANIZED W/ STEEL PLATE SLIP-ON OR FORGED STEEL JOINTS SOCKET WELDED FLANGE, GALV. | A53 |
| 3", 2", 2 1/2", 1 1/2" STAINLESS STEEL PIPE | AS NEEDED ABV MAIN DECK & ZONE 4 | STAINLESS STEEL GRADE 316 SCH 40 WELDED | A312, ASME B31.1 ASME B.36.19 |
| VALVES | AS NEEDED | BRONZE SCREWED OR FLANGED, W/ BRONZE MOUNTINGS | ASME SB62 ANSI B16.24 MSS SP-6,9,25,80 |
| FITTINGS | AS NEEDED IN HOLD | MALLEABLE IRON, DUCTILE OR NODULAR CAST IRON, FORGED STEEL OR CAST STEEL FLANGED, OR SCREWED ENDS, GALV. | ASTM A234 ASME B16.1 THRU ASME B16.11 |
| FITTINGS | AS NEEDED ABV MAIN DECK | 316 STAINLESS STEEL SOCKET WELD SCH. 40 | ASTM A403 ANSI B16.3 |
| SPRINKLER PUMP | 1 | CRANE-BARNES, MODEL 2SICU-1 SELF-PR. CENTRIF. 3"x3", 175 GPM @ 121' HEAD, 10 HP | -- |
| PENDANT SPRINKLER HEAD | AS NEEDED | 3/8" OPEN TYPE, UL APPROVED | -- |
| GASKETS | AS NEEDED | SEE NOTE 14 | ASME B16.21 |
| PIPE HANGERS | AS NEEDED | SEE NOTE 11 | MSS SP-69 |

## GENERAL NOTES

1. THE MANUAL SPRINKLER SYSTEM SHALL CONFORM TO THE REQUIRMENTS OF 46 CFR SUB PART 76.23
2. THIS DRAWING IS SCHEMATIC ONLY AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS OR EQUIPMENT EXCEPT IN GENERAL.
3. THE FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE SHIP TO BEST SUIT INSTALLATION AND THE SYSTEM SERVED.
4. ALL PIPE SIZES SHALL BE REVIEWED UPON INSTALLATION TO INSURE PROPER OPERATION OF THE SYSTEM AND SHALL CONFORM TO THE REQUIREMENT OF 46 CFR 76.23-10(C)
5. THE SYSTEM SHALL BE INSTALLED TO THE SATISFACTION OF THE OFFICER IN CHARGE OF MARINE INSPECTION.
6. THE SYSTEM AND ALL VALVES SHALL HAVE IDENTIFYING MARKS AND LABELS.
7. ALL THE SPRINKLER HEADS SHALL BE 3/8" OPEN TYPE AND APPROVED BY UNDERWRITERS LABORATORIES.
8. THE SYSTEM SHALL BE INSTALLED WITH UNIONS AND OR FLANGES TO PROVIDE FOR REMOVAL AND PREVENTATIVE MAINTENANCE
9. THE SYSTEM SHALL HAVE PROVISIONS FOR COMPLETE DRAINAGE.
10. THE DECK AND BULKHEAD PIPE PENETRATIONS SHALL HAVE REINFORCEMENT AROUND THE PIPING AND BE WELDED ON BOTH SIDES OF THE PENETRATION OR BE PACKED WITH RISE SYSTEM FILL PUTTY.
11. ALL PIPING, VALVES, FITTINGS AND SPRINKLER HEADS SHALL BE SECURELY SUPPORTED AND WHERE NECESSARY, PROTECTED AGAINST INJURY TO COMPLY WITH THE REQUIREMENTS OF 46 CFR 76.23-20 (C).
12. DRAINS AND DIRT TRAPS SHALL BE FITTED WHERE NECESSARY TO PREVENT THE ACCUMULATION OF DIRT AND MOISTURE IN ACCORDANCE WITH 46 CFR 76.23-20 (D).
13. ZONE LINE VALVES FROM THE DISTRIBUTION MANIFOLD SHALL BE PLAINLY AND PERMANENTLY MARKED INDICATING THE SPACES SERVED.
14. GASKETS MEETING 46CFR 56.25-15 SHALL BE USED AT GALVANIZED TO STAINLESS STEEL FLANGED CONNECTIONS. CONNECTIONS SHALL BE MADE IN HOLD NEAR MAIN DECK.

## SYMBOLS

- PIPE RUN
- PIPE RUN UP
- PIPE RUN DOWN
- PIPE RUN UP AND DOWN
- PENDANT SPRINKLER HEAD
- GATE VALVE
- CHECK VALVE
- DRAIN
- SC — SEA CHEST
- P — PRESSURE GAUGE
- P — PUMP
- DUPLEX STRAINER
- VENT
- N.C. — NORMALLY CLOSED
- FLANGE

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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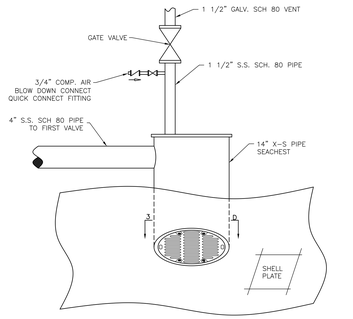
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

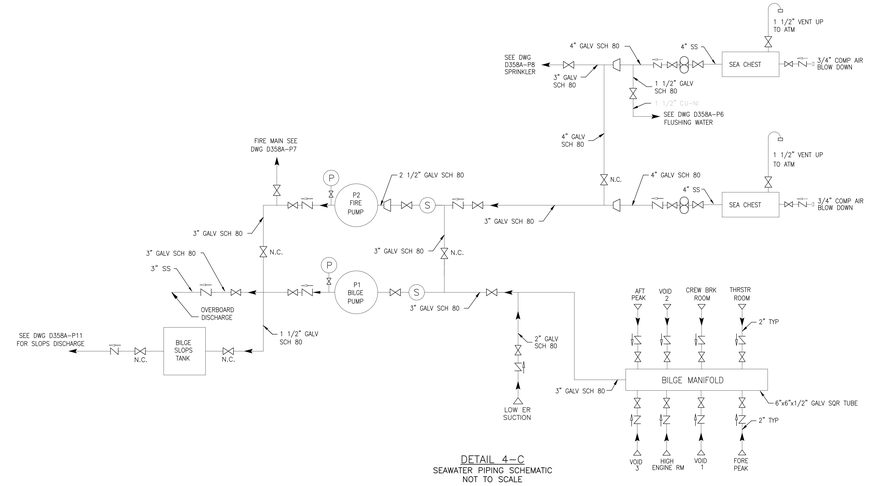
154 FT LOA FERRY VESSEL

# SPRINKLER SYSTEM ONE LINE PIPING SCHEMATIC

DRAWN BY KVC+GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 3/16" = 1'-0"
DWG. NO. D-358A-P8 ALT. A




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




DETAIL 4–C
SEAWATER PIPING SCHEMATIC
NOT TO SCALE

## 46 CFR 56.50–50(d) BILGE PIPING

LBP = 147.5 FT
B = 38 FT
D = 14.5 FT

(1) FOR SUCTIONS TO EACH MAIN BILGE PUMP:

$d = 1 + \sqrt{\frac{L(B+D)}{2500}} = 2.76" - 3"$ NOMINAL SCH 40 PIPE

(2) FOR BRANCH SUCTIONS:

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

| COMPARTMENT | (c) LENGTH | (d) DIA REQ | NOMINAL PIPE |
|---|---|---|---|
| FOREPEAK | 13.55 | 1.69 | 2" |
| THRUSTER ROOM | 16.0 | 1.75 | 2" |
| VOID 1 | 22.0 | 1.88 | 2" |
| CREW BREAK RM | 24.0 | 1.92 | 2" |
| ENGINE ROOM | 32.0 | 2.06 | 2" |
| VOID 2 | 16.0 | 1.75 | 2" |
| VOID 3 | 16.0 | 1.75 | 2" |
| LAZARETTE | 14.55 | 1.71 | 2" |

## 46 CFR 56.50–55 BILGE PUMPS

PER TABLE 56.50–55(a): 2 POWER BILGE PUMPS REQ'D

(c) BILGE PUMP CAPACITY
PUMP MUST DEVELOP NOT LESS THAN 400 FT/MIN VELOCITY IN THE BILGE MAIN
3" SCH 80 ID = 2.9"
Q = 138 GPM

## MATERIAL LIST

| ITEM | QUANTITY | SPECIFICATION | MATERIAL |
|---|---|---|---|
| 3", 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–6,8,25,80 |
| 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 | ANSI B16.5 |
| 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 | 10 | 2–1/2" FLOWMATIC CORP MODEL 357 FOOT VALVE, CAST IRON | ASTM A48 ANSI B16.24 |
| BILGE PUMP (P1) | 1 | MP FLOWMAX 15 SELF–PRIME CENTRIF, 3"x3". 150 GPM @ 77 FT, 5 HP 3450 RPM | -- |
| STAND–BY BILGE PUMP/ FIRE PUMP (P2) | 1 | GOULDS, MODEL 7A/8F, 2 1/2 X 3 X 6.375" IMPELR SELF–PR CENTRIF, 200 GPM @ 170 FT.,15 HP, 3450 RPM | -- |
| SPRINKLER PUMP (P3) | 1 | CORE MARINE MODEL SPC–1 SELF–PR CENTRIF 2"x2" 110 GPM @ 157 HEAD, 10 HP | -- |
| 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 |

## GENERAL NOTES

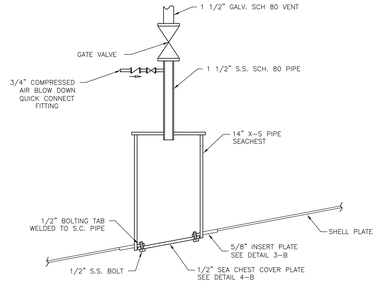
1. THIS DRAWING IS SCHEMATIC ONLY, AND DOES NOT INTEND TO LOCATE ANY PIPING, FITTINGS, OR EQUIPMENT EXCEPT IN GENERAL OR AS NOTED.
2. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE VESSEL TO BEST SUIT INSTALLATION.
3. SIZES ARE SHOWN AS MINIMUMS. IF NECESSARY, ADJUSTMENTS SHALL BE 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 56.50–85.
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 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 K 46 CFR 119.5 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 2 1/2 TIMES THE COMBINED AREA OF ALL THE VALVES CONNECTED TO THE SEA CHEST.
14. EACH PUMP DISCHARGE SHALL BE FITTED WITH A PRESSURE GAUGE.
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.

## MATERIALS LIST NOTES:

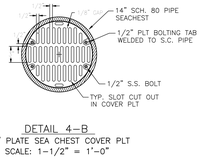
1) DIMENSIONS AND BOLTING OF PIPE FLANGES SHALL COMPLY WITH ASME/ANSI B16.5 STANDARD.

2) BILGE STRAINER AREA TO BE 3 TIMES SUCTION AREA.

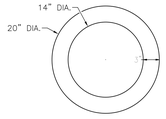
3) ALL THROUGH HULL AND THROUGH BULKHEAD PIPE PENETRATION DOUBLERS ARE TO BE IN ACCORD. W/ ABS 4.4.2/19.3 AND ASTM F994.




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

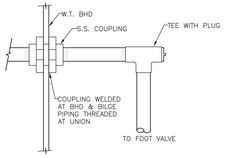



DETAIL 4–B
1/2" PLATE SEA CHEST COVER PLT
SCALE: 1–1/2" = 1'–0"

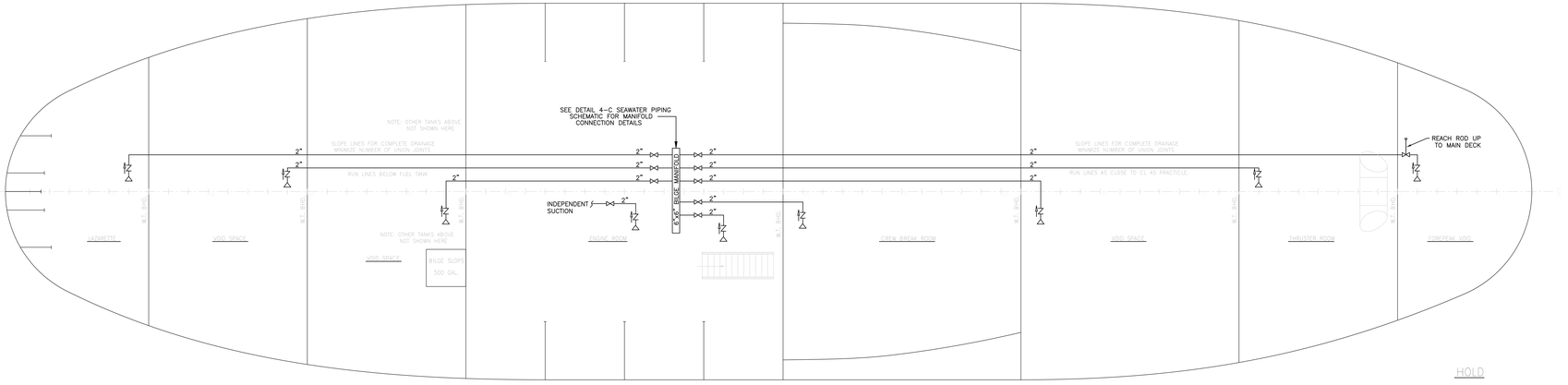



DETAIL 3–B
5/8" INSERT PLATE
SCALE: 1–1/2" = 1'–0"

DETAIL 2–B
TYPICAL BILGE PIPING EXPANSION JOINT
NOT TO SCALE




DETAIL 5–A
TYPICAL PIPE PENETRATION DETAIL
NOT TO SCALE




HOLD

## SYMBOLS

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

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

154 FT LOA FERRY VESSEL

BILGE PIPE SCHEMATIC & SEA CHEST DETAILS

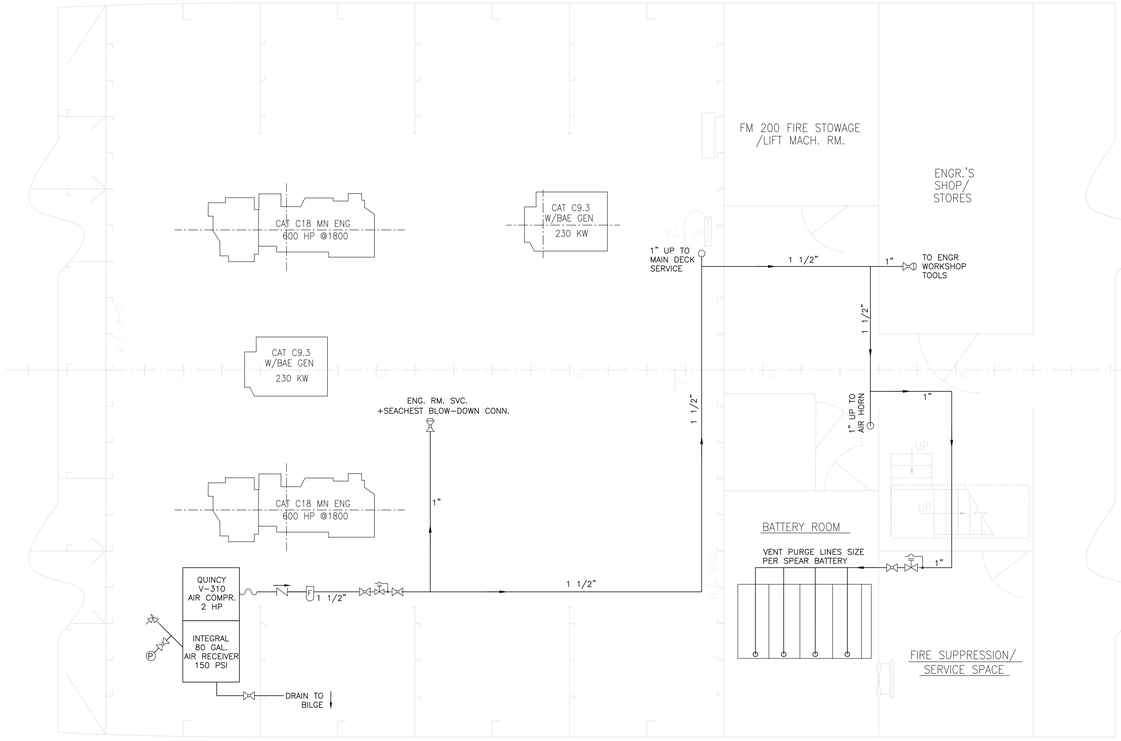
DRAWN BY KVC+GEG DATE 1/2021
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE NONE
DWG. NO. D358A–P9 ALT. A

## MATERIALS LIST

| SERVICE | DESIGN TEMP & PRESSURE | SIZE | PIPE | JOINTS | | | | VALVES | | FITTINGS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | MATERIAL | GASKETS | BOLTING | NUTS | BODY | TRIM | |
| COMPRESSED AIR | 100F<br>150 PSIG | 1 1/2" AND BELOW | SEAMLESS STEEL, ASTM A106 GR. B OR ASTM A53 GR. B, SCH. 40 BLK | 2000# F.S. SCRD. UNION ASTM A105 GR. OR II AND MSS-SP-83 | 1/16" THK. FULL-FACE NON-ASBESTOS W/ NITRILE BINDER | ALLOY STEEL STUDS ASTM A193 GR. B7 FULL THD. | SEMI-FINISHED HEX HEAD ASTM A194 GR. 2H ANSI B18.2 | FORGED STEEL ASTM A105 GR. II OR CAST STEEL ASTM A216 GR. WCB ANSI B16.10 | STAINLESS STEEL | 2000# F.S. SCRD. OR S.W. ASTM A105 GR. I OR II ANSI B16.11 |

## GENERAL NOTES:

1. THIS PLAN IS A SCHEMATIC ONLY AND IS NOT MEANT TO LOCATE PIPING SYSTEMS, MACHINERY OR TANKS. FINAL LOCATIONS SHALL BE FIELD DETERMINED TO REFLECT A NEAT, EFFICIENT INSTALLATION OR REFERENCED FROM GENERAL ARRANGEMENT. ENGINE ROOM MACHINERY IS NOT TO SCALE OR IN CORRECT LOCATIONS
2. SIZES SHOWN ARE FOR GUIDANCE ONLY AND NECESSARY ADJUSTMENT SHALL BE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION
3. ALL PIPING DIAGRAMS, SPECIFICATIONS, AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURERS OF EQUIPMENT SERVICED BY A SYSTEM SHALL SUPERSEDE.
4. NOTE THAT ALL ENGINES AND GENERATORS ARE ELECTRIC START.




HOLD COMPRESSED AIR SCHEMATIC

NOT TO SCALE

## LEGEND

- BALL VALVE
- CHECK 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

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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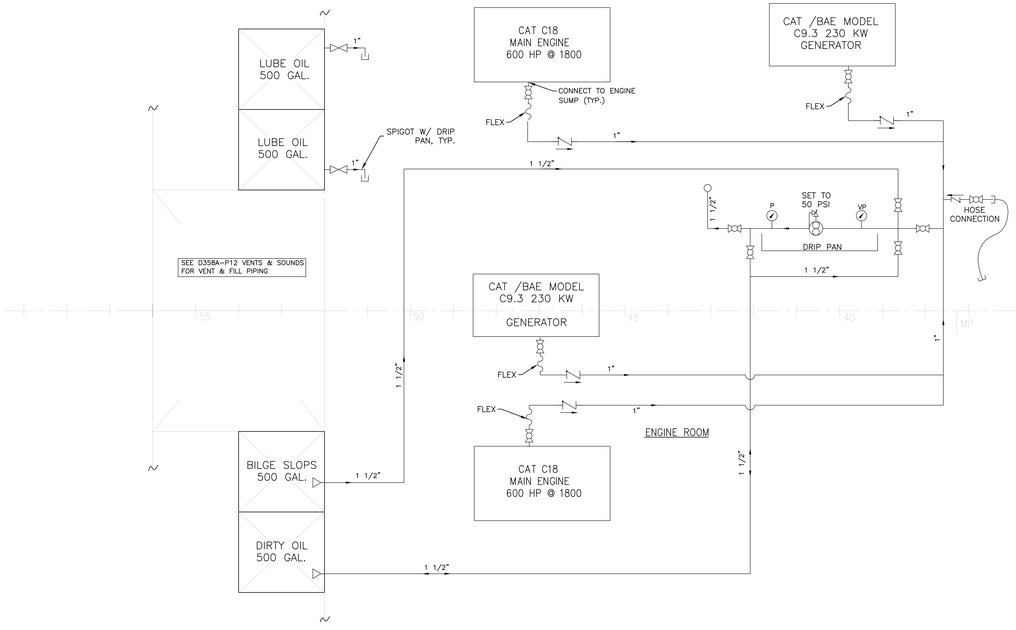
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

COMPRESSED AIR PIPING SCHEMATIC

DRAWN BY MBM, GEG DATE 1/2021
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE NONE
DWG. NO. D358A-P10 ALT. A




| | | | MATERIALS LIST | | | | | |
|---|---|---|---|---|---|---|---|---|
| SERVICE | SIZE | PIPE | JOINTS | | | VALVE | | FITTINGS |
| | | | MATERIAL | GASKETS | BOLTING | BODIES | TRIM | |
| LUBE OIL<br>MAWP:<br>100 PSIG<br>MAX TEMP:<br>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# SLIP-ON OR WELD NECK | GARLOCK IFG 5500 | BOLTS: CARBON STEEL ASTM A307 GRADE B ANSI B18.2.1<br>NUTS: CARBON STEEL ASTM A563 GRADE A ANSI B18.2.2 | BALL: CARBON STEEL ASTM A216 GR WCB SOCKET WELD OR THREADED, 1500 PSI<br>SWING CHECK: DUCTILE IRON ASTM A395 150# | BALL: CHROME PLATED CARBON STEEL BALL RPTFE SEATS<br>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 LUBE OIL/ OILY BILGE SLOPS PUMP | | | TUTHILL CC9 SERIES PUMP RATED 9 GPM, 1/2 HP @ 1750 RPM MOTOR | | | | | |

## GENERAL NOTES

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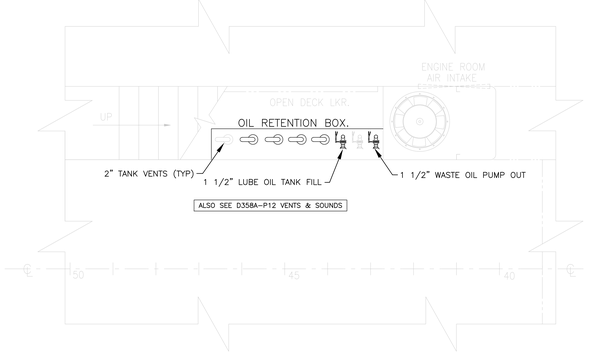
2. FINAL LOCATION OF ALL PIPES AND FITTINGS SHALL BE DETERMINED ON THE SHIP TO BEST SUIT THE INSTALLATION.
3. SIZES SHOWN ARE FOR GUIDANCE ONLY AND NECESSARY ADJUSTMENT SHALL BE AS REQUIRED BY THE EQUIPMENT AND SYSTEMS TO ASSURE SATISFACTORY OPERATION.
4. ALL PIPING DIAGRAMS, SPECIFICATIONS, AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURERS OF EQUIPMENT SERVICED BY 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 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 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. EACH DRIP PAN SHALL BE FITTED WITH A LOW POINT DRAIN VALVE.
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.




MAIN DECK

## LEGEND

- BALL VALVE
- DIRECTION OF FLOW
- CHECK VALVE
- PIPE RUN UP
- POSITIVE DISPLACEMENT PUMP
- VACUUM GAUGE
- PRESSURE GAUGE
- RELIEF VALVE
- BELLMOUTH
- PIPE CAP

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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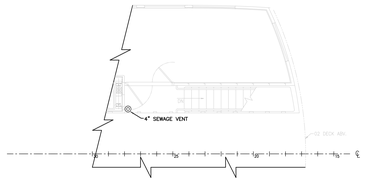
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

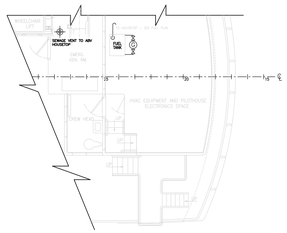
154 FT LOA FERRY VESSEL

# LUBE OIL AND WASTE OIL PIPING SCHEMATIC

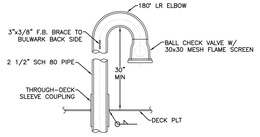
| | |
|---|---|
| DRAWN BY JVL, MBM, GEG | DATE 12/2020 |
| CHECKED BY GEG | DATE 5/2021 |
| APPROVED BY | DATE |
| SCALE 1/2" = 1'-0" | |
| DWG. NO. D358A-P11 | ALT. A |




01 DECK

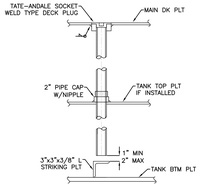



02 DECK




TYPICAL VENT DETAIL

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




TYPICAL SOUNDING TUBE DETAIL

FLUSH DECK SOUNDING

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

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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.

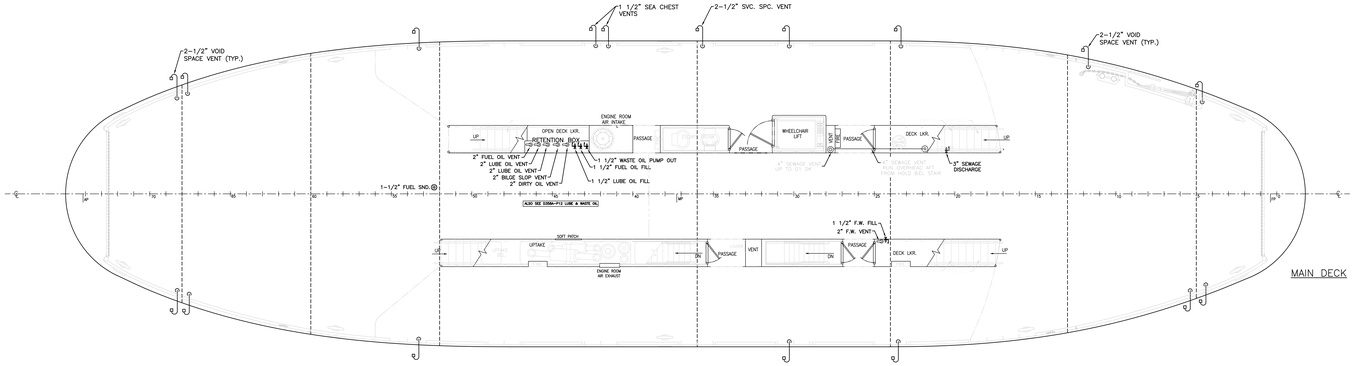
17) THE INSTALLATION, TESTING AND WORKMANSHIP MUST BE TO THE SATISFACTION OF THE OFFICER IN CHARGE, MARINE INSPECTION.

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

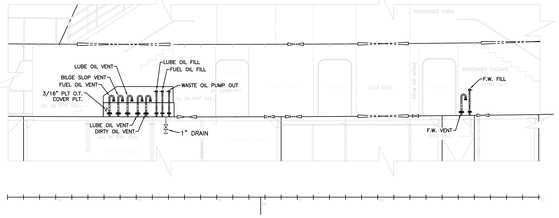
19) PROPER SUPPORTS SHALL BE PROVIDED FOR ALL PIPE RUNS AS REQUIRED BY THE REGULATORY BODIES AND ESTABLISHED MARINE PRACTICE.

## BILL OF MATERIALS

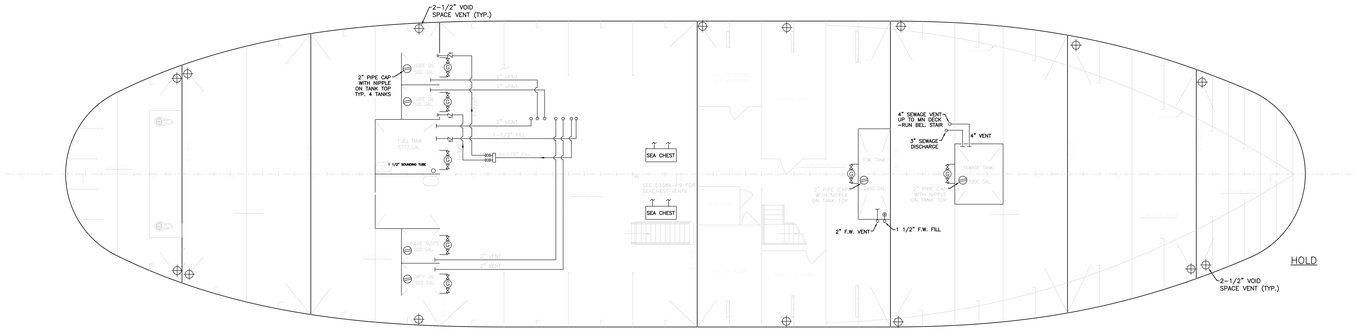
| QTY. | SIZE | DESCRIPTION | MATERIAL | ASTM |
|---|---|---|---|---|
| AS NEEDED | 1-1/2"ø | PIPE, SCH. 80, SEAMLESS | BLK STEEL | A 53 |
| AS NEEDED | 1-1/2"ø | ELBOW, SCH. 80, SEAMLESS | BLK STEEL | A 234 |
| AS NEEDED | 1-1/2"ø | TEE, SCH. 80, SEAMLESS | BLK STEEL | A 234 |
| 3 | 1-1/2"ø | VALVE, 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 | 2-1/2"ø | HAYWARD INVERTED VENT CHECK VALVE VC200 | -- | -- |




MAIN DECK




FILL AND VENT – PROFILE VIEW




HOLD

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 |
|---|---|---|---|

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

154 FT LOA FERRY VESSEL

# TANK VENTS, FILLS, AND SOUNDING PIPE SCHEMATIC

DRAWN BY AJW + GEG DATE 12/2020

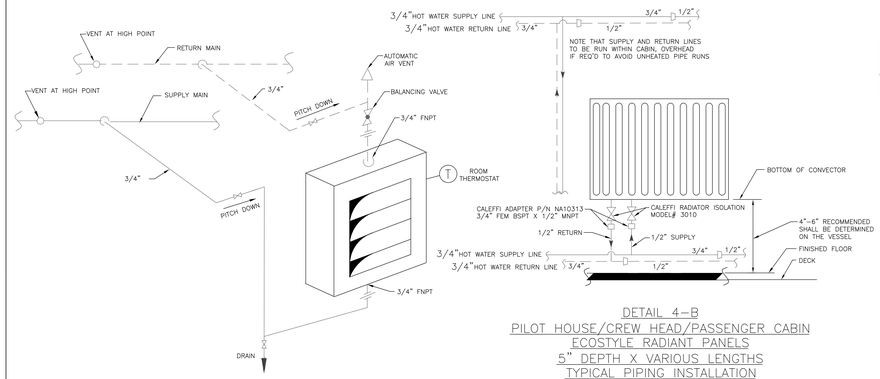
CHECKED BY GEG DATE 5/2021

APPROVED BY DATE

SCALE NONE

DWG. NO. D358A-P12 ALT. A

SHEET 1 OF 1




DETAIL 5-B
HORIZONTAL UNIT-HOT WATER HEATER
TYPICAL PIPING INSTALLATION
NOT TO SCALE

DETAIL 4-B
PILOT HOUSE/CREW HEAD/PASSENGER CABIN
ECOSTYLE RADIANT PANELS
5" DEPTH X VARIOUS LENGTHS
TYPICAL PIPING INSTALLATION
NOT TO SCALE

## HEATING CIRCULATON PUMPS

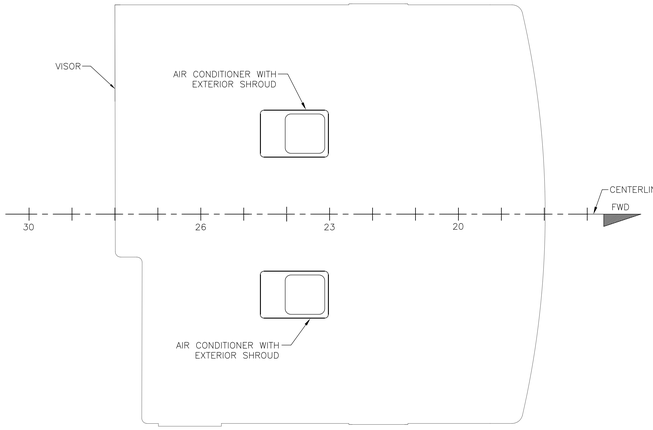
| COMPARTMENT / PUMP No. | PUMP CHARACTERISTIC QTY | MODEL | GPM | HEAD (FT) | HP | RPM | PHASE | VOLTS | MANUFACTURER |
|---|---|---|---|---|---|---|---|---|---|
| ENGINE ROOM / P1 | 2 | NPE/2ST 1-1/4x1-1/2-6 | 90 | 75 | 3.0 TEFC | 3500 | 1 | 230 | GOULDS PUMPS CO. |

## MATERIAL LIST

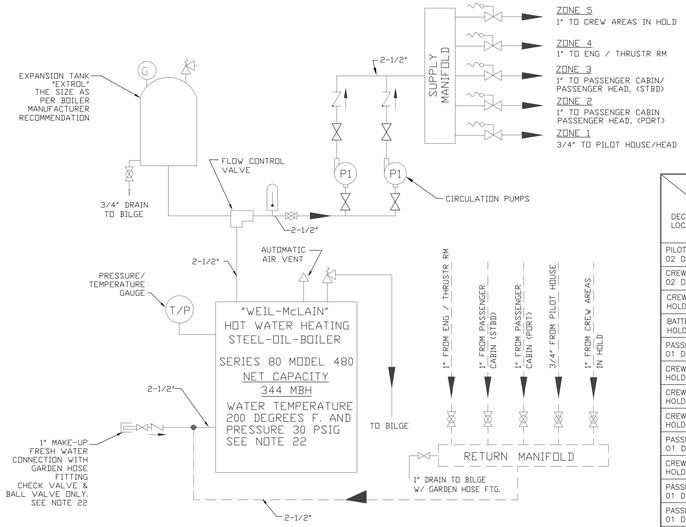
| SERVICE | SIZE | PIPE | TAKEDOWN JOINTS | VALVES BODIES | VALVES TRIM | FITTINGS |
|---|---|---|---|---|---|---|
| HEATING SYSTEM | ALL | COPPER TUBE ASTM B88 TYPE K OR L | FLANGES: SILBRAZE BRONZE ASME SB62 ANSI B16.24<br>UNIONS: BRAZED OR THREADED BRONZE ASME SB61 OR SB62 MIL-F-1183 | BALL: BRONZE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

## AIR CONDITIONING UNITS

| ITEM | LOCATION | QUANTITY | DESCRIPTION |
|---|---|---|---|
| ITEM 1 | PILOT HOUSE | 2 | COLEMAN MACH 3 PLUS 13,500 BTU, 320 CFM 115V, 60HZ, 1 PHASE |
| ITEM 2 | ENGINEER'S STATION HOLD | 1 | AMERICOOL WMC-2500 10,000 BTU 115V, 60HZ, 1 PHASE |




PLAN VIEW 5-A
PILOT HOUSE TOP
SCALE: 1/2"=1'-0"




DETAIL 3-A
TYPICAL BOILER PIPING INSTALLATION
NOT TO SCALE

## SYMBOLS

- BALL VALVE
- GATE VALVE
- THERMOSTATIC CONTROL ZONE VALVE
- 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
- CONVECTOR TYPE V.A
- PIPE RUN DOWN
- PIPE RUN UP
- PIPE RUN UP & DOWN
- CIRCULATION PUMP
- AUTOMATIC AIR VENT
- S SUPPLY
- R RETURN
- T THERMOSTAT
- BALANCING VALVE

## 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 TESTING, 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. SPECIAL ATTENTION FOR REMOVAL SHALL BE FOR THE VERTICAL PIPE RUNS AT PASSENGER CABIN AND PILOT HOUSE.
18. ALL THE ZONES SHALL BE THERMOSTATICALLY CONTROL.
19. 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.
20. VALVES AT COLLISON BULKHEAD TO BE FITTED WITH REMOTE OPERATING GEAR WITH REMOTE OPERATION ON THE MAIN DECK.
21. BULKHEAD PENETRATIONS NEED TO BE INBOARD OF THE HULL SIDE GREATER THAN 20% OF THE BEAM, MEASURED AT THE BOUNDARY PENETRATED.
22. HEATING SYSTEM PIPING SHOULD HAVE A 40% MIXTURE OF PROPYLENE GLYCOL (DO NOT USE ETHYLENE GLYCOL ADDED) TO WATER FOR FREEZE PROTECTION.

## LIST OF HOT WATER UNIT HEATERS

| DECK/LOCATION \ MODEL | "MODINE" UNIT HEATER | | ECOSTYLE RADIANT PANELS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HC 86 | HC 47 | B-24.40 ECO | B-24.32 ECO | B-16.32 ECO | B-20.16 ECO | B-24.16 ECO | B-24.24 ECO | B-20.40 ECO | B-12.32 ECO | B-20.24 ECO | B-20.48 ECO | B-20.32 ECO | B-20.56 ECO |
| | QTY | QTY | QTY | QTY | QTY | QTY | QTY | QTY | QTY | QTY | QTY | QTY | QTY | QTY |
| PILOT HOUSE 02 DECK | | | 2 | 1 | | | | | | | | | | |
| CREW HEAD 02 DECK (PORT) | | | | | 1 | | | | | | | | | |
| CREW HEAD HOLD (AFT) | | | | | | 1 | | | | | | | | |
| BATTERY ROOM HOLD (STBD) | | | | | | | | 1 | | | | | | |
| PASSENGER HEAD 01 DECK (STBD) | | | | | | | 1 | | | | | | | |
| CREW WORKSHOP HOLD PORT | | | | | | | | 1 | | | | | | |
| CREW BREAK ROOM HOLD (FWD STBD) | | | | | | | | | 1 | | | | | |
| CREW BREAK ROOM HOLD (AFT PORT) | | | | | | | | | | 1 | | | | |
| PASSENGER HEAD 01 DECK (PORT) | | | | | | | | | | | 1 | | | |
| CREW BREAK ROOM HOLD (FWD PORT) | | | | | | | | | | | | 1 | | |
| PASSENGER CABIN 01 DECK (PORT) | | | | | | | | | 1 | | | 3 | | 1 |
| PASSENGER CABIN 01 DECK (STBD) | | | | | | | | | | | | 5 | | |
| ENGINE ROOM | 2 | | | | | | | | | | | | | |
| THRUSTER ROOM | | 1 | | | | | | | | | | | | |
| TOTAL | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 8 | 1 | 1 |

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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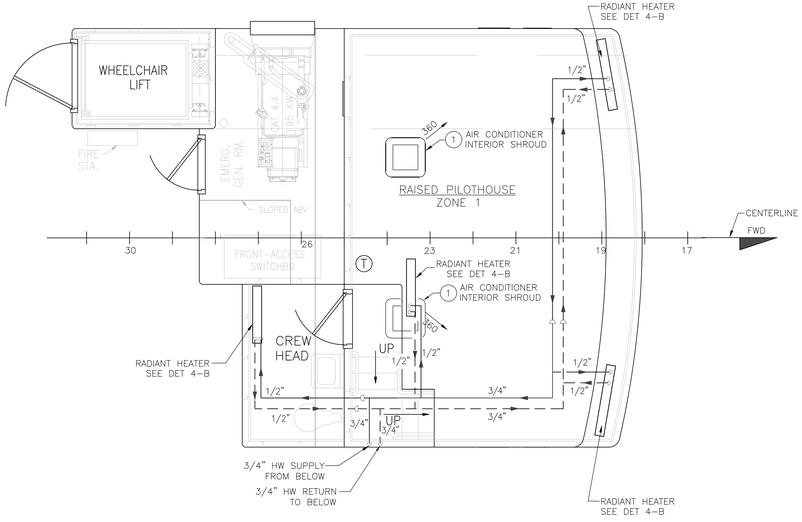
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

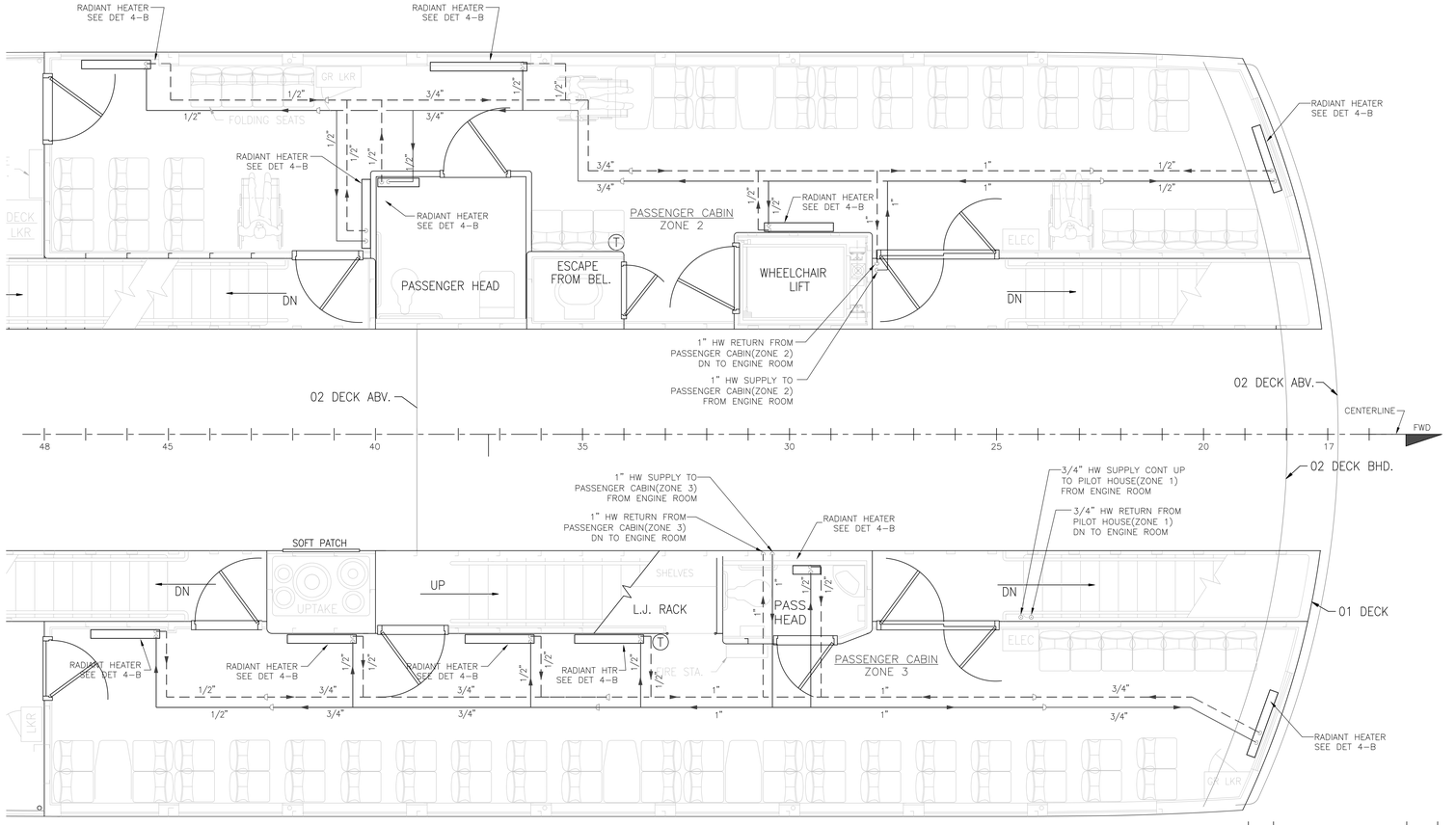
154 FT LOA FERRY VESSEL

HVAC BOILER WATER PIPE SCHEMATIC

DRAWN BY MSCORP, BKG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE AS NOTED SHT 1 OF 3
DWG. NO. D358A-P13-1 ALT. A




PLAN VIEW 10-A
PILOT HOUSE
SCALE: 1/2"=1'-0"




PLAN VIEW 7-A
PASSENGER CABIN 01 DECK
SCALE: 1/2"=1'-0"

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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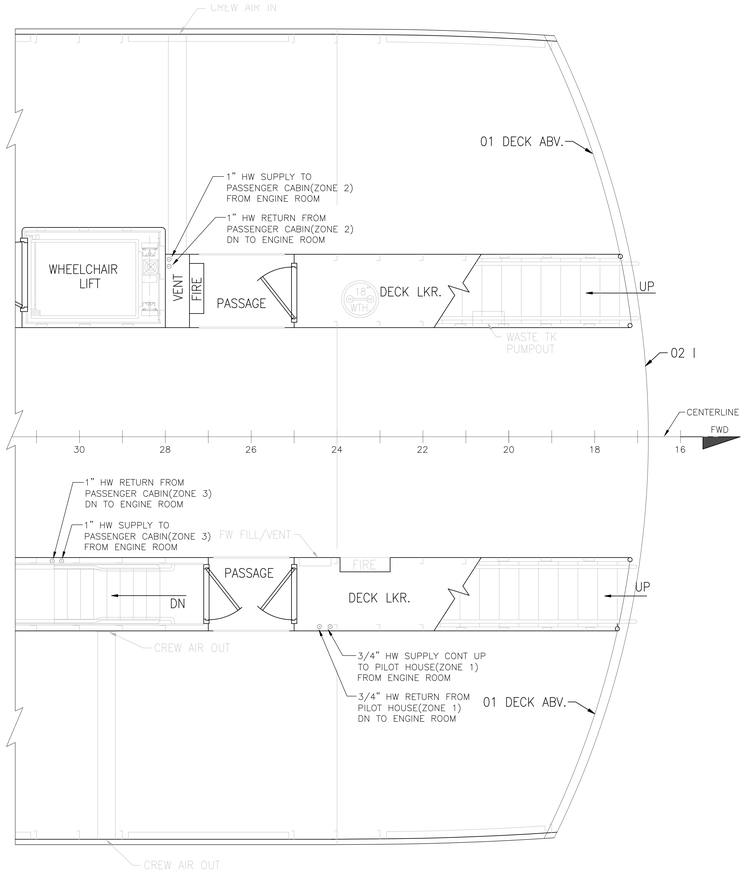
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

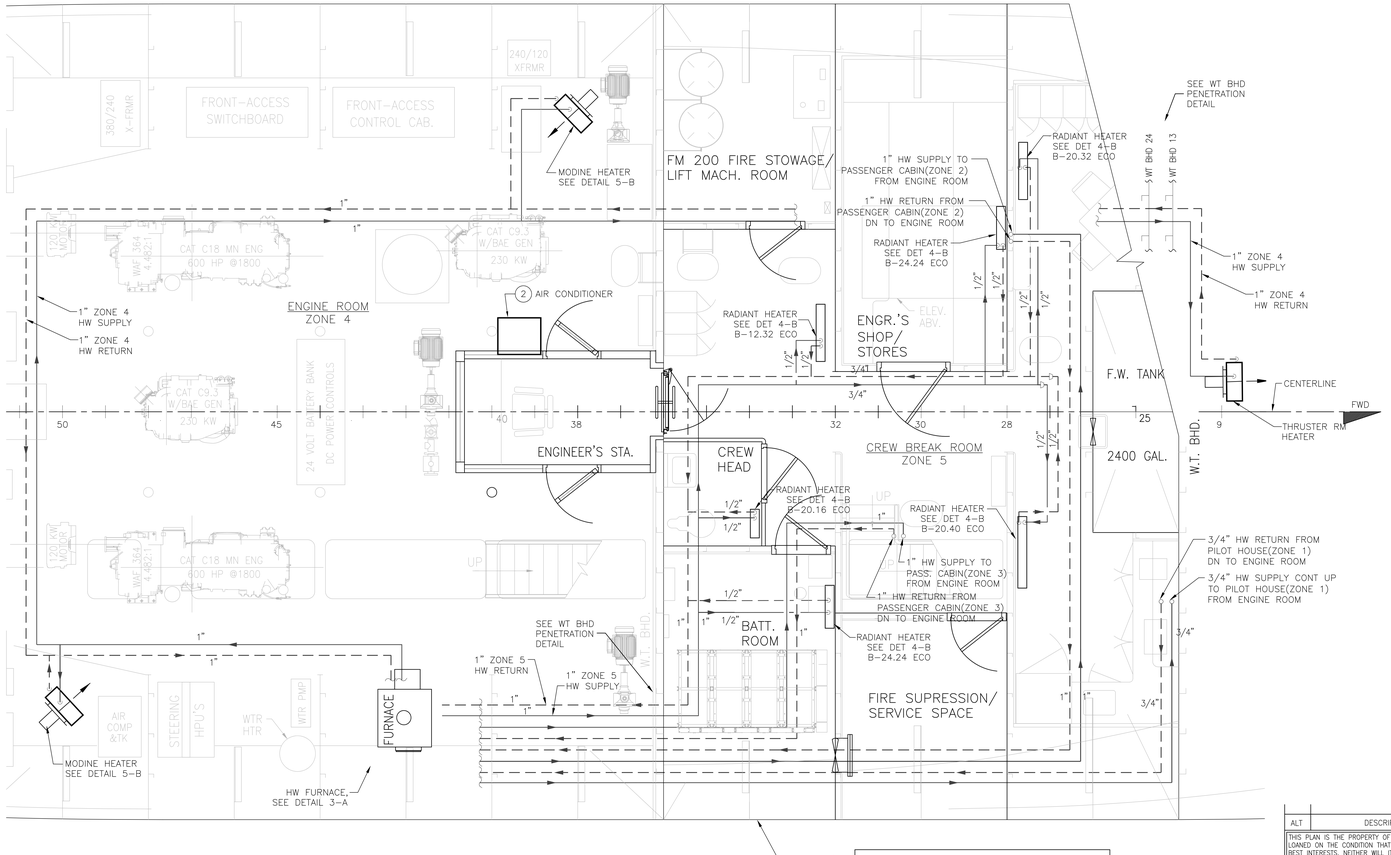
154 FT LOA FERRY VESSEL

HVAC BOILER WATER
PIPE SCHEMATIC

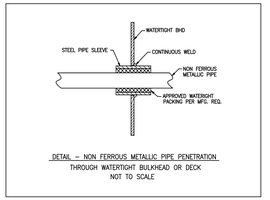
DRAWN BY MSCORP + BKG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE AS NOTED SHT 2 OF 3
DWG. NO. D358A-P13-2 ALT. A




PLAN VIEW 15-A
MAIN DECK
SCALE: 1/2"=1'-0"




PLAN VIEW 13-A
HOLD
SCALE: 1/2"=1'-0"




DETAIL – NON FERROUS METALLIC PIPE PENETRATION
THROUGH WATERTIGHT BULKHEAD OR DECK
NOT TO SCALE

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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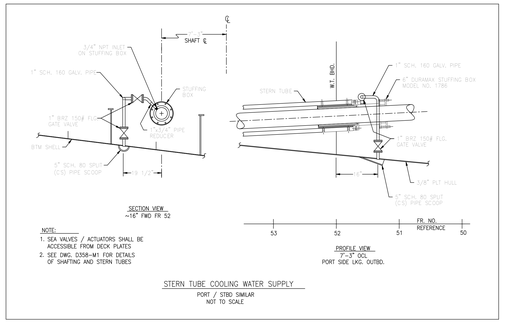
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

HVAC BOILER WATER PIPE SCHEMATIC

DRAWN BY MSCORP + BKG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE AS NOTED SHT 3 OF 3
DWG. NO. D358A-P13-3 ALT. A




NOTE:
1. SEA VALVES / ACTUATORS SHALL BE ACCESSIBLE FROM DECK PLATES
2. SEE DWG. D358-M1 FOR DETAILS OF SHAFTING AND STERN TUBES

STERN TUBE COOLING WATER SUPPLY
PORT / STBD SIMILAR
NOT TO SCALE

## MATERIALS LIST

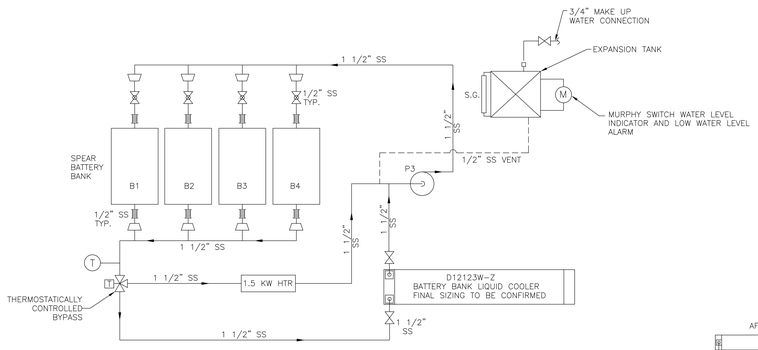
| PIPE MATERIAL | | | | VALVE MATERIAL | | | | | | | FITTING MATERIAL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SERVICE | SIZE | SPECIFICATION | MATERIAL | SERVICE | SIZE | PRESS CLASS | VALVE TYPE | VALVE POSITION | BODY MATERIAL | TRIM MATERIAL | SERVICE | SIZE | 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: REINTJES WAF-364 (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 C9.3 | 1 | GRID COOLER | D28117W-Z | FERNSTRUM |
| 2 | INT. STARTER GENERATOR + PCS / APCS ELECTRONICS BAE SYSTEMS INC. | 1 | GRID COOLER | BN1651U-Z | FERNSTRUM |
| 1 | BATTERY LIQUID COOLING SPEAR POWER SYSTEMS INC. | 1 | GRID COOLER | D12123W-Z | FERNSTRUM |

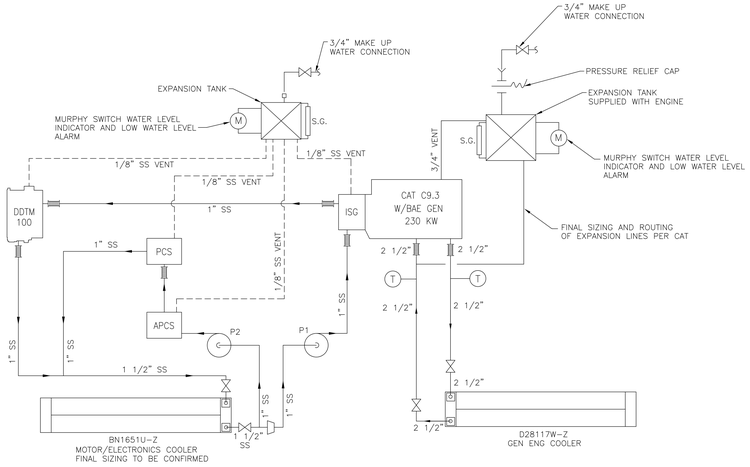
## AUX. PUMP LIST

PROPULSION LOOP P1 – 2 REQ'D – EMP PUMP, MODEL WP29, 4500 RPM
ELECTRONICS LOOP P2 – 2 REQ'D – EMP PUMP, MODEL WP29, 3450 RPM
BATTERY SYS LOOP P3 – 1 REQ'D – GOULDS PUMP, MS1E3C4, 1 HP, 35 GPM



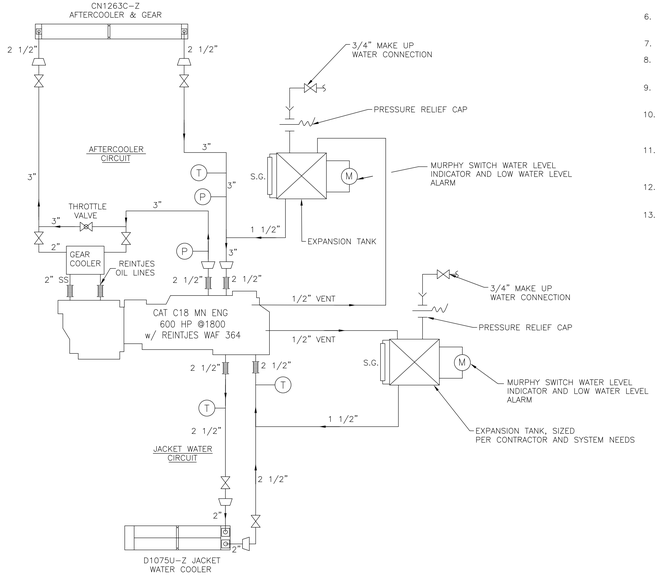

BATTERY LIQUID COOLING SCHEMATIC

NOT TO SCALE




TYPICAL SHIP SERVICE GENERATOR COOLING
& MOTOR/ELECTRONICS COOLING
SCHEMATIC – PORT & CENTER-STBD SIMILAR

NOT TO SCALE




TYPICAL MAIN ENGINE AND REDUCTION GEAR COOLING
SCHEMATIC – PORT & STBD SIMILAR

NOT TO SCALE

## 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. BATTERY AND MOTOR /ELECTRONICS COOLERS ARE PRELIMINARY AND NEED CONFIRMATION.
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 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.

## 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
- S.G. SIGHT GLASS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

154 FT LOA FERRY VESSEL

KEEL COOLER
PIPING SCHEMATIC

DRAWN BY MBM + GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE NONE
DWG. NO. D358A-P14 ALT. A

## 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 SINGLE CONDUCTOR CABLE SHOWN IN HYBRID SYSTEM LAYOUT SHALL BE TRICAB PX SERIES CABLE. ALL POWER CABLE FROM SWITCHBOARD TO LOADS SHALL BE TRICAB, OR DRILMAR 90 BY CME CABLE.

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 THE 46 CFR PARTS 114-122 (SUBCHAPTER K), 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. THE SHIP'S SERVICE SWITCHBOARD SHALL BE CAPABLE OF AUTOMATIC PARALLEL OPERATION OF THE TWO MAIN PORT/STARBOARD GENERATOR-BATTERY POWER SOURCES. THE SHIP'S SERVICE SWITCHBOARD SHALL HAVE ELECTRONIC INTERLOCK TO PREVENT CONNECTION OF SHORE POWER WHEN EITHER MAIN GENERATOR IS RUNNING. ELECTRONIC INTERLOCK SHALL BE CAPABLE OF ALLOWING SHORE POWER TO CHARGE BOTH BATTERY BANKS WHEN CONNECTED TO SHORE, AND BOTH GENERATORS ARE SHUT DOWN.

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.

## 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. MAIN FEEDER BREAKERS AND SP1 SHALL BE ELECTRICALLY INTERLOCKED SUCH THAT SHORE POWER WILL BE LOCKED OUT IF EITHER OF THE MAIN GENERATORS ARE RUNNING. NORMAL UNDERWAY OPERATION TO BE ARRANGED FOR AUTOMATIC PARALLELING OF THE TWO MAIN GENERATORS THROUGH THE SERVICE SWITCHBOARD.

4. THE EMERGENCY SWITCHBOARD SHALL BE DESIGNED TO AUTOMATICALLY START AND BRING ON LINE THE EMERGENCY GENERATOR WITHIN 30 SECONDS AFTER FAILURE OF THE SHIP SERVICE POWER SOURCE, OR FAILURE OF SHORE POWER. THE BUS-TIE BREAKER AT THE EMERGENCY SWITCHBOARD SHALL OPEN AUTOMATICALLY UPON LOSS OF SHIP SERVICE POWER. TRANSFER BACK TO SHIP SERVICE POWER OR SHORE POWER SHALL BE DONE MANUALLY.

5. AUTOMATIC VOLTAGE REGULATION OF THE VESSEL'S POWER SHALL BE ACCOMPLISHED THROUGH THE BAE AUXILIARY PROPULSION CONTROL SYSTEM.

6. 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.

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

8. 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.

9. 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

10. 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.

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

12. 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.

13. 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.

14. 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.

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

16. 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
300 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.

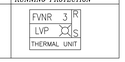
EMERGENCY GENERATOR CIRCUIT BREAKER:
LONG-TIME DELAY ELEMENT PICKUP SET TO
300 AMPS, SHORT TIME DELAY AND INSTANTANEOUS MAGNETIC ELEMENT PICKUP SET PER COORDINATION STUDY.

### SYMBOL LIST

| | |
|---|---|
| (#) | ELECTRIC MOTOR, HORSEPOWER INDICATED |
| [#] | ELECTRIC LOAD, KW INDICATED |
| LVP | LOW VOLTAGE PROTECTION |
| LVR | LOW VOLTAGE RELEASE |
| DISC | DISCONNECT SWITCH |
| 50A | CIRCUIT BREAKER |
| | RECEPTACLE |
| | INDICATOR LIGHT COLOR INDICATED |
| UVP | UNDERVOLTAGE TRIP |
| J | JUNCTION BOX |
| | TRANSFORMER |
| 200A | DISCONNECT SWITCH |

### 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

| | | |
|---|---|---|
| 15 | KEEL COOLING PIPING SCHEMATIC | D358A-P14 |
| 14 | HVAC SYSTEM, ARRANGEMENT & DETAILS | D358A-M9 |
| 13 | HVAC BOILER WATER PIPE SCHEMATIC | D358A-P13 |
| 12 | LUBE OIL, DIRTY OIL, ONE-LINE PIPING SCHEMATIC | D358A-P11 |
| 11 | COMPRESSED AIR ONE-LINE PIPING SCHEMATIC | D358A-P10 |
| 10 | BILGE ONE-LINE PIPING SCHEMATIC & MANIFOLD DETAILS | D358A-P9 |
| 9 | POTABLE WATER ONE-LINE PIPING SCHEMATIC | D358A-P5 |
| 8 | FIRE MAIN ONE-LINE PIPING SCHEMATIC & MANIFOLD DETAILS | D358A-P7 |
| 7 | FUEL OIL ONE-LINE PIPING SCHEMATIC & MANIFOLD DETAILS | D358A-P4 |
| 6 | DRAIN, WASTE & VENT ONE-LINE PIPING SCHEMATIC | D358A-P6 |
| 5 | MAIN ENGINE ROOM VENTILATION PLAN | D358A-M7 |
| 4 | RUDDER & STEERING ARRGT & CONSTRUCTION DETAILS | D358A-M2 |
| 3 | COLREGS PLANS AND NAVIGATION LIGHT MAST DETAIL | D358A-A8 |
| 2 | EATON LIGHTING CALCULATIONS FOR D-358 DESIGN + SPECS | |
| 1 | ELECTRICAL LOAD ANALYSIS | D358A-E2 |
| | REFERENCES | |

| ALT | DESCRIPTION | DATE | NAME |
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GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM
DC DISTR PANELS

| | |
|---|---|
| DRAWN BY | MSC+GEG |
| DATE | 12/2020 |
| CHECKED BY | GEG |
| DATE | 1/2021 |
| APPROVED BY | |
| DATE | |
| SCALE | NO SCALE |
| SHT | 1 OF 11 |
| DWG. NO. | D358A-E1 |
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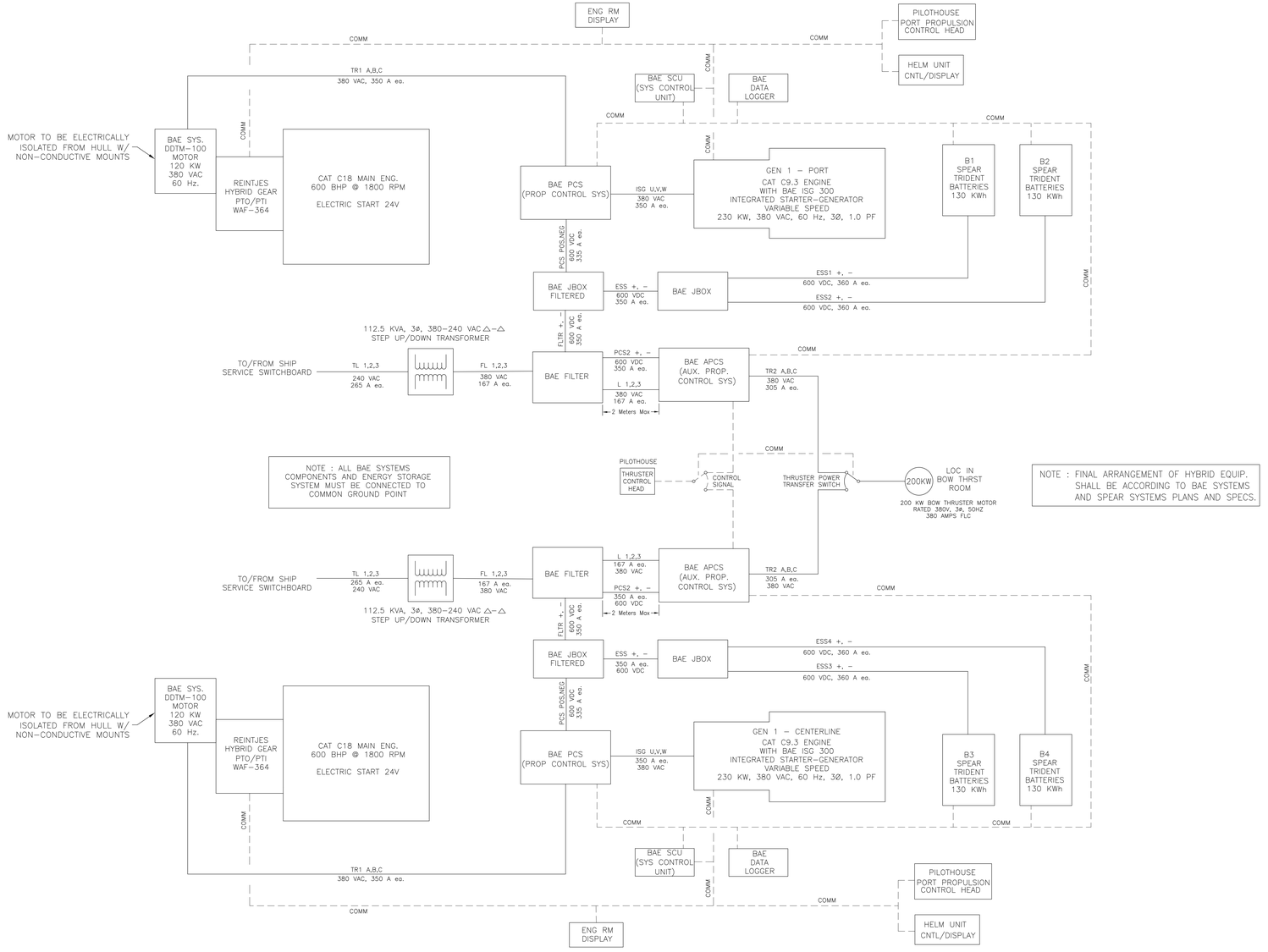


SYSTEM LAYOUT

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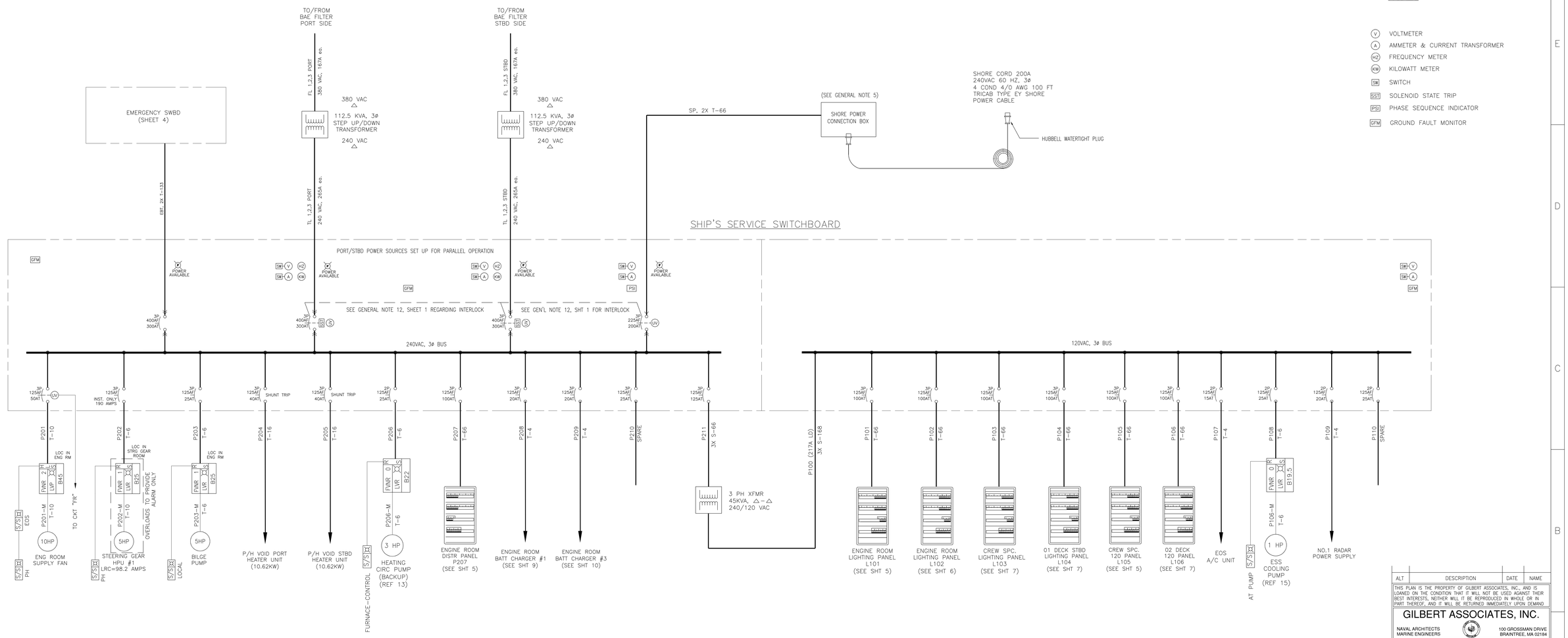
154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM
DC DISTR PANELS

DRAWN BY MSC+CEG DATE 12/2020
CHECKED BY CEG DATE 5/2021
APPROVED BY DATE
SCALE NO SCALE SHT 2 OF 11
DWG. NO. D358A-E1 ALT. A




FEEDERS AND MAINS

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154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM DC DISTR PANELS

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| DRAWN BY MSC+GEG | DATE 12/2020 |
| CHECKED BY GEG | DATE 5/2021 |
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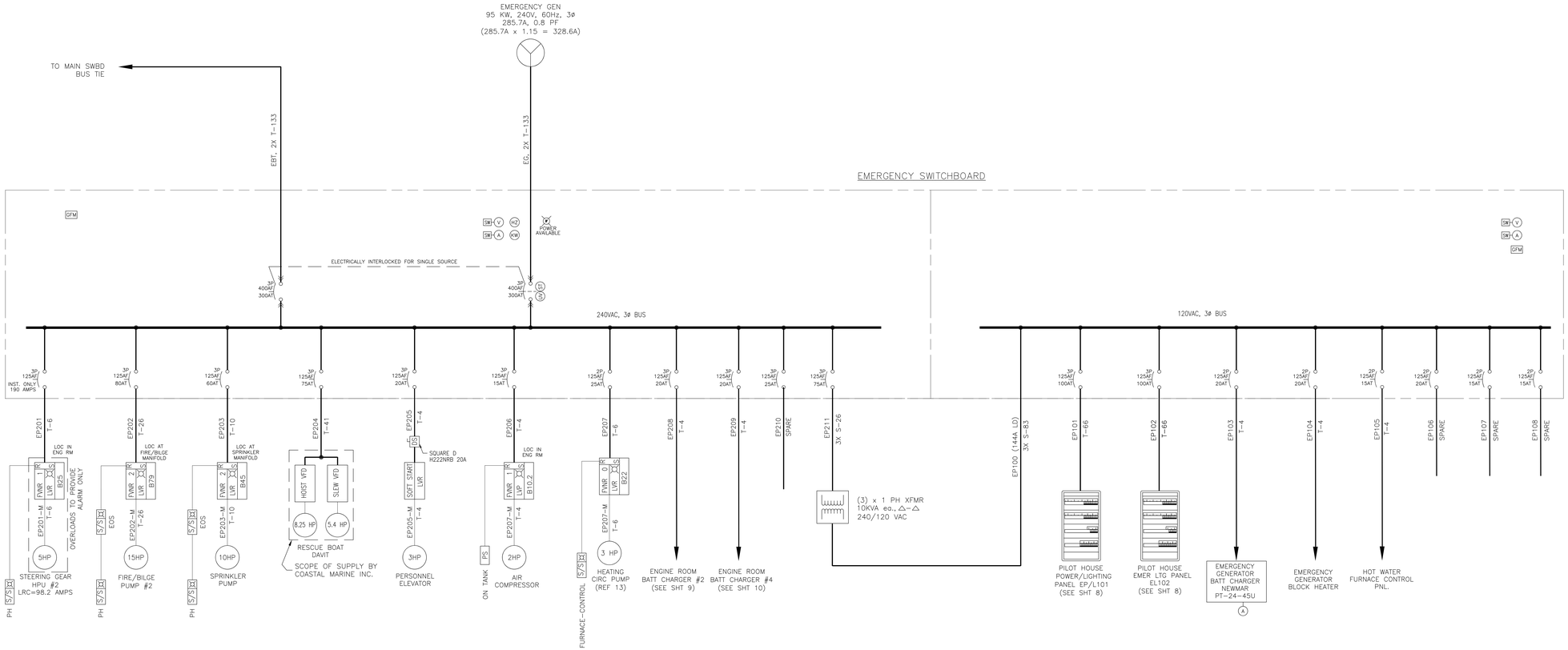


LEGEND:

- (V) VOLTMETER
- (A) AMMETER & CURRENT TRANSFORMER
- (HZ) FREQUENCY METER
- (KW) KILOWATT METER
- SW SWITCH
- GFM GROUND FAULT MONITOR

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM
DC DISTR PANELS

DRAWN BY MSC+GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE NO SCALE SHT 4 OF 11
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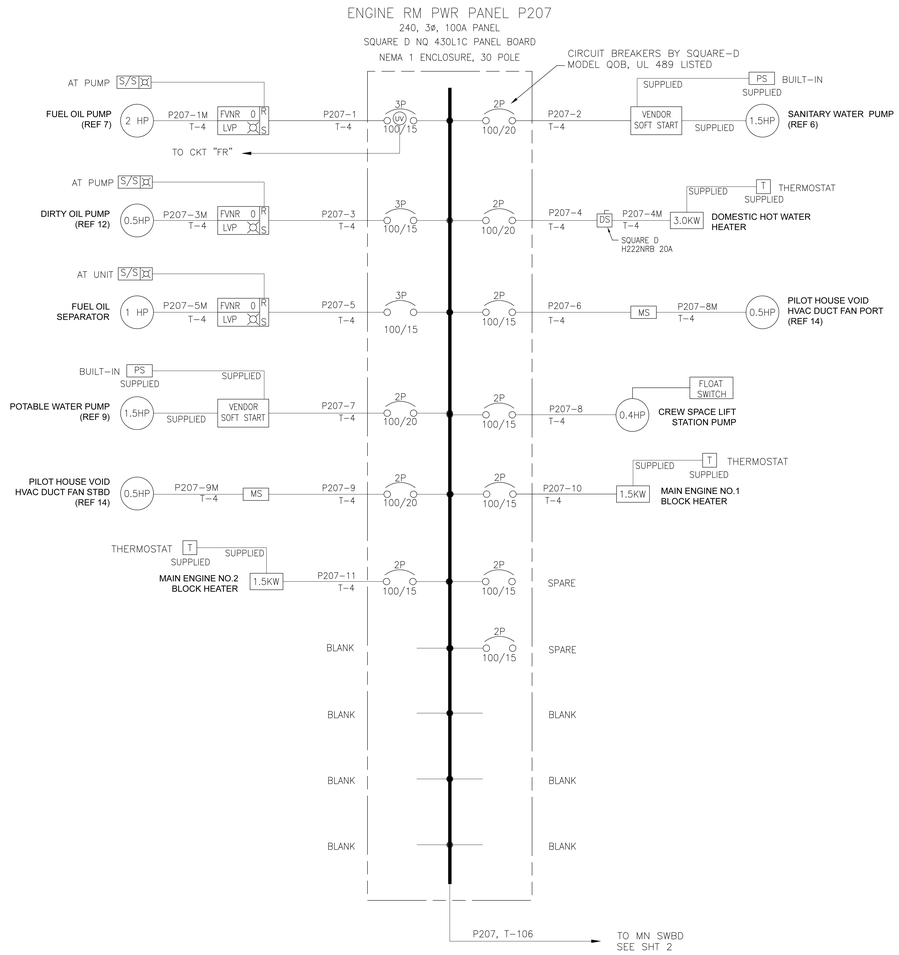


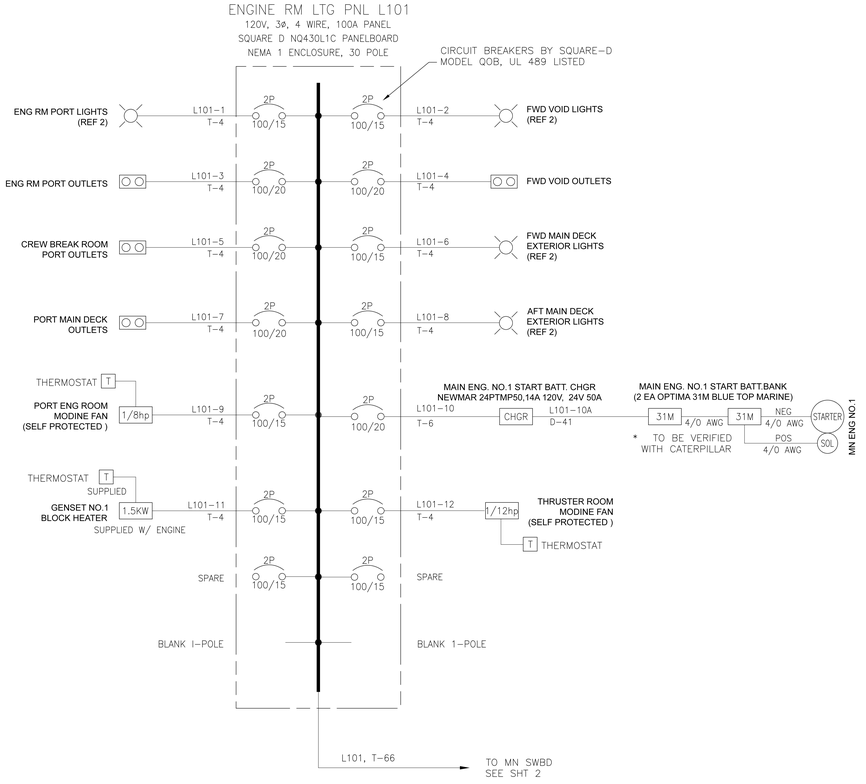


ENGINE ROOM AC DISTRIBUTION PANELS

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154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM DC DISTR PANELS

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| DRAWN BY MSC+CEG | DATE 12/2020 |
| CHECKED BY CEG | DATE 3/2021 |
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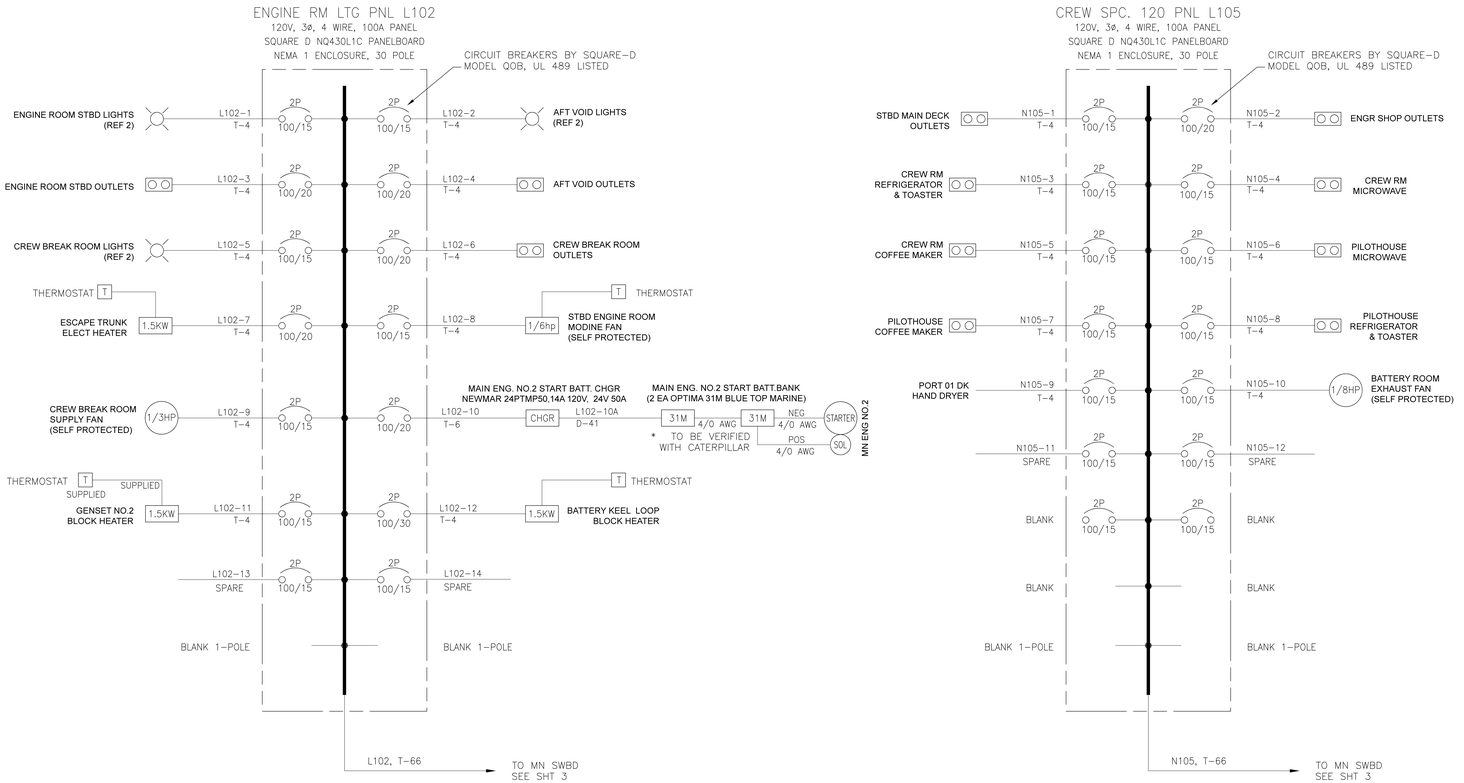


ENGINE ROOM, CREW SPACE AC DISTRIBUTION PANELS

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|---|---|---|---|

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ELECTRICAL AC ONE-LINE DIAGRAM DC DISTR PANELS

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| SCALE NO SCALE | SHT 6 OF 11 |
| DWG. NO. D358A-E1 | ALT. A |

## CREW SPC. LTG PNL L103

120V, 3ø, 4 WIRE, 100A PANEL
SQUARE D NQ430L1C PANELBOARD
NEMA 1 ENCLOSURE, 30 POLE

CIRCUIT BREAKERS BY SQUARE–D
MODEL QOB, UL 489 LISTED

| | | | | | |
|---|---|---|---|---|---|
| NAVIGATION LED LIGHTS PANEL (REF 14) | L103–1 T–4 | 2P 100/15 | 2P 100/15 | L103–2 T–4 | DIMMER → PILOT HOUSE INTERIOR LIGHTS CHART TABLE LIGHT (REF 2) |
| PH AIR CONDITIONER HT & A/C PORT (REF 13) | L103–3 T–4 | 2P 100/20 | 2P 100/15 | L103–4 T–4 | 01 DECK STBD INTERIOR LIGHTS |
| 01 DECK PORT INTERIOR LIGHTS (REF 2) | L103–5 T–4 | 2P 100/15 | 2P 100/15 | L103–6 T–4 | MAIN DECK PORT DOCKING FLOOD LIGHTS (REF 2) |
| MN DECK - PORT EXTERIOR LIGHTS (REF 2) | L103–7 T–4 | 2P 100/15 | 2P 100/15 | L103–8 T–4 | BRIDGE DECK FWD FLOOD LIGHTS (REF 2) |
| 02 DECK EXTERIOR LIGHTS - PORT (REF 2) | L103–9 T–4 | 2P 100/15 | 2P 100/15 | L103–10 T–4 | 01 DECK USB INTERIOR OUTLETS |
| | L103–11 SPARE | 2P 100/15 | 2P 100/15 | L103–12 SPARE | |
| | BLANK 2–POLE | | | BLANK 2–POLE | |
| | BLANK 1–POLE | | | BLANK 1–POLE | |

L103, T–66 → TO MN SWBD SEE SHT 3

## 01 DK STBD LTG PNL L104

120V, 3ø, 4 WIRE, 100A PANEL
SQUARE D NQ430L1C PANELBOARD
NEMA 1 ENCLOSURE, 30 POLE

CIRCUIT BREAKERS BY SQUARE–D
MODEL QOB, UL 489 LISTED

| | | | | | |
|---|---|---|---|---|---|
| PH AIR CONDITIONER HT & A/C STBD (REF 13) | L104–1 T–4 | 2P 100/20 | 2P 100/20 | L104–2 T–6 | PILOT HOUSE HEATED WINDOWS AFT STBD |
| 02 DECK PORT INTERIOR LIGHTS (REF 2) | L104–3 T–4 | 2P 100/15 | 2P 100/15 | L104–4 T–4 | 01 DECK STBD + PORT INTERIOR LIGHTS (REF 2) |
| MAIN DECK INTERIOR LIGHTS (REF 2 ) | L104–5 T–4 | 2P 100/15 | 2P 100/15 | L104–6 T–4 | MAIN DECK STBD DOCKING FLOOD LIGHTS (REF 2) |
| MN DECK STBD EXTERIOR LIGHTS (REF 2) | L104–7 T–4 | 2P 100/15 | 2P 100/15 | L104–8 T–4 | BRIDGE DECK AFT FLOOD LIGHTS (REF 2 |
| 02 DECK EXTERIOR OUTLETS | L104–9 T–4 | 2P 100/20 | 2P 100/20 | L104–10 T–4 | PILOT HOUSE EXTERIOR OUTLETS |
| PILOT HOUSE HEATED WINDOW FWD CTR. | L104–11 T–4 | 2P 100/20 | 2P 100/15 | L104–12 T–4 | 01 DECK USB INTERIOR OUTLETS |
| | L104–13 SPARE | 2P 100/15 | 2P 100/15 | L104–14 SPARE | |
| | BLANK 1–POLE | | | BLANK 1–POLE | |

L104, T–66 → TO MN SWBD SEE SHT 3

## 02 DK LTG PNL L106

120V, 3ø, 4 WIRE, 100A PANEL
SQUARE D NQ430L1C PANELBOARD
NEMA 1 ENCLOSURE, 30 POLE

CIRCUIT BREAKERS BY SQUARE–D
MODEL QOB, UL 489 LISTED

| | | | | | |
|---|---|---|---|---|---|
| PILOT HOUSE HEATED WINDOWS FWD PORT | L106–1 T–6 | 2P 100/20 | 2P 100/20 | L106–2 T–6 | PILOT HOUSE HEATED WINDOWS FWD STBD |
| EXTERIOR LIGHTS 02 DECK - STBD (REF 2) | L106–3 T–4 | 2P 100/15 | 2P 100/20 | L106–4 T–4 | PILOT HOUSE INTERIOR OUTLETS |
| 02 DECK INTERIOR OUTLETS | L106–5 T–4 | 2P 100/20 | 2P 100/20 | L106–6 T–6 | PILOT HOUSE HEATED WINDOWS AFT |
| EXTERIOR LIGHTS 01 DECK (REF 2) | L106–7 T–4 | 2P 100/15 | 2P 100/15 | L106–8 T–4 | 01 DECK USB INTERIOR OUTLETS |
| STBD 01 DK HAND DRYER | L106–9 T–4 | 2P 100/15 | 2P 100/15 | L106–10 SPARE | |
| | L106–11 SPARE | 2P 100/15 | 2P 100/15 | L106–12 SPARE | |
| | BLANK 2–POLE | | | BLANK 2–POLE | |
| | BLANK 1–POLE | | | BLANK 1–POLE | |

L106, T–66 → TO MN SWBD SEE SHT 3

## DECKS AC DISTRIBUTION PANELS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

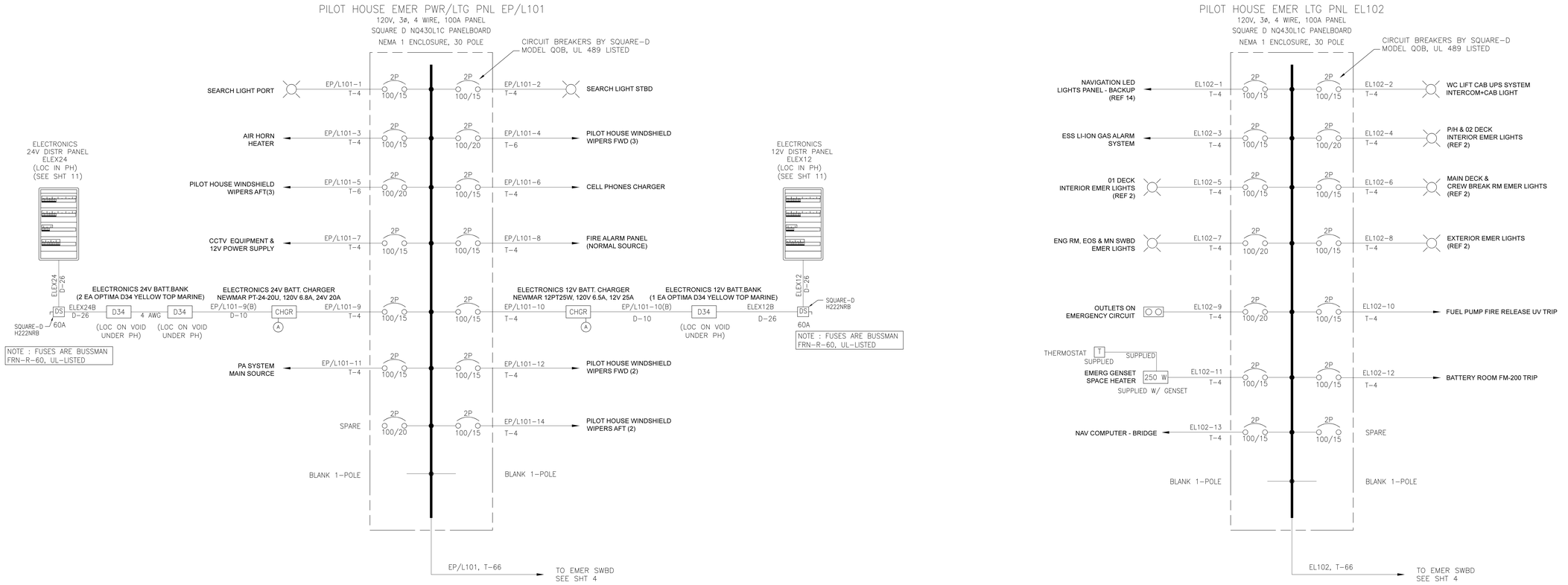
THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND

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

154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE–LINE DIAGRAM
DC DISTR PANELS

| | |
|---|---|
| DRAWN BY MSC+CEG | DATE 12/2020 |
| CHECKED BY CEG | DATE 3/2021 |
| APPROVED BY | DATE |
| SCALE NO SCALE | SHT 7 OF 11 |
| DWG. NO. D358A–E1 | ALT. A |




PILOT HOUSE EMERGENCY DISTRIBUTION PANELS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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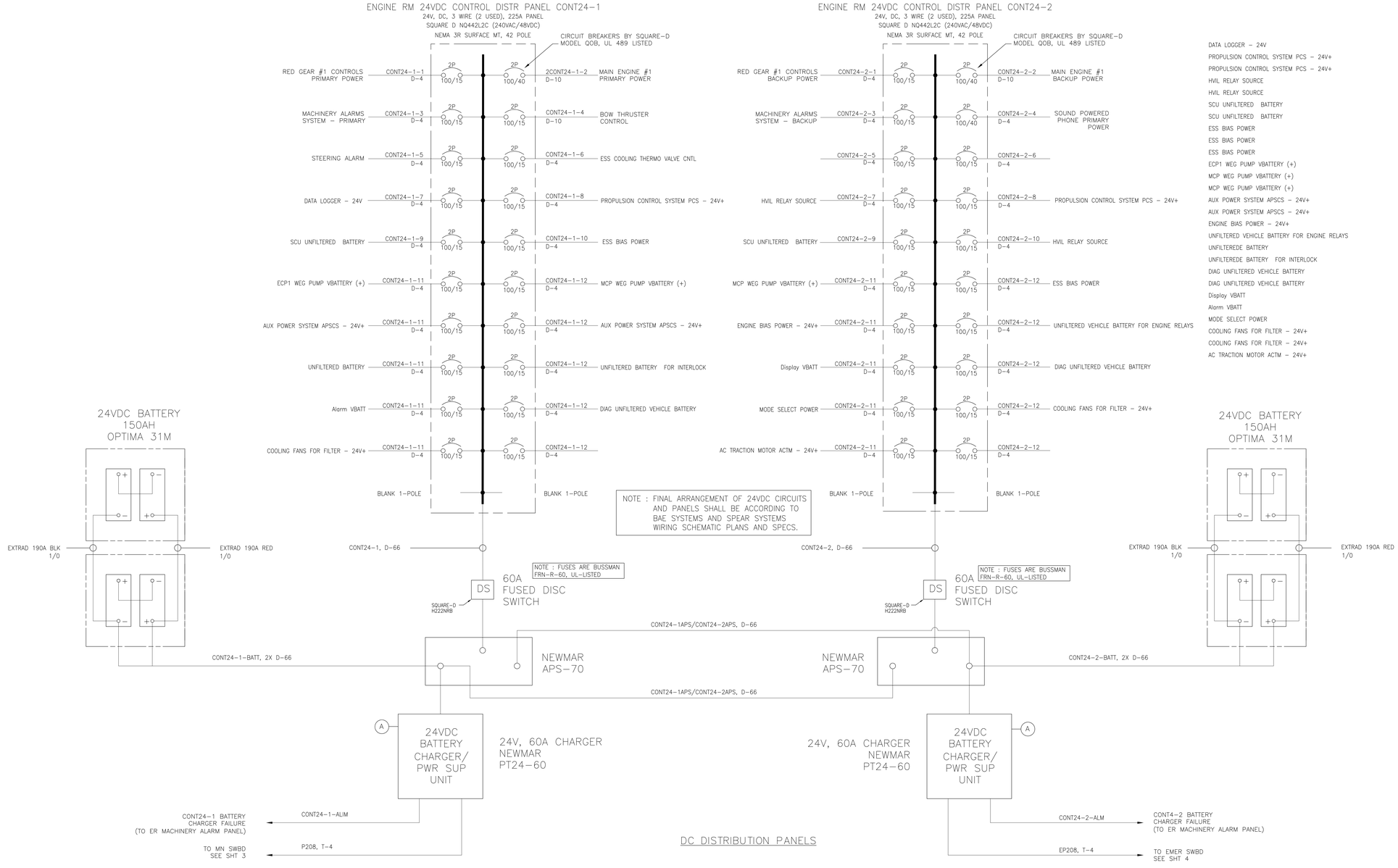
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM
DC DISTR PANELS

| | |
|---|---|
| DRAWN BY MSC+CEG | DATE 12/2020 |
| CHECKED BY CEG | DATE 3/2021 |
| APPROVED BY | DATE |
| SCALE NO SCALE | SHT 8 OF 11 |
| DWG. NO. D358A-E1 | ALT. A |




| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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NAVAL ARCHITECTS MARINE ENGINEERS
100 GROSSMAN DRIVE BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM DC DISTR PANELS

| | |
|---|---|
| DRAWN BY MSC+CEG | DATE 12/2020 |
| CHECKED BY CEG | DATE 3/2021 |
| APPROVED BY | DATE |
| SCALE NO SCALE | SHT 9 OF 11 |
| DWG. NO. D358A-E1 | ALT. A |

## ENGINE RM 24VDC CONTROL DISTR PANEL CONT24-3

24V, DC, 3 WIRE (2 USED), 225A PANEL
SQUARE D NQ442L2C (240VAC/48VDC)
NEMA 3R SURFACE MT, 42 POLE
CIRCUIT BREAKERS BY SQUARE-D MODEL QOB, UL 489 LISTED

| | | | | | |
|---|---|---|---|---|---|
| RED GEAR #2 CONTROLS PRIMARY POWER | CONT24-3-1 D-4 | 2P 100/15 | 2P 100/40 | 2CONT24-3-2 D-10 | MAIN ENGINE #2 PRIMARY POWER |
| STEERING CONTROL PORT MOTOR STARTER | CONT24-3-3 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-4 D-4 | SWITCHBOARD CONTROL POWER – PRIMARY |
| MACHINERY ALARMS SYSTEM – PRIMARY | CONT24-3-5 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-6 D-4 | ESS BATT MANAGEMENT INTERFACE |
| DATA LOGGER – 24V | CONT24-3-7 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-8 D-4 | PROPULSION CONTROL SYSTEM PCS – 24V+ |
| SCU UNFILTERED BATTERY | CONT24-3-9 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-10 D-4 | ESS BIAS POWER |
| ECP1 WEG PUMP VBATTERY (+) | CONT24-3-11 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-12 D-4 | MCP WEG PUMP VBATTERY (+) |
| AUX POWER SYSTEM APSCS – 24V+ | CONT24-3-13 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-14 D-4 | AUX POWER SYSTEM APSCS – 24V+ |
| UNFILTERED BATTERY | CONT24-3-15 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-16 D-4 | UNFILTERED BATTERY FOR INTERLOCK |
| Alarm VBATT | CONT24-3-17 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-18 D-4 | DIAG UNFILTERED VEHICLE BATTERY |
| COOLING FANS FOR FILTER – 24V+ | CONT24-3-19 D-4 | 2P 100/15 | 2P 100/15 | CONT24-3-20 SPARE | |
| | BLANK 1-POLE | | | BLANK 1-POLE | |

## ENGINE RM 24VDC CONTROL DISTR PANEL CONT24-4

24V, DC, 3 WIRE (2 USED), 225A PANEL
SQUARE D NQ442L2C (240VAC/48VDC)
NEMA 3R SURFACE MT, 42 POLE
CIRCUIT BREAKERS BY SQUARE-D MODEL QOB, UL 489 LISTED

| | | | | | |
|---|---|---|---|---|---|
| RED GEAR #2 CONTROLS BACKUP POWER | CONT24-4-1 D-4 | 2P 100/15 | 2P 100/40 | CONT24-4-2 D-10 | MAIN ENGINE #2 BACKUP POWER |
| SWITCHBOARD CONTROL POWER – BACKUP | CONT24-4-3 D-4 | 2P 100/40 | 2P 100/40 | CONT24-4-4 D-4 | STEERING CONTROL STBD MOTOR STARTER |
| MACHINERY ALARMS SYSTEM – BACKUP | CONT24-4-5 D-4 | 2P 100/15 | 2P 100/15 | CONT24-4-6 SPARE | |
| HVIL RELAY SOURCE | CONT24-4-7 D-4 | 2P 100/15 | 2P 100/15 | CONT24-4-8 D-4 | PROPULSION CONTROL SYSTEM PCS – 24V+ |
| SCU UNFILTERED BATTERY | CONT24-4-9 SPARE | 2P 100/15 | 2P 100/15 | CONT24-4-10 D-4 | HVIL RELAY SOURCE |
| MCP WEG PUMP VBATTERY (+) | CONT24-4-11 D-4 | 2P 100/15 | 2P 100/15 | CONT24-4-12 D-4 | ESS BIAS POWER |
| ENGINE BIAS POWER – 24V+ | CONT24-4-13 D-4 | 2P 100/15 | 2P 100/15 | CONT24-4-14 D-4 | UNFILTERED VEHICLE BATTERY FOR ENGINE RELAYS |
| Display VBATT | CONT24-4-15 D-4 | 2P 100/15 | 2P 100/15 | CONT24-4-16 D-4 | DIAG UNFILTERED VEHICLE BATTERY |
| MODE SELECT POWER | CONT24-4-17 D-4 | 2P 100/15 | 2P 100/15 | CONT24-4-18 D-4 | COOLING FANS FOR FILTER – 24V+ |
| AC TRACTION MOTOR ACTM – 24V+ | CONT24-4-19 D-4 | 2P 100/15 | 2P 100/15 | CONT24-4-20 SPARE | |
| | BLANK 1-POLE | | | BLANK 1-POLE | |

NOTE : FINAL ARRANGEMENT OF 24VDC CIRCUITS AND PANELS SHALL BE ACCORDING TO BAE SYSTEMS AND SPEAR SYSTEMS WIRING SCHEMATIC PLANS AND SPECS.

24VDC BATTERY
150AH
OPTIMA 31M

EXTRAD 190A BLK 1/0 — EXTRAD 190A RED 1/0

CONT24-3, D-66

NOTE : FUSES ARE BUSSMAN FRN-R-60, UL-LISTED

DS 60A FUSED DISC SWITCH

SQUARE-D H222NRB

CONT24-3APS/CONT24-4APS, D-66

CONT24-3-BATT, 2X D-66

NEWMAR APS-70

CONT24-3APS/CONT24-4APS, D-66

A

24VDC BATTERY CHARGER/ PWR SUP UNIT

24V, 60A CHARGER
NEWMAR
PT24-60

CONT24-3 BATTERY CHARGER FAILURE (TO ER MACHINERY ALARM PANEL)

CONT24-3-ALIM

TO MN SWBD SEE SHT 3

P209, T-4

DC DISTRIBUTION PANELS

CONT24-4, D-66

NOTE : FUSES ARE BUSSMAN FRN-R-60, UL-LISTED

DS 60A FUSED DISC SWITCH

SQUARE-D H222NRB

NEWMAR APS-70

CONT24-4-BATT, 2X D-66

A

24VDC BATTERY CHARGER/ PWR SUP UNIT

24V, 60A CHARGER
NEWMAR
PT24-60

CONT24-4-ALM

CONT4-4 BATTERY CHARGER FAILURE (TO ER MACHINERY ALARM PANEL)

EP209, T-4

TO EMER SWBD SEE SHT 4

24VDC BATTERY
150AH
OPTIMA 31M

EXTRAD 190A BLK 1/0 — EXTRAD 190A RED 1/0

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

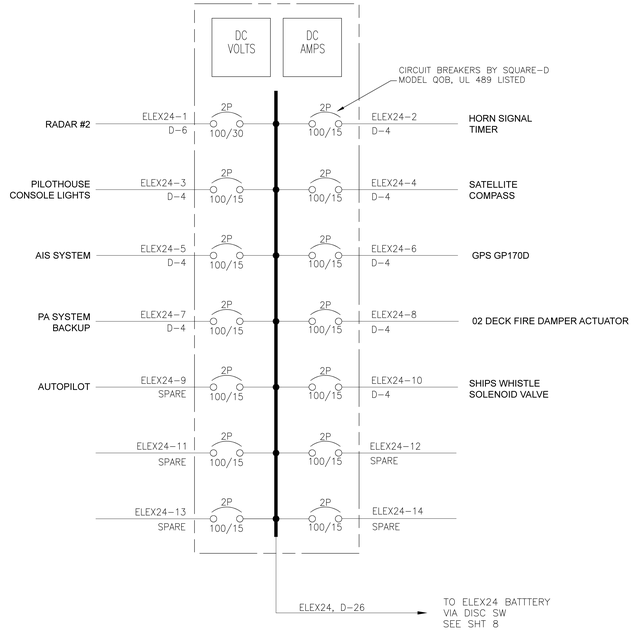
154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM
DC DISTR PANELS

| | |
|---|---|
| DRAWN BY MSC+CEG | DATE 12/2020 |
| CHECKED BY CEG | DATE 3/2021 |
| APPROVED BY | DATE |
| SCALE NO SCALE | SHT 10 OF 11 |
| DWG. NO. D358A-E1 | ALT. A |

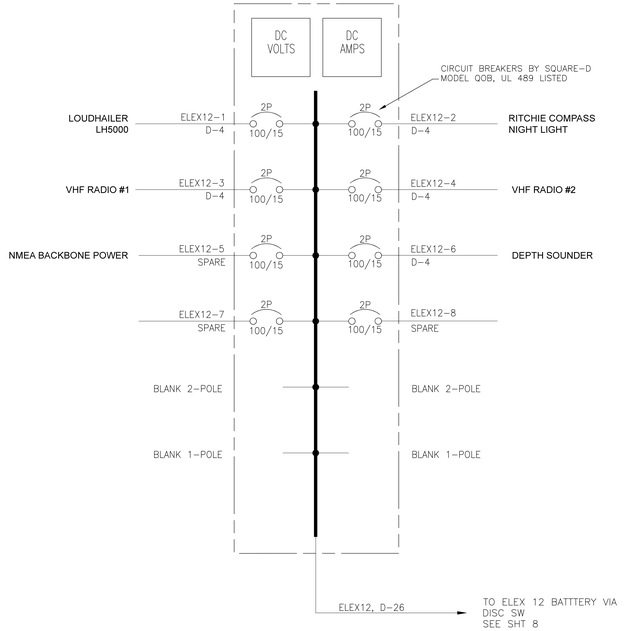
## PILOT HOUSE 24VDC ELECTRONICS DISTR PANEL ELEX24

24V, DC, 100A PANEL
SQUARE D OR EQUAL
PH CONSOLE MT, 30 POLE




## PILOT HOUSE 12VDC ELECTRONICS DISTR PANEL ELEX12

12V, DC, 100A PANEL
SQUARE D OR EQUAL
PH CONSOLE FLUSH MT, 22 POLE




DC DISTRIBUTION PANELS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

154 FT LOA FERRY VESSEL

ELECTRICAL AC ONE-LINE DIAGRAM
DC DISTR PANELS

| | |
|---|---|
| DRAWN BY MSC+CEG | DATE 12/2020 |
| CHECKED BY CEG | DATE 4/2021 |
| APPROVED BY | DATE |
| SCALE AS NOTED | SHT 11 OF 11 |
| DWG. NO. D358A-E1 | ALT. A |

# GENERAL NOTES

1. THE PURPOSE OF THIS ANALYSIS IS TO DEMONSTRATE THE ADEQUACY OF THE 154 FT LOA PASSENGER VEHICLE FERRY ELECTRICAL POWER GENERATING EQUIPMENT TO SUPPLY THE ELECTRICAL POWER DEMANDS OF THE VESSEL UNDER TYPICAL VESSEL OPERATION MODES AND UNDER EMERGENCY CONDITIONS.

2. 154FT LOA PASSENGER VEHICLE FERRY ELECTRICAL POWER GENERATORS:
   SS DIESEL GENERATOR NO.1 (INTEGRATED ELECTRICAL STARTER, VARIABLE SPEED), 230 KW, 380 V, 3 PHASE, 60 HZ, 0.8 PF
   SS DIESEL GENERATOR NO.2 (INTEGRATED ELECTRICAL STARTER, VARIABLE SPEED), 230 KW, 380 V, 3 PHASE, 60 HZ, 0.8 PF
   EMERGENCY GENERATOR (ELECTRICAL START), 95 KW, 240 V, 60 HZ, 0.8 PF

3. THE ELECTRICAL LOAD ANALYSIS CONDUCTED HEREIN CONFORMS TO THE GUIDELINES ESTABLISHED FOR THESE DOCUMENTS UNDER U.S. COAST GUARD PUBLICATIONS, REFERENCES 1 AND 2. TWO TYPES OF ELECTRICAL LOADS ARE GENERALLY LISTED IN THE ANALYSIS: "CONNECTED" LOAD AND "COMPUTED" LOAD. THE CONNECTED LOAD IS THE AMOUNT OF KW THE SPECIFIED EQUIPMENT DRAWS WHEN ENERGIZED TO FULL CAPACITY. THE "COMPUTED" LOAD IS A PERCENTAGE OF THE EQUIPMENT'S CONNECTED LOAD THAT IS TYPICALLY DRAWN BY THE EQUIPMENT. THE PERCENTAGE IS GIVEN AS A "LOAD (DEMAND) FACTOR" (DF) AND IS GENERALLY IN CONFORMANCE WITH THOSE LISTED IN REFERENCE 1, TABLES 1 AND 2 OF APPENDIX 2.

4. ABBREVIATIONS USED HEREON GENERALLY CONFORM TO THOSE OF ASME STANDARD Y14.38.

## DRAWING SHEET INDEX


| | |
|---|---|
| SH 1 | TITLE, GENERAL NOTES, REFERENCES & SHEET INDEX |
| SH 2 | LOAD ANALYSIS SUMMARY |
| SH 3 | AC LOADS ANALYSIS – MAIN SWITCH BOARD |
| | AC LOADS ANALYSIS (PNLS P207, L101–L106, N105) |
| | AC LOADS ANALYSIS – EMERGENCY SWITCH BOARD |


| | | |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| 3 | ELECTRICAL AC/DC ONE-LINE DIAGRAM | D358A-E1 |
| 2 | MSC GUIDLINES FOR REVIEW OF ELEC PLANT LOAD ANALY | E-26 |
| 1 | U.S. COAST GUARD GUIDE FOR ELECTRICAL INSTALLATIONS... | NVIC 2-89 |
| | REFERENCES | |

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|
| | | | |

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

154 FT LOA FERRY VESSEL

ELECTRICAL LOAD ANALYSIS

| | | |
|---|---|---|
| DRAWN BY | MSC+GEG | DATE 12/2020 |
| CHECKED BY | GEG | DATE 3/2021 |
| APPROVED BY | | DATE |
| SCALE | NONE | SHT 1 OF 3 |
| DWG. NO. | D358A-E2 | ALT. A |

# AC LOADS ANALYSIS SUMMARY

PREFACE: A LOAD ANALYSIS IS A CALCULATED MODEL OF THE SHIP PERFORMANCE WITH REGARD TO ELECTRICAL POWER GENERATED, OR PROVIDED BY SHORE FACILITIES, AND CONSUMED BY ALL OF THE ELECTRICAL EQUIPMENT ON BOARD.
THE LOAD ANALYSIS IS NOT INTENDED TO REPRODUCE REAL-TIME MEASUREMENT DATA. LOAD ANALYSIS ARE HISTORICALLY HIGHER THAN LOAD OBSERVED BY CREW AND TEST PERSONNEL.
LOAD FACTORS PROVIDE A WEIGHTED AVERAGE OF POWER CONSUMPTION OVER A 24 HOUR PERIOD. ALLOWANCE IS MADE WITHIN THE LOAD FACTOR FOR SERVICE LIFE, WHICH INCLUDES GROWTH AND DETERIORATION OVER TIME.
A TWO MAIN GENERATOR POWER PLANT IS GENERALLY SIZED SUCH THAT ONE GENERATOR IS SUFFICIENT TO CARRY THE ENTIRE SHIP'S DEMAND LOAD WITH THE OTHER GENERATOR AS STANDBY.
154 FT LOA PASSENGER VEHICLE FERRY ELECTRICAL LOAD PER THIS ANALYSIS CAN BE FOUND ON SHEET 3 IN THE "TOTAL ELECTRICAL LOAD" ENTRY UNDER THE VARIOUS OPERATIONAL CONDITIONS HEADINGS FOR VESSEL'S TABULATION LOADS.
THE FOLLOWING RESULTS ARE NOTED:

TOTAL ELECTRICAL LOAD:

| CONNECTED | CRUISE SUMMER | CRUISE WINTER | DOCKING SUMMER | DOCKING WINTER | EMERGENCY | SHORE POWER SUMMER | SHORE POWER WINTER |
|---|---|---|---|---|---|---|---|
| 179.51 KW | 40.23 KW | 56.89 KW | 27.51 KW | 43.56 KW | 70.02 KW | 17.17 KW | 31.44 KW |

PER THIS ANALYSIS, ONE 230 KW DIESEL GENERATOR IS SUFFICIENT TO CARRY THE ENTIRE LOADS FOR ANY OF THE CONDITIONS SHOWN ABOVE.
PER THIS ANALYSIS, ONE 95 KW EMERGENCY DIESEL GENERATOR IS SUFFICIENT TO CARRY THE ENTIRE LOADS FOR THE EMERGENCY CONDITIONS SHOWN ABOVE.

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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100 GROSSMAN DRIVE
BRAINTREE, MA 02184

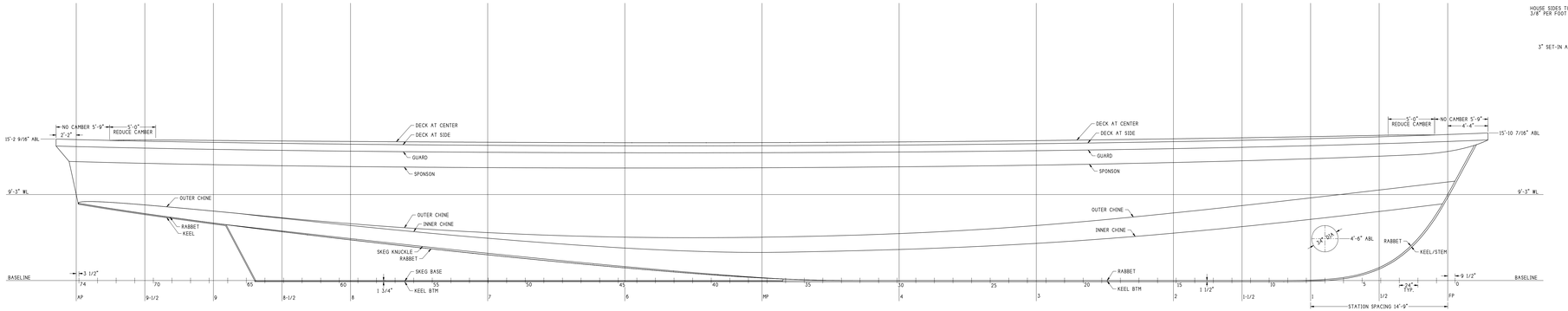
154 FT LOA FERRY VESSEL

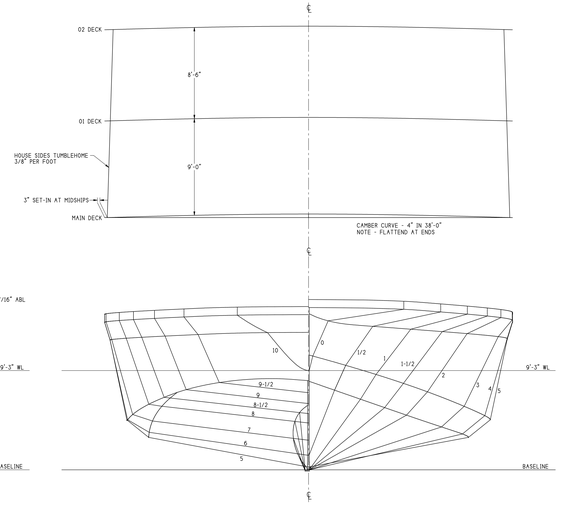
ELECTRICAL LOAD ANALYSIS

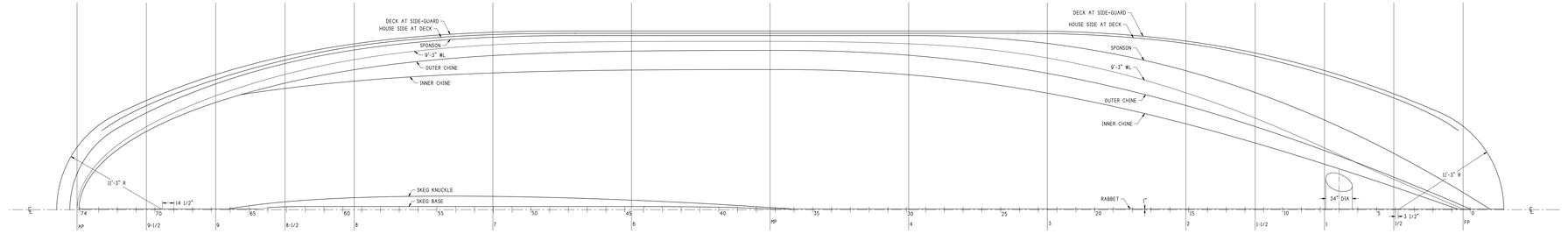
DRAWN BY MSC+GEG DATE 12/2020
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE NONE SHT 2 OF 3
DWG. NO. D358A-E2 ALT. A

| CIRCUIT | EQUIPMENT | VOLTS/ PHASE | AMPS (FLC) | CONNECTED LOAD QTY | CONNECTED LOAD INPUT HP | CONNECTED LOAD INPUT KW | CONNECTED LOAD TOTAL KW | CRUISING CONDITION OPERATING LOAD (KW) SUMMER D.F. | CRUISING CONDITION OPERATING LOAD (KW) SUMMER LOAD | CRUISING CONDITION OPERATING LOAD (KW) WINTER D.F. | CRUISING CONDITION OPERATING LOAD (KW) WINTER LOAD | DOCKING CONDITION OPERATING LOAD (KW) SUMMER D.F. | DOCKING CONDITION OPERATING LOAD (KW) SUMMER LOAD | DOCKING CONDITION OPERATING LOAD (KW) WINTER D.F. | DOCKING CONDITION OPERATING LOAD (KW) WINTER LOAD | EMERGENCY CONDITION OPERATING LOAD (KW) SUMMER D.F. | EMERGENCY CONDITION OPERATING LOAD (KW) SUMMER LOAD | EMERGENCY CONDITION OPERATING LOAD (KW) WINTER D.F. | EMERGENCY CONDITION OPERATING LOAD (KW) WINTER LOAD | SHORE POWER OPERATING LOAD (KW) SUMMER D.F. | SHORE POWER OPERATING LOAD (KW) SUMMER LOAD | SHORE POWER OPERATING LOAD (KW) WINTER D.F. | SHORE POWER OPERATING LOAD (KW) WINTER LOAD | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P207, 240V 3PH. POWER PANEL | | | | | | | | | | | | | | | | | | | | | | | | | |
| P207-1 | FO PUMP | 240/3 | 6.80 | 1 | 2 | 1.800 | 1.80 | 0.30 | 0.54 | 0.30 | 0.54 | 0.30 | 0.54 | 0.30 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 VIKING SERIES 4195 |
| P207-2 | SANITARY WATER PUMP | 240/1 | 10.00 | 1 | 1.50 | 1.300 | 1.30 | 0.30 | 0.39 | 0.30 | 0.39 | 0.30 | 0.39 | 0.30 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.13 | 0.10 | 0.13 | 0.00 | 0.00 | 0.13 GRUNDFOS BMQE 15 |
| P207-3 | DIRTY OIL PUMP | 240/3 | 2.20 | 1 | 0.5 | 0.500 | 0.50 | 0.10 | 0.05 | 0.10 | 0.05 | 0.10 | 0.05 | 0.10 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.05 | 0.10 | 0.05 | 0.00 | 0.00 | 0.05 TUTHILL CC9 |
| P207-4 | DOMESTIC HOT WATER HEATER | 240/1 | 12.50 | 1 | | 3.000 | 3.00 | 0.50 | 1.50 | 0.50 | 1.50 | 0.20 | 0.60 | 0.20 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.30 | 0.10 | 0.30 | 0.00 | 0.00 | 0.30 RHEEM 40 gal. |
| P207-5 | FUEL OIL SEPARATOR | 240/3 | 4.20 | 1 | 1.00 | 0.900 | 0.90 | 0.70 | 0.63 | 0.70 | 0.63 | 0.40 | 0.36 | 0.40 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 ALPHA LAVAL MAB-103 |
| P207-6 | HVAC DUCT FAN PORT | 240/1 | 4.90 | 1 | 0.50 | 0.500 | 0.50 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.40 HARTZELL 8" A25-M |
| P207-7 | POTABLE WATER PUMP | 240/1 | 10.00 | 1 | 1.50 | 1.300 | 1.30 | 0.30 | 0.39 | 0.30 | 0.39 | 0.30 | 0.39 | 0.30 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.13 | 0.10 | 0.13 | 0.00 | 0.00 | 0.13 GRUNDFOS BMQE 15 |
| P207-8 | CREW SPACE LIFT STATION PUMP | 240/1 | 4.50 | 1 | 0.40 | 0.400 | 0.40 | 0.20 | 0.08 | 0.20 | 0.08 | 0.20 | 0.08 | 0.20 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.04 | 0.10 | 0.04 | 0.00 | 0.00 | 0.04 |
| P207-9 | HVAC DUCT FAN STBD | 240/1 | 4.90 | 1 | 0.50 | 0.500 | 0.50 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.40 | 0.00 | 0.00 | 0.40 HARTZELL 8" A25-M |
| P207-10 | MAIN ENG NO. 1 BLOCK HEATER | 240/1 | 6.25 | 1 | | 1.500 | 1.50 | 0.10 | 0.15 | 0.30 | 0.45 | 0.10 | 0.15 | 0.30 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.45 | | | |
| P207-11 | MAIN ENG. NO. 2 BLOCK HEATER | 240/1 | 6.25 | 1 | | 1.500 | 1.50 | 0.10 | 0.15 | 0.30 | 0.45 | 0.10 | 0.15 | 0.30 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.45 | | | |
| | TOTAL ELECTRICAL LOAD ON THIS PANEL | | | | | | 11.40 | | 3.34 | | 4.74 | | 2.17 | | 3.57 | | 0.00 | | 0.00 | | 0.65 | | 2.35 | | | |
| | ENGINE ROOM LIGHTING PANEL L101 | | | | | | | | | | | | | | | | | | | | | | | | | |
| L101-1 | ENGINE ROOM PORT LIGHTS | 120 | 1.60 | 3 | | 0.064 | 0.19 | 0.90 | 0.17 | 0.90 | 0.17 | 0.90 | 0.17 | 0.90 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.90 | 0.17 | 0.90 | 0.17 | 3 x 63.4W | |
| L101-2 | FWD VOID LIGHTS | 120 | 1.93 | 7 | | 0.033 | 0.23 | 0.40 | 0.09 | 0.40 | 0.09 | 0.40 | 0.09 | 0.40 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.09 | 0.40 | 0.09 | 6 x 32.5 | |
| L101-3 | ENGINE ROOM PORT OUTLETS | 120 | 9.00 | 3 | | 0.360 | 1.08 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.11 180W /RCPT PER NEC |
| L101-4 | FWD VOID OUTLETS | 120 | 9.00 | 3 | | 0.360 | 1.08 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.11 180W /RCPT PER NEC |
| L101-5 | CREW BREAK ROOM PORT OUTLETS | 120 | 9.00 | 3 | | 0.360 | 1.08 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.11 180W /RCPT PER NEC |
| L101-6 | FWD MAIN DECK EXTERIOR LTS | 120 | 4.00 | 4 | | 0.120 | 0.48 | 0.10 | 0.05 | 0.10 | 0.05 | 0.10 | 0.05 | 0.10 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| L101-7 | MAIN DECK PORT OUTLETS | 120 | 12.00 | 4 | | 0.360 | 1.44 | 0.10 | 0.14 | 0.10 | 0.14 | 0.10 | 0.14 | 0.10 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.14 | 0.10 | 0.14 | 180W /RCPT PER NEC |
| L101-8 | AFT MAIN DECK EXTERIOR LIGHTS | 120 | 12.00 | 4 | | 0.120 | 0.48 | 0.10 | 0.05 | 0.10 | 0.05 | 0.10 | 0.05 | 0.10 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.05 | 0.10 | 0.05 | | |
| L101-9 | PORT ENG RM MODINE FAN | 120 | 1.33 | 1 | | 0.160 | 0.16 | 0.00 | 0.00 | 0.50 | 0.08 | 0.00 | 0.00 | 0.50 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.08 | 0.00 | 0.00 | 0.08 |
| L101-10 | MN ENG #1 NO.1 START BATT CHARGER | 120 | 14.00 | 1 | | 2.898 | 2.90 | 0.30 | 0.87 | 0.30 | 0.87 | 0.20 | 0.58 | 0.20 | 0.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.58 | 0.20 | 0.58 | | |
| L101-11 | GENSET NO1 BLOCK HEATER | 120 | 12.50 | 1 | | 1.500 | 1.50 | 0.10 | 0.15 | 0.30 | 0.45 | 0.10 | 0.15 | 0.30 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.15 | 0.30 | 0.45 | | | |
| L101-12 | BOWTHRUSTER RM MODINE HEATER FAN | 120 | 1.08 | 1 | | 0.130 | 0.13 | 0.00 | 0.00 | 0.50 | 0.07 | 0.00 | 0.00 | 0.70 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.09 | |
| | TOTAL ELECTRICAL LOAD ON THIS PANEL | | | | | | 10.75 | | 1.85 | | 2.29 | | 1.56 | | 2.03 | | 0.00 | | 0.00 | | 1.56 | | 2.03 | | | |
| | ENGINE ROOM LIGHTING PANEL L102 | | | | | | | | | | | | | | | | | | | | | | | | | |
| L102-1 | ENGINE ROOM STBD LIGHTS | 120 | 1.60 | 3 | | 0.064 | 0.19 | 0.90 | 0.17 | 0.90 | 0.17 | 0.90 | 0.17 | 0.90 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.90 | 0.17 | 0.90 | 0.17 | 3 x 63.4W | |
| L102-2 | AFT VOID LIGHTS | 120 | 2.48 | 9 | | 0.033 | 0.30 | 0.40 | 0.12 | 0.40 | 0.12 | 0.40 | 0.12 | 0.40 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.12 | 0.40 | 0.12 | 9 x 32.5W | |
| L102-3 | ENGINE ROOM STBD OUTLETS | 120 | 9.00 | 3 | | 0.360 | 1.08 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.11 180W /RCPT PER NEC |
| L102-4 | AFT VOID OUTLETS | 120 | 9.00 | 3 | | 0.360 | 1.08 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.11 | 0.10 | 0.11 | 0.00 | 0.00 | 0.11 180W /RCPT PER NEC |
| L102-5 | CREW BREAK ROOM LIGHTS | 120 | 2.50 | 1 | | 0.300 | 0.30 | 0.90 | 0.27 | 0.90 | 0.27 | 0.90 | 0.27 | 0.90 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.27 | 0.90 | 0.27 | 15 x 14W, 2 x 30 | |
| L102-6 | CREW BREAK ROOM OUTLETS | 120 | 9.00 | 3 | | 0.360 | 1.08 | 0.30 | 0.32 | 0.40 | 0.43 | 0.40 | 0.43 | 0.40 | 0.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.22 | 0.20 | 0.22 | 0.00 | 0.00 | 0.22 180W /RCPT PER NEC |
| L102-7 | ESCAPE TRUNK HEATER | 120 | 12.5 | 1 | | 1.500 | 1.500 | 0.00 | 0.00 | 0.50 | 0.75 | 0.00 | 0.00 | 0.50 | 0.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.75 | | | |
| L102-8 | STBD ENG RM MODINE FAN | 120 | 1.33 | 1 | | 0.160 | 0.16 | 0.00 | 0.00 | 0.50 | 0.08 | 0.00 | 0.00 | 0.50 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.08 | | | |
| L102-9 | CREW QUARTERS VENT FAN | 120 | 7.20 | 1 | 0.33 | 0.360 | 0.36 | 0.80 | 0.29 | 0.50 | 0.18 | 0.50 | 0.18 | 0.20 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.11 | 0.10 | 0.04 | | | |
| L102-10 | MN ENG #1 NO.2 START BATT CHARGER | 120 | 14.00 | 1 | | 2.898 | 2.90 | 0.30 | 0.87 | 0.30 | 0.87 | 0.20 | 0.58 | 0.20 | 0.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.58 | 0.20 | 0.58 | | | |
| L102-11 | GENSET NO2 BLOCK HEATER | 120 | 8.33 | 1 | | 1.000 | 1.00 | 0.10 | 0.10 | 0.30 | 0.30 | 0.10 | 0.10 | 0.30 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.30 | | | |
| L102-12 | BATTERY KEEL LOOP BLOCK HEATER | 120 | 12.50 | 1 | | 1.500 | 1.50 | | | | | | | | | | | | | | | | | | | |
| | TOTAL ELECTRICAL LOAD ON THIS PANEL | | | | | | 11.45 | | 2.36 | | 3.39 | | 2.07 | | 2.99 | | 0.00 | | 0.00 | | 1.78 | | 2.74 | | | |
| | CREW SPC. LIGHTING PANEL L103 | | | | | | | | | | | | | | | | | | | | | | | | | |
| L103-1 | NAVIGATION LED LIGHT PANEL (MAIN SOURCE) | 120 | 0.83 | 1 | | 0.100 | 0.10 | 0.50 | 0.05 | 0.50 | 0.05 | 0.50 | 0.05 | 0.50 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.01 | 0.10 | 0.01 | PMC OR LOPOLIGHT PANEL | |
| L103-2 | PILOT HOUSE INTERIOR LTS & CHART TABLE LTS | 120 | 1.00 | 1 | | 0.120 | 0.12 | 0.50 | 0.06 | 0.50 | 0.06 | 0.50 | 0.06 | 0.50 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.06 | 0.50 | 0.06 | 6 x 14W, 1 x 30W | |
| L103-3 | PH AIR CONDITIONER HT AND A/C PORT | 120 | 14.58 | 1 | | 1.750 | 1.75 | 0.80 | 1.40 | 0.80 | 1.40 | 0.80 | 1.40 | 0.80 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.40 | 0.70 | 0.40 | 0.70 | COLEMAN MACH 3 PLUS | |
| L103-4 | 01 DECK STBD INTERIOR LIGHTS | 120 | 1.83 | 1 | | 0.220 | 0.22 | 0.80 | 0.18 | 0.80 | 0.18 | 0.80 | 0.18 | 0.80 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | | |
| L103-5 | 01 DECK PORT INTERIOR LIGHTS | 120 | 1.83 | 1 | | 0.220 | 0.22 | 0.80 | 0.18 | 0.80 | 0.18 | 0.80 | 0.18 | 0.80 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | 12 X 14W, 1 X 15W, 1 X 32.5W | |
| L103-6 | MAIN DECK PORT DOCKING FLOOD LIGHTS | 120 | 1.67 | 2 | | 0.100 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.10 | 0.50 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.10 | 0.50 | 0.10 | 0.10 | McDERMOTT TBFLOOD-LED-100W-120 | |
| L103-7 | MN DECK PORT EXTERIOR LIGHTS | 120 | 0.46 | 5 | | 0.011 | 0.06 | 0.50 | 0.03 | 0.50 | 0.03 | 0.50 | 0.03 | 0.50 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.03 | 0.50 | 0.03 | 0.03 | WALL PACK LED, 11W | |
| L103-8 | BRIDGE DECK FWD FLOOD LIGHTS | 120 | 1.67 | 2 | | 0.100 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.10 | 0.50 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.10 | 0.50 | 0.10 | 0.10 | | |
| L103-9 | 02 DK EXTERIOR LIGHTING - PORT | 120 | 4.17 | 1 | | 0.500 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.25 | 0.50 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.25 | 0.50 | 0.25 | 8 x 11W, 4 x 100W | |
| L103-10 | 01 DECK CABINS USB OUTLETS | 120 | 12.00 | 1 | | 1.440 | 1.44 | 0.50 | 0.72 | 0.50 | 0.72 | 0.20 | 0.29 | 0.20 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| | TOTAL ELECTRICAL LOAD ON THIS PANEL | | | | | | 9.97 | | 2.80 | | 4.30 | | 2.84 | | 4.04 | | 0.00 | | 0.00 | | 1.68 | | 1.68 | | | |
| | 01 DECK STBD. LIGHTING PANEL L104 | | | | | | | | | | | | | | | | | | | | | | | | | |
| L104-1 | PH AIR CONDITIONER HT AND A/C STBD | 120 | 14.58 | 1 | | 1.750 | 1.75 | 0.80 | 1.40 | 0.80 | 1.40 | 0.80 | 1.40 | 0.80 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.70 | 0.40 | 0.70 | COLEMAN MACH 3 PULS | |
| L104-2 | PILOT HOUSE INTERIOR LTS & CHART TABLE LTS | 120 | 11.25 | 2 | | 0.675 | 1.35 | 0.00 | 0.00 | 0.50 | 0.68 | 0.00 | 0.00 | 0.40 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| L104-3 | 02 DECK PORT INTERIOR LIGHTS | 120 | 1.08 | 1 | | 0.130 | 0.13 | 0.90 | 0.12 | 0.90 | 0.12 | 0.90 | 0.12 | 0.90 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.07 | 0.50 | 0.07 | 0.07 | 3 x 32.5W, 2 x 14W, 1 x 30W | |
| L104-4 | 01 DECK INTERIOR LIGHTS | 120 | 1.83 | 1 | | 0.220 | 0.22 | 0.80 | 0.18 | 0.80 | 0.18 | 0.80 | 0.18 | 0.80 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.11 | 0.50 | 0.11 | 0.11 | 12 x 14W, 1 x 15W, 1 x 32.5W | |
| L104-5 | MAIN DECK INTERIOR LIGHTS | 120 | 2.50 | 1 | | 0.300 | 0.30 | 0.80 | 0.24 | 0.80 | 0.24 | 0.80 | 0.24 | 0.80 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.24 | 0.80 | 0.24 | 0.24 | 3 x 32.5W, 2 x 14W | |
| L104-6 | MAIN DECK STBD DOCKING FLOOD LIGHTS | 120 | 1.67 | 2 | | 0.100 | 0.20 | 0.50 | 0.10 | 0.50 | 0.10 | 0.50 | 0.10 | 0.50 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.10 | 0.50 | 0.10 | 0.10 | | |
| L104-7 | MN DECK STBD EXTERIOR LIGHTS | 120 | 0.46 | 5 | | 0.011 | 0.06 | 0.50 | 0.03 | 0.50 | 0.03 | 0.50 | 0.03 | 0.50 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.03 | 0.50 | 0.03 | 0.03 | | |
| L104-8 | BRIDGE DECK AFT FLOOD LIGHTS | 120 | 2.50 | 3 | | 0.100 | 0.30 | 0.50 | 0.15 | 0.50 | 0.15 | 0.50 | 0.15 | 0.50 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.15 | 0.50 | 0.15 | 0.15 | | |
| L104-9 | 02 DECK EXTERIOR OUTLETS | 120 | 6.00 | 2 | | 0.360 | 0.72 | 0.10 | 0.07 | 0.10 | 0.07 | 0.10 | 0.07 | 0.10 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| L104-10 | PILOT HOUSE EXTERIOR OUTLETS | 120 | 6.00 | 2 | | 0.360 | 0.72 | 0.10 | 0.07 | 0.10 | 0.07 | 0.10 | 0.07 | 0.10 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180W /RCPT PER NEC | |
| L104-11 | PILOTHOUSE HEATED WINDOW FWD CTR | 120 | 8.00 | 1 | | 0.960 | 0.96 | 0.00 | 0.00 | 0.50 | 0.48 | 0.00 | 0.00 | 0.40 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| L104-12 | 01 DECK CABINS USB OUTLETS | 120 | 12.00 | 1 | | 1.440 | 1.44 | 0.50 | 0.72 | 0.50 | 0.72 | 0.20 | 0.29 | 0.20 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| | TOTAL ELECTRICAL LOAD ON THIS PANEL | | | | | | 8.15 | | 3.07 | | 4.23 | | 2.64 | | 3.57 | | 0.00 | | 0.00 | | 1.39 | | 1.39 | | | |
| | CREW SPC. 120 PANEL L105 | | | | | | | | | | | | | | | | | | | | | | | | | |
| L105-1 | STBD MAIN DECK OUTLETS | 120 | 6.00 | 2 | | 0.360 | 0.72 | 0.1 | 0.07 | 0.1 | 0.072 | 0.1 | 0.07 | 0.1 | 0.072 | 0 | 0 | 0 | 0 | 0.1 | 0.072 | 0.1 | 0.072 | | | |
| L105-2 | ENGR SHOP OUTLETS | 120 | 12.00 | 1 | | 1.440 | 1.440 | 0.30 | 0.43 | 0.30 | 0.432 | 0.30 | 0.43 | 0.30 | 0.432 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.432 | 0.30 | 0.432 | | | |
| L105-3 | CREW RM REFRIGERATOR + TOASTER | 120 | 8.33 | 1 | | 1.000 | 1.000 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.20 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.20 | 0.20 | 0.20 | | | |
| L105-4 | CREW RM MICROWAVE | 120 | 9.58 | 1 | | 1.150 | 1.150 | 0.30 | 0.35 | 0.30 | 0.345 | 0.20 | 0.23 | 0.20 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.23 | 0.20 | 0.23 | | | |
| L105-5 | CREW RM COFFEE MAKER | 120 | 9.17 | 1 | | 1.100 | 1.100 | 0.40 | 0.44 | 0.40 | 0.44 | 0.20 | 0.22 | 0.20 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.22 | 0.20 | 0.22 | | | |
| L105-6 | PILOTHOUSE MICROWAVE | 120 | 9.58 | 1 | | 1.150 | 1.150 | 0.30 | 0.35 | 0.30 | 0.345 | 0.20 | 0.23 | 0.20 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.23 | 0.20 | 0.23 | | | |
| L105-7 | PILOTHOUSE COFFEE MAKER | 120 | 9.17 | 1 | | 1.100 | 1.100 | 0.40 | 0.44 | 0.40 | 0.44 | 0.20 | 0.22 | 0.20 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.22 | 0.20 | 0.22 | | | |
| L105-8 | PILOTHOUSE REFRIGERATOR + TOASTER | 120 | 8.33 | 1 | | 1.000 | 1.000 | 0.40 | 0.40 | 0.40 | 0.40 | 0.20 | 0.20 | 0.20 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.20 | 0.20 | 0.20 | | | |
| L105-9 | HAND DRYER PORT 01 CABIN | 120 | 10.00 | 1 | | 1.200 | 1.200 | 0.30 | 0.36 | 0.30 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | |
| L105-10 | BATTERY ROOM EXHAUST FAN | 120 | 3.80 | 1 | 0.13 | 0.200 | 0.200 | 0.80 | 0.16 | 0.80 | 0.16 | 0.40 | 0.08 | 0.40 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.80 | 0.16 | 0.80 | 0.16 | | | |
| | TOTAL ELECTRICAL LOAD ON THIS PANEL | | | | | | 10.06 | | 3.39 | | 3.39 | | 1.88 | | 1.88 | | 0.00 | | 0.00 | | 1.96 | | 1.96 | | | |
| | 02 DECK LIGHTING 120 PANEL L106 | | | | | | | | | | | | | | | | | | | | | | | | | |
| L106-1 | PILOTHOUSE HEATED WINDOWS FWD PORT | 120 | 12.50 | 2 | | 0.750 | 1.50 | 0.00 | 0.00 | 0.50 | 0.75 | 0.00 | 0.00 | 0.40 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | |
| L106-2 | PILOT HOUSE HEATED WINDOWS FWD STBD | 120 | 12.50 | 2 | | 0.750 | 1.50 | 0.00 | 0.00 | 0.50 | 0.75 | 0.00 | 0.00 | 0.40 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | |
| L106-3 | EXTERIOR LIGHTING - STBD | 120 | 4.17 | 1 | | 0.500 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.25 | 0.50 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.25 | 0.50 | 0.25 | 8 x 11W, 4 x 100W | | |
| L106-4 | PILOT HOUSE INTERIOR OUTLETS | 120 | 12.00 | 4 | | 0.360 | 1.44 | 0.10 | 0.14 | 0.10 | 0.14 | 0.10 | 0.14 | 0.10 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.14 | 0.10 | 0.14 | 180W /RCPT PER NEC | | |
| L106-5 | 02 DECK INTERIOR OUTLETS | 120 | 6.00 | 2 | | 0.360 | 0.72 | 0.10 | 0.07 | 0.10 | 0.07 | 0.10 | 0.07 | 0.10 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.07 | 0.10 | 0.07 | | | |
| L106-6 | PILOTHOUSE HEATED WINDOWS AFT | 120 | 16.88 | 3 | | 0.675 | 2.03 | 0.00 | 0.00 | 0.50 | 1.01 | 0.00 | 0.00 | 0.40 | 0.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | |
| L106-7 | EXTERIOR LIGHTING - 01 DECK | 120 | 4.17 | 1 | | 0.500 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.25 | 0.50 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.25 | 0.50 | 0.25 | 8 x 11W, 4 x 100W | | |
| L104-12 | 01 DECK CABINS USB OUTLETS | 120 | 12.00 | 1 | | 1.440 | 1.44 | 0.50 | 0.72 | 0.50 | 0.72 | 0.20 | 0.29 | 0.20 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | |
| L106-9 | HAND DRYER STBD 01 CABIN | 120 | 10.00 | 1 | | 1.200 | 1.200 | 0.30 | 0.36 | 0.30 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | |
| | TOTAL ELECTRICAL LOAD ON THIS PANEL | | | | | | 10.83 | | 1.30 | | 3.81 | | 1.00 | | 3.01 | | 0.00 | | 0.00 | | 0.72 | | 0.72 | | | |

| CIRCUIT | EQUIPMENT | VOLTS/ PHASE | AMPS (FLC) | CONNECTED LOAD QTY | CONNECTED LOAD INPUT HP | CONNECTED LOAD INPUT KW | CONNECTED LOAD TOTAL KW | CRUISING CONDITION OPERATING LOAD (KW) SUMMER D.F. | CRUISING CONDITION OPERATING LOAD (KW) SUMMER LOAD | CRUISING CONDITION OPERATING LOAD (KW) WINTER D.F. | CRUISING CONDITION OPERATING LOAD (KW) WINTER LOAD | DOCKING CONDITION OPERATING LOAD (KW) SUMMER D.F. | DOCKING CONDITION OPERATING LOAD (KW) SUMMER LOAD | DOCKING CONDITION OPERATING LOAD (KW) WINTER D.F. | DOCKING CONDITION OPERATING LOAD (KW) WINTER LOAD | EMERGENCY CONDITION OPERATING LOAD (KW) SUMMER D.F. | EMERGENCY CONDITION OPERATING LOAD (KW) SUMMER LOAD | EMERGENCY CONDITION OPERATING LOAD (KW) WINTER D.F. | EMERGENCY CONDITION OPERATING LOAD (KW) WINTER LOAD | SHORE POWER OPERATING LOAD (KW) SUMMER D.F. | SHORE POWER OPERATING LOAD (KW) SUMMER LOAD | SHORE POWER OPERATING LOAD (KW) WINTER D.F. | SHORE POWER OPERATING LOAD (KW) WINTER LOAD | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAIN SWITCHBOARD | | | | | | | | | | | | | | | | | | | | | | | | | |
| P201 | ENGINE ROOM SUPPLY FAN (L/VP) | 240/3 | 28 | 1 | 10.00 | 8.400 | 8.40 | 0.90 | 7.56 | 0.90 | 7.56 | 0.20 | 1.68 | 0.20 | 1.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| P202 | NO1 STEERING GEAR HPU PUMP (L/VR) | 240/3 | 15.2 | 1 | 5.00 | 4.300 | 4.30 | 0.50 | 2.15 | 0.50 | 2.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| P203 | BILGE PUMP (P1) (L/VP) | 240/3 | 15.2 | 1 | 5.00 | 4.300 | 4.30 | 0.30 | 1.29 | 0.30 | 1.29 | 0.20 | 0.86 | 0.20 | 0.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| P204 | PILOT HOUSE VOID DUCT HEATER #1 (SHT TRIP) | 240/3 | 25.6 | 1 | | 10.620 | 10.62 | 0.00 | 0.00 | 0.40 | 4.25 | 0.00 | 0.00 | 0.40 | 4.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 4.25 | | |
| P205 | PILOT HOUSE VOID DUCT HEATER #2 (SHT TRIP) | 240/3 | 25.6 | 1 | | 10.620 | 10.62 | 0.00 | 0.00 | 0.40 | 4.25 | 0.00 | 0.00 | 0.40 | 4.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 4.25 | | |
| P206 | HEATING CIRC. PUMP (BACKUP) | 240/1 | 12 | 1 | 3.00 | 2.200 | 2.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.




## PRINCIPAL CHARACTERISTICS

| | |
|---|---|
| LENGTH BET. PERP. | 147'-6" |
| LENGTH ON DECK | 154'-0" |
| MOLDED BEAM | 38'-0" |
| MOLDED DEPTH | 14'-6" |
| MOLDED DRAFT @DWL | 9'-3" |

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

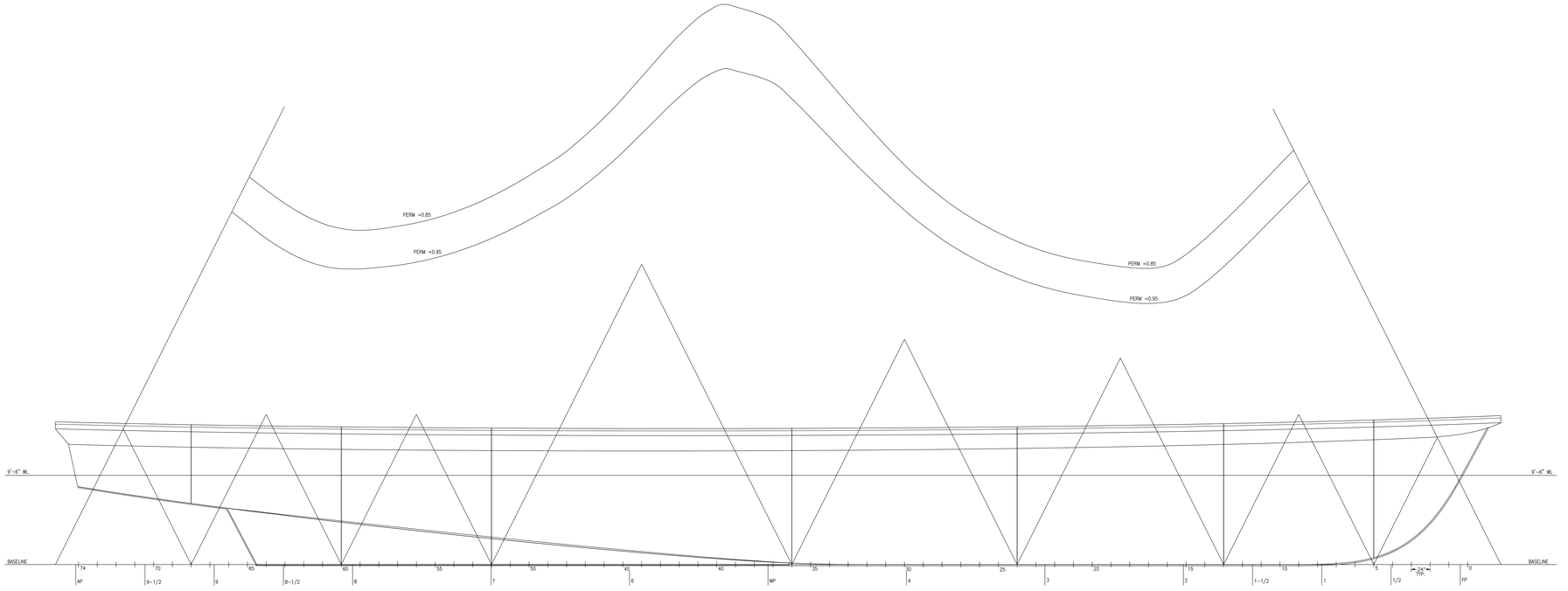
THIS PLAN IS THE PROPERTY OF GILBERT ASSOCIATES, INC., AND IS LOANED ON THE CONDITION THAT IT WILL NOT BE USED AGAINST THEIR BEST INTERESTS, NEITHER WILL IT BE REPRODUCED IN WHOLE OR IN PART THEREOF, AND IT WILL BE RETURNED IMMEDIATELY UPON DEMAND.

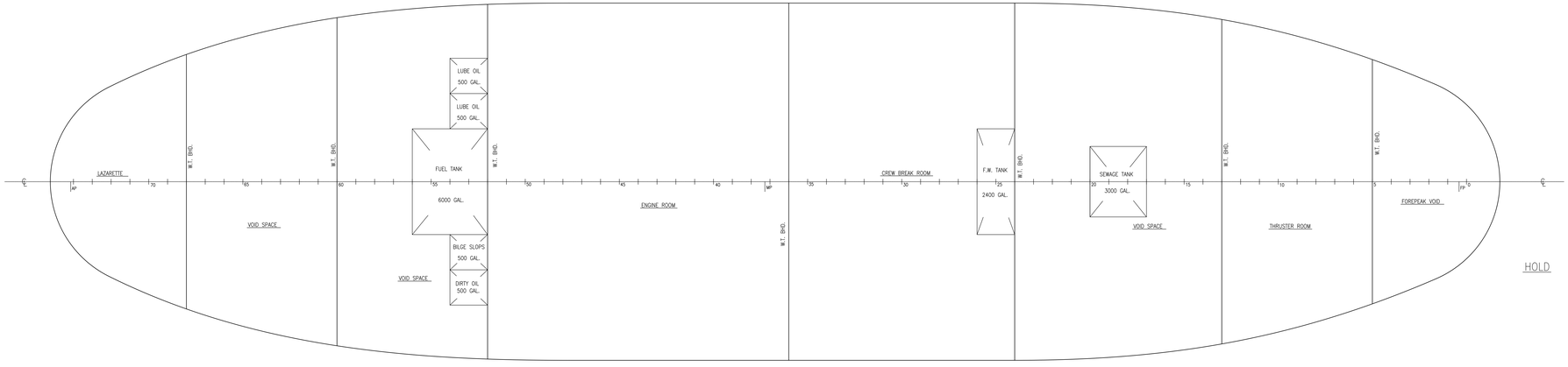
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

## HULL LINES PLAN

**DRAWN BY** GEG **DATE** 12/2020
**CHECKED BY** JG **DATE** 4/2021
**APPROVED BY** **DATE**
**SCALE** 1/4"=1'-0"
**DWG. NO.** D-358A-T1 **ALT.** A




| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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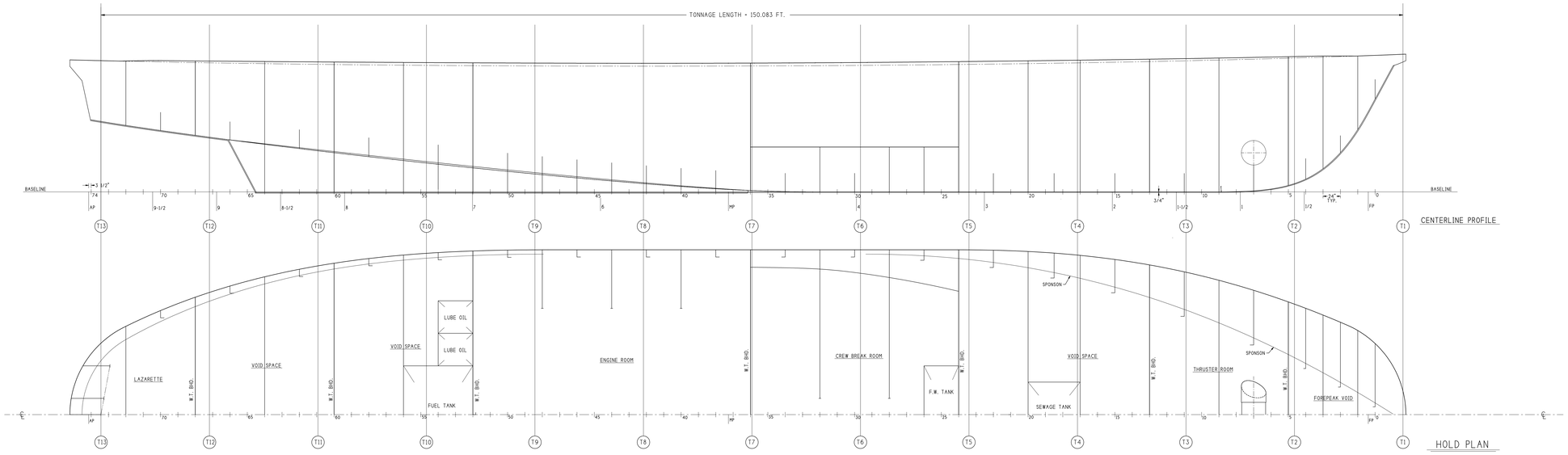
GILBERT ASSOCIATES, INC.
NAVAL ARCHITECTS
MARINE ENGINEERS
100 GROSSMAN DRIVE
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

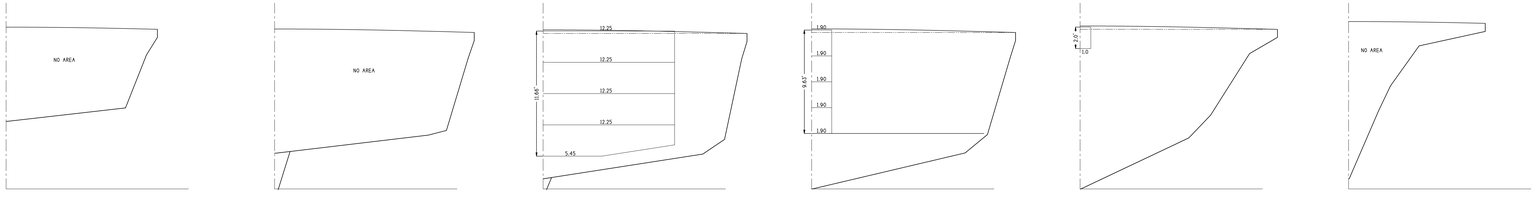
## FLOODABLE LENGTH CURVES

DRAWN BY GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-T3 ALT. A




CENTERLINE PROFILE

HOLD PLAN




TONNAGE STATION T12

TONNAGE STATION T10

TONNAGE STATION T8

| | | | |
|---|---|---|---|
| 1 | 12.25 | 1 | 12.25 |
| 2 | 12.25 | 4 | 49.00 |
| 3 | 12.25 | 2 | 24.50 |
| 4 | 12.25 | 4 | 49.00 |
| 5 | 5.45 | 1 | 5.45 |
| | | | 140.20 |

A = 140.20x2x11.66/(4x3) = 272.46

TONNAGE STATION T6

| | | | |
|---|---|---|---|
| 1 | 1.90 | 1 | 1.90 |
| 2 | 1.90 | 4 | 7.60 |
| 3 | 1.90 | 2 | 3.80 |
| 4 | 1.90 | 4 | 7.60 |
| 5 | 1.90 | 1 | 1.90 |
| | | | 22.80 |

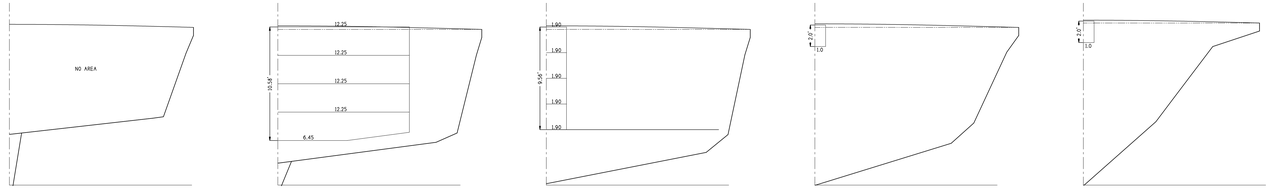
A = 22.80x2x9.63/(4x3) = 36.59

TONNAGE STATION T4

A = 1.0x2.0x2 = 4.00

TONNAGE STATION T2

NO AREA




TONNAGE STATION T11

TONNAGE STATION T9

| | | | |
|---|---|---|---|
| 1 | 12.25 | 1 | 12.25 |
| 2 | 12.25 | 4 | 49.00 |
| 3 | 12.25 | 2 | 24.50 |
| 4 | 12.25 | 4 | 49.00 |
| 5 | 6.45 | 1 | 6.45 |
| | | | 141.20 |

A = 141.20x2x10.58/(4x3) = 248.98

TONNAGE STATION T7

| | | | |
|---|---|---|---|
| 1 | 1.90 | 1 | 1.90 |
| 2 | 1.90 | 4 | 7.60 |
| 3 | 1.90 | 2 | 3.80 |
| 4 | 1.90 | 4 | 7.60 |
| 5 | 1.90 | 1 | 1.90 |
| | | | 22.80 |

A = 22.80x2x9.56/(4x3) = 36.33

TONNAGE STATION T5

A = 1.0x2.0x2 = 4.00

TONNAGE STATION T3

A = 1.0x2.0x2 = 4.00

## TONNAGE BELOW DECK

| | | | |
|---|---|---|---|
| 1 | 0.00 | 1 | 0.00 |
| 2 | 0.00 | 4 | 0.00 |
| 3 | 4.00 | 2 | 8.00 |
| 4 | 4.00 | 4 | 16.00 |
| 5 | 4.00 | 2 | 8.00 |
| 6 | 36.59 | 4 | 146.38 |
| 7 | 36.33 | 2 | 72.66 |
| 8 | 272.46 | 4 | 1089.84 |
| 9 | 248.98 | 2 | 497.96 |
| 10 | 0.00 | 4 | 0.00 |
| 11 | 0.00 | 2 | 0.00 |
| 12 | 0.00 | 4 | 0.00 |
| 13 | 0.00 | 1 | 0.00 |
| | | | 1838.84 |

T - 1838.84x150.083/(12x3x100) - 76.66

GROSS TONNAGE BELOW DECK - 76.66 TONS

MAIN DECK TONNAGE - 8.22 TONS

01 DECK TONNAGE - 0.63 TONS

02 DECK TONNAGE - 0.00 TONS

TOTAL GROSS TONNAGE - 85.51 TONS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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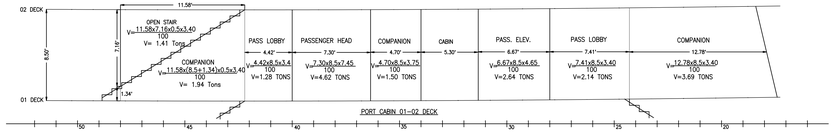
**GILBERT ASSOCIATES, INC.**
NAVAL ARCHITECTS
100 GROSSMAN DR.
MARINE ENGINEERS
BRAINTREE, MA 02184

# 154 FT LOA FERRY VESSEL

## TONNAGE PLAN BELOW MAIN DECK

DRAWN BY GEG — DATE 12/2020
CHECKED BY GEG — DATE 4/2021
APPROVED BY — DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-T4-1 — ALT. A




PASS CABIN AFT - EXEMPT

| | | | |
|---|---|---|---|
| 2P | 6.67x8.20x8.5/100 | = | 4.65 |
| 3P | 5.33x12.85x8.5/100 | = | 5.82 |
| 4P | 4.70x9.10x8.5/100 | = | 3.64 |
| 5P | 7.30x5.45x8.5/100 | = | 3.35 |
| 6P | 15.74x6.45x8.5/100 | = | 12.64 |
| | | | 30.10 TONS |

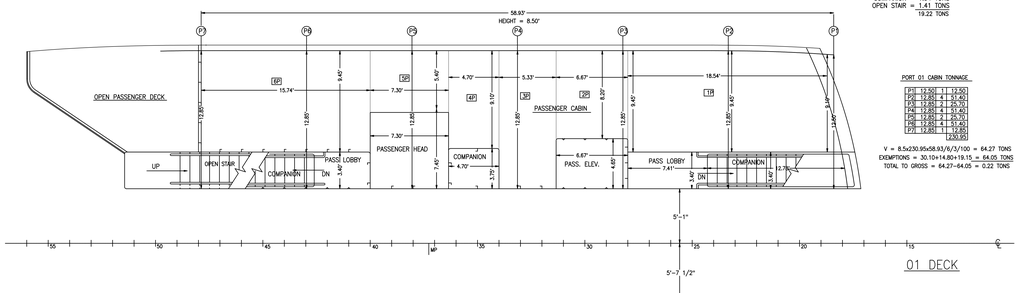
PASS CABIN FWD - EXEMPT

| | | | |
|---|---|---|---|
| 1 | 9.10 | 1 | 9.10 |
| 2 | 9.45 | 4 | 37.80 |
| 3 | 9.45 | 1 | 9.45 |
| | | | 56.35 |

V = 8.5x56.35x18.54/2/3/100 = 14.80 TONS

PORT ADDN'L EXEMPT SPACES

| | |
|---|---|
| COMPANION | = 3.69 TONS |
| PASS LOBBY | = 2.14 TONS |
| PASS. ELEV. | = 2.64 TONS |
| COMPANION | = 1.50 TONS |
| PASS HEAD | = 4.62 TONS |
| PASS LOBBY | = 1.28 TONS |
| COMPANION | = 1.94 TONS |
| OPEN STAIR | = 1.41 TONS |
| | 19.22 TONS |

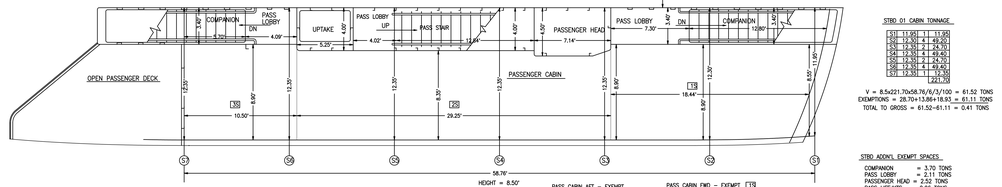



PORT 01 CABIN TONNAGE

| | | | |
|---|---|---|---|
| P1 | 12.85 | 1 | 12.85 |
| P2 | 12.85 | 4 | 51.40 |
| P3 | 12.85 | 2 | 25.70 |
| P4 | 12.85 | 4 | 51.40 |
| P5 | 12.85 | 2 | 25.70 |
| P6 | 12.85 | 4 | 51.40 |
| P7 | 12.85 | 1 | 12.85 |
| | | | 230.95 |

V = 8.5x230.95x58.93/6/100 = 64.27 TONS
EXEMPTIONS = 30.10+14.80+19.15 = 64.05 TONS
TOTAL TO GROSS = 64.27-64.05 = 0.22 TONS

## 01 DECK




STBD 01 CABIN TONNAGE

| | | | |
|---|---|---|---|
| S1 | 11.95 | 1 | 11.95 |
| S2 | 12.50 | 4 | 49.20 |
| S3 | 12.35 | 2 | 24.70 |
| S4 | 12.50 | 4 | 49.40 |
| S5 | 12.35 | 2 | 24.70 |
| S6 | 12.50 | 4 | 49.40 |
| S7 | 12.35 | 1 | 12.35 |
| | | | 221.70 |

V = 8.5x221.70x58.76/6/3/100 = 61.52 TONS
EXEMPTIONS = 28.70+13.86+18.93 = 61.11 TONS
TOTAL TO GROSS = 61.52-61.11 = 0.41 TONS

PASS CABIN AFT - EXEMPT

| | | | |
|---|---|---|---|
| 2S | 29.25x8.35x8.5/100 | = | 20.76 |
| 3S | 10.50x8.90x8.5/100 | = | 7.94 |
| | | | 28.70 TONS |

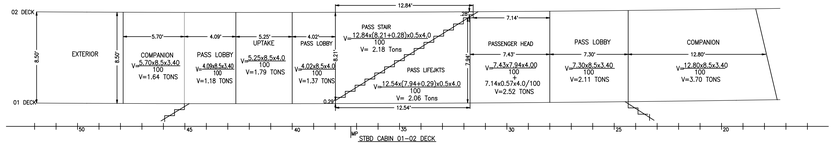
PASS CABIN FWD - EXEMPT T1

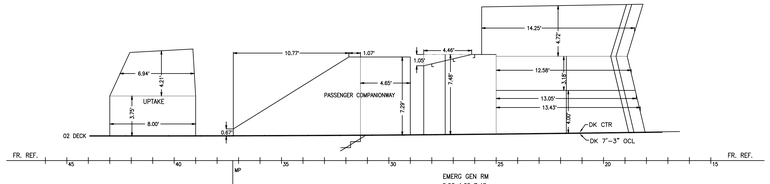
| | | | |
|---|---|---|---|
| 1 | 8.55 | 1 | 8.55 |
| 2 | 8.90 | 4 | 35.60 |
| 3 | 8.90 | 1 | 8.90 |
| | | | 53.05 |

V = 8.5x53.05x18.44/2/3/100 = 13.86 TONS

STBD ADDN'L EXEMPT SPACES

| | |
|---|---|
| COMPANION | = 3.70 TONS |
| PASS LOBBY | = 2.11 TONS |
| PASSENGER HEAD | = 2.52 TONS |
| PASS LIFEJKTS | = 2.06 TONS |
| PASS STAIR | = 2.18 TONS |
| PASS LOBBY | = 1.37 TONS |
| UPTAKE | = 1.79 TONS |
| PASS LOBBY | = 1.18 TONS |
| COMPANION | = 1.64 TONS |
| | 18.55 TONS |



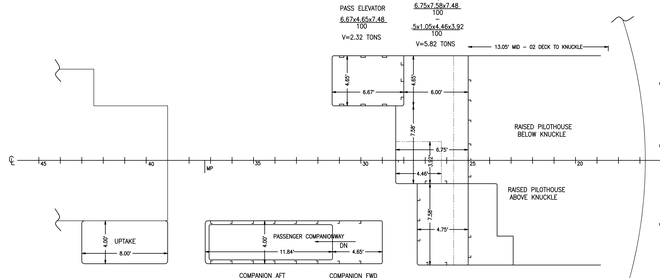




EMERG GEN RM
6.00x4.65x7.48/100
+
6.75x7.58x7.48/100
+
5x1.05x4.46x3.92/100

PASS ELEVATOR
6.67x4.65x7.48/100
V=2.32 TONS

V=5.82 TONS

## 02 DECK




FWD HOUSE TONNAGE ABV. KNUCKLE

| | | | |
|---|---|---|---|
| 1 | 4.75 | 1 | 4.75 |
| 2 | 9.50 | 4 | 38.00 |
| 3 | 9.50 | 1 | 9.50 |
| | | | 52.25 |

V = 4.72x52.25x14.25x2/3/100 = 11.71 TONS

EMERG GEN RM
CREW HEAD
PASS ELEVATOR

FWD HOUSE TONNAGE BEL. KNUCKLE

| | | | |
|---|---|---|---|
| 1 | 4.75 | 1 | 4.75 |
| 2 | 9.50 | 4 | 38.00 |
| 3 | 9.50 | 1 | 9.50 |
| | | | 52.25 |

V = (4.0+3.18)x52.25x13.05x2/3/100 = 16.32 TONS

FWD HOUSE TONNAGE FLAT-KNUCKLE

| | | | |
|---|---|---|---|
| 1 | 4.75 | 1 | 4.75 |
| 2 | 9.50 | 4 | 38.00 |
| 3 | 9.50 | 1 | 9.50 |
| | | | 52.25 |

EMERG GEN RM
CREW HEAD
PASS ELEVATOR

V = 3.18x52.25x12.58x2/3/100 = 6.96 TONS

FAN ROOM TONNAGE 02 DECK - FLAT

| | | | |
|---|---|---|---|
| 1 | 4.75 | 1 | 4.75 |
| 2 | 9.50 | 4 | 38.00 |
| 3 | 9.50 | 1 | 9.50 |
| | | | 52.25 |

V = 4.00x52.25x13.43x2/3/100 = 9.36 TONS

V=8.00x4.00x3.75/100
6.94x4.00x4.21/100
V=2.37 TONS

COMPANION AFT
V=10.77x(7.29+.67)x.5x4.0 + 1.07x7.29x4.0/100
V= 2.02 Tons

COMPANION FWD
4.65x7.29x4.00/100
V=1.36 TONS

V=2.02 + 1.36 = 3.38 TONS

CREW HEAD
4.75x7.58x7.48/100
V=2.90 TONS

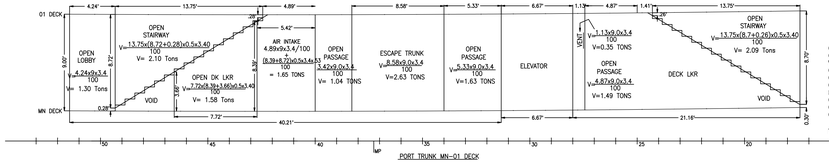
PORT MAIN DECK TRUNK TONNAGE

V= 21.16x9.0x3.40/100 + 6.67x9.0x4.65/100 + 40.21x9.0x3.40/100
V= 21.57 TONS

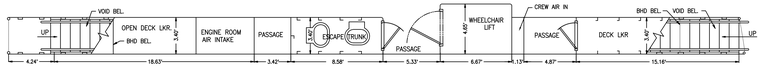
EXEMPTIONS

| | |
|---|---|
| OPEN STAIR FWD | 2.09 |
| OPEN PASSAGE #1 | 1.49 |
| VENT TRUNK | 0.35 |
| OPEN PASSAGE #2 | 1.63 |
| COMPANION | 2.63 |
| OPEN PASSAGE #3 | 1.04 |
| FAN ROOM | 1.65 |
| OPEN DK LKR | 1.58 |
| OPEN STAIR AFT | 2.10 |
| OPEN LOBBY AFT | 1.30 |
| | 15.96 |

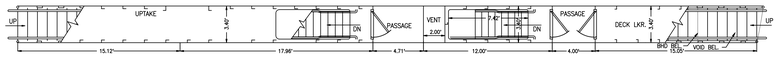
TOTAL TO GROSS = 21.57-15.86 = 5.71 TONS

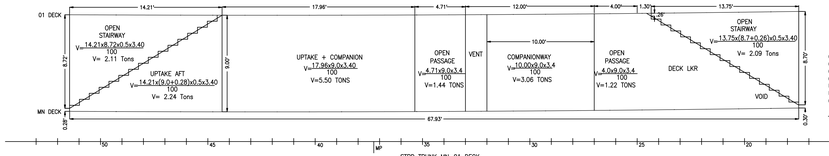



PORT TRUNK MN-01 DECK




## MAIN DECK




STBD TRUNK MN-01 DECK

STBD MAIN DECK TRUNK TONNAGE

V= 67.93x9.0x3.40/100
V= 20.79 TONS

EXEMPTIONS

| | |
|---|---|
| OPEN STAIR FWD | 2.09 |
| OPEN PASSAGE FWD | 1.84 |
| COMPANION FWD | 3.06 |
| OPEN PASSAGE AFT | 1.44 |
| UPTAKE/COMPANION | 5.50 |
| UPTAKE AFT | 2.24 |
| OPEN STAIR AFT | 2.11 |
| | 18.28 |

TOTAL TO GROSS = 20.79-18.28 = 2.51 TONS

| ALT | DESCRIPTION | DATE | NAME |
|---|---|---|---|

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

154 FT LOA FERRY VESSEL

TONNAGE PLAN
MAIN DECK & ABOVE

DRAWN BY BKG DATE 02/22/2021
CHECKED BY GEG DATE 3/2021
APPROVED BY DATE
SCALE 1/4" = 1'-0"
DWG. NO. D358A-T4-2 ALT. A

## WELDING SCHEDULE – ABOVE MAIN DECK

| MEMBER NAME | SCANTLING | TO | MEMBER NAME | SCANTLING | SIZE | LENGTH – SPACING | NOTES |
|---|---|---|---|---|---|---|---|
| SUPER STRC BHD | 3/16",1/4" PLT | | MN+SS DK, BHDS | 1/4",5/16",7/16" PLT | 3/16" | DBL. CONT. | |
| SS BHD STIFFENER | 3–1/2"x3"x1/4" L | | SS BHD | 1/4" PLT | 3/16" | 2 1/2" – 12 | STAGGERED |
| SS BHD STIFFENER | 3"x2"x1/4" L | | SS BHD | 1/4" PLT | 3/16" | 2 1/2" – 12 | STAGGERED |
| SS BHD STIFFENER | 5/16" FLG. PL. | | SS BHD | 1/4" PLT | 3/16" | 2 1/2" – 12 | STAGGERED |
| SS DECK BEAM | 5/16" FLG. PL. | | SS DECK | 1/4" PLT | 3/16" | 2 1/2" – 12 | STAGGERED |
| SS DECK BEAM | 3"x2"x1/4" L | | SS DECK | 1/4" PLT | 3/16" | 2 1/2" – 12 | STAGGERED |
| SS DECK GIRDER | 11"x3"x3/16" FLG | | SS DECK | 1/4" PLT | 3/16" | 2 1/2" – 10 | STAGGERED |
| SS DECK GIRDER | 9"x6"x3/8" FLG | | SS DECK | 1/4" PLT | 3/16" | 2 1/2" – 10 | STAGGERED |
| INSERT PLT | 5/8" PLT | | SS DECK | 1/4" PLT | 3/16" | DBL. CONT. | |
| WALKWAY BEAM | 4"x5/16" F.B. | | WALKWAY GRATE | GW SERIES BAR GRATE | 1/4" | CONT. | |
| WALKWAY GIRDER | 4"x4"x5/16" L | | PH BHD | 1/4" PLT | 3/16" | CONT. | |
| BRACKETS | 1/4" PLT | | DK, STIFF. | VARIES | 3/16" | DBL. CONT. | |
| SLOPED STAIR BHD | 1/4" PLT | | SS BHD | 1/4" PLT | 3/16" | DBL. CONT. | |
| RAILING | 2" SCH. 40 | | SS DECK | 1/4" PLT | 3/16" | CONT. | ALL AROUND |
| BULWARK | 1/4" PLT | | MAIN DECK | 5/16" PLT | 3/16" | DBL. CONT. | |
| BULWARK STIFF. | 5/16" PLT | | BULWARK | 1/4" PLT | 3/16" | 2 1/2" – 12 | STAGGERED |
| BULW. CAP RAIL | 4"x1/2" PLT | | BULWARK | 1/4" PLT | 3/16" | CONT. | OUTSIDE |
| S.S. BHD STIFF. | 6"x10.5# CHANNEL | | SS BHD | 1/4" PLT | 3/16" | 2 1/2" – 12" | |
| S.S. BHD STIFF. | 5"x9# CHANNEL | | SS BHD | 1/4" PLT | 3/16" | 2 1/2" – 12" | |

## 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. | |
| SIDE SHELL | 5/16" PLT | | BTM SHELL | 3/8" PLT | 1/4" | DBL. CONT. | |
| RUB STRAKE | 1" PLT | | DK, SD, BHD | 5/16",3/8",1/2" PLT | 1/4" | DBL. CONT. | |

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 5" CHAIN WELDS

## WELDING SCHEDULE – BELOW MAIN DECK

| MEMBER NAME | SCANTLING | TO | MEMBER NAME | SCANTLING | SIZE | LENGTH – SPACING | NOTES |
|---|---|---|---|---|---|---|---|
| BTM GIRDER | 18"x4"x5/16" F.P. | | BOTTOM PLT | 3/8" PLT | 1/4" | 3" – 8" | CHAIN |
| BTM TRANSV. GIRD. | 15"x4"x5/16" F.P. | | BOTTOM PLT | 3/8" PLT | 1/4" | 3" – 8" | CHAIN |
| PLT FLOOR | 3/8" PLT | | SD, BTM | 3/8" PLT | 1/4" | 3" – 8" | CHAIN |
| DEEP FLOOR | 1/4" PLT | | DK, SD, BTM | 5/16",3/8",1/2" PLT | 3/16" | 2 1/2" – 9" | CHAIN |
| W.T. BHD | 5/16" PLT | | DK, SD, BTM, BHD | 5/16",3/8",1/2" PLT | 1/4" | DBL. CONT. | |
| N.T. BHD | 5/16" PLT | | DK, SD, BTM, BHD | 5/16",3/8",1/2" PLT | 1/4" | 3" – 9" | CHAIN |
| O.T. BHD | 5/16" PLT | | DK, SD, BTM, BHD | 5/16",3/8",1/2" PLT | 1/4" | DBL. CONT. | |
| HULL STIFFENER | 4"x3/8" F.B. | | BTM, SD | 3/8" PLT | 1/4" | 3" – 12" | CHAIN (4) |
| N.C. CUT FRAME | 5/16",3/8" PLT | | SD, BTM | 3/8" PLT | 1/4" | 3" – 9" | CHAIN |
| N.C. FRM FLG | 4"x5/16" PLT | | N.C. CUT FRAME | 5/16",5/8" PLT | 1/4" | 3" – 12" | STAGGERED (2) |
| CUT FRM FLG | 2 1/2"x5/16" PLT | | DECK PLT | 5/16",1/2" PLT | 1/4" | 3" – 6" | PLUG WELD |
| TRANSV. FRM BRKT | 5/16" PLT | | DK, SD | 5/16",3/8" PLT | 1/4" | DBL CONT. | |
| STEM | 8"x1–1/2" PLT | | BOTTOM PLT | 3/8" PLT | 1/4" | DBL CONT. | |
| BAR KEEL | 8"x2" PLT | | BOTTOM PLT | 3/8" PLT | 1/4" | DBL CONT. | |
| CVK WEB | 3/8" PLT | | BAR KEEL | 8"x2" PLT | 1/4" | DBL CONT. | GROOVE |
| CVK RIDER PLT | 7"x1" PLT | | CVK WEB | 3/8" PLT | 1/4" | DBL CONT. | |
| DECK STIFFENER | 6"x4"x3/8" L | | DECK PLT | 1/2" PLT | 1/4" | 3"–11" | CHAIN |
| DECK STIFFENER | 5"x3"x5/16" L | | DECK PLT | 1/2" PLT | 1/4" | 3"–12" | CHAIN |
| VERT. STIFFENER | 2 1/2"x5/16" F.B. | | CUT FR, BHD, D.F. | 1/4",5/16" PLT | 3/16" | 2 1/2" – 12 | STAGGERED (2) |
| VERT. STIFFENER | 3"x2"x1/4" L | | D.F., BHD | 1/4",5/16",3/8" PLT | 3/16" | 2 1/2" – 12 | STAGGERED (2) |
| BHD STIFFENER | 4"x3"x5/16" L | | WT BHD | 5/16" PLT | 1/4" | 3" – 12 | STAGGERED (1) |
| BHD STIFFENER | 5"x3"x3/8" L | | WT BHD | 5/16" PLT | 1/4" | 3" – 12 | STAGGERED (1) |
| BHD STIFFENER | 4"x3"x5/16" L | | WT BHD | 5/16",3/8" PLT | 1/4" | 3" – 12 | STAGGERED (1) |
| BHD STIFFENER | 5"x3"x3/8" L | | WT BHD | 5/16",3/8" PLT | 1/4" | 3" – 12 | STAGGERED (1) |
| INSERT PLT | 3/4" PLT | | BOTTOM PLT | 3/8" PLT | 1/4" | DBL CONT. | |
| BRKTS | 12"x12"x1/4" PLT | | STIFF. | VARIES | 3/16" | DBL CONT. | |
| TRANSV. DK BEAM | 10"x6"x3/8" FLG PLT | | DECK PLT | 1/2" PLT | 1/4" | 3" – 9" | CHAIN |
| ENGINE GIRDER | 1/2" PLT | | BTM PLT | 3/8" PLT | 1/4" | DBL CONT. | |
| ENG. GIRD. RIDER | 7"x1/2" PLT | | ENG. GIRDER | 1/2" PLT | 5/16" | DBL CONT. | |
| ENG. GIRD. BRKTS | 5/16" PLT | | FLG. GIRD., RIDER | 1/2" PLT | 1/4" | DBL CONT. | |
| HATCH COAMING | 3/8" FLG PLT | | DECK PLT | 1/2" PLT | 5/16" | DBL CONT. | |
| TANK BHD | 5/16" PLT | | BTM, BHD | 1/4",5/16",3/8" PLT | 1/4" | DBL CONT. | |
| TANK STIFF. | 5"x3"x5/16" L | | TANK BHD | 5/16" PLT | 1/4" | 3" – 12" | CHAIN (1) |
| STANCHION | 4" SCH 80 | | DBLR PLT | 1/2" PLT | 5/16" | CONT. | ALL AROUND |
| STANCH. DOUBLER | 6"x1/2" PLT | | PLT FLOOR | 3/8" PLT | 1/4" | CONT. | ALL AROUND |

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

154 FT LOA FERRY VESSEL

WELD SCHEDULE

DRAWN BY MBM + GEG DATE 12/2020
CHECKED BY GEG DATE 5/2021
APPROVED BY DATE
SCALE NONE
DWG. NO. D358A–T12 ALT. A