

65M PLATFORM
SUPPLY VESSEL

PROPOSAL

1. SUMMARY

1(a) - the purpose of this study is to have an overview of building a simple platform supply vessel (PSV) by MEP, as an alternative to today's PSVs typified by over equipped and purported sophistication for the duties of doing supplies to platforms and rigs. The main purpose of this study is see if it can be of interest to ships' operators looking for a fair valued vessel that is sufficiently equipped to do the job. Our opinion is presented herein.

1(b) – it is proposed that the vessel will be a 65M or possibly 70M overall length build steel vessel, and with a beam of 16M. This is deemed a medium size offshore vessel, which is to be outfitted to meet the minimum requirements of Classification and Statutory Regulations. Its primary duty is to carry deck cargo, supply fuel, fresh water and other offshore support services. It should also be flexible enough to be modified to carry expanded varieties of cargo like mud, and bulk cement as an option, through the introduction of additional equipment and fittings, without extensive modification. In our study any expanded duties will be treated as options. If there is a further requirement of towage and anchor handling, the vessel should similarly be able to be outfitted to include these duties, through the introduction of a single or double drum winch with required accessories. Based on this concept, the vessel is deemed to be satisfactory for its primary duties and or any extended work if required in the future.

1(c) – the service lifespan of such type vessel is about twenty (20) years, and it should be fully ready for a full five year of work as a PSV with no particular requirements of excessive maintenance outside of the normal fair and tear. No equipment upgrade should be required on its machinery and equipment after its first next five years of operation, where a second obligatory survey for the revalidation of Class and Statutory compliance for another five years of operation is required.

1(d) - the propulsion engines for such vessel is preferably be of medium speed type, which is ideal for heavy duty work. The intention is to install two Daihatsu engines of type 6DKM-26F rated 1118 Kw (2,200 hp) each at 750 rpm. These engines are assembled in China from the maker of Daihatsu – Japan, and a fairly well known make in the marine market. The auxiliary engines for power plants will be chosen from those widely used in the market to ensure parts availability and support well into the future. These will also be from China.

1(e) – it is envisaged if regular maintenance is undertaken, the lifespan of the vessel and its equipment should see satisfactory performance for the next fifteen (15 years), with a controlled maintenance programme in place. Maintenance costs of machinery and equipment after that may be less viable regardless of choice of equipment.

2. INTRODUCTION

2.1 Objective

2.1(a) - the objective of this introduction is to provide some key information of the vessel:

2.2 Basic ship data

2.2(a) - the ship will be built based on existing designs suitably modified. The proprietary design will be from either Wartsila Ltd. (CWA) or Shanghai Chizhou Marine Technical Ltd. through its Singapore office. Typically, the ship will be built for unrestricted service, operating between 32 degrees north and south of equator. Trading further north and south of equator may be feasible when heaters are fitted

into its ventilation plant and additional safety gears are fitted. The vessel basically will be purpose built for doing supply runs to platforms and rigs.

2.2(b) - the ship will be classed with Bureau Veritas with the notation 1 3/3E ✕ Supply Vessel Deep Sea. It is envisaged to carry twenty eight (28) crew and with a sick bay. It will be registered under Commonwealth of Dominica – (Portsmouth) and or Singapore. A sketch of the proposed ship is attached. Other typical layout may be seen at the end of this report.

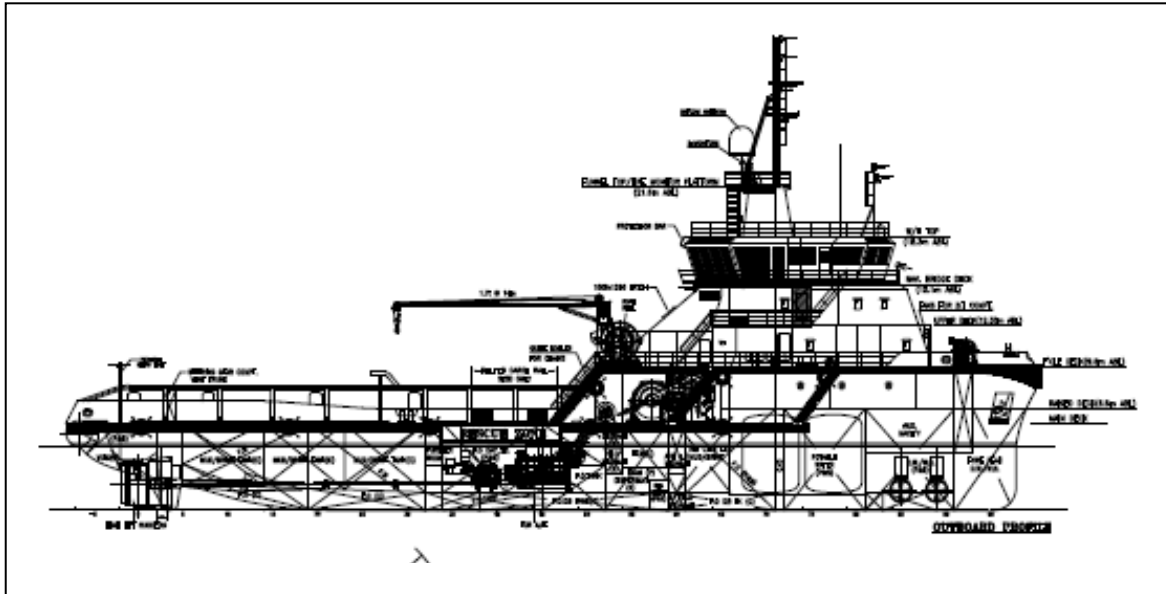


Figure 2.1: 65M PSV

2.2(c) - the vessel will be constructed with wing and double bottom tanks forming a double skin and double bottom hull as required by regulations. It will be powered by two medium speed engines driving two sets of fixed shafts supported with bearing blocks and angled to drive two fixed line shafts with fixed pitch propellers in shrouded nozzles, primary for thrust. This arrangement is the most basic of ship propulsion.

The engine room will be below main deck. It will take about two third of the available under deck space together with all its equipment. There will be a space reserved for the cement tanks at forward, and the possibility of converting some of the centre tanks for the carriage of mud if required. The fuel and water tanks including ballast tanks will be located at sides and bottom of tank top. The engine control room will be for remote monitoring and control of all the vessel's electrical equipment from the switchboard. The engine alarms will be centralised from this location.

The main deck is its working deck. It will run the entire length up to forecastle deck and will be fully wood sheathed. Discharges for the potable waters and fuel cargoes will be from either sides of the main deck. They will be protected by two cargo railings that will be fully plated and separate the deck cargoes from the pipe discharges.

When not carrying deck cargo, and if fitted with optional winches; the main deck can be used for anchor handling duties, when fitted with the options guide pins, and shark jaws. It is expected the vessel will consider the strengthening of these areas including the inclusion of a stern roller at construction stage.

Fire lines and valves will be fitted within the walkways of the main deck and forecastle deck.

There will be a fire fighting platform for two fire monitors mounted on wheelhouse top platforms there are manually operated. This offers some form of external fire fighting duties.

The forecastle normally will start at forward of amidships.

The upper deck will be reserved for crew cabins and utility spaces. There will be a PA system along passage ways and a smoke and fire detecting will be fitted throughout the cabins and other utility spaces. On the external part aft of the upper deck will be located the liferafts, rescue boat and davit. A provision deck crane will not be fitted but will remain as an option item. The muster station will be located at this level.

One deck above will be the wheelhouse with a forward and aft control consol with all navigation controls and a fixed pitch bow thruster control station, together. All principal alarm systems for propulsion, stern gears and auxiliary plant will be sited in these two consol. Radio communication is envisaged to be separately installed on a radio consol with Inmarsat C, VHF and MF radios with DSC mounted on same location.

On top of the wheelhouse will be the mast with the required scanners for navigation aids and radio communication antenna, searchlights, and periscope compass and other vessel's distress signal equipment. The single mast will house the mast lights and other COREG specified lightings. The bridging platform will probably have two reduced capacity fire fighting monitors mounted on either side. Spare batteries, and probably the emergency wheelhouse air condition compressor will be located immediately under.

The forecastle 1st level will be offset from main deck and is for the galley, mess, cold stores, recreation, sick bay, crew and communal toilets. Normally a vessel of with this duty will not require an emergency generator; however, the proposed main engines required an external source of power for its cooling pumps to meet classification needs. It will be located on the same level as that of C02 room, and deck store.

Directly below the forecastle 1st deck level at lower deck is the utility space for the ventilation and air condition plant, store space, and maybe a laundry space. It will also house the bow thruster electric motor leading down to tank top level where the sewerage treatment plant, and emergency fire fighting pump and bow thruster will be located.

2.2(d) - following principal particulars and its equipment proposed for the 65M PSV.

Owners	J/V company
Type of Vessel	Offshore Supply
Classification	BV 1 3/3 + Supply Deep Sea
IMO No	
Builder	Appointed shipyard
Equipment Type	International & Chinese make
Keel laid	2010
Delivery	2 nd quarter 2011

DIMENSIONS AND PERFORMANCE (proposed)

Length OA	65.00 m
Breadth Mld	16.00 m
Depth Mld	5.80 m
Draft Mld (design)/max	4.20 m/4.90 m
Cargo Deck Area	abt 430 sq m
Speed	± 12 k
Bollard Pull	± 55 to 60 (option)
Range	± 4500 n miles (subj to final design)

TANK CAPACITIES (100% approx) OTHER INFORMATION

Fresh water	± 300 M3	Name	
Fuel Oil (total)	± 500 M3	Tonnage	
Water ballast/Drill water	± 440 M3	Call Sign	
Liquid Mud (total) option	± 350 M3	Off No.	
Dry Bulk cement	± 170 M3	MMSI	
L.O. storage	± 6 M3	POR	Dominica
Hydraulic Oil	± 8 M3		or Singapore
Foam	± 12 M3		
Dispersant	± 12 M3		
Dwt	± 1600 t		

MACHINERY AND PROPULSION

Main Engine	2 X 2,200 hp @ 750 rpm Daihatsu type 6DKM-26F(L)
Propellers	2 x fixed pitch
Bow thruster	1 x 5 tonne - fixed pitch electric motor driven (subj to review)
Generators	2 x 250 KW – voltage 415/230/3/50 hz, manual synchronising
Emergency Generator	1 x 64 KW radiator cooled
Oily Water separator	1 x 1 tonne with alarm
Bridge consol forward and aft	Monitoring panels main, aux. Bow thruster and vessel's navigation aids.
Sewage Treatment Plant	1 x 30 men Biological plant
Main engine coolers	Heat exchanger
Lube n Fuel Oil purifiers	Option 1 x MDO and 1 X Lube oil
Water Maker (RO)	1 x 5 t option
Air condition and cold room plant – Cold store – 10 M3 at -18C Chiller – 10 M3 at +4 C	1 x high pressure type for accommodation. Separate unit w/ house and ECR 1 x Refrigerant plant
Centralised monitoring system	Option

NAVIGATION AIDS

Radar	2
Echo sounder	1
Bearing repeaters	2

GPS	1 x MT
Gyro compass	1 x with 2 repeaters
Magnetic compass	1
Auto pilot	1
Speed log	1
AIS	1
MF/HF DSC radio	1
IMC – C	2
INMart-F	option
VHF – DSC radio	2
Navtex	1
Portable VHF	3 with spare chargers
CCTV	option
Intercom with PA	1
Sound Power Telephone	1
Auto telephone exchange	option

DECK EQUIPMENT (HYDRAULIC)

Tow/Anchor handling water fall winch	1 x option
Storage drum winch	1 x option
Tugger winch (hydraulic)	2 x 10 t pull
Capstan (hydraulic)	2 x 10 t pull at 15m/min
Windlass (hydraulic)	1 x windlass rated 12 t at m/min
Anchor chains	38 mm dia. U-2 stud links to be finalized
Anchors	2 x 1580 kg to be finalized
Mooring ropes	4 x 160 m PP ropes
Guide pins and shark jaw	Option
Provision crane	2 t @ 21 m option

CARGO PUMPS AND FIRE FIGHTING FI FI 1

Fuel Oil cargo pump	1 x 120 cu m at 70 m head
FW/Drill water Cargo pump	1 x 120 cu m at 70 m head
Liquid Mud pump	To be decided - option
Dry Bulk	To be decided - option
Mud agitator	To be decided – option
Tank gauging remote system	Not applicable
External fire fighting pump	2 x 450 to 550 cu m at 14 bar
Fire monitors	2 x 600 cu each one dual barrel water/foam To be finalized
Foam System	1 x option
Fixed Water Spraying	Not applicable
Oil dispersant Booms	2 x option
Fixed Gas Detection	H2S including smoke and heat detectors

ACCOMMODATION

CREW (28 Total)	To be arranged
Sickbay	1 x single berth
Laundry	2 washer and 2 dryer
Mess room	16 persons seating
Recreation room	Common
Toilets n wash place	To be arranged

**INFORMATION SUBJECT TO CHANGE
WITHOUT NOTIFICATION**

3.2 Mechanical Systems

3.2(a) Main Engines: The vessel will be fitted with two Daihatsu medium speed engines coupled to reverse reduction gear boxes driving two fixed pitch Kaplan type propellers in nozzles. Open type propellers of Troost “B” series may be considered to optimise on speed.

3.2(b) Piping: The piping systems will in most cases be made of galvanised steel including that of fresh water line. An impressed current may be studied to extend the life span of the pipes.

3.2(c) Other Systems: All other systems including the hydraulics will be of heavy gauge steel, copper or PVC to reflect the service it is serving.

4.1 Electrical Systems

4.1(a) Generators: The vessel is proposed with two main generators, and they will be used to power the bow thruster and vessel’s load. However, it may be necessary to increase an additional unit and reduce the size of the other two generators to match; to give an added safeguard of a third unit when starting load is heavy and when undergoing maintenance. Normally a single unit will be sufficient for vessel’s use when sailing. The generators will be arranged for manual start, and the switchboard similarly will be arranged for manual synchronising of the generators, for either two (or three if third unit is installed) of the generators simultaneously. It is important to note that the vessel requires at least two generators by class and for wharf side and platform approach due to the power requirements of the bow thruster. Alternative arrangement will be reviewed.

4.1(b) - there will be a 60 or 80 Kw emergency generator fitted with preferential trip on non essential equipment. This will be installed on main deck level with its own fuel tank arrangement for 18 hours operation and connected to power essential equipment and emergency lightings with its own switchboard and auto out in event of power returned. Within this area will be a shore connection.

4.1(c) - the proposed voltage for the vessel is 415/3/50 Hz, however, this may change to 440/3/60 Hz voltage supply, since the trend of 60 Hz power is now more widely accepted by oil companies. The final decision will be considered at a later stage.

4.2 Electronic Systems

4.4(a) Navigation, communications radio and telephone systems will be in conformance with GMDSS A1 to A3 requirements. The main and auxiliary engines alarms including the propulsion system will be standard type as supplied by vendors for their equipment. There is no avenue to use a common electronic monitoring system for bridge equipment based on the type of equipment proposed to be installed on the vessel. All systems with audible and visual displays will be using vendors’ standard scope of supply. The operation of main engines, thrusters, and steering gears will be controlled as individual units.

5. REGULATORY

5(a) - the vessel will be registered under Commonwealth of the Dominica (COD) and Bureau Veritas with respect to hull and machinery. COD is chosen because it offers flexibility on statutory matters with no “black listing” by major ports.

5.1 Upcoming Regulatory Changes

5.1(a) – at time of this study, the proposed vessel will meet all current requirements, however, there is a steady implementation of Regulatory requirements that may soon to be adopted or rectified by some member states under IMO. In light of this additional equipment may have to be purchased. Choice of flag state should be considered carefully.

5.2(c) Fire Safety Regulations: In full compliance as to date.

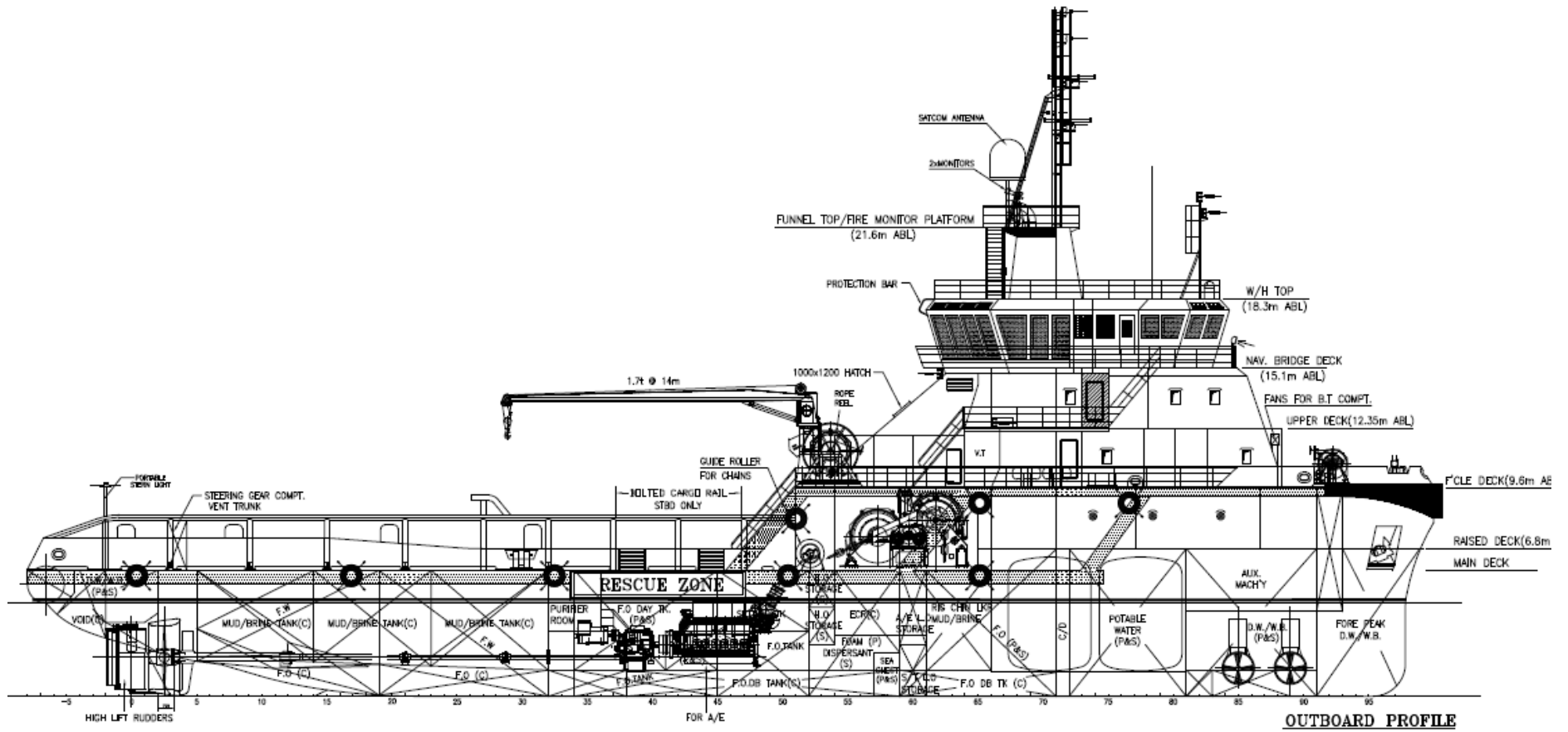
5.2(d) Lifesaving Equipment: Suitable for intended operation, except immersion suits are required for colder climate use.

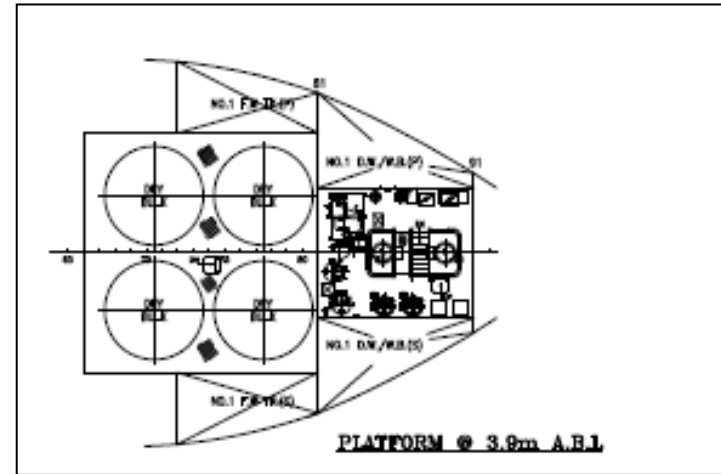
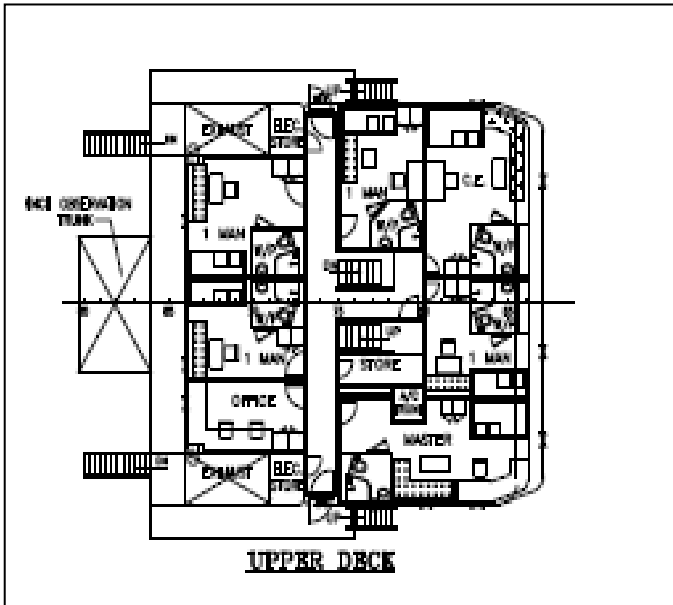
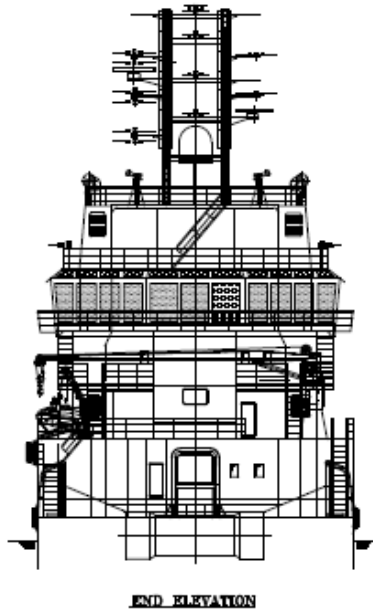
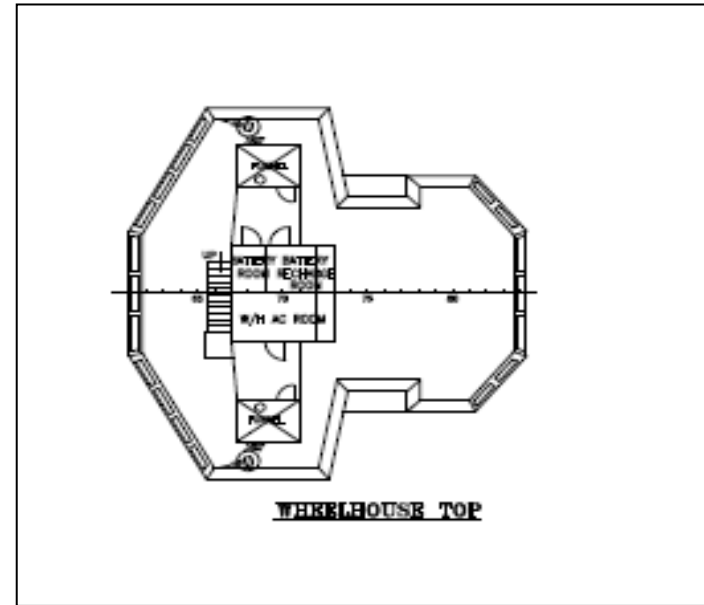
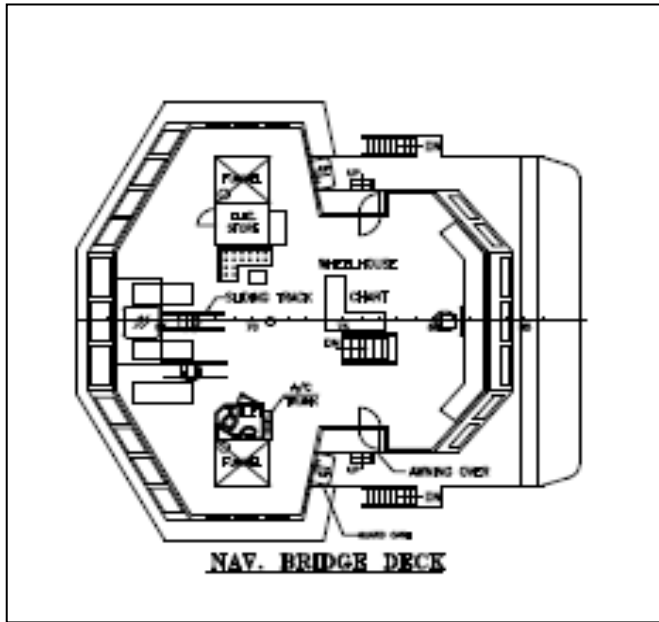
5.2(e) Stability and Load Lines: The vessel is based on “as built vessels” and will comply with all stability requirements if there is no change in original intent of vessel.

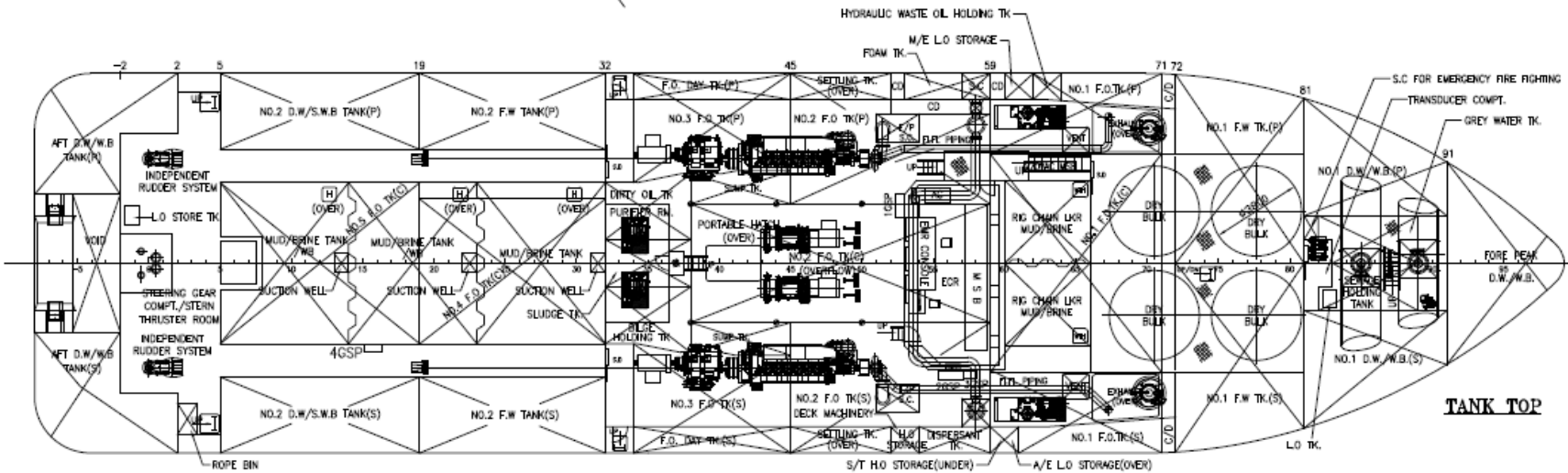
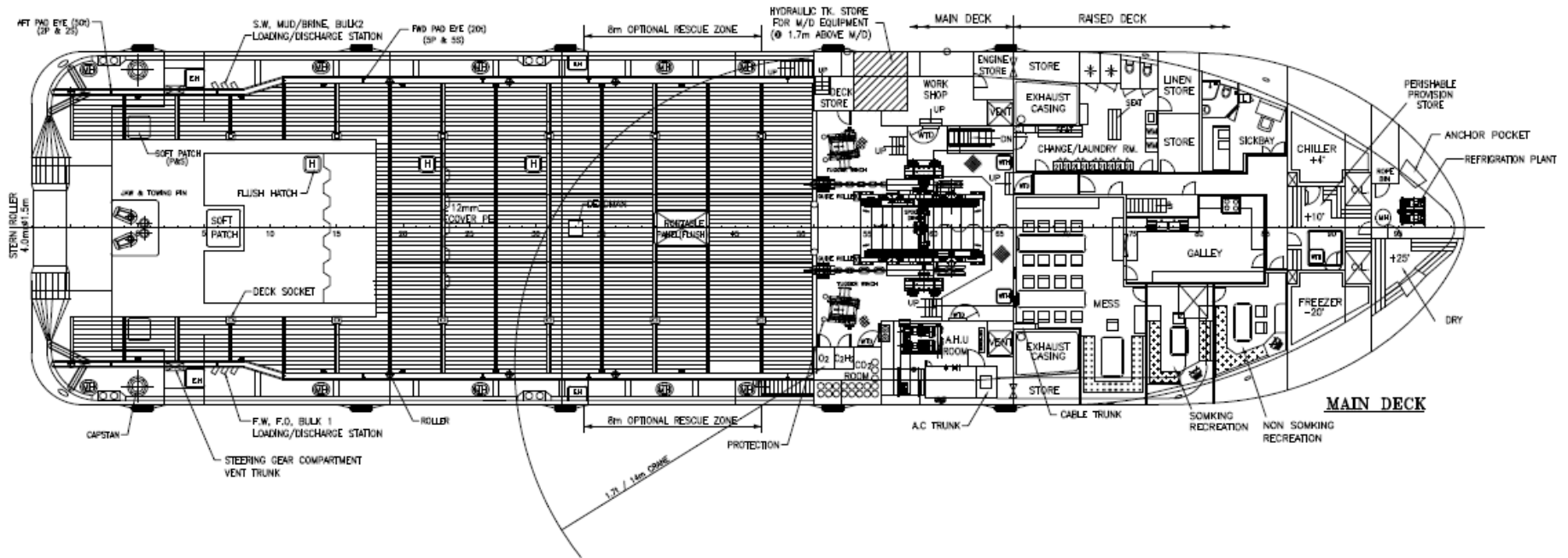
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Delivery:

The vessel is expected to be delivered within the 3rd quarter of 2011, if construction starts within the first half of 2010.







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