

**DETAILS OF ACCEPTANCE OF NECESSITY (AoN) FOR ACQUISITION
02 X 500T SELF PROPELLED FUEL BARGE**

1. Acceptance of Necessity (AoN) has been accorded on 08 Jan 26 for acquisition of 02 X 500T Self Propelled Fuel Barge (in accordance with Section 'B', Chapter XII of DAP 2020) under Buy Indian-IDDMM scheme, with minimum 77% Indigenous Content (IC).
2. Technical Specifications of the project are placed at **Appendix 'A'**. RFP for the acquisition would be issued shortly.
3. Vendors desirous of participating in the approved acquisition scheme related to procurement of 02 X 500T Self Propelled Fuel Barge may submit their willingness to the following: -

Cmde (Ship Production)
Directorate of Ship Production
Naval Headquarters, Ministry of Defence
Room No. E-201, 2nd Floor
East Wing, Nausena Bhawan
Delhi Cantt, New Delhi 110010
Tele: 011-20896998
E-mail: dsp@navy.gov.in

**TECHNICAL SPECIFICATIONS FOR CONSTRUCTION OF
02 X 500 TON SELF PROPELLED FUEL BARGE**

SECTION A – GENERAL

1.	Aim	<p>RFI for procurement of two (02) 500 Ton Self-Propelled Fuel Barge capable of replenishing ships and submarines in harbour and at anchorage with LSHFHSD and AVCAT.</p> <p>Specific requirement of IN to be applied during design/ construction of the barges in addition to the rule requirements are appended in this section.</p>
2.	Functions	<p>(a) Replenishing ships and submarines in harbour and at anchorage with LSHFHSD and AVCAT.</p> <p>(b) Receive LSHFHSD and AVCAT from ships and submarines.</p>
3.	General Remarks	<p>(a) The barge is to be built as per IHQ MoD (N) approved Classification Society Rules (i.e. ABS/ BV/ DNV-GL/ IRS/ LR /RINA/ Class-NK). The notation for the barge and QAP for shipbuilding, including trials, should be finalised in consultation with Class and IHQ MoD (N). Classification Society is to certify that the Class notation proposed by the yard covers all the requirements of Build Specs to maximum extent.</p> <p>(b) A certificate is to be provided by the Classification Society confirming that 'Class Notations have been provided for all functional requirements indicated in RFP'. Proposed class notations to be indicated in RFI response.</p> <p>(c) The barge should be self-sufficient as far as pumping arrangements for fuelling and de-fuelling of ships and submarines are concerned.</p> <p>(d) Operational Area of the Barge will be within coastal waters (i.e. 20 nm from coast).</p> <p>(d) The barge should be able to sustain itself at sea for a minimum of seven days while transiting from one port to another.</p> <p>(e) The barge should be capable of supplying light stores ie, fresh and dry provision to ships upto 500 kg (capable of being lifted manually), when required.</p> <p>(f) The barge should comply with all the latest requirements of MARPOL/ MEPC and SOLAS regulations.</p> <p>(g) Following additional green ship design aspects are to be adhered to:-</p>

		<p>(i) Energy Efficiency Design Index (EEDI) Certificate.</p> <p>(ii) Hull form (at least five distinct variants) and trim (at least six variants with trim angle interval of 0.5° each) optimisation using Numerical/ CFD study in case the vessel is of new design or optimisation study reports are not held by the Shipyard. The procedure of optimisation study is to be <i>iaw</i> International Towing Tank Conference (ITTC) recommended procedures and guidelines and is to be reviewed by Classification Society. Hull form and design trim (design loading condition) of the barge shall be decided based on this study.</p> <p>(h) OCRC will be followed as per NO 28/13, i.e. Ops cycle of 24 months followed by Short Refit (SR) and Normal Refit (NR) alternatively. However, Inter-docking interval for 05 years to be catered in design/ material specifications used in the barge.</p>
4.	Speed	<p>(a) Maximum speed of 12 Kn upto 85% MCR.</p> <p>(b) Sustained : 10 Kn</p>
5.	Endurance	800 Nm
6.	Sea State	Should be able to operate up to Sea State 3 and survive upto sea state 5.
7.	Crew	Total number of crew for the barge is 11 , including one Master and one Engineer.
8.	Dimensions	<p>The principle dimensions of the barge should be as follows:-</p> <p>(a) Length - Not less than 45 m</p> <p>(b) Beam (extreme) - Not less than 8 m</p> <p>(e) Draught (Deep) - Not more than 4 m</p>
9.	Environmental Conditions	<p>(a) Ambient environment parameters, as indicated be retained as follows for design of the barge. All equipment/ system of the barge should be able to function to full potential within the range of environmental conditions:-</p> <p>(i) Ambient air temperature – upto 45°C</p> <p>(ii) Average Machinery Temperature – upto 55°C</p> <p>(iii) Sea Water Temperature – up to 40°C</p> <p>(iv) Relative Humidity: Condensation at 35°C – 100% condensation</p> <p>(b) The Marinised Package AC is to be designed to perform at rated conditions under the environmental conditions specified at (a) above.</p>

		<p>(c) All machinery, its sub-assemblies and control systems should be able to perform continuous operation with machinery compartment conditions.</p> <p>(d) As the barges are required to operate in marine environment, therefore compliance to environmental standards (MARPOL) for weather, corrosion resistance etc be indicated.</p>
10.	Capacities	<p>(a) Fuel Oil (cargo) - 500 Ton (including 400 Ton LSHFHSD and 100 Ton AVCAT)</p> <p>(b) Fresh Water (cargo) - 50 Ton</p> <p>(c) Fuel Oil (propulsion) - As per endurance +25% reserve</p> <p>(d) Domestic Fresh Water - 4.5 to 5.5 Ton</p> <p>(e) Lub Oil - As per endurance +25% reserve</p>

SECTION B – NAVIGATION

11	Bridge	Bridge should have large inclining windows for all around visibility to assist manoeuvring alongside. Clear View Screens (CVC) and Window wipers should be provided as per Class requirement.
12	Magnetic Compass	<p>(a) One Class approved magnetic compass is to be provided on the bridge.</p> <p>(b) In addition, one Boat Compass as per Class Rules is to be provided.</p>
13	Navigational Equipment	<p>Complete fittings of Navigational equipment as per requirement of IMO/SOLAS/COLREGS and Class Rules are to be provided, which should include (not limited to the following): -</p> <p>(a) GPS</p> <p>(b) Gyro/ Gyro Repeater</p> <p>(c) Ships siren</p> <p>(d) AIS</p> <p>(e) Log</p> <p>(f) GMDSS</p> <p>(g) Nav Radar</p> <p>(h) Binoculars – 02 nos</p> <p>(j) Flood Lights on bridge top</p>
14	Echo Sounder	One Class approved Echo Sounder with interface printer to be provided.
15	Fog Horn	Two Class approved electric fog horns are to be provided on top of the wheel house with local operating controls and provision for remote operations from the bridge.

16	Nav Light	As per International Regulation for Prevention of Collision at Sea (IRPCS) – 1972. Battery and backup supply is to be provided for the navigation lights.
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SECTION C – COMMUNICATION

17.	Communication	<p>Following Class approved communication facilities are to be provided:-</p> <ul style="list-style-type: none"> (a) VHF MMB Tx/Rx with DSC - Two (b) VHF hand held Radio sets - Five MOTOTRBO XIRP8668i (c) SART TBR - 600 - One (OEM M/s Thrane & Thrane) (d) EPIRB 406 MHZ - One (OEM M/s Thrane & Thrane) (e) Megaphone - Two(one) Bridge Top and one on the mast (f) 5" Hand signaling Lantern One with stowage box (g) Portable loud hailers Two (h) Call up bells To be provided between Galley and Wheel House, Master and Engineers Cabins. (j) Sound power telephone As Req. (k) Class approved Internal Communication System- As required
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SECTION D – HULL

18.	Build Specification	<ul style="list-style-type: none"> (a) The barge should be built to IHQ MoD (N) approved classification Society Standards (i.e. ABS/ BV/ DNV-GL/ IRS/ LR/ RINA/ Class-NK). (b) The Seller is to provide a certificate from the nominated Class Society that the barge has been built to approved Class Notations and the vessel (design and build) complies with all aspects of the Built Specifications. The Seller shall therefore
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		<p>share a copy of GLS/ Build Specifications with the nominated Class society and finalize the contract with Class accordingly.</p> <p>(c) All equipment should be procured under inspection/ certification by Classification Society rules to meet the relevant specifications.</p>														
19.	Hull Material	The barge is to be built of Class approved steel suitable for the type and function of barge.														
20	Stability	Should be designed to have intact and damaged stability as per the Classification Society rules.														
21	U/W Hull Protection	Cathodic Protection through Sacrificial Anodes is to be provided.														
22	Paint Scheme	<p>(a) Class approved marine grade paint schemes are to be applied on the vessel with following minimum performance guarantee periods from paint OEM: -</p> <table border="1"> <thead> <tr> <th>Area/ Scheme</th> <th>Performance Guarantee (Years)</th> </tr> </thead> <tbody> <tr> <td>External Underwater Area (upto Anti-corrosive)</td> <td>10</td> </tr> <tr> <td>External Underwater Area (Anti-fouling)</td> <td>05</td> </tr> <tr> <td>Machinery Compartments, Bilges, Ballast Tanks and Void Spaces (Anti-corrosive)</td> <td>08</td> </tr> <tr> <td>Fresh Water, AVCAT, Water compensated DO, FFO, DO, Lub Oil, Hydraulic Oil, Oil Sullage Tanks (Anti-corrosive)</td> <td>05</td> </tr> <tr> <td>Above Water Exterior and Weather Decks (upto Anti-corrosive)</td> <td>05</td> </tr> <tr> <td>Above Water Exterior and Weather Decks (Top Coat)</td> <td>03</td> </tr> </tbody> </table> <p>(b) Colour schemes for various external above water areas are to be as follows:-</p> <ul style="list-style-type: none"> (i) Hull - RAL 9011 (black) (ii) Superstructure - IS 5/ 358 (Buff colour) (iii) Funnel - RAL9011(black) And/or IS 5/358 (Buff colour) (iv) Mast - IS 5/ 358 (Buff colour)8.5m <p>(c) Surface preparation, paint application, curing time etc. are to be ensure to the satisfaction of paint OEM and Classification Society rules.</p>	Area/ Scheme	Performance Guarantee (Years)	External Underwater Area (upto Anti-corrosive)	10	External Underwater Area (Anti-fouling)	05	Machinery Compartments, Bilges, Ballast Tanks and Void Spaces (Anti-corrosive)	08	Fresh Water, AVCAT, Water compensated DO, FFO, DO, Lub Oil, Hydraulic Oil, Oil Sullage Tanks (Anti-corrosive)	05	Above Water Exterior and Weather Decks (upto Anti-corrosive)	05	Above Water Exterior and Weather Decks (Top Coat)	03
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23	Deck covering	Suitable Class approved Epoxy Deck covering is to be applied in the relevant internal compartments (wet spaces, main alleyways, crew compartments and bridge).
24	Mast	(a) A motorized foldable fixed mast to carry navigational lights, antenna and flags is to be provided. (b) The height of the barge (upto top most point, with mast folded condition) should be maximum 8.5 m from waterline in light loading condition.

SECTION E – ENGINEERING, FIRE FIGHTING AND DAMAGE CONTROL

25	Main and Auxiliary Machinery	<p>Main propulsion and auxiliary machinery is to be as per Classification Society rules. Engine controls, using modern, indigenous, COTS component, are to be provided in the Bridge and Engine Room. The engines should comply with IMO/ MARPOL requirements. Salient aspects of Main and Auxiliary machinery should be:-</p> <p>(a) Propulsion package and auxiliary machinery having indigenous product support are to be provided.</p> <p>(b) Twin shaft propulsion system with one diesel engine driving each shaft, reverse reduction gear box and fixed pitch propeller per shaft, with shaft locking arrangement is to be provided.</p> <p>(c) Auxiliary machinery is to be provided as required, to meet Class requirements.</p> <p>(d) Bridge and Engine Room should have Engine controls as per Class requirements.</p> <p>(e) Main and auxiliary machinery are to be mounted on anti-vibration mounts.</p> <p>(f) <u>Gear Box</u>. Reduction gear box of suitable reduction ratio are to be provided as per Classification Society rules.</p> <p>(g) <u>Steering Gear</u>. Steering gear should be Electro Hydraulic as per Classification Society norms.</p> <p>(h) <u>Oily Water Separator</u>. Oily water separator as per Class specifications is to be provided in AVCAT and LSHFHSD fuel systems to conform to latest IMO/MEPC regulations in force.</p> <p>(j) <u>Strainers/Filters</u>. Portable strainers with 200 micron mesh size are to be provided.</p> <p>(k) <u>Flow Meters</u>. The flow meters should be suitably installed on containing pipe length to cater for laminar/turbulent flow conditions.</p>
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(l) **Blow Through System.** Blow Through System is to be provided to facilitate blow through after fuelling of AVCAT and LSHFSD.

(m) **Marinised Package AC Plant.**

(i) Class certified Marinised Packaged AC Plant to be provided for all Living Spaces, Dining Hall, Office Space, Bridge and MCR to achieve temperature of 24 deg C.

(ii) AC plant to be provided local control panel supplied by the OEM catering for control and monitoring under all regimes of operation.

(iii) Remote monitoring of the AC plant is to be provided through suitable link.

(n) Following auxiliary machinery/equipment of adequate capacity are to be provided:-

<u>Ser</u>	<u>Equipment</u>	<u>Qty</u>
(i)	Diesel Generator of adequate capacity	- 02
(ii)	Emergency Generator set of adequate capacity to take the load iaw INBR 312(Rev 2010)	- 01
(iii)	Air Compressor (MD)	- 02
	Air Compressor (MD) - As per Class requirement	
(iv)	Bilge/Ballast Pump	- 02
(v)	Dirty Oil Pump	- 02
(vi)	Fresh Water system comprising of following should be provided:-	
	(aa) Fresh water pumps	- 02
	(ab) Hydrophore	- 01 (1000 ltrs)
	(ac) The barge is to be provided with fresh water tanks and domestic fresh water system as per MMD Standards with a hydrophore tank of at least 1000 ltr capacity.	
	(ad) Fresh water from Cargo Fresh Water Tank should be able to be used for domestic purpose also.	

		<p>(ae) Automatic electric pumping system with additional annual pump of adequate capacity is to be provided for replenishment of hydrophore tank from cargo FW tanks.</p> <p>(vii) Fuel oil pump - 02</p> <p>(viii) Centrifuge:-</p> <p>(aa) Fresh Centrifuge - 01</p> <p>(ab) Lub Oil Centrifuge - 01</p> <p>(ix) General Service Pump/Fire Pump - 02</p> <p>(x) Sewage Treatment Plant with H₂S sensors (02) with Audio & Video alarms in Bridge - 01</p> <p>(xi) Cargo Pumps:-</p> <p>(aa) LSHFHSD with variable Frequency drive to vary the fuel pumping rate from 0-300TPH - 03 (02 Main 150 TPH + 01 Standby 150 TPH)</p> <p>(ab) AVCAT - 01 (50 TPH)</p> <p>(xii) Semi rotary Hand Pump of adequate capacity - 02</p> <p>(xiii) Lub Oil Pump of adequate capacity - 02</p> <p>(xiv) Stripping Pump of adequate capacity - 01</p> <p>(xv) Tank Content Gauges/Level indicators with Audio visual alarm for 95% filling up of tanks meeting Classification Society requirements. - 01</p> <p>(p) Work bench with bench vice, fixed power grinder and generic tools should be provided.</p> <p>(q) Provision for recirculation of AVCAT from tank to tank with adequate redundancy along with pump, associated filters, separators and absorbers should be provided.</p> <p>(r) All materials for pipes/ valves/ pipe fittings of various systems are to be as per Class specifications.</p>
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26	Portable pumps	<p>Portable pumps are to be provided, as follows:-</p> <ul style="list-style-type: none"> (a) 01 x 37 TPH DD Emergency Fire Pump. (b) 02 x 20 TPH MD Submersible Pumps. (c) 01 x 40 TPH MD Submersible Pump. (d) Portable starters are to be provided with submersible pumps.
27	BASCCA (EE)	<p>BASCCA(EE)/ ESLA sets be provided to cater for 100% crew. Disposition to be as per Class rules to meet escape requirements of crew from various compartments.</p>
28	Sewage Treatment Plant	<ul style="list-style-type: none"> (a) One MARPOL approved electro catalytic/ biological STP of adequate capacity installed in a dedicated Gas Tight compartment fitted with two (02) H₂S sensors and audio visual alarm at MCR and bridge to be provided. (b) STP compartment should have dedicated ventilation arrangement to enable required number of air changes as per Class Rules.
29	Fire Fighting and Damage Control	<p>The following fire-fighting appliances should be positioned and are to be procured from vendors approved by Classification Society.</p> <ul style="list-style-type: none"> (a) Fire-fighting appliances to be provided as per the regulations of Classification Society. Lockers to be provided for stowage of the items. (b) A dedicated fixed foam based fire-fighting system is to be provided on top of fuel tanks with fixed foam tank of adequate capacity for fighting fuel fire. (c) Automatic Fire Detection and alarm system should be provided in all compartments as per Classification Society norms along with a centralised monitoring panel provided in the bridge. (d) The machinery compartments and fuel tank areas should be provided with the following:- <ul style="list-style-type: none"> (i) Suitable fire fighting arrangement for machinery fire. (ii) Foam Inlet Tubes for fighting Bilge Fire. (iii) Ladder sprinkling and cooling system. (e) Flood warning system should be provided in all compartments located below waterline other than tanks, along with a centralised monitoring panel in the bridge. (f) Adequate no of BASCCA (Fire Fighting) sets as per Classification Society rules (minimum 04 nos) to be provided. (g) Escape hatches in machinery compartments and mess decks with escape route marking should be provided.

		<p>(h) Adequate no of Bristol Fire Fighting suits as per Classification Society rules to be provided.</p> <p>(j) Separate Fire Fighting System for galley meeting Classification Society requirement should be provided. Additionally, Portable K/ F - Class Galley Fire extinguishers should be provided.</p> <p>(k) A charging panel should be provided from the ship's HP air system capable of charging two BASCCA sets simultaneously upto 300 bar.</p> <p>(l) Suitable BA compressor (300 bar capacity, Qty: 01 per barge), certified by Class, be provided for charging of BASCCA and ELSA sets as indicated in the SRs. Existing IN SOTRs also may be used for guidance by the shipyard. One (01) no Metallic Blast Bay Tank (MBBT) per barge to be provided for crew safety while BA charging.</p> <p>(m) Fixed dewatering arrangement should be provided as per Classification Society rules.</p> <p>(n) Fixed bilge eductors should be provided in all underwater compartments.</p> <p>(p) Fixed shoring arrangement should be provided in hatches of all underwater compartments that do not have direct access to weather deck.</p> <p>(q) Surveillance and monitoring system, such as CCTV should be provided to monitor all unmanned compartments and hazardous areas.</p>
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SECTION F – ELECTRICAL

30	<p>Power Generation and Distribution System</p>	<p>The following electrical equipment and fittings are to be Provided.</p> <p>(a) <u>Generators.</u> DGs of suitable capacity with to meet the electrical load under various conditions, are to be catered. The DG is to be chosen from the standard range of approved DGs as approved by the Classification Society Rules. The alternator should conform to latest classifications society rules/ specifications and standards for marine use.</p> <p>(b) <u>Power Supply.</u> Suitably rated power supplies conforming to latest Classification Society regulations according to the load requirements of the craft (and load chart calculations), with adequate levels of redundancies as per Class Specifications is to be provided. 230 V AC, 50 Hz, 1 Phase, 4 wire supply system derived from the primary supply, (obtained through secondary star connected transformer) with earthing of neutral to vessel's hull for domestic and COTS equipment is to be provided.</p>
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(c) **Lighting.** The following general lighting and fittings are to be provided :-

(i) The Barge's lighting supply would be 230V,50Hz, 1Ph and the entire vessel would be fitted with LED light fittings conforming to latest Classifications Society rules/ specifications and standards for marine use.

(ii) Navigation lights should conform to latest Classification Society regulations.

(iii) Adequate number of flood lights of 200watts are to be provided at suitable positions, duly complying with Class Specifications.

(iv) Emergency lights fittings of 24 V complying with Class Specifications are to be supplied in each compartment.

(v) Adequate number of hand held lamps with suitable length of flexible cable complying with Class Specifications to be provided.

(d) **Main Switch Board.** The Main Switch Board/ Distribution Panels should conform to Class Specifications.

(e) **Shore Supply Arrangements.** A water tight shore supply connection box (with enclosure protection IP 57 or higher) of suitable rating conforming to latest Classifications society rules/ specifications and standards for marine use should be fitted. The Shore Supply Connection Box (SSCB) should be connected by permanent cables to the switch-board and should have suitable terminals for connecting the flexible cables. Shore supply cable of 100 m length with stowage arrangement near the Shore Supply Connection Box (SSCB) is to be provided by the Shipyard.

(f) **Batteries.** Adequate number of maintenance free batteries of contemporary technology, with suitable charging arrangement conforming to Classification Society rules are to be provided.

(g) **Motors, Starters and Control Panels.** All motors, starters and control panel should conform to classification rules suitable for marine use and procured from **Class** approved list of **reputed** vendors.

(h) **Cables.** Cables for all lighting, power, shore supply etc which are external to the equipment will be EBXL cables as per Class Society specification. LFH cables are to be used for internal wiring.

(j) **Transformers and Rectifiers.** Transformers and rectifiers, conforming to Class Specifications.

(k) **Electrical Equipment/ Machinery and Fittings.** All electrical equipment/ machinery and fittings are to be selected from the

		<p>standard range and sourced from Class approved list of reputed vendors.</p> <p>(l) Window Wipers. Class approved Window wipers and CVS are to be provisioned.</p> <p>(m) Cabin Fan. Class approved Industrial fans with metal casing operating on 230 V AC are to be provided in accommodation spaces, offices and manned stores/ space.</p> <p>(n) HV Mats. Class approved High voltage insulated synthetic mats are to be used in Switchboards, Converter Rooms Equipment Rooms, Battery Compartments.</p> <p>(p) Galley Power Supply Isolating Switch. To ensure safety of galley spaces, galley equipment are required to be controlled by a single isolating switch, which is to be located at a readily accessible position outside the galley, adjacent to the main entrance. The same should be complying to Class Society rules.</p>
31	Controls	Basic machinery control in the bridge is to be provided iaw class requirement.
32	Ventilation	<p>(a) Adequate forced ventilation should be provided in the machinery spaces, accommodation and in the Bridge/wheel house.</p> <p>(b) Engine room to have forced supply and exhaust ventilation.</p> <p>(c) WCs, galleys and showers should have forced exhaust and forced supply. Exhaust is to be of double the capacity of supply related ventilation.</p>

SECTION G – ACCOMMODATION AND HABITABILITY

33	Accommodation	<p>Following accommodation and associated facilities are to be provided meeting IMO/ MLC and relevant ISO/Class standards for indoor environment, ambient noise, vibration and illumination :-</p> <p>(a) Two cabins with attached WC and bath are to be provided for the Master and the engineer.</p> <p>(b) One four bunk cabin for engine room crew.</p> <p>(c) One six bunk mess for deck crew.</p> <p>(d) Two sets of Separate WCs and Showers for the crew are to be provided. One gets urinal is to be provided in addition in crew wash spaces.</p>
34	Galley	(a) A common galley is to be provided for the 11 crew for the barge, including one Master and one Engineer.

		<p>(b) One pantry with serving bay to be provided. A dining hall with seating capacity of 10 personnel to be provided. Separate enclosures for master & engineer and crew to be provided.</p> <p>(c) The galley should be modular and equipped with modern equipment. These should include the following:-</p> <ul style="list-style-type: none"> (i) Electric cooking Range with Two Hot Plates (of 5 kw each) (ii) Oven (of 3 kw) (iii) Frost Free Refrigerator of 350 lts (iv) Electric Kettle (v) Hot Case (vi) Hot water geyser/boiler (vii) Water Cooler with Aquaguard Type Water purification system. (viii) Stainless steel sink with a fresh water nickel silver tap with splash back and drain board. (ix) SS rack type shelves mounted above serving hatch on the bulkhead common with the dining hall. (x) One salt water tap is to be provided 500 m above the deck, with a sill around, to restrict water splash. <p>(d) One wire mesh locker for storage of potato and onions on upper deck.</p> <p>(e) One provision store room and a stainless steel top table, with a large provision cupboard and metal drawers under.</p>
35	Medical Facilities	One first aid boxes one each in the crew mess, bridge, engine Room and Masters' cabin to be provided.
36	Recreational facilities	Three smart colour LED TVs (one of the Master / Engineer and the other for the crew) and SRE to be provided.

SECTION H - SEAMANSHIP, LIFE SAVING AND SAFETY EQUIPMENT

37	Seamanship Fittings	<p>(a) <u>Anchor and Chain Cable</u>. As per Classification Society rules.</p> <p>(b) <u>Anchor Windlass</u>. As per Classification Society rules.</p> <p>(c) <u>Mooring Towing and Berthing Gears</u>. As per Classification Society rules.</p>
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		<p>(d) Awnings. Awnings for all the exposed decks are to be provided. Arrangements for fitment of stanctions to be accordingly made on deck.</p> <p>(e) Guard Rails. Suitable guard rails for safety of personnel, are to be fitted all around the Yardcraft.</p>
38	Life Saving	<p>(a) One Gemini (with OBM) of 10 men seating capacity with 25 HP OBM, certified by Class, with suitable lowering and hoisting arrangements, viz, Electric operated Single Arm Davit of SWL 500 Kgs is to be provided.</p> <p>(b) Lifesaving Apparatus (LSA) plan is to be provided as per IMO/SOLAS and Class requirements.</p> <p>(i) Two in nos 20 men life rafts, one each on port and stbd side are to be provided.</p> <p>(ii) General Service Life Jackets (GSLJs) for 145% crew to be provided.</p> <p>(iii) Eight nos Hazardous Duty Life Jackets (HDLJs) to be provided.</p> <p>(iv) Life buoys and MOB markers are to be provided on upper deck/ as per design iaw IMO/ SOLAS requirements</p> <p>(v) One each lifebuoy with Man Overhead Light and Smoke Markers on both Bridge Wings (P&S) and on QD.</p> <p>(vi) Any other item mended, as per IMO/SOLAS/ Class rules, to be additionally provided.</p>
39	Safety Equipment.	<p>The following safety equipment for marine use are to be provided:-</p> <p>(a) Safety Helmets - 11</p> <p>(b) Ear Plugs - 11 pairs</p> <p>(c) Safety Gloves - 25 pairs</p> <p>(d) Anti Splash Goggles - 4</p> <p>(e) Dust Protectors - 11</p> <p>(f) Safety Harness - 4</p>

SECTION J – ARMAMENT

Not Applicable

SECTION K – MISCELLANEOUS

40	Documentation	Complete inventory of spares and the relevant documentation of equipment and machinery to be provided. As fitted drawings, maintenance, repairs and refit documents, Catalogue of spares / D 787 for OBS and B&D inventory and Passports for all the machinery are to be provided, along with the barge. A detailed Engineering Maintenance Schedule (Equipment and Systems) should be prepared and submitted four months prior to commissioning. The final revised Maintenance Schedule is to be available at time of Commissioning of the vessel. The documentation is to be provided in IETM level II format.
41	Test Equipment	Test equipment iaw Classification Society rules.
42	On board and Outfit Spares	The maintenance tools, test equipment and software (as applicable) used for onboard repair/ maintenance would be supplied by the vendor as part of OBS. The OBS supplied must cater for break down maintenance, routines falling due within two years after delivery of the vessel. The OBS has to be recommended based on the likely consumption rate of the spares and on the exploitation pattern of the system/ equipment. The spares are to be supplied in a standard metal boxes, duly preserved for long term duration of at least two years.
43	AMC	NA
44	B & D Spares	The vendor should forward recommended list of B&D Spares for the equipment/ system to sustain five years of exploitation. The B&D spares list should comprise of long lead time spares, spares required as insurance spares and OBS replenishment for a period of five years post commissioning of the vessel.
45	Life Term Product Support	The shipyard is to submit a scheme to provide product support for a minimum period of 20 years to be reckoned from the date of delivery of the last barge. This could be in the form of a contractual commitment from various equipment suppliers. In case any equipment is likely to become obsolete, the manufacturer should be committed to give a requirement of 'Life Time Buy' of spares. The maker should also ensure the supply of these items prior to discontinuation of the production facilities.

46	Cargo Storage	<p>The barge should be designed to carry 500 Ton Fuel Oil cargo in the following configuration:-</p> <p>(a) LSHFHSD – 400 T</p> <p>(b) AVCAT - 100 T</p> <p>Note:-</p> <p>(i) LSHFHSD and aviation fuel should be separated by a cofferdam or air space.</p> <p>(ii) 50 T fresh water is to be additionally provided.</p> <p>(iii) 25 T storage space for provisions, spares and naval stores in each configuration.</p> <p>(iv) Bonding and earthing arrangements are to be provided for all tanks.</p> <p>(v) Any of the aforesaid configurations may be adopted as per the specific requirement of the vessel.</p> <p>(vi) In case of Configuration VI, one 50 T tank should be divided into two sections.</p> <p>(vii) Separate Flow meters for LSHFHSD and AVCAT to be provided with capacity of reading minimum 0.1 KL. Two flow meter to be provided as spare.</p>
47	Rate of Filling	<p>(a) The fuel barge should be able to embark fuel at the rate of 300 T per hour.</p> <p>(b) It should be able to fuel other ships upto the rate of 300T per hour at 25 m delivery head.</p> <p>(c) Inboard end coupling for replacement of fuel should be compatible with 6” and 4” composite light-weight fuelling hoses.</p>
48	Fuelling Hoses	<p>48 Mtr (6M x 8 Nos) fuel hoses of 6” dia for LSHFHSD and 48 Mtr (6M x 8 Nos) of 4” dia for AVCAT to be provided. Suitable covered stowage space with securing arrangement for the hoses is to be catered on upper deck.</p>
49	List Of Mandatory Fist Out Fit Allowance Lists, Tools And Damage Control/ Fire Fighting Apparatus	<p>List placed at Annex- I to Appendix A</p>