

## **1. Background**

Kent and Essex IFCA together with Kent County Council require to have designed and built a Fisheries Enforcement Patrol Vessel with additional Research and Monitoring capability. The vessel will be based in Ramsgate, Kent.

The vessel will be approximately 17m in length and be of twin hull design and must be capable of a speed of 25knots with full fuel, equipment and 6 persons aboard. The speed will be assessed over a measured mile before final hand over. The vessel will be of GRP construction with all mouldings to be in grey or grey/white.

The details contained in this Specification are intended only as a guide to the builder in formulating a quotation for the tender. Responsibility for compliance with necessary regulations in respect of vessel construction and compliance with the relevant commercial Codes of Practice remains with the builder.

## **2. Duties of the Patrol Vessel**

The vessel is required to fulfil the following functions:

- a) General patrol and enforcement duties (operating range Harwich - Dungeness) including the boarding of fishing vessels (approx. 5m to 17m in length).
- b) The vessel needs to be able to easily launch, recover and suitably stow a 5.4 m RIB in a safe manner using a stern ramp.
- c) The vessel is likely to operate during the day and night in 12 hour shifts but there is a requirements for the vessel to be capable of being operated continuously at sea for periods in excess of 24 hours with 6 persons aboard.
- d) Monitoring of fish catches and fish stocks.
- e) Fish, Shellfish and sea bed sampling using a stern mounted gantry for which a minimum vessel speed of 1 knot is required whilst still maintaining manoeuvrability.
- f) Capable of taking the ground (normally mud/silt/sand sea bed).
- g) Frequent anchoring

## **3. General Requirements**

The vessel is to be built, equipped and provided with a certificate in accordance with the MCA's "Code of Practice for the Safety of Small Workboats and Pilot Boats" (the "Workboat Code") to Category 2 (60 miles from a safe haven) for 12 persons. The vessel is to operate 12 months of the year with no favourable weather, operational or seasonal restrictions. The preferred Certifying Authority of KEIFCA is the Society of Marine Engineers and Ship Surveyors (SCMS) although other Certifying Authorities may be considered. KEIFCA reserve the right to appoint their own Authorised Person to conduct or oversee the Workboat Code Compliance Examination.

The vessel will comply with all statutory legislation regarding noise and vibration, pollution and electrical installations and any other local and national requirements. Neither this nor any subsequent specification shall indemnify the builder for any error or omission or non-compliance; responsibility for compliance remains fully with the builder/supplier at all times.

During construction of the Vessel the KEIFCA or their Authorised Representatives will be allowed to attend tests and trials and to have access during ordinary working hours to the Vessel and works of the contractor to monitor progress.

During design and construction ease of maintenance should be provided for with good access to all parts of the vessel.

#### 4. **Certification and Quality Assurance**

The hull shall be moulded under conditions approved by the Maritime & Coastguard Agency, Lloyds Register or Seafish Authority.

Where there is a conflict between any of these Codes of Practice, standards or references the KEIFCA must be consulted for an interpretation. The KEIFCA reserves the right to employ its own consultant to advise and/or supervise the construction of the vessel as it deems necessary.

#### 5. **Stability and Freeboard**

The Builder shall provide an approved Stability Information Booklet in accordance with section 11.1.1.4. and to be in full compliance with the freeboard requirements of the Workboat Code. The KEIFCA reserve the right to have the Inclining Experiment witnessed by their agent and to have the Stability Book approved.

#### 6. **Dimensions**

The overall length shall be approximately 17 metres. The overall beam shall be approximately 6.50 metres. The draft should be kept to a minimum.

#### 7. **Hull**

The hull will be of GRP construction and moulded in a grey pigmented gel-coat above the waterline and clear gel-coat below the waterline. Hulls shall be suitably protected below the waterline with an epoxy coating (the vessel will be permanently afloat) and be provided with compatible antifouling.

The hull lay-up and scantlings shall be in accordance with the rules for Small Craft to either Lloyds Register Special Service Craft (G3) or Seafish Authority specification.

Adequate protection against damage from grounding shall be provided for the keel and any other areas considered vulnerable which may in the form of internal strengthening or external protection.

Adequate protection against damage during anchoring shall be provided for the stem.

Adequate permanent (sacrificial GRP) protection against damage to the hull during hauling of fishing gear

Protection of the topsides and hull-to-deck joint shall be provided bearing in mind that the vessel will be used to board other vessels and deploying survey gear over the stern. Where the hull-to-deck joint is vulnerable (i.e. if of an external flange type) then full details of the proposed protection shall be provided.

The vessel shall be fitted with watertight bulkheads employing approved and recognised methods of sealing for all cable and pipe penetrations.

## **8. Deck and Superstructure**

The vessel shall be provided with a watertight weather deck and an enclosed wheelhouse with good and clear all-round visibility (see later section on Accommodation).

The deck may be flush, stepped or recessed. Decks shall be provided with a combination of bulwarks and/or rails to a height of not less than 1000 mm and the maximum clear vertical distance between the bulwark and/or rail shall be 230 mm for the lowest rail and 380 mm for all others. Adequate freeing ports shall be provided in accordance with the relevant Code of Practice.

The deck and other areas of the superstructures which may be used on a regular basis by the crew shall be non-slip.

There shall be gates on the port and starboard sides for embarkation. The gates will be used when boarding other vessels and their position shall be such that the helmsman has a good view of them both from the steering position.

A boarding ladder shall be provided in addition to the requirement to recover an unconscious man-overboard.

Livery shall be applied displaying 'Kent and Essex Inshore Fisheries and Conservation Authority' and 'Fishery Patrol Vessel' on both sides of the wheelhouse.

Suitable deck lighting shall be provided for the aft deck area and the foredeck.

## **9. Hatches and Doorways**

Hatches in the deck which lead to areas below deck shall be fitted with watertight hatches which shall be capable of being secured in the closed position with at least 2 securing devices. Hatches in the forward part of the vessel shall have their hinges on the forward edge. Special attention to the watertight integrity of spaces containing machinery shall be required.

Any hatches used for emergency escapes shall be operable from both sides (internally and externally), be clearly marked as means of escape and have a clear opening of a suitable size. The recognised minimum clear opening for a means to escape is 0.18 m<sup>2</sup> (279 in<sup>2</sup>) and all openings must accommodate a 380mm (15 in) diameter circle.

Doorways in the superstructure shall be weather tight and be either sliding or hinged. Hinged doors shall be outward opening. Hinged doors on the sides of the superstructure shall have their hinges on the forward edge. Doorways on the sides of the superstructure shall have a coaming of at least 300 mm which may be portable provided they can be secured in position. There shall be means to open the door from both sides (internally and externally).

Within the hulls adequate provision should be made for storage and an area should be fitted out to provide basic overnight accommodation for 6 members of crew.

Additional storage space for survey equipment should also be provided.

## **10. Deck Fittings**

Suitable bollards, cleats and fairleads shall be provided for mooring. These fittings shall be positioned so as not to cause an obstruction when coming alongside target vessels or laying alongside pontoons and have adequate backing pads. Adequate internal access shall be

provided to enable inspection and/or replacement of these fittings. A provision for fitting anchoring points in the deck to take eye bolts for the purpose attaching fair lead blocks from the winch to be discussed. All fittings/fasteners shall be of 316 grade stainless steel.

A stem head fitting with roller shall be provided with a closure to prevent the anchor chain or mooring line from lifting out. The overhang over the bow shall be kept to a minimum. The anchor shall be of self-stowing design.

An anchor winch shall be provided on the foredeck which shall be Electric operated.

Towing posts (for light towing duties only) shall be provided fore and aft. The towing posts and supporting structure shall be capable of towing an object no more than twice the loaded displacement of the vessel.

Two salt water deck wash pumps shall be provided together with a suitable length of hose and a nozzle. Both deck washes shall be accessible from the aft deck.

A hydraulic marine deck crane is to be fitted (*the final position to be discussed and agreed after awarding the tender*). The lifting capacity of the crane shall be such that it can lift at least 500kg at 6 metres outboard of the vessel side.

#### **11. Fishing/Trawl Gear**

The vessel is to be fitted with a *Spencer Carter sp2f Slave* hydraulic *pot hauler* and a *Spencer Carter NH0-03* hydraulic net hauler or similar. These should be retractable so that they can be stowed without protruding beyond the vessel side. (*the final position and layout to be discussed and agreed after awarding the tender*).

2 x 1.5 tonne hydraulic winches capable to be clutched and braked with level-wind gear. Shall be provided aft of the wheelhouse (*the final position and layout to be discussed and agreed after awarding the tender*). Each winch shall be capable of carrying at least 150m of 8mm wire and be capable of achieving a minimum haul and shoot speed of 40 metres/min with engines running at tick-over

A stern mounted gantry frame manufactured in aluminium or stainless steel shall be provided with 2.5m deck clearance and a least a 1 tonne load capacity. The gantry must have the capability to attach hanging blocks positions and variations to discussed and agreed after awarding the tender with a 1 tonne loading

#### **12. Radar Arch and Fittings**

A stainless steel radar arch shall be provided capable of carrying as a minimum: a GPS antenna, a blue rotating light, various radio aerials, navigation lights, an MCA approved radar reflector and a standard horn.

#### **13. RIB and Launch and Recovery**

The tender should include a separate itemised cost for the supply of a Zodiac SR5.4 M Searider with a suitable 60hp outboard to be provided that is constructed to robust commercial specification and is certified for operation as a standalone vessel and including all required equipment and certification for Category 4 operation for 4 persons. This shall be capable of a cruising speed of 20 knots. It must also contain a central console including hydraulic steering and seating for two people.

The vessel is to be fitted with a stern ramp to facilitate the easy launch and recovery of the RIB in slight to moderate sea conditions. This ramp may be fixed or hydraulically lowered and must be sufficiently positioned in the water when lowered to allow the RIB to be driven onto it. A deck mounted 1 tonne braked clutched hydraulic winch capable of holding a least 60m of 10mm wire shall also be fitted to facilitate the recovery of the RIB. The approved stability book shall include the effects of raising and lowering the ramp where this is applicable. The launching angle of the ramp must not exceed 18 degrees from the deck as the Rib must be manned when it is launched. Consideration is to be given for carrying out routine maintenance whilst the RIB is in the stowed position.

#### **14 Machinery and Performance**

The vessel shall be fitted with twin inboard diesel engines with conventional shaft drives which shall be capable of independent operation bearing in mind that the vessel will operate in trawl mode at speeds of 1 knot for which manoeuvrability will still be required. The tender shall include fuel consumption figures.

Bow thrusters are to be fitted to each hull and rope cutters are to be fitted to each propeller shaft. Bow thrusters must be capable of maximum output with the main engines at tick-over.

The minimum top speed shall be 25 knots (with full tanks, equipment and 6 crew) and the cruising speed is to be approx. 18 knots (with full tanks, equipment and 6 crew). The speed will be assessed over a measured mile in both directions before final hand over. The vessel is also required to operate when trawling at a speed of 1 knot whilst still maintaining manoeuvrability.

The engines shall be housed in dedicated machinery spaces below deck accessed via a suitable deck hatch.

The cooling water inlet hoses for the engines and any other plastic pipework in the engine space (above and below waterline) shall be run in a fire retardant or exhaust quality hose or be suitably protected.

A tray or similar arrangement shall be provided below the engines to provide an oil tight area.

The engine space shall be finished with satisfactory fire protection to be in compliance with the 15 minute fire rating as required by the Workboat Code.

Ventilation shall be provided for the engine space which shall be capable of being closed in the event of an engine fire and which meets the minimum downflooding requirements for stability compliance.

Full engine instrumentation with back lighting shall be provided visible from helm position.

#### **15. Fuel Installation**

Sufficient fuel tankage to provide a range of at least 300 nautical miles with 10% reserve capacity should be provided. Both engines shall be able to run off either tank.

A fuel gauge shall be provided for each fuel tank provided visible from helm position.

The fuel tank(s) shall be manufactured and installed to BS EN ISO 10088:2001 and certified accordingly. Provision shall be made for suitable accessible inspection hatches for internal cleaning.

The open end of the fuel tank breather pipe shall terminate overboard and be provided with a flame arrestor. The position of the termination shall not be in a position prejudicial to down flooding.

All flexible sections of fuel lines shall be fire retardant and be marked to ISO7840 (or equivalent).

Appropriate filters, breathers and shut offs shall be fitted. Filter bowls/water separator bowls shall not be of glass or plastic unless they are recognised as being fire retardant to suitable temperatures. Pre-engine SEPA filter/separators shall be installed to each fuel feed. Fuel shut off valves shall be readily operable from the deck without the use of a key or tool.

## **16. Steering**

Hydraulic steering and engine controls shall be provided. The main controls will be located in the wheelhouse and secondary engine and steering controls to be provided at various the deck positions (*the final position to be discussed and agreed after awarding the tender*).

Provision for emergency steering shall be provided over and above the facility to “steer” the vessel using the engines. This is to be demonstrated during sea trials.

## **17. Bilge Pumping**

Bilge pumps in accordance with section 10 of the Workboat Code shall be provided.

The vessel shall be provided with two independent methods of pumping each watertight compartment, one manual and one electrical. Electric pumps serving a bilge which may contain pollutants shall not be of an automatic type.

A bilge alarm shall be provided for all watertight compartments which shall provide an audible and visible warning at the helm position.

Strum boxes shall be provided for all bilge pump inlets and all overboard bilge pump discharges shall be provided with readily accessible means of closure.

## **18. Electrical Equipment**

Sufficient banks of low maintenance batteries shall be provided the battery banks shall be capable of being charged independently from the engine driven alternators. The capacity of the batteries shall be such that they will provide sufficient power for engine starting and essential services without the use of the onboard generator.

Battery isolation or changeover switches shall be provided to enable either engine to be started from each bank of batteries. A push button switch should be provided to enable parallel operation of the batteries and to prevent any battery from overcharging.

The DC system shall be capable of being switched off by an isolation switch. Supplies bypassing this switch for essential equipment shall be independently fused.

Circuit protection shall be provided by either fuses or circuit breakers.

Provision shall be made for 240V AC shore power supply. This system shall include an approved Residual Current Device and all fittings shall be provided to UK specification.

An inverter will be required to provide 240v AC power whilst the vessel is underway.

Provision shall be made for the installation of an air cooled diesel 240V AC generator to provide an independent power supply of sufficient capability for the vessel power needs whilst main engines are stopped and no shore supply available (The generator shall feed from the main diesel tank and shall be provided with a fuel shut off operable from outside the generator space. A fire suppression system for the diesel generator shall be provided.

The tender should include a separate itemised cost for the supply and installation of the above mentioned diesel generator.

The electrical circuit shall include 240V sockets and 12V DC sockets throughout the vessel (*the final position to be discussed and agreed after awarding the tender*).. A means of charging the RIB battery to be provided

Emergency lighting shall be provided ideally from an emergency battery and fixed lighting.

A dedicated battery shall be provided in a protected space above the weather deck to power the VHF, GPS, navigation lights and bilge pumps for a minimum period of 3 hours duration in the event of an emergency. Provision shall be provided to charge this battery.

A directional searchlight operable from inside the wheelhouse shall be provided.

Should be fitted with a loud hailer system

Cable access for cables to deck area via 'swan necking' is required.

The run of cables throughout the vessel should be via conduits that have capacity to run additional cables.

Additional power points in wheelhouse

## **19. Navigation Equipment**

MCA approved LED navigation lights shall be provided comprising as a minimum: port and starboard sidelights, a stern light, a masthead light, an all-round white anchor light, not under command (red-red), restricted in ability to manoeuvre (red-white-red) and trawling (green-white). All lights to be suitably positioned to ensure compliance with the COLREGS.

MCA approved day shapes shall be provided with suitable means of hoisting for the following scenarios "at anchor", "not under command", "restricted in ability to manoeuvre" and "trawling".

A suitable horn/foghorn and bell shall be provided.

The builders will supply, install and commission the following items during the course of the build project. Builders to specify make and model at tender stage

- a) 2 x Radar (12 inch screen) interfaced with plotter
- b) 2 x GPS
- c) Pc based Chart Plotter system
- d) Boat Phone / internet hub
- e) Log
- f) Combined colour echo sounder and fish finder
- g) 2 x VHF with DSC (with backup battery supply) and mayday procedure card.
- h) Waterproof Hand held VHF radio with provision for onboard charging

- i) AIS
- j) float free EPIRB
- k) Electronic compass with back up power supply.
- l) Autopilot with plug in points around deck area (*the final position to be discussed and agreed after awarding the tender*).

A separate tender costing shall be submitted for the provision and installation of an OLEX 3D charting system including HT bottom hardness mapping. Tenderers to provide full specification.

Extra monitoring screen on chart table

Magnetic steering compass to mounted so it is visible from the helm position  
A hand bearing compass shall be provided.

An MCA approved radar reflector shall be fitted.

## **20. Fire Prevention and Fire Fighting**

The vessel shall be provided with a fire pump complete with approved hose and nozzle situated outside the engine space or fire risk space.

Two multi-purpose fire extinguisher shall be provided to EN3 with a minimum fire rating 13A/113B and positioned so that it is readily accessible but does not impede the movement of the crew.

A fixed automatic fire extinguishing system shall be fitted to each engine space. A heat and smoke detector shall be fitted for the engine spaces with an alarm which provides an audible and visible warning at the helm position to indicate that there is a fire.

All pump pipework contained in the engine space shall be protected against heat.

Two metal fire buckets with lanyards shall be provided.

## **21. Life Saving Equipment**

The builder is requested to tender separately for all portable LSA equipment including life raft for 12 persons as required in Annex 2 of the Workboat Code. The positions of each item of LSA shall be determined once the contract has been awarded.

## **22. Accommodation**

Tenderers are requested to submit a General Arrangement of the vessel in plan and profile. Accommodation is required suitable for 6 persons with the vessel operating continuously at sea for periods in excess of 24 hours.

Two means of escape should be provided from each dedicated accommodation space.

The wheelhouse and accommodation areas shall be provided air-conditioning or adequate ventilation/ warm air heating and ventilation for all foreseeable climatic conditions

There shall be at least 1900 mm headroom in the wheelhouse and, where practicable, in all accommodation spaces.

All furnishings and foams shall be of a combustion modified high resilient (CMHR) type fire retardant and comply with current British Standards.

### **23. Wheelhouse**

The wheelhouse shall be provided with good all-round visibility at the helm position.

The forward facing windows should be forward sloping and are to be heated, clear glass (un-tinted) and be of at least 10mm toughened glass. Windscreen wipers shall be provided for each forward facing window.

A means of demisting the forward facing windows and forward side facing windows to be provided

An opening skylight shall be provided in the wheelhouse roof.

6 Suspension seating shall be provided for the helmsman, navigator and crew members. Additional seating shall be provided on bench seating at the rear of the wheelhouse

The layout of the wheelhouse will be confirmed when the contract has been awarded. Builders are requested to state the proposed dimensions of the wheelhouse and layout.

Access to the forward sections of the each hull shall be via the wheelhouse.

Interior lighting shall be provided utilising LED lights in both red and white and should be capable of running from either a 24v or 240v circuit.

### **24. Galley and Fresh Water System**

A small galley shall be provided in a position so as not to interfere with the safe navigation of the vessel. No gas consuming appliances will be accepted.

A stainless steel sink with drainer shall be provided. The discharge pipework shall be readily accessible for future maintenance and shall terminate at the hull side with a seacock.

A suitable 240V microwave oven shall be provided powered by the on-board generator.

A suitable 240V refrigerator with the capacity for 24hrs/8 person's supplies shall be provided powered by the on-board generator.

The galley area shall be provided with sufficient stowage for stores and cooking utensils and be provided with a suitable working area for food preparation.

The vessel shall be provided with a pressurised domestic hot and cold water supply to the sink in the galley and toilet compartment. A fresh water tank of suitable capacity shall be provided and all fresh water pipework shall be run in food quality hose. A readily accessible water filter shall be provided for the galley cold water system.

### **25. Toilet**

A standard marine type flushing toilet shall be provided which shall discharge into a holding tank. There shall be facility to empty the holding tank at a pump out station and shall be fitted with connection fittings to BS En ISO 8099. Facility to discharge overboard via a readily

accessible seacock shall also be provided for use when complying with IMO through Annex IV of the MARPOL 73/78 convention.

The toilet discharge shall be looped to at least 300 mm above the deepest laden waterline to prevent siphoning. The toilet inlet and seacocks shall be readily accessible but not be located in a fire risk space.

The toilet compartment shall be provided with adequate stowage, a wash hand basin with overboard discharge via a readily accessible seacock at the hull side and a bulkhead mounted mirror.

## **26. Navigation Area**

A dedicated chart table shall be provided capable of displaying an Admiralty chart folded once. Suitable stowage area shall be provided for navigation equipment and folded charts.

The electronic navigation equipment shall be easily visible from the chart/navigation position.

Internal red lighting shall be provided for the navigation area.

A Dedicated research station to have all the Navigation data displayed

## **27. Additional Equipment**

A suitable anchor and length of chain and/or warp shall be provided (the size of anchor and lengths of chain and warp to be to the requirements of the Workboat Code). The main anchor shall be securely stowed so that it is readily deployable and self-stowing.

A portable collapsible structure to be provided to protect open engine hatch area when carrying out engine servicing

A suitable spare anchor and length of chain and/or warp shall be provided (the size of anchor and lengths of chain and warp to be to the requirements of the Workboat Code). This spare may be stowed in a locker readily accessible from the weather deck.

A saltwater pressure washer to be fitted

6x45cm fenders and stowage

Shore ropes to be discussed

An Electric operated anchor windlass shall be provided.

A barometer and clock shall be provided.

An engine room tool kit shall be provided.

CCTV system to be installed in both engine compartments coverage of deck and forward compartments

## **28. Life Expectancy of the Vessel**

It is expected that the vessel will have a fifteen year life, working approximately 100 days per year, nine hours per day.

## **29. Handover Details**

Upon delivery you will supply all necessary certification, instruction manuals, safety certification and any other relevant documentation related to the ownership and safe operation of the vessel.

The contract will not be considered to be complete until test trials have been completed and the vessel is proven to meet the specification fully.

Upon delivery, risk in the Vessel shall pass to the KEIFCA it being expressly understood that until delivery is affected the Vessel and its equipment are at the entire risk of the contractor.