

**Supply of Forty-four (44) Rigid Hull Inflatable Boats  
for  
the Leisure and Cultural Services Department**

**Part VII – Technical Specifications**

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## Chapter 1: General Provisions

### 1.1 Introduction

- 1.1.1 This document (or “Technical Specifications” (TS)) sets out the requirements of the Government of the Hong Kong Special Administrative Region (HKSAR) of the People’s Republic of China (hereinafter referred to as the Government) in relation to **Forty-four Rigid Hull Inflatable Boats (“RHIB”)** (“Vessel”) for use by the **Leisure and Cultural Services Department (“LCSD”** or the **“user department”**).
- 1.1.2 Unless otherwise specified in the Technical Specifications, all the specifications stated in this Part VII of the Tender Documents are classified and labelled as follows:
- (a) Essential Requirements [E];
  - (b) Those specifications which are without any label (viz., [E] or [D]) shall equally form part of the Contract like the specifications labelled as [E], but the Government will not conduct checks at the tendering stage whether the products offered comply with those specifications not labelled with [E]; and
  - (c) Desirable Specifications [D].
- 1.1.3 All this Part VII shall form part of the Contract. As part of the tender evaluation during the tendering stage (viz., completeness check), the Tenderer shall submit all the information in sufficient detail to substantiate that the product and the services offered meet the Essential Requirements as stipulated in Annex C to the Conditions of Tender, failing which its tender will **not** be considered further.
- 1.1.4 The whole of this Part VII, including all Essential Requirements, those without any label (viz., [E] or [D]) and the Desirable Specifications labelled with [D] (if and to the extent the Contractor has indicated compliance in its tender), shall also form part of the Contract and be of equal materiality and importance upon the award of the Contract. The non-compliance with any specifications set out in these Technical Specifications shall have the same consequences as specified in the Contract. Save during the tendering stage in the manner as mentioned in Paragraph 1.1.2(b) above, no differentiation shall be made based on the classification unless otherwise expressly specified.
- 1.1.5 The Vessel shall be Ready for Use before the Delivery Date and delivered by the Delivery Date as per the schedule stipulated under Schedule 2 – Delivery Schedule of Part V.
- 1.1.6 Unless otherwise expressly defined in the Contract, all technical terms and expressions used in this Part VII shall be interpreted in accordance with the professional or common usage in naval architecture, marine engineering, nautical navigation and the shipbuilding industry.
- 1.1.7 As mentioned in the definition of “Vessel” in Clause 1.1 of Part IV, unless otherwise expressly stated, references to “the Vessel” shall mean each of the Vessels. References to “a Vessel” shall mean any such Vessel. Unless otherwise specified, all requirements specified in this Part VII shall apply to each of the Vessels to be supplied.
- 1.1.8 For the avoidance of doubt, references to “tests” throughout the Tender Documents and the Contract shall include all inspections, surveys, assessments, trials and experiments.

## **1.2 Statement of Purposes of the Vessel**

- 1.2.1 The Vessel shall be used by LCSD (i) mainly to provide searching, rescue operation and coaching at Stanley Bay, Tai Tam Bay, Long Harbour, Tolo Harbour, Artificial Lake of Chong Hing Water Sports Center and within Hong Kong Waters; and (ii) to perform beach duties at the public beach areas of Southern District, Islands District, Tuen Mun District and Tuen Mun District managed by LCSD. This role involves considerably more than mere navigation and will include swift manoeuvring in high speed.
- 1.2.2 The Contractor acknowledges and agrees that the Government relies on the professional judgment and skill of the Contractor to ensure that the Vessel is compliant with all of the aforementioned requirements and warrants that it will alter, modify or otherwise change aspects of the Vessel's fittings, fixtures, user interface as required by the Government in order to ensure the ultimate fitness for purpose of the Vessel before the Acceptance Certificate is issued.

## **1.3 Authorities**

- 1.3.1 The Government New Construction Section (GNC) of the Marine Department (MD) is the section responsible for the procurement of the Vessel for the Government of the Hong Kong Special Administrative Region (HKSAR) of the People's Republic of China (hereinafter referred to as the Government).

## **1.4 Shipyard**

- 1.4.1 The Contractor's nominated shipyard building the Vessel must have the essential shipbuilding and workshop facilities such as lifting gears, hull construction and calibration equipment, machinery installation and calibration equipment and vessel launching or slipping facilities.
- 1.4.2 The Contractor shall employ a team of professional staff to carry out the design of the Vessel and also carry out supervision and quality control work in the course of vessel construction.

## **1.5 Design and Construction Responsibility**

- 1.5.1 The Vessel shall be designed and constructed for a service life of not less than five (5) years for RHIB with length 3.0 m to 3.2 m and seven (7) years for RHIB with length 4.0 m to 5.6 m under reasonable maintenance.
- 1.5.2 It is the SOLE responsibility of the Contractor to supply a Vessel which is safe, fit and suitable for the operation of the of the LCSD as set out in Paragraph 1.2.1 above and which meets all the relevant regulations and the specifications in this Part VII, which include without limitation requirements for safety, health, environmental protection, hull form design features, structure, method and materials for construction and fitting out, stability, sub-division and operational efficiency.
- 1.5.3 The Vessel shall be designed and constructed in accordance with International Organization for Standardization (ISO) or American Boat & Yacht Council, Inc. (ABYC) or other equivalent international or national standard. [E]
- 1.5.4 The Vessel shall be designed for voyages in coastal waters, large bays, estuaries, lakes and rivers where conditions up to, and including, wind force 6 and significant wave heights up to, and including, two metres may be experienced. [E]

- 1.5.5 Even if the Contractor may appoint a Sub-contractor to design the Vessel with the prior written consent of the Government, the Contractor shall not be relieved of its obligations under the Contract through such appointment, and the Contractor shall be responsible for all acts, defaults and omissions of the sub-contractor as if they were its own.

## **1.6 Survey and Inspection**

- 1.6.1 Subject to Paragraph 1.6.4 of this Chapter, an advance written notice of not less than five (5) working days (if the Vessel is located in Asia), and ten (10) working days (if the Vessel is located other than Asia) must be given to GNC before the representatives of GNC and other Government officers are invited to conduct a survey visit of the Vessel. The Contractor shall be fully responsible for any delay if the Contractor fails to give adequate notice as aforesaid.

- 1.6.2 The Contractor shall provide the Implementation Timetable, in the form set out in Annex 2 to this Part VII, setting out the major milestones and their scheduled completion dates and incorporating the Delivery Dates specified in Schedule 2.

The above Implementation Table shall be submitted to GNC for approval by the respective deadlines specified in Clause 11 of the Conditions of Contract.

The Delivery Date for the Vessel as stated in the Implementation Timetable shall be no later than those set out in Schedule 2 of Part V. Notwithstanding anything in the Contract to the contrary, the Government may suspend payment of any of the instalment specified in Schedule 3 of Part V of the Contract if any of the timetables required herein has not been submitted for GNC's approval or GNC does not approve any of them or if the progress of work does not comply with any of them as approved by GNC.

- 1.6.3 A weekly work progress report with photos evidencing the progress shall be submitted to MD during the construction of the Vessel. The weekly report shall be submitted before noon of every Monday.
- 1.6.4 After arriving at the site for a survey visit, if MD officers consider it is unsafe to carry out the test or inspection, the test/inspection will not be carried out. The Contractor shall arrange another additional survey visit at the Contractor's expenses. The Government shall not be responsible for any delay arising from any postponement in conducting the survey visit due to any safety issue as specified in this paragraph.
- 1.6.5 The Contractor shall provide office space for MD officers and LCSD officers during their survey visits and construction progress visits to the Vessel at the shipyard where the Vessel is constructed. The office space shall include, but not be limited to, two (2) desks, six (6) chairs, one (1) telephone, one (1) conference table for 10 persons, drinking facilities, power supply and one (1) cupboard for storage of documents and working clothes. The space provided by the Contractor shall also be fitted with air conditioning, have Internet access, a copying and a printer machine. Cleaning of the space shall be carried out in each working day.
- 1.6.6 The hours of work of MD officers or LCSD officers will be arranged to coincide with those of the shipyard, in so far as it is practicable to do so. It is intended that all reasonable steps be taken so that the duties of the MD officers and consultants can be carried out with a maximum of efficiency and a minimum of interference with the Contractor's work.

## **1.7 Official Sea Trial and Speed Requirements**

- 1.7.1 The Contractor shall submit for MD approval, an Official Sea Trial programme 5 working days in advance of the Official Sea Trial, which shall include details of proposed procedures for carrying out the Official Speed Trial, ship handling at sea and performance tests, manoeuvring test, crash stop test, astern running test, emergency steering test, and other tests as stated in this paragraph. This programme must be submitted to MD in not less than 5 working days before the trials commence. The notification for Official Sea Trial shall be included evidence that the Vessel is safe to go to sea for the intended tests and trials specified in the Contract.
- 1.7.2 As in all other tests and trials to be conducted as part of the Technical Acceptance, the Contractor is required to carry out the full Official Sea Trial in Hong Kong at its own expense (including the expense of fuel, lubrication oil, crew and other necessary expenses), in the presence of MD officer(s). The Contractor shall observe the local requirements on navigation before the sea trial, including the third party insurance in accordance with the laws of Hong Kong.
- 1.7.3 The Contractor shall provide to MD officers, the name, post, duty and experience of each one of the Contractor's staff on board the Vessel during the Official Sea Trial to ensure the safe operation of the trial. The number of persons on board during a particular test or trial has to be agreed by the MD officers. The location of each person on board, which can affect the centre of gravity of the Vessel under trial, will need to be first agreed by the GNC.
- 1.7.4 The Contractor shall provide a trial report to GNC after completion of the above tests. The report shall contain information regarding the method of test, engine(s) running condition, sea condition, weather condition and wind condition, during each forward turning manoeuvre, and any other relevant information as required by GNC or the GNC appointed consultant during the tests; and such information shall be prepared in a format agreed by GNC.
- 1.7.5 Official Speed Trial
- (a) The Official Speed Trial shall be carried out in the Hong Kong Waters.
  - (b) As part of the Technical Acceptance as specified in Paragraph 1.8.2 of this Part VII, the Contractor shall carry out the Official Speed Trial in the presence of GNC officers or their appointed agents.
  - (c) The actual mean speed of the Vessel (i.e. NOT theoretical) shall be measured during the Official Speed Trial runs to determine if the Contract Speed can be achieved.
  - (d) The actual mean speed shall be obtained by the handheld Global Positioning System (GPS); or other measuring method acceptable to MD.
  - (e) The instruments used in measuring the Contract Speed for the Official Speed Trial shall be provided either by:
    - (i) the Contractor provided that the speed measuring device has been calibrated by a certified body in Hong Kong acceptable to GNC; or
    - (ii) GPS supplied by the Government.

The GPS or Differential Global Positioning System (DGPS), which is properly calibrated (with supporting calibration documents) and installed on board the Vessel, is acceptable to GNC; or other speed measuring methods that are acceptable to GNC.

- (f) All Equipment shall also be in operation during the Official Sea Trial unless explicitly exempted by MD. This Equipment shall have passed the Technical Acceptance. The information including but not limited to the speed, time of the day, engine running conditions and sea condition shall be properly recorded by the Contractor, and signed as witnessed by the GNC surveyor (or the GNC representatives) during the Official Sea Trial and shall form part of the Official Sea Trial Report. A copy of the Official Sea Trial Report as required in Paragraph 1.7.7 below shall be given to GNC before Delivery Acceptance. Upon successful completion of the Official Speed Trial in Hong Kong, the Contractor shall arrange GNC officers to carry out hull bottom inspection on the vessel to check for any hull damage before delivery.

1.7.6 The following tests shall be conducted by the Contractor as part of the Technical Acceptance and the testing results shall be recorded and form part of the Official Sea Trial Report:

- (a) Maneuverability Test

Forward turning circle tests to port and starboard sides shall be carried out with: (i) both engines running; (ii) port engine running; and (iii) starboard engine running. The minimum time for turning to both sides at 15°, 90°, 180°, 270° and 360° shall be recorded.

- (b) Crash Stop Test

The minimum time and distance achievable by the Vessel when running from full ahead to stop, and then to full astern shall be determined at the Crash Stop Test.

- (c) Astern Running Test

The maximum astern running speed achievable by the Vessel shall be determined by the test.

## **1.8 Acceptance and Delivery**

1.8.1 Acceptance of the Vessel (including all Equipment) shall be carried out in two (2) parts:

- (a) Technical Acceptance
- (b) Delivery Acceptance

1.8.2 Technical Acceptance

- (a) This includes all the hull construction, mechanical and electrical tests and trials as required in this part and those considered necessary by the Government, including equipment tests and bottom survey on the slipway in Hong Kong, the Official Speed Trial as mentioned in Paragraph 1.7.5 of this Chapter shall be conducted in Hong Kong Waters, Maneuverability Test and Crash Stop Test as mentioned in the Paragraphs 1.7.6 (a), (b) and (c), the bench acceptance test and all other verification tests to determine whether or not the Vessel including the Equipment has been supplied in accordance with all the specifications set out in these Technical Specifications.
- (b) The Contractor shall supply all necessary equipment and labour at its own cost for carrying out the tests and trials stated in Paragraph 1.8.2 (a) above.

- (c) If the Vessel cannot pass all of the tests comprised in the Technical Acceptance by the Delivery Date specified in the Contract, the options available to the Government are set out in Clause 12 of the Conditions of Contract and other applicable provisions of the Contract.

### 1.8.3 Delivery Acceptance

- (a) The Vessel, after its successful completion of Technical Acceptance, shall be delivered at the Contractor's expense to the Government Dockyard.
- (b) Declaration of conformity or equivalent certificate or document shall be issued by the manufacturer or notified body before the Acceptance Certificate is issued by the Government.
- (c) The Delivery Acceptance of the Vessel shall be carried out by GNC in accordance with the terms stipulated in the Contract. The Delivery Acceptance is only completed when the Acceptance Certificate is issued by the Director of Marine.
- (d) The Contractor must demonstrate to MD that all hull construction, outfitting, vessel stability, machinery, electrical and electronic equipment are in good working order; and must hand over the Vessel, its fixtures and Equipment to MD in good and complete condition.
- (e) Not later than six weeks before the Delivery Acceptance of the Vessel, the Contractor is required to submit to GNC four copies of the Inventory List covering all items of or relating to the Vessel including all engines, on board equipment, manuals, documentation, and equipment for testing in respect of the entire Vessel. The Inventory List shall be approved by MD before the day of Delivery Acceptance and covers everything which the Contractor is required to deliver under the Contract. At the Delivery Acceptance of the Vessel, the approved Inventory List will be used to check that all the items have been delivered to MD in a satisfactory state. Details of each inventory item shall include item name, description, type, quantity, manufacture's name and contact details, part reference number and/or serial number, and the items' locations in the Vessel.
- (f) On delivery, the Vessel must be in a clean, tidy and fully fitted and operational condition.
- (g) The Delivery Acceptance of the Vessel shall be carried out by GNC in accordance with the terms stipulated in the Contract.

## 1.9 Warranty Services during the Warranty Period

1.9.1 Notwithstanding and without prejudice to the Contractor's obligation to provide the Warranty Services for the Vessel under the Conditions of Contract, the original copy of the manufacturer's warranty certificates and all related manuals and documents in respect of all the Equipment valid for 12 months from the date of Acceptance Certificate of the Vessel, shall be delivered to MD upon Delivery Acceptance.

1.9.2 The full scope of the Warranty Services is set out in Annex 1 to this Part.

## 1.10 Support Services

1.10.1 The Vessel must be designed for through life support and easy maintenance in the Hong Kong based on an operation profile and minimum life expectancy as mentioned in this Part VII.

1.10.2 The support services provided by the Contractor applies not only to main engines but also to all other equipment installed in the Vessel. Support and maintenance services must be available (i.e. serviceable) in Hong Kong in respect of all equipment installed in the Vessel and return of the whole or part of the Equipment to the original place of manufacturer or supplier shall not be necessary in order to carry out any repair work.

## **1.11 Asbestos Free**

1.11.1 The Vessel must not contain any asbestos or asbestos containing materials. The Contractor must comply with the Hong Kong Air Pollution Control Ordinance (Cap. 311), Part X. The Contractor shall engage a service supplier approved by the authorities or entities acceptable by MD to verify that there is no asbestos on the Vessel. An asbestos free certificate or a statement of compliance issued by the service supplier to this effect shall be provided upon delivery of the Vessel.

## Chapter 2 General Technical Requirements

### 2.1 General Provisions

- 2.1.1 Without prejudice to the generality of Chapter 1, this Chapter contains the more particular technical specifications for the Vessel. The significance of Essential Requirements is explained in Paragraph 1.1 of Chapter 1 above.
- 2.1.2 The work to be done under this contract consists of the design, construction, outfit, testing and delivery of **forty-four (44) Rigid Hull Inflatable Boats for the Leisure and Cultural Services Department**. Workmanship, functions, characteristics and performance shall be in accordance with this Part VII, best marine construction practices, and the regulatory standards herein specified or otherwise applicable.
- 2.1.3 Whilst the Contractor is required to exercise its professional expertise and knowledge to come up with an appropriate design for the Vessel which can comply with all requirements of the Contract.
- 2.1.4 ALL the machinery, equipment and facilities, fixtures and fittings, including outfitting of the Vessel that are described in the Technical Specifications, together with their requirements for design and installation standards that are stipulated in this Chapter and in any other parts of the Technical Specifications, are the items that must be included in the complete “As-built” Vessel delivered to the Government.

### 2.2 Rules and Regulations

- 2.2.1 The Vessel shall be designed and constructed in accordance with International Organization for Standardization (ISO) or American Boat & Yacht Council, Inc. (ABYC) or other equivalent international or national standard. [E]
- 2.2.2 The Vessel shall be designed for voyages in coastal waters, large bays, estuaries, lakes and rivers where conditions up to, and including, wind force 6 and significant wave heights up to, and including, two metres may be experienced. [E]
- 2.2.3 The Contractor shall design, build and supply the Vessel in full compliance with the requirements given in these Technical Specifications, which, to that extent, may be over and above what is normally required, by any statutory and standard rules and regulations. Should there be any contradiction between the rules and regulations of the Standard requirements and this Part VII, the final decision shall rest with GNC.

### 2.3 Contract Speed

- 2.3.1 As standard design, no extra or specific speed requirement.

### 2.4 Principle Dimension and Carrying Capacity

- 2.4.1 The principle dimensions of the Vessel shall be: [E]

#### Items 1 and 2:

Length overall:	3.0 m to 3.2 m
Extreme breadth:	1.7 m to 1.8 m

**Item 3:**

Length overall: 4.1 m to 4.2 m  
Extreme breadth: 1.8 m to 1.9 m

**Item 4:**

Length overall: 4.5 m to 4.8 m  
Extreme breadth: 1.9 m to 2.1 m

**Item 5:**

Length overall: 5.2 m to 5.6 m  
Extreme breadth: 2.0 m to 2.3 m

2.4.2 The carrying capacity of the Vessel shall be: [E]

**Items 1 and 2:**

Carrying capacity: Five (5) persons  
Payload: At least 450 Kg

**Item 3:**

Carrying capacity: Six (6) persons  
Payload: At least 550 Kg

**Item 4:**

Carrying capacity: Eight (8) persons  
Payload: At least 800 Kg

**Item 5:**

Carrying capacity: Ten (10) persons  
Payload: At least 900 Kg

**2.5 Material of the Construction** [E]

2.5.1 Material of hull structure shall be glass-fibre reinforced plastic or polyester for Items 1 and 2.

2.5.2 Material of hull structure shall be glass-fibre reinforced plastic for Items 3 to 5.

2.5.3 The foam filled sandwich construction of the hull of the Vessel shall not be accepted.

2.5.4 Material of buoyancy tube shall be Hypalon or Neoprene substrate.

## 2.6 Propulsion System

- 2.6.1 The Contractor should note that the Vessel is for use in Hong Kong and the outboard engine offered by the Contractor are those at present commonly used by ships operating in Hong Kong Waters, and that they have good support and after sale services locally in Hong Kong.
- 2.6.2 Except for the spare outboard engines, the “Break-in” (running-in) procedure for the outboard engine shall be completed as per engine manufacturer’s recommendation before delivery of the Vessel.
- 2.6.3 Engine shut-off lanyard shall be provided for each Vessel.
- 2.6.4 The Vessel shall be powered by single, four-stroke outboard engine. The outboard engine shall be environmental friendly engines with California Air Research Board - the exhaust emission star system for outboard motors : at least three stars ultra-low emission outboard engine. [E]

### Item 1:

Power of Outboard Engine:	4 Horsepowers
Starting System:	Both manual and electric starting
Type of Steering:	Direct tiller control
Type of Control:	Separate control for throttling and gear shifting

### Item 2:

Power of Outboard Engine:	15 Horsepowers
Starting System:	Both manual and electric starting
Type of Steering:	Direct tiller control
Type of Control:	Separate control for throttling and gear shifting

### Items 3 and 4:

Power of Outboard Engine:	50 Horsepowers
Starting System:	Electric starting
Type of Steering:	Hydraulic remote
Type of Control:	Control console

### Item 5:

Power of Outboard Engine:	70 Horsepowers
Starting System:	Electric starting
Type of Steering:	Hydraulic remote
Type of Control:	Control console

## 2.7 Vessel Operating Profile and Environment

- 2.7.1 The Vessel shall be designed for deployment by the LCSD on at least 300 days per year with day time operational deployment. The Vessel shall be designed and built to operate in Hong Kong Waters.

#### Summary of Operational Hours/Range

Number of hours/day:	6 hours/day
Number of days/year:	300 days/year

- 2.7.2 The Vessel shall be able to operate safely and have good seakeeping performance within the Hong Kong Waters wind force 6 and significant wave heights up to, and including, two metres.
- 2.7.3 The Vessel shall have good manoeuvrability and quick response throughout its speed range and capable to operate in open water and shallow water.

### **2.8 Markings and Colour Scheme**

- 2.8.1 The Contractor shall provide the markings and colour scheme for the Vessel. All painting colour scheme for the Vessel and fittings shall be approved by GNC before application.
- 2.8.2 Names, insignia and other colour markings should be in a colour contrasting with the hull and consoles' colour. [D]
- 2.8.3 All labelling shall be both in Chinese and English and as per applicable rules and regulations. The LCSD logo shall also be displayed on the Vessel or elsewhere as directed by MD and LCSD.
- 2.8.4 The Vessel's name shall be marked on both sides of buoyancy tube of the Vessel. Details of the size and calligraphy shall be directed and agreed by the MD and LCSD.
- 2.8.5 All labelling, stencilling and marking (not limited to the hull but including all aspects of the Vessel) shall be made on separate plaques, boards or labels attached to the structure. By default all displays, control actuators, electric switches, valves, and other equipment shall be labelled to indicate their type and function as appropriate.
- 2.8.6 Safety markings for the prevention of person tripping in the Vessel shall be provided where necessary.

### **2.9 Tally Plates**

- 2.9.1 The following information shall be displayed on the builder's plate.
- (a) Builder's name;
  - (b) Vessel's name;
  - (c) Year of build;
  - (d) Maximum number of persons including the crew that the Vessel is designed to carry.
- 2.9.2 Tally plates in both English and traditional Chinese characters shall be fitted for all spaces and all equipment as required by MD including but not limited to:
- (a) Equipment on the console;
  - (b) Control panels, switchboards, distribution boxes and electrical circuits; and
  - (c) Any other equipment and fitting as required.

Information engraved on the tally plates shall include: service, function, mode of operation, source of power, fuse rating, voltage and warning and other information as required by MD. List of tally plates shall be provided as directed by MD.

- 2.9.3 Tally plates exposed to weather shall be made of durable and weatherproof material and be securely fastened.
- 2.9.4 All cable termination shall be identified clearly for disconnection and reconnection.

## **2.10 Other Design Features**

2.10.1 The Vessel shall perform at all speeds without the following characteristics:

- (a) chine walking;
- (b) porpoising;
- (c) loss of horizon (meaning that the view of the horizon forward of the bow in the seated and standing positions at the console shall not be obstructed by the bow of the Vessel at any time when underway or making way);
- (d) loss of directional control;
- (e) permanent list; and
- (f) engine strain and/or cavitation manifested by engine overspeeding.

2.10.2 The Vessel's deck shall be of a flush design free of trip and snag hazards.

## **Chapter 3 Standard Features and Equipment**

### **3.1 Structures of the Hull**

#### **3.1.1 Items 1 and 2:**

The hull of Vessel shall be designed and built with a “V” shape.

#### **3.1.2 Items 3, 4 and 5:**

The hull of Vessel shall be designed and built (i) with a deep “V” from the transom to a position amidships and (ii) with a minimum deadrise angle of twenty (20) degrees at the transom.

3.1.3 The main deck shall be non-slipped.

3.1.4 At least one (1) drain plug / bailer / self-bailer with scupper for the draining shall be fitted on the transom plate of the Vessel.

### **3.2 Buoyancy Tube Construction**

3.2.1 The buoyancy tube shall be fitted around the perimeter of the hull, except the transom plate.

#### **3.2.2 Items 1 and 2:**

The buoyancy tube shall be consisted of three (3) airtight chambers with one (1) inflation valve for each airtight chamber. Sufficient rubbing strakes shall be fixed on the forward portion surface of the buoyancy tube for protection.

#### **Items 3, 4 and 5:**

The buoyancy tube shall be consisted of five (5) airtight chambers with one (1) inflation valve and one (1) over pressure relief valve for each airtight chamber. Sufficient rubbing strakes shall be fixed on port and starboard side and forward portion surface of the buoyancy tube for protection.

### **3.3 Out Fitting and Equipment**

3.3.1 For **Items 1 and 2**, the out-fitting / equipment shall be fitted and provided:

- (a) One (1) bench seat;
- (b) One (1) integrated bow locker;
- (c) Two (2) towing rings;
- (d) Four (4) lifting points;
- (e) One (1) pair aluminium paddle with holders;
- (f) One (1) bow stainless steel “D” ring;
- (g) One (1) foot pump with inflation hose; and
- (h) One (1) set repair kit for the buoyancy tube.

3.3.2 For **Items 3, 4 and 5**, the out-fitting and equipment shall be fitted and provided:

- (a) One (1) control console;
- (b) Two (2) towing “U” bolts on transom;
- (c) Four (4) lifting points;
- (d) One (1) pair aluminium paddle with holders;
- (e) One (1) bow stainless steel “U” ring;
- (f) One (1) foot pump with inflation hose; and
- (g) One (1) set repair kit for the buoyancy tube.

### **3.4 Control Console**

3.4.1 One control console shall be provided for **Items 3, 4 and 5**.

3.4.2 The control console shall be fitted at fore amidships of the Vessel. It shall be constructed with glass-fibre reinforced plastic or aluminium. The control console shall be designed to lift up or remove for repairing.

3.4.3 Sufficient hand holds and guard rails shall be fitted on the control console. They must be fabricated to suit for marine environment, i.e. marine grade aluminium alloy or marine grade stainless steel (316) or other equivalent non-corroding material. Their position, fitting arrangement shall be made acceptable to and approved by MD before fitting.

3.4.4 The following equipment shall be fitted on the control console:

- (a) Outboard engine throttle control head;
- (b) Steering wheel;
- (c) Hydraulic power trim and tilt control;
- (d) Engine revolution meter;
- (e) Switch for electrical starting / stopping of the engine;
- (f) Emergency stop / deadman switch;
- (g) Voltmeter for the battery;
- (h) Navigation light switch;
- (i) Main battery switch; and
- (j) A magnetic compass fitted with an independent dimmer switch, installed on the top of the console in line with the coxswain’s line of sight dead ahead.

### **3.5 Jockey Seat**

- 3.5.1 One jockey seat for two persons shall be provided for **Items 3 and 4**. It shall be fitted at aft of control console of the Vessel. It shall be constructed with either Glass-fibre reinforced plastic or aluminium alloy. The jockey seat shall be designed to lift up or remove for repairing.
- 3.5.2 Cushion shall be fitted on the jockey seat with sufficient handle.
- 3.5.3 The jockey seat shall have sufficient space for installing the fuel oil tank.

### **3.6 Integrated Jockey Seat**

- 3.6.1 One integrated jockey seat with control console shall be fitted for **Item 5**, It shall be constructed with either glass-fibre reinforced plastic or aluminium alloy. The jockey seat shall be designed to lift up or remove for repairing.
- 3.6.2 Cushion shall be fitted on the jockey seat.
- 3.6.3 One (1) battery locker shall be fitted in the integrated jockey seat.

### **3.7 Main Deck Arrangement**

- 3.7.1 Main deck arrangement for **Item 5**
  - (a) The main deck area shall have a clear area for locating one basket stretcher, with size of 2,180 mm x 660 mm x 200 mm. Sufficient holding brackets and rings with retaining straps shall be provided for securing the basket stretcher which is provided by LCSD.
  - (b) One (1) pair of stainless steel foldable ladders shall be provided and fitted on the aft of port and starboard side buoyancy tubes near the roller bar.

### **3.8 Machinery Items**

- 3.8.1 Fuel oil tanks for **Items 1, 2 and 5**

Two (2) approved portable fuel oil tanks with each capacity of 24 litres shall be provided. The portable fuel tank shall be located on open deck clear of fire or explosion hazard. Fuel tank retaining straps shall also be provided
- 3.8.2 Fuel oil tank for **Items 3 and 4**

One (1) approved fuel oil tank with capacity at least 90 litres shall be provided. The fuel tank shall be located on open deck clear of fire or explosion hazard. The fuel oil tank shall be removed for repairing.
- 3.8.3 One (1) stainless steel propeller guard (minimum 25 mm clearance between guard and propeller) shall be provided for each outboard engine. One length of stainless steel flat bar with size 20 mm x 2 mm shall be fixed at both circumferences of the propeller guard, with at least two length of support strip, 20 mm x 2 mm for reinforcement.
- 3.8.4 All fuel piping at floor shall be properly protected tidily, i.e. by trunking or conduit to avoid damages or injuries of the on board personnel.
- 3.8.5 One (1) oily water separator of the fuel oil system shall be provided on the transom and aft of jockey seat for **Items 3, 4 and 5**.

### **3.9 Electrical Items**

- 3.9.1 One (1) metallic roller bar shall be provided for **Items 3, 4 and 5**. It shall be fitted on the transom of the Vessel. It shall be designed to remove for repairing. One set of port, starboard and all-round white navigation lights shall be fitted on the roller bar with their standard and installation complied with International Regulation for Prevention Collision at Sea 1972.
- 3.9.2 All electric wirings at floor shall be properly protected tidily, i.e. by trunking or conduit to avoid damages or injuries of the on board personnel.
- 3.9.3 One manually switched electric bilge pump shall be provided for **Items 3, 4 and 5**. It shall be fitted at the main deck aft.
- 3.9.4 One (1) maintenance free battery with at least 40 Ampere-hours shall be provided with battery box and retaining straps.

### **3.10 Shipment Cradle**

- 3.10.1 One (1) four-wheels metallic shipment cradle shall be provided for each Vessel.
- 3.10.2 The four-wheels metallic shipment cradle shall be fitted for each Vessel with declaration letter issued by the boat manufacturer.

### **3.11 Spare Outboard Engine**

- 3.11.1 The spare outboard engines offered by the Contractor are those at present commonly used by ships operating in Hong Kong Waters, and that they have good support and after sale services locally in Hong Kong.
- 3.11.2 The outboard engine shall be four-stroke environmental friendly engines with California Air Research Board - the exhaust emission star system for outboard motors, i.e. at least three stars ultra-low emission outboard engine.
- 3.11.3 All spare outboard engines shall NOT be completed the “Break-in” (running-in) procedure as per engine manufacturer’s recommendation before delivery.

## **Chapter 4 Life-Saving Appliance (LSA) and Fire Fighting Appliance**

### **4.1 General Requirements**

4.1.1 The Life-Saving Appliance (LSA) shall meet the following requirements:

- (a) A life ring buoy with lifeline marker light and a rescue quoit with line attached shall be provided for each Vessel. The name of the Vessel shall be painted on both life ring buoy and rescue quoit.
- (b) Five (5) life jackets for Items 1 and 2, six (6) life jackets for Item 3, eight (8) life jackets for Item 4, and ten (10) life jackets for Item 5 shall be provided. The life jacket shall comply with ISO 12402-3:2006 (Personal floatation device – Part 3: Life jackets, performance level 150 – safety requirements); and to be of a type approved by a maritime administration to which the International Convention for the Safety of Life at Sea, 1974 is applicable or a Classification Society.
- (c) The name of the Vessel shall be painted on each side of the life jackets on board. The size of the name painted shall be decided by GNC. The material of paint shall not cause any damage to the life jacket surface.
- (d) All LSA shall be placed as readily accessible as possible. The positions of LSA shall also be clearly indicated.

4.1.2 One (1) of 1-kg dry powder fire extinguishers shall be provided for each Vessel.

## **Chapter 5 Services Support**

### **5.1 General Requirements**

5.1.1 In determining the appropriate design for the Vessel, all of the following factors shall equally be taken into account without one outweighing another.

- (a) Vessel performance (e.g. engine rating, size, etc.).
- (b) Initial cost.
- (c) On-going cost (e.g. maintenance cost, petrol consumption, etc.).
- (d) Reliability (frequency and time to repair breakdown).
- (e) Time between maintenance periods.
- (f) Time to undertake scheduled maintenance (downtime).
- (g) All machineries and equipment installed in the Vessel shall be serviceable in the Hong Kong.

5.1.2 Maintainability - the Vessel shall be easy to maintain by ensuring that there shall be:

- (a) Good access to all installed items for monitoring, service and overhaul.
- (b) Ease access to in-situ service and maintenance in the Hong Kong.

### **5.2 Information to be Provided Prior to and at Delivery Acceptance**

5.2.1 Information provided prior to Delivery Acceptance:

- (a) Detailed Inventory List for the whole Vessel to be submitted to the Government for approval.
- (b) The Inventory List shall cover all discrete items down to major component/unit level.
- (c) Full details of each item includes:
  - (i) Item number.
  - (ii) Description.
  - (iii) Type/model.
  - (iv) Quantity.
  - (v) Manufacturer.
  - (vi) Manufacturer's reference number.
  - (vii) Local agent/supplier address, telephone and fax numbers.
- (d) Four (4) hard copies and one (1) soft copy of the Inventory List shall be provided to GNC.

### 5.2.2 Certificates and Reports

One (1) original with two (2) copies and one soft copy of the following documents shall be forwarded to GNC at the time of Delivery Acceptance:

- (a) Declaration of Conformity or equivalent certificate or document or associated test certificates;
- (b) Manufacturer's certificate of outboard engine;
- (c) Builder certificates;
- (d) Undertaking duly signed and sealed by the Contractor's (or its sub-contractor's) shipyard for providing Warranty Services in relation to all aspects of the Vessel during the Warranty Period in the Hong Kong as stipulated in Annex 1 of this Part VII - Technical Specifications; and
- (e) Any other certificates as appropriate.

## **Chapter 6 Abbreviations**

kg	Kilogram
m	Metre
mm	Millimetre

## **Part VII - Annex 1 - Warranty Services**

### **1. Warranty Services**

- 1.1 The Contractor shall provide Warranty Services in relation to all aspects of the Vessel during the Warranty Period as stipulated in this Annex. If the Contractor appoints an authorised agent to perform the Warranty Services, the Contractor shall ensure that the authorised agent appointed will perform the Warranty Services in full compliance with the requirements of the Contract including those as set out in this Annex 1.
- 1.2 The Government reserves all rights and claims against the Contractor in the event that any warranty claim has not been handled in accordance with the terms of the Contract.
- 1.3 For the Equipment in respect of which the manufacturer/supplier does not offer a one-year free warranty on such equipment, the Contractor shall provide the Warranty Services throughout the Warranty Period at the Contractor's own cost. For other loose equipment and installations, such as life-saving and firefighting equipment, etc., which are required to be serviced, inspected or renewed annually, the Contractor shall provide the servicing, inspection and renewal as per the manufacturer's requirements of that equipment or installation in the Warranty Period applicable to such items.
- 1.4 During the Warranty Period, when the Vessel is handed over for the Warranty Services, the Contractor shall be responsible for the due return of the Vessel in good order. Should there be any loss or damage of the Vessel or any Warranty Item (as defined in Paragraph 1.5 below) caused by any reason whatsoever while the Vessel is in the possession or control of the Contractor (including even when the Vessel is at the Government Dockyard or a maintenance base of the user department) or at the shipyard of the Contractor or an authorised agent appointed by it, the Contractor shall pay for the cost for the loss or damage plus 20% as and for liquidated damages but not as a penalty. Throughout the Warranty Period, notwithstanding anything to the contrary in the Contract, the Vessel and all Warranty Items are deemed to be at the Contractor's risks, and the Contractor shall insure and keep insured, at his own expense, a property insurance with the Government to be named as the sole payee, for an indemnity amount of not less than the purchase price of the Vessel plus 20% to protect the Government property against all risks. The Certificate of Insurance and evidence showing that the premium has been paid shall be available for inspection in advance. The Contractor shall provide this insurance policy before the commencement of the Warranty Services. Any excess payable under the insurance policy shall be borne by the Contractor.
- 1.5 **Total Vessel Warranty**
- It is required that the Vessel is covered by free of charge Warranty Services for one year after the date of the issue of the Acceptance Certificate in respect of the Vessel. The Warranty Services shall cover the entire Vessel and all its Equipment (including all major Equipment specified in Schedule 6 in Part V and electronic navigational equipment), fittings and outfit (collectively, "Warranty Items") against defects of design, construction, workmanship or materials and against any non-compliance with any of the Product Warranties. The Warranty Services may be backed up by the Contractor using individual equipment suppliers/manufacturers' warranties but the Contractor shall remain solely liable to MD as a primary obligor to provide the Warranty Services. Notwithstanding and without prejudice to the Contract on warranty obligations for the total Vessel, any individual equipment supplier/manufacturer's warranty extending beyond the one year total Vessel warranty must be assigned to the Government as appropriate.
- 1.6 **Procedures for Warranty Claim**
- Without prejudice to the provisions of the Contract, a detailed procedure for dealing with warranty claims must be proposed by the Contractor and agreed by MD before the issuance of the Acceptance Certificate of the Vessel. This shall be based on the following principles:
- 1.6.1 Any notification of claimed defect shall be sent from MD to the Contractor through a defined route.
- 1.6.2 There shall be a joint inspection to examine the defect and the Contractor shall propose the appropriate and necessary remedial action to the satisfaction of MD.

- 1.6.3 The Contractor shall undertake on-site Warranty Services (including provision of all replacement Warranty Items, labour, materials, test equipment, and transportation) wherever, at the option of the Government, the Vessel is berthed in the Government Dockyard or maintenance bases of the user department. Taking the Vessel to the shipyard of the Contractor should be avoided unless absolutely necessary.
- 1.6.4 Rectification of defects must have a minimum effect on the operation of the Vessel by the provision of on loan equipment if the anticipated repair time exceeds the time frame as specified in Paragraph 1.7.1 below.
- 1.7 Throughout the Warranty Period, the Contractor shall be responsible for the provision of free of charge corrective maintenance and rectification of all defects in all and any of the Warranty Items including repair and replacement as necessary. This shall, at no cost to the Government, include Warranty Services to be performed by the Contractor described in the following sub-paragraphs:
- 1.7.1 To attend to the Vessel for inspection and repair within 24 hours (excluding Hong Kong public holidays) of receiving the report of a fault (“fault report”) and to take immediate action to rectify the defect after inspection. Unless otherwise agreed by the Government, all corrective maintenance and rectification must be effected within 48 hours after the fault report is first issued. The MD must be informed of what corrective maintenance and rectification actions have been taken within 72 hours of receiving the relevant fault report.
- 1.7.2 To provide all necessary transport, replacement Equipment, labour and materials, tools and testing instruments required for the corrective maintenance and rectification.
- 1.7.3 Any replacement item or part to be used shall originate from the manufacturer of the original Warranty Item to be repaired and must be able to be found in the latest spare parts list issued by such manufacturer. Alternative components shall not be used without the prior approval in writing of the MD.
- If the Contractor fails to respond to any reported warranty claims within 48 hours, the MD may arrange corrective maintenance and rectification of the defect either on its own or by deploying a third party contractor as deemed appropriate with a view to minimising any downtime incurred. In such case, the Contractor shall compensate the Government for the full cost of such repairs plus 10% as and for liquidated damages but not as a penalty no later than 10 working days after a written demand has been served on the Contractor by MD.
- 1.8 Extension of Warranty
- 1.8.1 The Warranty Period for any Warranty Item shall be suspended whilst and if the Contractor fails to repair and correct satisfactorily the defects in such Warranty Item within seven working days counting from the date when the relevant fault report was first issued.
- 1.8.2 Warranty Items which are electronic equipment sub-assemblies, modules or components and which are replaced during the Warranty Period shall have a new warranty period of one year commencing from the date of replacement.
- 1.8.3 In relation to a Warranty Item, references to Warranty Period shall be construed to include such extended warranty period as mentioned in Paragraph 1.8.1 and/or 1.8.2 above, depending on whichever is applicable.
- 1.9 Recurrent Defects
- During the Warranty Period, should a second and similar defect arise in relation to a Warranty Item, this shall be construed as conclusive evidence of the Warranty Item’s unsuitability for the purpose intended, and the Contractor shall take immediate steps to conduct a thorough investigation jointly with MD at the Contractor's expense, to ascertain the reasons for any such defect and shall forthwith at the MD's option and the Contractor's expense, procure and deliver another replacement Warranty Item with a new design suitable for the purpose intended to replace the original defective Warranty Item.
- 1.10 In the event that the Contractor proposes to modify any Warranty Item or any part of the Vessel in order to repair or replace the same or another Warranty Item, the Contractor shall obtain the Government’s advance written consent to the proposed modification.
- 1.11 Throughout the Warranty Period, the Contractor shall maintain an inventory of spare parts, which shall be the same items as listed in Schedule 6 in Part V and in the same quantity in the shipyard of the Contractor which the Contractor shall use for performing the Warranty Services. The

Government will not provide its own inventory of the Spare Parts to the Contractor for the provision of the Warranty Services.

1.12 Updated/Upgraded Information

It is expected that during the Warranty Period certain Warranty Items may be modified or changed. All documentation affected by this change must be updated to reflect the new situation. All the support documentation such as the Vessel inventory list, job information and maintenance scheduling in relation to these modifications and changes shall be provided at the expiry of the Warranty Period.

**Tender Ref.: Marine Department Shipbuilding Tender No.2/2018**

**Part VII - Annex 2 - Implementation Timetable**

<b>Milestones</b>		<b>Completion Dates</b>
<b>1</b>	<b>Issuance of "Notification of Conditional Acceptance"</b>	<b>To be advised after Tender Evaluation</b>
<b>2</b>	<b>Contract Date (the date when the Articles of Agreement is duly signed)</b>	<b>The date when the Articles of Agreement is duly signed by both the Contractor and the Government. The Government will not sign the Articles of Agreement until and unless the Contractor fulfils all of the conditions precedent as specified in Clause 25.2 of Part II Conditions of Tender (save to the extent to be waived by the Government, if any).</b>
<b>3</b>	<b>Kick-Off Meeting</b>	<b>To be held within two (2) months after the Contract Date at the Government Dockyard or the Contractor's Shipyard, as to be directed by the Government.</b>
<b>4</b>	<b>Completion of hull structures</b>	<b>The Contractor shall propose the completion dates of Milestones 4 to 6 for GNC's approval within two (2) months after the Contract Date.</b>
<b>5</b>	<b>Pre-shipment Construction and Handling Inspection</b>	
<b>6</b>	<b>Shipment to Hong Kong</b>	
<b>7</b>	<b>Delivery Date</b>	<b>The Delivery Date for the Vessel shall be no later than the date set out in Schedule 2 (Delivery Schedule) of Part V</b>