

Section VII. Technical Specifications

CLARIFICATION AND SETTLEMENT OF CONFLICTING INTERPRETATION OF THE TECHNICAL SPECIFICATIONS

All clarifications regarding the technical specifications stipulated in this section will be clarified by the members of the Technical Working Group for the **Supply and Delivery of Twenty (20) Units Speedboats with Trailers**.

STATEMENT OF COMPLIANCE TO TECHNICAL SPECIFICATIONS

A. INSTRUCTION:

The bidder must state in the last column opposite each parameter and required specifications either **“Comply” or “Not Comply”**. All pages shall be properly signed. Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause above goods manufactured by us.

B. PROJECT DESCRIPTION:

1. GENERAL REQUIREMENTS:

- a. These general requirements, intents, scopes and definitions shall be applied to all work items of this Technical Specifications.
- b. For the purpose of this technical specification, the bidders shall submit the general arrangement plan of their proposed design of the boat together with the Technical Documents.
- c. To ensure that the design has undergone test performance, the bidder shall certify that the proposed design passed the test and satisfactory performance and used by a country of origin.

- d. BOC thru the Enforcement Group (EG) / SSPDC, will oversee the implementation of this project.
- e. Any particulars for the work outlined in the specifications and drawings are given for guidance purposes only. The Supplier shall take his own particulars and dimensions and shall be responsible for them.
- f. Names of manufacturers and trade designations of items are mentioned in the specifications as a means of specifying the general design character with respect to the quality and construction of the item(s). Where specific equipment or materials are identified in the specifications, equivalent product may be substituted in accordance with contract provisions after approval of the Enforcement Group (EG). All guaranties and warranties must remain the same.
- g. The Supplier shall be held responsible for the protection of equipment and materials against lost and damage during the process of delivery, storage and installation at the supplier's facility.

2. MATERIALS AND WORKMANSHIPS

- a. All materials shall be of the best quality as per internationally accepted standards.
- b. All workmanship shall be performed to the complete satisfaction of the BOC.
- c. It shall be understood by the Contractor, that all materials or goods to be installed requiring testing shall be subjected to such and all testing procedures shall be witnessed by the BOC Representative and must meet their requirements. All charges and costs for tests, inspections, etc., shall be borne by the Contractor.
- d. All safety procedures/requirements during burning, welding and any form of hot works, etc. shall be complied by the Contractor. The contractor shall provide safe access to Authorized BOC Representative for inspections of all said works undertaken.
- e. A complete list of spare parts for installed electrical and mechanical equipment as recommended by the manufacturers shall be submitted to the EG. The list of spare parts as submitted shall include all pertinent information for future ordering references.
- f. **Hazardous Waste:**
 - 1) Handling and disposal of all hazardous material shall comply with existing domestic and international environmental regulations pertaining to the proper handling and disposal of hazardous waste.
 - 2) It is the responsibility of the Supplier to properly dispose all "Hazardous Waste" resulting from the construction of the boat at its expense.
- g. **Electrical works:**
 - 1) All wire, fittings and fixtures installed in locations exposed to the elements like condensation or damage shall be of marine standard.

- 2) Electrical equipment shall be properly labeled and supplied with nameplates adjacent and symmetrical to the said equipment.
- 3) All new cables shall be banded with stainless steel band or appropriate equivalent material and in accordance with MARINA standard.

3. GENERAL SERVICES

It is the Supplier's responsibility for supplying all services for the specified works as indicated.

a. Fire Protection

The supplier's yard where the boat was being constructed shall be properly equipped with fire extinguishers and fire protection equipment to include its working personnel at all times in each area/compartment.

b. Temporary Lighting

Temporary lighting is to be provided for each particular application, as required, by the Supplier in all work areas.

c. Electrical

Provide electrical source of power separate from MERALCO or its equivalent to avoid disruption from ongoing production.

d. Crane Service

Provide crane service to perform lifts for the duration of the project. This service is to include crane, crane operator, and riggers and related equipment and devices.

e. Meetings

An initial conference shall be held between the Supplier's senior staff and Authorized BOC Representatives at a date to mutually agree by both parties.

f. Reports:

1. Test Reports - Results of all tests required by these specifications are to be delivered to the BOC or its designated representatives for confirmation within 48-hours after the conduct of testing.

2. Final Report - Supplier shall provide all Tests required by these specifications to be delivered within one (1) weeks prior to final payment. In addition, electronic and hard copies of reports will be supplied in two (2) copies and arranged in chronological order.

4. LOGISTICS SUPPORT

The contractor shall provide with but not limited to the following requirements:

- a. Boat Construction Plan (1 original copy duly signed by a licensed naval architect and MARINA approved)
- b. General Arrangement Plan (1 original copy duly signed by a licensed naval architect and MARINA approved)
- c. Electrical Diagram (1 original copy duly signed by a licensed naval architect and MARINA approved)
- d. Manufacturer's Operator's and Maintenance Manual for each equipment
- e. Tide and Current Table (latest)
- f. Boat Consolidated Allowance List (COSAL)
- g. Preventive Maintenance System (PMS) for 1 year equivalent to 750 hours shall be undertaken at the expense of the winning bidder. The PMS shall be done for two (2) running hours duration per day/visits.
- h. Provision of one (1) set onboard spares included but not limited to:
 - 1) Engine spares:
 - Impellers;
 - pump housing;
 - o-rings;
 - guide tubes;
 - grommets;
 - pump cups;
 - plates;
 - gaskets;
 - seals;
 - screws;
 - oil seals;
 - bearings;
 - shims;
 - washers; and
 - drive shafts
 - 2) Electrical spares:
 - Gauges and meters
 - Switches and sockets
 - Electrical cable (30 meters long)
 - Spare lightings L.E.D.

i. A minimum of five (5) years after sales support (locally based) for the maintenance and repair (including readily available spare parts) of all the equipment installed including trailer per boat shall be established by the contractor.

5. TRAINING PACKAGE

Support for the training of boat operators and maintenance personnel such as but not limited to instructional materials; venue; training certificates and other administrative requirements shall be included in the training package at the expenses of the contractor. The Enforcement Group (EG) as the end-user of the boats shall provide at least ten (10) personnel to be trained on boat operations and navigation and another at least ten (10) personnel as well to be trained on deck and machinery maintenance before the Final Acceptance Trial (FAT). The training shall have a duration of at least three (3) days.

6) PROJECT MANAGEMENT

The Contractor shall submit its proposed Project Management Organization (PMO) and staffing who shall work together with BOC Project Manager (PM) on boat acquisition. It shall designate a qualified full-time Project Manager (PM) as head that shall have complete responsibility for the planning, execution and control of the project.

In accordance with the contractor's established practice, the PM shall be provided with the necessary authority to ensure that the project is accomplished on schedule and meets all technical requirements. The PM shall be designated as the point of contact.

In coordination with the BOC PM the Contractor shall develop and provide a Program Master Schedule showing all major program milestones and deliverable items.

If subcontracted, the contractor shall provide a list of all intended subcontractors with their company profiles and partnership agreements. In any case, the prime contractor shall be responsible for the subcontractors and may be required to directly oversee the subcontractor's performance.

The Contractor shall submit an effective product assurance program in accordance with internationally accepted standards, policies and procedures.

A team from the Philippine Bureau of Customs composed of at least five (5) personnel will be formed to oversee the project implementation. The team shall be utilized as the Technical Inspection and Acceptance Committee to monitor progress and prepare documentation for progress billing.

7) QUALITY ASSURANCE

The contractor shall have an organization for quality assurance (QA) to monitor production in accordance with internationally accepted standards and to perform test and trials.

The contractor's management with executive responsibilities shall review the quality system at defined interval sufficient to ensure its continuing suitability and effectiveness in satisfying the requirements and the contractor's stated quality policy and objectives. Records of such reviews shall be maintained.

The QA department shall be responsible for the release of production drawings, documentation and test reports.

The builder shall recognize the participation of the Classification Society on boatbuilding or high speed craft construction.

8) TESTS AND TRIALS

The quality of the craft and proof of performance shall be established by test and trials. The craft shall undergo functional test to verify correct installation of equipment and safe functions of systems.

The test for hull structures, machinery, outfitting and equipment mentioned in these specifications shall be conducted under the presence of the BOC PMT.

The sea trials shall be conducted with at least 1,000 kg. payload and 1,600 kg. payload for sixty (60) knots and forty (40) knots, respectively.

Following test and trials shall be conducted in the following stages:

1. Stage 1 – Material Receipt Inspection and Shop Test
2. Stage 2 – Boatboard Installation Inspection and Test
3. Stage 3 – Equipment Level Operational tests
4. Stage 4 – Intra-system Test
5. Stage 5 – Inter-system Test
6. Stage 6 – Special Test
7. Stage 7 – Dock Trial and Sea Trials
 - a. Builder's Trial
 - 1) Dock Trial
 - 2) Sea Trial
 - b. Acceptance Trial
 - c. Final Acceptance/Endurance Trial

Procedure in the conduct of Final Acceptance/Endurance shall be conducted on the following schedules:

Day 1: Loiter or Patrol Speed at **15 knots** for at least 2 hours duration vicinity Manila Bay.

Day 2: Cruising or Endurance Speed at **35 knots** shall be the actual transit from Port Area, Manila to any Port of the Philippines with a distance of at least 300 NM to be manned jointly by the BOC crew and builder's representatives.

Day 3: Maximum Speed at **60 knots** for at least 1 hour hot pursuit operation.

9) ACCEPTANCE

The final acceptance shall be done in port at Port Area, Manila.

Technical Specifications
SPEEDBOATS WITH SIXTY (60) KNOTS AND TRAILERS

PROJECT DESCRIPTION:

The contractor shall comply with the following technical specification required by the Procuring Entity:

1. Capabilities and Performance Requirements:
a. Capable to carry 10 persons (4-crews; 2-passengers and 4-boarding Officers).
b. Designed with low surface signature capable to operate day and night of at least 5 hours continuous operations.
c. The boat shall be low draft, agile maneuverability with small turning circle or tactical diameter.
d. Fitted with gun mounts for 1 x LMG (bow) and 2 x LMG (stern) with basic flower pots and adaptors.
e. Able to travel at least 300 Nautical Miles (NM) cruising or transit speed of at least 30 knots and ability to undertake at least one (1) hour hot pursuit operations at a maximum speed of 60 knots.
f. Can withstand dynamic forces of at least Sea State 3 at head-on seas.
g. Able to detect surface vessels at a range of at least 21-36 Nautical Miles.
h. Able to communicate with commercial and naval vessels with its VHF/UHF Marine radio communications equipment.
i. With enclosed accommodation and shock mitigated marine seats with grab rails in-front to prevent personnel from throwing during high speed and stressful sea condition.
j. Able to maintain positive buoyancy and seaworthiness with its floatation device and stability trim tab.
k. Protected with a bumping material to prevent damage from hull impact during alongside with boats; dock and minimize damage against collision.
2. General Requirements for Design and Construction:
a. The boat's hull shall be made of Fiberglass Reinforce Plastic (FRP) vacuum resin infused stepped hull construction that have longer service life of more than 20 years.

<p>b. Design and construction shall be in accordance with the classifications and standards set by MARINA (Circular # 2015-09 – Revised IRR on the Registration of Boatbuilders/Repairers) or ISO 9001:2008-2015 specifically on Small craft -- Hull construction and scantlings.</p>
<p>c. Workmanship shall be of first class quality that is, exhibiting the latest technology and quality in fabrication details and appearance typically produced by competent and conscientious workers with TESDA certification or by its accredited Educational Institutions).</p>
<p>d. Safety features for passengers and equipment shall be in accordance with international rules and regulations under Safety of Life at Sea (SOLAS), International Maritime Organization (IMO) and ISO 9001:2008-2015 specifically on Safety and Fire Protection.</p>
<p>e. The boat's hull geometry should be considered to be efficient in optimizing the speed performance and stability. The aft portion of the hull shall not introduce suction or negative lift which cause the stern to squat and yaw instability or to oscillate (steer itself) horizontally about a central vertical axis. The boat must be able to give greater directional stability (deeper keel), handles better in all conditions and has better, and safer, manners going downwind. The boat shall be fitted with stability trim tab.</p>
<p>f. The hull structure shall be fitted with minimum number of openings to reduce hull strain and stress against stressful sea conditions.</p>
<p>g. The Contractor shall establish and conduct an equipment maintenance, removal and handling program to ensure that equipment can be removed from its place of installation and move to an area within the boat, or remove for off-boat repair with minimum disruption to other equipment and system due to interference or secondary removals</p>
<p>h. It shall be electro-hydraulically integrated to steering system. The fuel tank shall be made of marine grade 5086 aluminum separately fit/stored from the boat's shell fitted but not limited with breather, fuel lines and other features on fuel system. Fuel consumption per rpm shall be submitted together with the OBM's maintenance manual.</p>
<p>i. The crew, passengers and equipment shall be protected by an enclosed accommodation structure against dynamic impact during high speed and severe weather condition.</p>
<p>j. To prevent hull damage during collision and bumping situation, a bumping material at gunnel shall be fitted.</p>
<p>k. A small toilet with appropriate flushing and discharge system shall be fitted for sanitary purposes.</p>
<p>l. Mooring and anchoring equipment shall be provided with standard fittings and stowage compartment.</p>
<p>m. Safety grab rails/handles and a high quality non-slip materials shall be applied all throughout boat floors to prevent passengers from throwing and sliding.</p>

n. Fitted with tempered, scratch resistant, strong leak-proofed glass windshield and side glass windows with marine wipers with high breaking strength capable to withstand severe weather condition.
o. The marine propulsion shall have a life expectancy of at least 1,500 hours MTBO equivalent to at least 6 years operations.
p. The design and installation of the propulsion system shall be advantageous for speed performance and shall not be a cause of hull vibrations; high fuel consumption and drag.
q. The propulsion system shall be quick starting and requires a minimum time of less than one (1) minute to speed up to maximum speed.
r. The delivery of the engine and its accessories shall be of OEM low downtime for repair. It must undergo with satisfactory tests and performance to ensure customer's satisfaction.
s. Electronic equipment installed shall deliver superior performance; lightweight; energy efficient, high definition and higher sensitivity. There must a resilient mechanism that protects the installed equipment.
t. The boat shall be fitted with gun mounts at the following location: 1 x LMG at the bow; and 2 x LMG at port and starboard stern. Gun mounts shall be properly installed with easy to swing mechanism and vibration free that may not affect the boat's structural membrane.
u. The entire hull, deck fittings and equipment installed shall be painted and properly marked in accordance with the internationally accepted painting scheme for boats Hull markings particularly the name and number of the boat shall be clear and readable in letters not less than 4 inches in height being seen at the stern and bow.

3. Detailed Requirements:	
Boat Particulars:	
a. Length Overall	35-40 feet
b. Breadth	9-11 feet
c. Draft	Function of Design
d. Displacement	Function of Design
e. Height of Transom	Function of Design

f. Speed	at least 60 knots - Maximum Speed;
	at least 35 Knots- Cruising Speed
	at least 15 knots- Loiter Speed
g. Range	at least 300NM
h. Propulsion System	at least Three (3) x 300HP OBM; 2 or 4 Stroke Direct Fuel Injection
i. Complement	10 persons
j. Fuel Capacity	at least 1,000 Liters
k. Armament	3 x easy to swing gun mounts of 1 x LMG (bow) and 2 LMG (stern)

4. Systems Requirements:

a. Hull Structure, Outfitting and Refurbishing:

The design and construction of the boat shall include but not limited to the following requirements:

- 1) Fiberglass Reinforced Plastic (FRP) vacuum resin infused Stepped Hull construction with at least two (2) steps, standard thickness of shell lamination, hard chine and strakes with variable deadrise angle.
- 2) With semi-enclosed structure for accommodation for at least eight (8) persons; sunbrella at stern.
- 3) Tempered, scratch resistant, strong leak-proofed glass windshield and side glass windows with marine wipers.
- 4) Stowage/compartments for anchor (Danforth Type), mooring lines, deck equipment and supplies shall be fitted at the bow and other appropriate deck locations.
- 5) The entire hull, deck fittings and equipment installed shall be painted and properly marked in accordance with the internationally accepted painting scheme for boats.
- 6) Fitted with welded 5086 marine grade aluminum fuel tank separately stored from the boat's shell with appropriate fittings such as but not limited with breather, fuel lines and other features on fuel system.
- 7) 10 x shock mitigated marine seats.
- 8) 1 x Dashboard with complete instrumentation
- 9) Standard navigational and electronic equipment;
- 10) Standard firefighting and lifesaving equipment;
- 11) 1 x set marine steering wheel and accessories;
- 12) 1 x set marine throttle and clutches;
- 13) Breaker and electronic control switch and housing;
- 14) Mechanical and electrical gauges;
- 15) Gunnel is protected with bumping material;
- 16) One (1) unit 6-wheeler trailer shall have the following features:

<ul style="list-style-type: none"> a) 1 x galvanized or metal steel frame coated with marine epoxy paint; b) 1 x trailer lights; c) 1x manual winch (boat pulling capacity: at least 12,000 kg); d) 6 x tires and rims; e) safety chains and rollers; f) The trailer shall be able to lift/hold the boat and can be towed at long distance travel/time.
17) Standard scupper or drain system;
18) The helm/accommodation shall be fitted with waterproofed overhead glass window (tinted).
19) Dashboard shall be fitted with drawer and locker with locking mechanism for reference and maintenance manuals.
<p>b. Propulsion System:</p> <p>The marine propulsion shall be capable to deliver the following requirements to include but not limited to:</p>
1) at least 60 Knots - Maximum Speed
2) at least 35 Knots- Cruising Speed
3) at least 15 knots- Loiter Speed
4) at least 300NM range at cruising or transit speed
5) at least 1,500 hours MTBO equivalent to at least 6 years operation.
6) The engine should be able to be started, regulated, engaged, disengaged and stopped from the wheelhouse; and can be directly started and stopped at the engine itself in case of emergency.
7) Fuel tank level indicator shall be fitted at the wheelhouse and adequate fuel filtering system to be incorporated in the fuel suction lines in addition to the engine fuel filters.
8) The engine shall be protected against corrosion.
9) 1 x set repair kit shall be provided.

<p>c. Safety and Lifesaving Equipment:</p> <p>SOLAS and ISO standard safety equipment for boats included but not limited to the following features:</p>
1) 10 x Life Jackets;
2) 2 x Ring buoy (color international orange) w/ 300 ft long x 1/2i n dia. polypropylene rescue rope

3)	1 x Electronic Pulsating Indicating Radio Beacon (EPIRB);
4)	1 x set Flares
5)	2 x 10 lbs fire extinguishers (Class “ABC”)
6)	Assorted sizes of safety grab rails
7)	4 x paddles with 1 x oar
8)	1 x set First aid kit

d. Command and Surveillance:

The boat shall be provided with but not limited to the following equipment:

1) Communications Equipment:

- a) 1 x VHF/FM Marine Band radio
- b) 2 x VHF/UHF Handheld radio
- c) 1 x Horn/Loud Hailer with Public Address System
 - High quality speaker for Intercom and Hailer capability;
 - 8-Warning signals;
 - 12-24 VDC - Power supply

2) Sensors/Electronic Equipment:

- a) 1 x GPS, Chartplotter with following features:
 - 800 cd/m2 brightness;
 - Size: approx. 5-7”
 - excellent readability even in direct sunlight;
 - fog free;
 - easy installation antenna;
 - dual range chart display
 - 30,000 waypoints/track
 - 1,000 routes
 - 12-24 VDC power supply
- b) 1 x Standard marine search radar with sounder:
 - with Mini-Automatic Radar Plotting Aid (MARPA);
 - 8-10" Color LCD;
 - Antenna: approx. 24" diameter dome type
 - Range: 21-36 NM;
 - Power Output: 4 kW;
- c) 1 x Standard boat magnetic compass

- d) 2 x Standard Marine Binoculars
- e) 1 x Digital Telescope Camera for Long-distance Monitoring capability with following features:
 - o Pixel: 2 Megapixel
 - o Light filter: Daily One
 - o Connector: USB 2.0 or upper version
 - o Size: 150*40 MM
 - o USB wire length: 1.5 M
 - o Tripod Size: 150 – 250MM Height.
 - o Functions: movement detection, spot monitor, photographing, videotaping, live webcasting.
- f) 1 x Barometer

e. Electrical System:

The boat shall be provided with but not limited to the following units of electrical features:

1. Standard Navigational Lights (L.E.D.)
 - a) 1 x set Port and Starboard lights;
 - b) 1 x set forward 360 deg Search Light;
 - c) 1 x set all around light;
 - d) 1 x set Stern Light;
 - e) 1 x set Mastheadlight;
2. Assorted L.E.D deck/floor lights;
3. 4 x each 12 V Deep Cycle batteries with locks and straps;
4. 2 x set Auto-charging relay (Starting Battery Isolators);
5. Dashboard switch panel with marine switches
6. 2 x units 800 gph Bilge pumps (1-automatic and 1-manual driven)
7. 2 x each battery powered emergency lights shall be fitted at the wheelhouse/accommodation.
8. Provision of dim controlled lightings throughout the boat for night operations. Light switch shall be installed at the dashboard.
9. All lightings and fittings exposed at the weather deck shall be watertight and corrosion proof
10. Shore power connection box with at least 30 meters marine cable shall be provided.
11. International standard customs and police warning and signaling device fitted at the boat's canopy

Technical Specifications
SPEEDBOATS WITH FORTY (40) KNOTS AND TRAILERS

PROJECT DESCRIPTION:

The contractor shall comply with the following technical specification required by the Procuring Entity:

1. Capabilities and Performance Requirements:
a. Capable to carry 16 persons (4-crews; 8-passengers and 8-boarding Officers).
b. Designed with low surface signature capable to operate day and night of at least 5 hours continuous operations.
c. The boat shall be low draft, agile maneuverability with small turning circle or tactical diameter.
d. Fitted with gun mounts for 1 x LMG (bow) and 2 x LMG (stern) with basic flower pots and adaptors.
e. Able to travel at least 162 Nautical Miles (NM) at maximum speed of at least 40 knots.
f. Can withstand dynamic forces of at least Sea State 3 at head-on seas.
g. Able to detect surface vessels at a range of at least 21-36 Nautical Miles.
h. Able to communicate with commercial and naval vessels with its VHF/UHF Marine radio communications equipment.
i. With enclosed accommodation and fully cushioned leather bench with grab rails in-front to prevent personnel from throwing during high speed and stressful sea condition.
j. Able to maintain positive buoyancy and seaworthiness with its floatation device and stability trim tab.
k. Protected with a bumping material to prevent damage from hull impact during alongside with boats; dock and minimize damage against collision.
2. General Requirements for Design and Construction:
a. The boat's hull shall be made of Fiberglass Reinforce Plastic (FRP) vacuum resin infused stepped hull construction that have longer service life of more than 20 years;
b. Design and construction shall be in accordance with the classifications and standards

<p>set by MARINA (Circular # 2015-09 – Revised IRR on the Registration of Boatbuilders/Repairers) or ISO 9001:2008-2015 specifically on Small craft -- Hull construction and scantlings.</p>
<p>c. Workmanship shall be of first class quality that is, exhibiting the latest technology and quality in fabrication details and appearance typically produced by competent and conscientious workers with TESDA certification or by its accredited Educational Institutions).</p>
<p>d. Safety features for passengers and equipment shall be in accordance with international rules and regulations under Safety of Life at Sea (SOLAS), International Maritime Organization (IMO) and ISO 9001:2008-2015 specifically on Safety and Fire protection.</p>
<p>e. The boat's hull geometry should be considered to be efficient in optimizing the speed performance and stability. The aft portion of the hull shall not introduce suction or negative lift which cause the stern to squat and yaw instability or to oscillate (steer itself) horizontally about a central vertical axis. The boat must be able to give greater directional stability (deeper keel), handles better in all conditions and has better, and safer, manners going downwind. The boat shall be fitted with stability trim tab.</p>
<p>f. The hull structure shall be fitted with minimum number of openings to reduce hull strain and stress against stressful sea conditions.</p>
<p>g. The Contractor shall establish and conduct an equipment maintenance, removal and handling program to ensure that equipment can be removed from its place of installation and move to an area within the boat, or remove for off-boat repair with minimum disruption to other equipment and system due to interference or secondary removals</p>
<p>h. It shall be electro-hydraulically integrated to steering system. The fuel tank shall be made of marine grade 5086 aluminum separately fit/stored from the boat's shell fitted but not limited with breather, fuel lines and other features on fuel system. Fuel consumption per rpm shall be submitted together with the OBM's maintenance manual.</p>
<p>i. The crew, passengers and equipment shall be protected by an enclosed accommodation structure against dynamic impact during high speed and severe weather condition.</p>
<p>j. To prevent hull damage during collision and bumping situation, a bumping material at gunnel shall be fitted.</p>
<p>k. A small toilet with appropriate flushing and discharge system shall be fitted for sanitary purposes.</p>
<p>l. Mooring and anchoring equipment shall be provided with standard fittings and stowage compartment.</p>

m.	Safety grab rails/handles and a high quality non-slip materials shall be applied all throughout boat floors to prevent passengers from throwing and sliding.
n.	Fitted with tempered, scratch resistant, strong leak-proofed glass windshield and side glass windows with marine wipers with high breaking strength capable to withstand severe weather condition.
o.	The marine propulsion shall have a life expectancy of at least 1,500 hours MTBO equivalent to at least 6 years operations.
p.	The design and installation of the propulsion system shall be advantageous for speed performance and shall not be a cause of hull vibrations; high fuel consumption and drag.
q.	The propulsion system shall be quick starting and requires a minimum time of less than one (1) minute to speed up to maximum speed.
r.	The delivery of the engine and its accessories shall be of OEM low downtime for repair. It must undergo with satisfactory tests and performance to ensure customer's satisfaction.
s.	Electronic equipment installed shall deliver superior performance; lightweight; energy efficient, high definition and higher sensitivity. There must a resilient mechanism that protects the installed equipment.
t.	The boat shall be fitted with gun mounts at the following location: 1 x LMG at the bow; and 2 x LMG at port and starboard stern. Gun mounts shall be properly installed with easy to swing mechanism and vibration free that may not affect the boat's structural membrane.
u.	The entire hull, deck fittings and equipment installed shall be painted and properly marked in accordance with the internationally accepted painting scheme for boats Hull markings particularly the name and number of the boat shall be clear and readable in letters not less than 4 inches in height being seen at the stern and bow.

3. Detailed Requirements:

Boat Particulars:

a.	Length Overall	35-40 feet
b.	Breadth	9-11 feet

c.	Draft	Function of Design
d.	Displacement	Function of Design
e.	Height of Transom	Function of Design
f.	Speed	at least 40 knots - Maximum Speed;
		at least 30 Knots- Cruising Speed
		at least 10 knots- Loiter Speed
g.	Range	at least 162NM
h.	Propulsion System	at least Two (2) x 300HP OBM; 2 or 4 Stroke Direct Fuel Injection
i.	Complement	16 persons
j.	Fuel Capacity	at least 500 Liters
k.	Armament	3 x easy to swing gun mounts of 1 x LMG (bow) and 2 LMG (stern)

4. Systems Requirements:

a. Hull Structure, Outfitting and Refurbishing:

The design and construction of the boat shall include but not limited to the following requirements:

- 1) Fiberglass Reinforced Plastic (FRP) vacuum resin infused Stepped Hull construction with at least two (2) steps, standard thickness of shell lamination, hard chine and strakes with variable deadrise angle.
- 2) With semi-enclosed structure for accommodation for at least eight (8) persons; sunbrella at stern.
- 3) Tempered, scratch resistant, strong leak-proofed glass windshield and side glass windows with marine wipers.
- 4) Stowage/compartments for anchor (Danforth Type), mooring lines, deck equipment and supplies shall be fitted at the bow and other appropriate deck locations. for anchor; mooring lines.
- 5) The entire hull, deck fittings and equipment installed shall be painted and properly marked in accordance with the internationally accepted painting scheme for boats.
- 6) Fitted with welded 5086 marine grade aluminum fuel tank separately stored from the boat's shell with appropriate fittings such as but not limited with breather, fuel lines and other features on fuel system.
- 7) Fully cushioned leather bench for 16 persons
- 8) 1 x Dashboard with complete instrumentation
- 9) Standard navigational and electronic equipment;

10) Standard firefighting and lifesaving equipment;
11) 1 x set marine steering wheel and accessories;
12) 1 x set marine throttle and clutches;
13) Breaker and electronic control switch and housing;
14) Mechanical and electrical gauges;
15) Gunnel is protected with bumping material;
16) One (1) unit 6- wheeler trailer shall have the following features: a) 1 x galvanized or metal steel frame coated with marine epoxy paint; b) 1 x trailer lights; c) 1x manual winch (boat pulling capacity: at least 12,000 kg); d) 6 x tires and rims; e) safety chains and rollers; f) The trailer shall be able to lift/hold the boat and can be towed at long distance travel/time.
17) Standard scupper or drain system;
18) The helm/accommodation shall be fitted with waterproofed overhead glass window (tinted).
19) Dashboard shall be fitted with drawer and locker with locking mechanism for reference and maintenance manuals.

b. Propulsion System:

The marine propulsion shall be capable to deliver the following requirements to include but not limited to:

1) at least 40 Knots - Maximum Speed
2) at least 30 Knots- Cruising Speed
3) at least 10 knots- Loiter Speed
4) at least 162NM range at maximum speed of at least 40 knots
5) at least 1,500 hours MTBO equivalent to at least 6 years operation.
6) The engine should be able to be started, regulated, engaged, disengaged and stopped from the wheelhouse; and can be directly started and stopped at the engine itself in case of emergency.
7) Fuel tank level indicator shall be fitted at the wheelhouse and adequate fuel filtering system to be incorporated in the fuel suction lines in addition to the engine fuel filters.
8) The engine shall be protected against corrosion.
9) 1 x set repair kit shall be provided.

c. Safety and Lifesaving Equipment:

SOLAS and ISO 9001:2008-2015 standard safety equipment for boats included but not limited to

the following features:

- 1) 16 x Life Jackets;
- 2) 2 x Ring buoy (color international orange) w/ 300 ft long x 1/2 in dia. polypropylene rescue rope
- 3) 1 x EPIRB;
- 4) 1 x set Flares
- 5) 2 x 10 lbs fire extinguishers (Class "ABC")
- 6) Assorted sizes of safety grab rails
- 7) 4 x paddles with 1 x oar
- 8) 1 x set First aid kit

d. Command and Surveillance:

The boat shall be provided with but not limited to the following equipment:

- 1) Communications Equipment:
 - a) 1 x VHF/FM Marine Band radio
 - b) 2 x VHF/UHF Handheld radio
 - c) 1 x Horn/Loud Hailer with Public Address System
 - o High quality speaker for Intercom and Hailer capability;
 - o 8-Warning signals;
 - o 12-24 VDC - Power supply
- 2) Sensors/Electronic Equipment:
 - a) 1 x GPS, Chartplotter with following features:
 - o 800 cd/m2 brightness;
 - o Size: approx. 5-7"
 - o excellent readability even in direct sunlight;
 - o fog free;
 - o easy installation antenna;
 - o dual range chart display
 - o 30,000 waypoints/track
 - o 1,000 routes
 - o 12-24 VDC power supply
 - b) 1 x Standard marine search radar with sounder:

- with Mini-Automatic Radar Plotting Aid (MARPA);
- 8-10" Color LCD;
- Antenna: approx. 24" diameter dome type
- Range: 21-36 NM;
- Power Output: 4 kW;
- c) 1 x Standard boat magnetic compass
- d) 2 x Standard Marine Binoculars
- e) 1 x Digital Telescope Camera for Long-distance Monitoring capability with following features:
 - Pixel: 2 Megapixel
 - Light filter: Daily One
 - Connector: USB 2.0 or upper version
 - Size: 150*40 MM
 - USB wire length: 1.5 M
 - Tripod Size: 150 – 250MM Height.
 - Functions: movement detection, spot monitor, photographing, videotaping, live webcasting.
- f) 1 x Barometer

e. Electrical System:

The boat shall be provided with but not limited to the following units of electrical features:

1. Standard Navigational Lights (L.E.D.)

- a) 1 x set Port and Starboard lights;
- b) 1 x set forward 360 deg Search Light;
- c) 1 x set all around light;
- d) 1 x set Stern Light;
- e) 1 x set Mastheadlight;

2. Assorted L.E.D deck/floor lights;

3. 4 x each 12 V Deep Cycle batteries with locks and straps;

4. 2 x set Auto-charging relay (Starting Battery Isolators);

5. Dashboard switch panel with switches

6. 2 x units 800 gph Bilge pumps (1-automatic and 1-manual driven)

7. 2 x each battery powered emergency lights shall be fitted at the wheelhouse/accommodation.

8. Provision of dim controlled lightings throughout the boat for night operations. Light switch shall be installed at the dashboard.

9. All lightings and fittings exposed at the weather deck shall be watertight and corrosion proof

10. Shore power connection box with at least 30 meters marine cable shall be provided.

11. International standard customs and police warning and signaling device fitted at the boat's canopy

**Statement of Compliance to
Section VII. Technical Specifications
(SPEEDBOATS WITH SIXTY (60) KNOTS AND TRAILERS)**

Item	Capabilities and Performance Requirements	Statement of Compliance (Comply/Not Comply)
1	Capable to carry 10 persons (4-crews; 2-passengers and 4-boarding Officers).	
2	Designed with low surface signature capable to operate day and night of at least 5 hours continuous operations.	
3	The boat shall be low draft, agile maneuverability with small turning circle or tactical diameter.	
4	Fitted with gun mounts for 1 x LMG (bow) and 2 x LMG (stern) with basic flower pots and adaptors.	
5	Able to travel at least 300 Nautical Miles (NM) cruising or transit speed of at least 30 knots and ability to undertake at least one (1) hour hot pursuit operations at a maximum speed of 60 knots.	
6	Can withstand dynamic forces of at least Sea State 3 at head-on seas.	
7	Able to detect surface vessels at a range of at least 21-36 Nautical Miles.	
8	Able to communicate with commercial and naval vessels with its VHF/UHF Marine radio communications equipment.	
9	With enclosed accommodation and shock mitigated marine seats with grab rails in-front to prevent personnel from throwing during high speed and stressful sea condition.	
10	Able to maintain positive buoyancy and seaworthiness with its floatation device and stability trim tab.	
11	Protected with a bumping material to prevent damage from hull impact during alongside with boats; dock and minimize damage against collision.	
General Requirements for Design and Construction		

12	The boat's hull shall be made of Fiberglass Reinforce Plastic (FRP) vacuum resin infused stepped hull construction that have longer service life of more than 20 years.	
13	Design and construction shall be in accordance with the classifications and standards set by MARINA (Circular # 2015-09 – Revised IRR on the Registration of Boatbuilders/Repairers) or ISO 9001:2008-2015 specifically on Small craft -- Hull construction and scantlings.	
14	Workmanship shall be of first class quality that is, exhibiting the latest technology and quality in fabrication details and appearance typically produced by competent and conscientious workers with TESDA certification or by its accredited Educational Institutions).	
15	Safety features for passengers and equipment shall be in accordance with international rules and regulations under Safety of Life at Sea (SOLAS), International Maritime Organization (IMO) and ISO 9001:2008-2015 specifically on Safety and Fire Protection.	
16	The boat's hull geometry should be considered to be efficient in optimizing the speed performance and stability. The aft portion of the hull shall not introduce suction or negative lift which cause the stern to squat and yaw instability or to oscillate (steer itself) horizontally about a central vertical axis. The boat must be able to give greater directional stability (deeper keel), handles better in all conditions and has better, and safer, manners going downwind. The boat shall be fitted with stability trim tab.	
17	The hull structure shall be fitted with minimum number of openings to reduce hull strain and stress against stressful sea conditions.	
18	The Contractor shall establish and conduct an equipment maintenance, removal and handling program to ensure that equipment can be removed from its place of installation and move to an area within the boat, or remove for off-boat repair with minimum disruption to other equipment and system due to interference or secondary removals	
19	It shall be electro-hydraulically integrated to steering system. The fuel tank shall be made of marine grade 5086 aluminum separately fit/stored from the boat's shell fitted but not limited with breather, fuel lines and other features on fuel system. Fuel consumption per rpm shall be submitted together with the OBM's maintenance manual.	
20	The crew, passengers and equipment shall be protected by an enclosed accommodation structure against dynamic impact during high speed and severe weather condition.	
21	To prevent hull damage during collision and bumping situation, a bumping material at gunnel shall be fitted.	

22	A small toilet with appropriate flushing and discharge system shall be fitted for sanitary purposes.	
23	Mooring and anchoring equipment shall be provided with standard fittings and stowage compartment.	
24	Safety grab rails/handles and a high quality non-slip materials shall be applied all throughout boat floors to prevent passengers from throwing and sliding.	
25	Fitted with tempered, scratch resistant, strong leak-proofed glass windshield and side glass windows with marine wipers with high breaking strength capable to withstand severe weather condition.	
26	The marine propulsion shall have a life expectancy of at least 1,500 hours MTBO equivalent to at least 6 years operations.	
27	The design and installation of the propulsion system shall be advantageous for speed performance and shall not be a cause of hull vibrations; high fuel consumption and drag.	
28	The propulsion system shall be quick starting and requires a minimum time of less than one (1) minute to speed up to maximum speed.	
29	The delivery of the engine and its accessories shall be of OEM low downtime for repair. It must undergo with satisfactory tests and performance to ensure customer's satisfaction.	
30	Electronic equipment installed shall deliver superior performance; lightweight; energy efficient, high definition and higher sensitivity. There must a resilient mechanism that protects the installed equipment.	
31	The boat shall be fitted with gun mounts at the following location: 1 x LMG at the bow; and 2 x LMG at port and starboard stern. Gun mounts shall be properly installed with easy to swing mechanism and vibration free that may not affect the boat's structural membrane.	
32	The entire hull, deck fittings and equipment installed shall be painted and properly marked in accordance with the internationally accepted painting scheme for boats Hull markings particularly the name and number of the boat shall be clear and readable in letters not less than 4 inches in height being seen at the stern and bow.	

Detailed Requirements

Particulars			
33	Length Overall	35-40 feet	
34	Breadth	9-11 feet	
35	Draft	Function of Design	
36	Displacement	Function of Design	
37	Height of Transom	Function of Design	
38	Speed	at least 60 knots - Maximum Speed;	
39		at least 35 Knots- Cruising Speed	
40		at least 15 knots- Loiter Speed	
41	Range	at least 300NM	
42	Propulsion System	at least Three (3) x 300HP OBM; 2 or 4 Stroke Direct Fuel Injection	
43	Complement	9 persons	
44	Fuel Capacity	at least 1,000 Liters	
45	Armament	3 x Flexible gun mounts of 1 x LMG (bow) and 2 LMG (stern)	

Systems Requirements

Hull Construction, Outfitting and Refurbishing

The design and construction of the boat shall include but not limited to the following requirements:

46	Fiberglass Reinforced Plastic (FRP) vacuum resin infused Stepped Hull construction with at least two (2) steps, standard thickness of shell lamination, hard chine and strakes with variable deadrise angle.	
47	With semi-enclosed structure for accommodation for at least eight (8) persons; sunbrella at stern.	
48	Tempered, scratch resistant, strong leak-proofed glass windshield and side glass windows with marine wipers.	

49	Stowage/compartment for anchor (Danforth Type), mooring lines, deck equipment and supplies shall be fitted at the bow and other appropriate deck locations.	
50	The entire hull, deck fittings and equipment installed shall be painted and properly marked in accordance with the internationally accepted painting scheme for boats.	
51	Fitted with welded 5086 marine grade aluminum fuel tank separately stored from the boat's shell with appropriate fittings such as but not limited with breather, fuel lines and other features on fuel system.	
52	10 x shock mitigated marine seats.	
53	1 x Dashboard with complete instrumentation	
54	Standard navigational and electronic equipment;	
55	Standard firefighting and lifesaving equipment;	
56	1 x set marine steering wheel and accessories;	
57	1 x set marine throttle and clutches;	
58	Breaker and electronic control switch and housing;	
59	Mechanical and electrical gauges;	
60	Gunnel is protected with bumping material;	
61	One (1) unit 6- wheeler trailer shall have the following features: <ul style="list-style-type: none"> a. 1 x galvanized or metal steel frame coated with marine epoxy paint; b. 1 x trailer lights; c. 1x manual winch (boat pulling capacity: at least 12,000 kg); d. 6 x tires and rims; e. safety chains and rollers; f. The trailer shall be able to lift/hold the boat and can be towed at long distance travel/time. 	
62	Standard scupper or drain system;	
63	The helm/accommodation shall be fitted with waterproofed overhead glass window (tinted).	
64	Dashboard shall be fitted with drawer and locker with locking mechanism for reference and maintenance manuals.	
Propulsion System		
The marine propulsion shall be capable to deliver the following requirements to include but not limited to:		
65	at least 60 Knots - Maximum Speed	
66	at least 35 Knots- Cruising Speed	

67	at least 15 knots- Loiter Speed	
68	at least 300NM range at cruising or transit speed	
69	at least 1,500 hours MTBO equivalent to at least 6 years operation.	
70	The engine should be able to be started, regulated, engaged, disengaged and stopped from the wheelhouse; and can be directly started and stopped at the engine itself in case of emergency.	
71	Fuel tank level indicator shall be fitted at the wheelhouse and adequate fuel filtering system to be incorporated in the fuel suction lines in addition to the engine fuel filters.	
72	The engine shall be protected against corrosion.	
73	1 x repair kit shall be provided.	
Safety and Lifesaving Equipment		
SOLAS and ISO standard safety equipment for boats included but not limited to the following features:		
74	10 x Life Jackets;	
75	2 x Ring buoy (color international orange)w/ 300 ft long x 1/2i n dia. polypropylene rescue rope	
76	1 x EPIRB;	
77	1 x set Flares	
78	2 x 10 lbs fire extinguishers (Class “ABC’)	
79	Assorted sizes of safety grab rails	
80	4 x paddles with 1 x oar	
81	1 x set First aid kit	
Command and Surveillance		
The boat shall be provided with but not limited to the following equipment:		
Communications Equipment:		

82	1 x VHF/FM Marine Band radio	
83	2 x VHF/UHF Handheld radio	
84	1 x Horn/Loud Hailer with Public Address System <ul style="list-style-type: none"> ○ High quality speaker for Intercom and Hailer capability; ○ 8-Warning signals; ○ 12-24 VDC - Power supply 	
	Sensors/Electronic Equipment	
85	1 x GPS, Chartplotter with following features: <ul style="list-style-type: none"> ○ 800 cd/m2 brightness; ○ Size: approx. 5-7" ○ excellent readability even in direct sunlight; ○ fog free; ○ easy installation antenna; ○ dual range chart display ○ 30,000 waypoints/track ○ 1,000 routes ○ 12-24 VDC power supply 	
86	1 x Standard marine search radar with sounder: <ul style="list-style-type: none"> ○ with Mini-Automatic Radar Plotting Aid (MARPA); ○ 8-10" Color LCD; ○ Antenna: approx. 24" diameter dome type ○ Range: 21-36 NM; ○ Power Output: 4 kW; 	
87	1 x Standard boat magnetic compass	
88	2 x Standard Marine Binoculars	
89	1 x Digital Telescope Camera for Long-distance Monitoring capability with following features: <ul style="list-style-type: none"> ○ Pixel: 2 Megapixel ○ Light filter: Daily One ○ Connector: USB 2.0 or upper version ○ Size: 150*40 MM 	

	<ul style="list-style-type: none"> ○ USB wire length: 1.5 M ○ Tripod Size: 150 – 250MM Height. ○ Functions: movement detection, spot monitor, photographing, videotaping, live webcasting. 	
90	1 x Barometer	
Electrical System		
The boat shall be provided with but not limited to the following units of electrical features:		
Standard Navigational Lights (L.E.D.)		
91	1 x set Port and Starboard lights;	
92	1 x set forward 360 deg Search Light;	
93	1 x set all around light;	
94	1 x set Stern Light;	
95	1 x set Mastheadlight;	
96	Assorted L.E.D deck/floor lights;	
97	4 x each 12 V Deep Cycle batteries with locks and straps;	
98	2 x set Auto-charging relay (Starting Battery Isolators);	
99	Dashboard switch panel with marine switches	
100	2 x units 800 gph Bilge pumps (1-automatic and 1-manual driven)	
101	2 x each battery powered emergency lights shall be fitted at the wheelhouse/accommodation.	
102	Provision of dim controlled lightings throughout the boat for night operations. Light switch shall be installed at the dashboard.	
103	All lightings and fittings exposed at the weather deck shall be watertight and corrosion proof	
104	Shore power connection box with at least 30 meters marine cable shall be provided.	
105	International standard customs and police warning and signaling device fitted at the boat's canopy	

Name of Company (in print)

Signature of Company Authorized Representative

Name & Designation (in print)

Date

**Statement of Compliance to
Section VII. Technical Specifications
(SPEEDBOATS WITH FORTY (40) KNOTS AND TRAILERS)**

	Capabilities and Performance Requirements	Statement of Compliance (Comply/Not Comply)
1	Capable to carry 16 persons (4-crews; 8-passengers and 4-boarding Officers).	
2	Designed with low surface signature capable to operate day and night of at least 5 hours continuous operations.	
3	The boat shall be low draft, agile maneuverability with small turning circle or tactical diameter.	
4	Fitted with gun mounts for 1 x LMG (bow) and 2 x LMG (stern) with basic flower pots and adaptors.	
5	Able to travel at least 162 Nautical Miles (NM) at a maximum speed of at least 40 knots.	
6	Can withstand dynamic forces of at least Sea State 3 at head-on seas.	
7	Able to detect surface vessels at a range of at least 21-36 Nautical Miles.	
8	Able to communicate with commercial and naval vessels with its VHF/UHF Marine radio communications equipment.	
9	With enclosed accommodation and shock mitigated marine seats with grab rails in-front to prevent personnel from throwing during high speed and stressful sea condition.	
10	Able to maintain positive buoyancy and seaworthiness with its floatation device and stability trim tab.	
11	Protected with a bumping material to prevent damage from hull impact during alongside with boats; dock and minimize damage against collision.	
General Requirements for Design and Construction		

12	The boat's hull shall be made of Fiberglass Reinforce Plastic (FRP) vacuum resin infused stepped hull construction that have longer service life of more than 20 years.	
13	Design and construction shall be in accordance with the classifications and standards set by MARINA (Circular # 2015-09 – Revised IRR on the Registration of Boatbuilders/Repairers) or ISO 9001:2008-2015 specifically on Small craft -- Hull construction and scantlings.	
14	Workmanship shall be of first class quality that is, exhibiting the latest technology and quality in fabrication details and appearance typically produced by competent and conscientious workers with TESDA certification or by its accredited Educational Institutions).	
15	Safety features for passengers and equipment shall be in accordance with international rules and regulations under Safety of Life at Sea (SOLAS), International Maritime Organization (IMO) ISO 9001:2008-2015 specifically on Safety and Fire Protection.	
16	The boat's hull geometry should be considered to be efficient in optimizing the speed performance and stability. The aft portion of the hull shall not introduce suction or negative lift which cause the stern to squat and yaw instability or to oscillate (steer itself) horizontally about a central vertical axis. The boat must be able to give greater directional stability (deeper keel), handles better in all conditions and has better, and safer, manners going downwind. The boat shall be fitted with stability trim tab.	
17	The hull structure shall be fitted with minimum number of openings to reduce hull strain and stress against stressful sea conditions.	
18	The Contractor shall establish and conduct an equipment maintenance, removal and handling program to ensure that equipment can be removed from its place of installation and move to an area within the boat, or remove for off-boat repair with minimum disruption to other equipment and system due to interference or secondary removals	
19	It shall be electro-hydraulically integrated to steering system. The fuel tank shall be made of marine grade 5086 aluminum separately fit/stored from the boat's shell fitted but not limited with breather, fuel lines and other features on fuel system. Fuel consumption per rpm shall be submitted together with the OBM's maintenance manual.	
20	The crew, passengers and equipment shall be protected by an enclosed accommodation structure against dynamic impact during high speed and severe weather condition.	
21	To prevent hull damage during collision and bumping situation, a bumping material at gunnel shall be fitted.	

22	A small toilet with appropriate flushing and discharge system shall be fitted for sanitary purposes.	
23	Mooring and anchoring equipment shall be provided with standard fittings and stowage compartment.	
24	Safety grab rails/handles and a high quality non-slip materials shall be applied all throughout boat floors to prevent passengers from throwing and sliding.	
25	Fitted with tempered, scratch resistant, strong leak-proofed glass windshield and side glass windows with marine wipers with high breaking strength capable to withstand severe weather condition.	
26	The marine propulsion shall have a life expectancy of at least 1,500 hours MTBO equivalent to at least 6 years operations.	
27	The design and installation of the propulsion system shall be advantageous for speed performance and shall not be a cause of hull vibrations; high fuel consumption and drag.	
28	The propulsion system shall be quick starting and requires a minimum time of less than one (1) minute to speed up to maximum speed.	
29	The delivery of the engine and its accessories shall be of OEM low downtime for repair. It must undergo with satisfactory tests and performance to ensure customer's satisfaction.	
30	Electronic equipment installed shall deliver superior performance; lightweight; energy efficient, high definition and higher sensitivity. There must a resilient mechanism that protects the installed equipment.	
31	The boat shall be fitted with gun mounts at the following location: 1 x LMG at the bow; and 2 x LMG at port and starboard stern. Gun mounts shall be properly installed with easy to swing mechanism and vibration free that may not affect the boat's structural membrane.	
32	The entire hull, deck fittings and equipment installed shall be painted and properly marked in accordance with the internationally accepted painting scheme for boats Hull markings particularly the name and number of the boat shall be clear and readable in letters not less than 4 inches in height being seen at the stern and bow.	

Detailed Requirements

Particulars

33	Length Overall	35 -40 feet	
34	Breadth	9-11 feet	
35	Draft	Function of Design	
36	Displacement	Function of Design	
37	Height of Transom	Function of Design	
38	Speed	at least 40 knots - Maximum Speed;	
39		at least 30 Knots- Cruising Speed	
40		at least 10 knots- Loiter Speed	
41	Range	at least 162NM	
42	Propulsion System	at least Two (2) x 300HP OBM; 2 or 4 Stroke Direct Fuel Injection	
43	Complement	16 persons	
44	Fuel Capacity	at least 500 Liters	
45	Armament	3 x Flexible gun mounts of 1 x LMG (bow) and 2 LMG (stern)	

Systems Requirements

Hull Construction, Outfitting and Refurbishing

The design and construction of the boat shall include but not limited to the following requirements:

46	Fiberglass Reinforced Plastic (FRP) vacuum resin infused Stepped Hull construction with at least two (2) steps, standard thickness of shell lamination, hard chine and strakes with variable deadrise angle.	
47	With semi-enclosed structure for accommodation for at least eight (8) persons; sunbrella at stern.	
48	Tempered, scratch resistant, strong leak-proofed glass windshield and side glass windows with marine wipers.	
49	Stowage/compartments for anchor (Danforth Type), mooring lines, deck equipment and supplies shall be fitted at the bow and other appropriate	

	deck locations.	
50	The entire hull, deck fittings and equipment installed shall be painted and properly marked in accordance with the internationally accepted painting scheme for boats.	
51	Fitted with welded 5086 marine grade aluminum fuel tank separately stored from the boat's shell with appropriate fittings such as but not limited with breather, fuel lines and other features on fuel system.	
52	Fully cushioned leather bench for 16 persons	
53	1 x Dashboard with complete instrumentation	
54	Standard navigational and electronic equipment	
55	Standard firefighting and lifesaving equipment;	
56	1 x set marine steering wheel and accessories;	
57	1 x set marine throttle and clutches;	
58	Breaker and electronic control switch and housing;	
59	Mechanical and electrical gauges;	
60	Gunnel is protected with bumping material;	
61	One (1) unit 6- wheeler trailer shall have the following features: <ul style="list-style-type: none"> a. 1 x galvanized or metal steel frame coated with marine epoxy paint; b. 1 x trailer lights; c. 1x manual winch (boat pulling capacity: at least 12,000 kg); d. 6 x tires and rims; e. safety chains and rollers; f. The trailer shall be able to lift/hold the boat and can be towed at long distance travel/time. 	
62	Standard scupper or drain system;	
63	The helm/accommodation shall be fitted with waterproofed overhead glass window (tinted).	
64	Dashboard shall be fitted with drawer and locker with locking mechanism for reference and maintenance manuals.	
Propulsion System		
The marine propulsion shall be capable to deliver the following requirements to include but not limited to:		
65	at least 40 Knots - Maximum Speed	
66	at least 30 Knots- Cruising Speed	
67	at least 10 knots- Loiter Speed	

68	at least 162NM range at maximum speed of at least 40 knots	
69	at least 1,500 hours MTBO equivalent to at least 6 years operation.	
70	The engine should be able to be started, regulated, engaged, disengaged and stopped from the wheelhouse; and can be directly started and stopped at the engine itself in case of emergency.	
71	Fuel tank level indicator shall be fitted at the wheelhouse and adequate fuel filtering system to be incorporated in the fuel suction lines in addition to the engine fuel filters.	
72	The engine shall be protected against corrosion.	
73	1 set repair kit shall be provided.	
Safety and Lifesaving Equipment		
SOLAS and ISO standard safety equipment for boats included but not limited to the following features:		
74	16 x Life Jackets;	
75	2 x Ring buoy (color international orange)w/ 300 ft long x 1/2i n dia. polypropylene rescue rope	
76	1 x EPIRB;	
77	1 x set Flares	
78	2 x 10 lbs fire extinguishers (Class “ABC’)	
79	Assorted sizes of safety grab rails	
80	4 x paddles with 1 x oar	
81	1 x set First aid kit	
Command and Surveillance		
The boat shall be provided with but not limited to the following equipment:		
Communications Equipment:		
82	1 x VHF/FM Marine Band radio	

83	2 x VHF/UHF Handheld radio	
84	1 x Horn/Loud Hailer with Public Address System <ul style="list-style-type: none"> ○ High quality speaker for Intercom and Hailer capability; ○ 8-Warning signals; ○ 12-24 VDC - Power supply 	
	Sensors/Electronic Equipment	
85	1 x GPS, Chartplotter with following features: <ul style="list-style-type: none"> ○ 800 cd/m2 brightness; ○ Size: approx. 5-7" ○ excellent readability even in direct sunlight; ○ fog free; ○ easy installation antenna; ○ dual range chart display ○ 30,000 waypoints/track ○ 1,000 routes ○ 12-24 VDC power supply 	
86	1 x Standard marine search radar with sounder: <ul style="list-style-type: none"> ○ with Mini-Automatic Radar Plotting Aid (MARPA); ○ 8-10" Color LCD; ○ Antenna: approx. 24" diameter dome type ○ Range: 21-36 NM; ○ Power Output: 4 kW; 	
87	1 x Standard boat magnetic compass	
88	2 x Standard Marine Binoculars	
89	1 x Digital Telescope Camera for Long-distance Monitoring capability with following features: <ul style="list-style-type: none"> ○ Pixel: 2 Megapixel ○ Light filter: Daily One ○ Connector: USB 2.0 or upper version ○ Size: 150*40 MM ○ USB wire length: 1.5 M ○ Tripod Size: 150 – 250MM 	

	○	Height. Functions: movement detection, spot monitor, photographing, videotaping, live webcasting.	
90		1 x Barometer	
Electrical System			
The boat shall be provided with but not limited to the following units of electrical features:			
91		1 x set Port and Starboard lights;	
92		1 x set forward 360 deg Search Light;	
93		1 x set all around light;	
94		1 x set Stern Light;	
95		1 x set Mastheadlight;	
96		Assorted L.E.D deck/floor lights;	
97		4 x each 12 V Deep Cycle batteries with locks and straps;	
98		2 x set Auto-charging relay (Starting Battery Isolators);	
99		Dashboard switch panel with marine switches	
100		2 x units 800 gph Bilge pumps (1-automatic and 1-manual driven)	
101		2 x each battery powered emergency lights shall be fitted at the wheelhouse/accommodation.	
102		Provision of dim controlled lightings throughout the boat for night operations. Light switch shall be installed at the dashboard.	
103		All lightings and fittings exposed at the weather deck shall be watertight and corrosion proof	
104		Shore power connection box with at least 30 meters marine cable shall be provided.	
105		International standard customs and police warning and signaling device fitted at the boat's canopy	

Name of Company (in print)

Signature of Company Authorized Representative

Name & Designation (in print)

Date