



RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
**Bid Receiving Public Works and Government
Services Canada/Réception des soumissions
Travaux publics et Services gouvernementaux
Canada**
Pacific Region
401 - 1230 Government Street
Victoria, B.C.
V8W 3X4
Bid Fax: (250) 363-3344

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet Fabricate & Deliver 7.5m RIB	
Solicitation No. - N° de l'invitation M2989-170193/A	Date 2016-05-26
Client Reference No. - N° de référence du client M2989-170193	
GETS Reference No. - N° de référence de SEAG PW-\$XLV-166-6984	
File No. - N° de dossier XLV-6-39021 (166)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2016-06-23	Time Zone Fuseau horaire Pacific Daylight Saving Time PDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Castle, David G.	Buyer Id - Id de l'acheteur xlvl66
Telephone No. - N° de téléphone (250) 363-0110 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: ROYAL CANADIAN MOUNTED POLICE See herein	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Public Works and Government Services Canada - Pacific
Region
401 - 1230 Government Street
Victoria, B. C.
V8W 3X4

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

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Amd. No. - N° de la modif.
File No. - N° du dossier
XLV-6-39021

Buyer ID - Id de l'acheteur
xlV166
CCC No./N° CCC - FMS No./N° VME

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PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement associated with this bid solicitation.

1.2 Statement of Work

The Royal Canadian Mounted Police have a requirement for the supply and delivery of two (2), 7.25 to 7.75 Metre, Rigid hull Inflatable Boats with trailers in accordance with the Statement of Work at Annex A and inspection as per Annex C - Inspection/Quality Assurance /Quality Control. All deliverables are desired to be delivered on or before October 31, 2016.

Delivery of one unit is to Sechelt RCMP in Sechelt, BC, with the remaining unit to be delivered to Comox RCMP in Courtenay, BC.

There exists an option to acquire an additional three boats with trailers.

1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.4 Trade Agreements

This requirement is subject to the provisions of the Agreement on Internal Trade (AIT).

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manua>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2016-04-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.1.1 SACC Manual Clauses

B3000T, 2006-06-16, Equivalent Products
A9125T, 2007-05-25, Valid Labour Agreement

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 4 calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada

determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in **British Columbia**.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

2.5 Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least five (5) working days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

- Section I: Technical Bid – Two (2) hard copies
- Section II: Financial Bid – One (1) hard copy
- Section III: Certifications - One (1) hard copy

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>).

To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

3.2 Section I - Technical Bid

In their technical bid, bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

In order to demonstrate their capabilities, the bidders must use the **ANNEX H - TECHNICAL EVALUATION PLAN, using column B ONLY** in responding to the technical requirements of the solicitation..

The technical bid must demonstrate that the proposed crafts will be mechanically sound, completely seaworthy, and operable and fit in all respects for the purposes intended.

3.2.1 Bidder's Check List and Technical Confirmation

The Bidders must submit a fully completed **Annex G - BID PACKAGE CHECKLIST** as part of their Technical Bid.

3.2.2 Inspection and Test Plan (ITP)

1. Bidders must provide with their bid the inspection plan and testing procedures that will be used to verify, test and inspect all of the components and systems on the boat from initial construction to completion. The ITP must be in accordance with **Annex C** attached to this RFP.
2. Bidders must outline the process by which they will address and solve problems or delays with the fabrication, various installations, testing and delivery of the boat.

3.2.3 Drawings and Other Documentation

Prescribed drawings format and documentation to be provided with the bid:

- A general arrangement.
- Structural Drawings showing Deck Plan, a Centerline profile.
- A detailed Lines Plan.
- A drawing of the fuel supply arrangement.
- A drawing of bilge pumping system
- Electrical one-line diagram.
- The lightship weight.
- Draft Stability Calculation of the proposed vessel
- A Project Plan (written description) of how the Bidder/Contractor will comply with the TSOR. The written description must address each main element of the TSOR and indicate how the Bidder/Contractor will comply with the intent of the TSOR and successfully deliver the vessel(s) to the performance standard(s) identified.
- A Preliminary Production Schedule which must verify the Bidder/Contractor's ability to deliver the vessel(s) in accordance with the requirements of the Solicitation.

3.2.4 Subcontractors

As part of their Technical Bid, Bidders must submit a completed **Annex E, Subcontractor List**.

3.2.5 Vessel Construction Experience

The Bidder must provide objective evidence of experience in the construction of vessels of the size, type and complexity which are the subject of this RFP. To demonstrate this experience, the Bidder must provide

- (a) detailed list of such vessels built pursuant to TP 1332, Construction Standards for Small Vessels, Non-pleasure craft latest edition, within the last 5 years;
- (b) photographs of vessels of listed;
- (c) (for listed TP 1332, non-pleasure craft sold within the last 5 years only) purchaser's name and contact information, and the date of sale.

The Bidder must also provide details on how the materials and equipment used in the construction, manufacture of the proposed vessel is suited to the operating and environmental conditions that the vessel may encounter.

3.2.6 Naval Engineering Capability

The Bidder must provide objective evidence that it has either in-house capabilities, or has a written commitment for the duration of the Contract from a qualified sub-contractor to provide marine drafting and engineering services. Qualified sub-contractor is defined as having the provided these services on similar vessel construction projects (same size, type and complexity).

3.2.7 Contractor's Quality Management System

1. The Bidder must provide objective evidence that it has a Quality Assurance Program, which must be in place during the performance of the Work, and which addresses the quality control elements below.
2. The objective evidence may be in the form of a copy of the Bidder's Quality Assurance Manual which addresses these elements.
3. The Bidder must also provide a minimum of one (1) samples of completed quality records used on the most recent marine vessel construction at its facility.
4. The quality control elements must include, as a minimum:

Quality Assurance Manual or Quality Assurance Program Descriptions
Inspection and Test Plan
Final Inspection
Quality Records

3.2.8 Insurance Requirements

The Bidder must provide a letter from an insurance broker or an insurance company licensed to operate in Canada stating that the Bidder, if awarded a contract as a result of the bid solicitation, can be insured in accordance with the Insurance Requirements specified in *Part 6 - Resulting Contract, Clause 6.19*.

If the information is not provided in the bid, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

3.3 Section II - Financial Bid

Bidders must submit their financial bid in accordance with the **Detailed Financial Bid Presentation Sheet at Annex D**.

3.3.1 Exchange Rate Fluctuation

C3011T, 2013-11-06, Exchange Rate Fluctuation

3.3.2 Financial Capability

A9033T, 2012-07-16, Financial Capability

3.3.3 Unscheduled Work

Bidders must provide the information requested in Annex D, Article D-2. The unscheduled work rates will be included in the Basis of Payment but will not form part of the bid evaluation.

3.4 Section III: Certifications

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.
- (c) The evaluation team will determine first if there are two or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than two responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are

subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

In order to be compliant, the Bidder's proposal must, to the satisfaction of Canada:

- a) Meet all requirements of the Annex A, SOW; and
- b) Provide all information as requested in PART 3 - BID PREPARATION INSTRUCTIONS

4.1.2 Financial Evaluation

SACC Manual Clause A0222T (2013-04-25), Evaluation of Price.

4.2 Basis of Selection

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive as per Annex H- Evaluation plan. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

A mandatory requirement is described using the words "shall", "must", "will" "is required" or "is mandatory."

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and associated information to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority may render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Ineligibility and Suspension Policy (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide with its bid the required documentation, as applicable, to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the Ineligibility and Suspension Policy (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "[FCP Limited Eligibility](#)

to Bid" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from Employment and Social Development Canada (ESDC) - Labour's website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

5.2.3 Canadian Content Certification

This procurement is conditionally limited to Canadian goods and Canadian services.

Subject to the evaluation procedures contained in the bid solicitation, bidders acknowledge that only bids with a certification that the goods and services offered are Canadian goods and Canadian services, as defined in clause A3050T, may be considered.

Failure to provide this certification completed with the bid will result in the goods and services offered being treated as non-Canadian goods and non-Canadian services.

The Bidder certifies that:

- a minimum of 80 percent of the total bid price consist of Canadian goods and Canadian services as defined in paragraph 5 of clause A3050T.

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6.(9), Example 2, of the Supply Manual.

5.2.3.1 SACC Manual clause A3050T (2014-11-27), Canadian Content Definition

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirement

There is no security requirement applicable to this Contract.

6.2 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex "A".

6.2.1 Optional Goods

The Contractor grants to Canada the irrevocable option to acquire up to three (3) additional boats with trailer, as described at Annex A of the Contract under the same conditions and at the prices stated in *Annex B* of the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

The Contracting Authority may exercise the option within twelve (12) months after contract award by sending a written notice to the Contractor.

6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manua> l) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

2030, (2016-04-04) Goods (Higher Complexity) apply to and form part of the Contract.

6.3.2 Supplemental General Conditions

1028, 2010-08-16, Ship Construction - Firm Price, apply to and form part of the Contract.

Conduct of Work. The Supplemental General Conditions 1028, Article 02 (2010-08-16) Conduct of Work, Paragraph 1. Canadian Labour is deleted in its entirety.

Warranty. The Supplemental General Conditions 1028, Article 12 (2010-08-16) – Warranty, Paragraph 3 is deleted and replaced with the following:

The warranty periods for the vessel, from the date of its delivery to and acceptance by Canada, are:

- a) Twelve (12) months for the boat propelling machinery and auxiliaries, fittings and equipment of all kinds (excluding Government Supplied Material).
- b) Twenty four (24) months for the vessel hull and welding.

6.4 Term of Contract

6.4.1 Delivery Date

All the deliverables must be received on or before _____.

6.4.2 Delivery Locations

First Unit:
Sechelt RCMP
BOX 188
Sechelt, BC
V0N 3A0

Second Unit:
Comox RCMP
800 Ryan Road
Courtenay, BC
V9N 7T1

6.4.3 Shipping Instructions - Delivered Duty Paid

Goods must be consigned and delivered to the destination specified in the contract:
Incoterms 2000 "DDP Delivered Duty Paid" to the delivery locations listed under article 6.4.2.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Dave Castle
Title: Supply Specialist, Acquisitions, Marine
Public Works and Government Services Canada
Acquisitions Branch
Address: Suite 401 - 1230 Government Street, Victoria B.C. V8W 3X4
Telephone: 250-363-0110
Facsimile: 250-363-3960
E-mail address: david.castle@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

6.5.2 Technical Authority

The Technical Authority for the Contract is provided upon contract award

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the

Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Inspection Authority

The Inspection Authority for the Contract is provided upon contract award

The Inspection Authority is the representative of the department or agency for whom the Work is being performed under the Contract and is responsible for inspection of the Work and acceptance of the finished work. The Inspection Authority may be represented on-site by a designated inspector and any other Government of Canada inspector who may from time to time be assigned in support of the designated Inspector.

6.5.4 Contractor's Representative

Name and telephone numbers of the person responsible for:

General Enquiries:

Name: _____ Telephone Number: _____
Facsimile Number: _____ E-mail address: _____

Delivery Follow-up:

Name: _____ Telephone Number: _____
Facsimile Number: _____ E-mail address: _____

6.6 Payment

6.6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm Price of \$ _____. Customs duties and Goods and Services Tax or Harmonized Tax is extra, if applicable.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

6.6.2 Charge-out Labour Rate / Material Mark-up

The following rates are included in the Basis of Payment and must remain valid for the duration of the contract:

Charge-out Labour Rate: _____
Mark-up on Materials and Sub-Contracts: 10%

6.6.3 Unscheduled Work:

a) Price Breakdown:

The Contractor must, upon request, provide a price breakdown for all unscheduled work, by specific activities with trades, person-hours, material, subcontracts and services.

b) Pro-rated Prices:

Hours and prices for unscheduled work will be based on comparable historical data applicable to similar work at the same facility, or will be determined by pro-rating the quoted work costs in the Contract when in similar areas of the vessel.

c) Payment for Unscheduled Work:

The Contractor will be paid for unscheduled work arising, as authorized by Canada. The authorized unscheduled work will be calculated as follows:

6.6.3.1 Number of hours (to be negotiated) X \$ _____, being the Contractor's firm hourly charge-out labour rate which includes overhead and profit, plus net laid-down cost of materials to which will be added a mark-

up of 10 percent, customs duties are included and applicable taxes are extra. The firm hourly charge-out labour rate and the material mark-up will remain firm for the term of the Contract and any subsequent amendments.

6.6.3.2 Notwithstanding definitions or usage elsewhere in this document, or in the Contractor's Cost Management System, when negotiating *Hours* for unscheduled work, PWGSC will consider only those hours of labour directly involved in the production of the subject work package. Elements of *Related Labour Costs* identified in 6.3.3.3, will not be negotiated, but will be compensated for in accordance with 6.3.3.3.

6.6.3.3 Allowance for *Related Labour Costs* such as: Management, Direct Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Inspecting and Reporting, and Estimating will be included as *Overhead* for the purposes of determining the *Charge-out Labour Rate* set out in clause 6.6.2

6.6.3.4 The 10% mark-up rate for materials will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in the Charge-out Labour Rate. The Contractor will not be entitled to a separate labour component for the purchase and handling of materials or subcontract administration.

6.6.4 Payment for Fuels, Oils and Lubricants

The Contractor is responsible for the supply and cost of all fuel, lubricating oil, hydraulic oil and other lubricants sufficient for fully charging all systems as required for operating the machinery and other equipment and for performing all tests and trials.

6.6.5 Field Engineering and Supervisory Services

If Field Service Representatives (FSR) and/or Supervisory Services are required for the Work, the cost of all such services is to be included in the price for the Work.

6.6.6 Limitation of Price

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

6.6.7 Method of Payment - Multiple Payments

Canada will pay the Contractor upon completion and delivery of units in accordance with the payment provisions of the Contract if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all such documents have been verified by Canada;
- c. the Work delivered has been accepted by Canada.

6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
 - a. The original and one (1) copy must be forwarded to the following address for certification and payment.
Canadian Mounted Police

Regional Fleet Management
1101 – 45337 Calais Crescent
Chilliwack, BC V2R 0N6

- b. One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

6.7.1 Warranty Holdback

A warranty holdback of 3% will be applied to the claim(s) for payment. This holdback is payable by Canada upon the expiry of the warranty holdback period of 90 days applicable to the Work. Goods and Services Tax or Harmonized sale Tax (GST/HST), as appropriate, is to be calculated and paid on the total amount of the claim before the 3 percent holdback is applied. At the time that the holdback is released, there will be no GST/HST payable, as it was included in the previous payments.

6.7.2 Outstanding Work Holdback

In addition to any amount held under the Warranty Holdback Clause, a holdback of twice the estimated value of outstanding work will be held until completion of the Work. Applicable Taxes will be calculated on this outstanding work holdback amount and paid at the time that the outstanding work holdback is released.

6.8 Certifications

Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

6.8.1 Canadian Content Certification (if applicable)

SACC Manual clause A3060C (2008-05-12), Canadian Content Certification

6.9 Welding Certification – Contract

1. The Contractor must ensure that welding is performed by a welder certified by the Canadian Welding Bureau (CWB) in accordance with the requirements of the following Canadian Standards Association (CSA) standards:
 - (a) CSA W47.2-M1987 (R2003), Certification for Companies for Fusion Welding of Aluminum division 2.1.
2. In addition, welding must be done in accordance with the requirements of the applicable drawings and specifications.
3. Before the commencement of any fabrication work, and upon request from the Inspection Authority, the Contractor must provide approved welding procedures and/or a list of welding personnel he intends to use in the performance of the Work. The list must identify the CWB welding procedure qualifications attained by each of the personnel listed and must be accompanied by a copy of each person's current CWB welding certification.

6.10 Project Schedule

1. The Contractor must provide a detailed project schedule in MS Project format or equivalent to the Contracting Authority and the Technical Authority **5 days after award of Contract**. This schedule must highlight the specific dates for the events listed below.
 - (a) hull materials delivered to Contractor and sustained construction commenced;
 - (b) hull and deck completed, but not closed in to allow for full inspection of the structure and welding. The Contractor must supply a hard copy of the material certificates and construction drawings to the Technical/Inspection Authority one week prior to inspection by the Technical/Inspection Authority;

- (c) outfitting/electrical 75% complete but all equipment and components delivered to the Contractor and available for full inspection. The Contractor must supply a hard copy of the list of equipment and electrical supplies to the Technical/Inspection Authority one week prior to inspection by the Technical/Inspection Authority;
- (d) technical manuals delivered to Canada for approval (no less than 14 days prior to the planned delivery date);
- (e) Contractor's tests and trial and final sea trials required by the SOW;
- (f) boat and trailer delivered to Canada for approval;
- (g) the start and the end of the twelve (12) month warranty period.

Note: Technical Manuals will not be returned once approved.

2. The schedule is to be regularly updated and available in the Contractor's office for review by Canada's authorities to determine the progress of the Work.

6.11 Progress Reports

1. The Contractor must submit monthly reports on the progress of the Work in an electronic format to the Technical Authority and to the Contracting Authority.
2. The progress report must contain two (2) Parts:
 - (a) PART 1: The Contractor must answer the following three questions:
 - (i) is the project on schedule?
 - (ii) is the project within budget?
 - (iii) is the project free of any areas of concern in which the assistance or guidance of Canada may be required?

Each negative response must be supported with a clarification.

- (b) PART 2: A narrative report, brief, yet sufficiently detailed to enable the Technical Authority to evaluate the progress of the Work, containing as a minimum:
 - (i) a description of the progress of each task and of the Work as a whole during the period of the report. Sufficient sketches, diagrams, photographs, etc., must be included, if necessary, to describe the progress accomplished.
 - (ii) reasons for any variation from the schedule.

6.12 SACC Manual Clauses

B9035C - Progress Meetings	2008-05-12
B5007C - Procedures for Design Change or Additional Work	2010-01-11
D3015C - Dangerous Goods/Hazardous Products	2007-11-30
D0018C - Delivery and Unloading	2007-11-30
C0711C - Time Verification	2008-05-12

6.13 Trade Qualifications

The Contractor must use qualified, certified (where applicable) and competent tradespeople and supervision to ensure a uniform high level of workmanship. The Contracting Authority may request to view and record details of the certification and/or qualifications held by the Contractor's tradespeople. This request should not be unduly exercised but only to ensure qualified tradespeople are on the job.

6.14 Quality Management Systems

1. The Contractor must have in place a Quality Assurance Program approved by the Inspection Authority during the performance of the Work which addresses the quality control elements below.
2. The quality control elements must include, as a minimum:
 - Quality Assurance Manual or Quality Assurance Program Descriptions
 - Inspection and Test Plan
 - Final Inspection
 - Quality Records

3. The Contractor's facilities may be audited by Canada, or its authorized representative, during the performance of the Work to ensure that the approved system is in place and in accordance with the foregoing requirement.
4. The Contractor will be required to submit completed quality assurance documentation with each claim for payment as applicable.

6.15 Post Contract Award/Pre-Production Meeting

Within three (3) working days of the receipt of the contract, the Contractor must contact the Contracting Authority to determine the details of a pre-production meeting. The meeting will be held at the Contractor's plant or via telephone or video conference. The Cost of holding such a pre-production meeting must be included in the price of the bid. Please note that the travel and living expenses for Government Personnel will be arranged and paid for by the Canada.

6.16 Manuals

1. The Contractor must obtain and deliver to the Technical Authority for approval, all Data Books, Operating Instruction Books, Maintenance Manuals and Spare Parts Lists (including part numbers and ordering instructions) for all machinery and equipment fitted on the Vessel as required. Once approved by the TA, the Contractor must provide two (2) complete copies in accordance with and as specified in the **SOW, Section 5.0**.
2. Where manuals are examined by Canada, such examination does not relieve the Contractor of any responsibility under the Contract for ensuring the correctness of all details and adequacy of performance of the Vessel, nor does it obligate Canada to accept, in whole or in part, an item of Work completed in accordance with such manual, nor does it mean such an item of Work meets the requirements of the SOW.

6.17 Inspection, Test & Trials

1. During Construction of the vessel, the Contractor must arrange for regular inspections and upon completion of the construction of the vessel, the Contractor must arrange trials. All Inspections and test and trials performed must be in accordance with the SOW and the **Annex E - Inspection/Quality Assurance/Quality Control**. The Inspection Authority must approve any additional testing not specified in the SOW.
2. The Contractor must update as required the Inspection and Test Plan (ITP) provided with its bid and submit to the Contracting Authority and the Inspection Authority seven (7) days after contract award for review and approval.
0. Once approved, any modification to the ITP must be pre-approved by the Inspection Authority. A revised ITP will be required should any modification be made.

6.18 Government Supplied Material (GSM)

As per the Annex A – Statement of Work, **Article 18.0** the Contractor must install, as per the manufacturer's recommendations, the following GSM:

- (a) Two (2) Yamaha, (one counter rotation), 4-Stroke, gasoline outboard motors.

6.19 Insurance Requirements

The Contractor must comply with the insurance requirements specified in **Articles 6.19.1** and **6.19.2** below. The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within ten (10) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. Coverage must be placed with an Insurer licensed to carry out business in Canada. The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

6.19.1 Commercial General Liability Insurance

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$2,000,000 per accident or occurrence and in the annual aggregate.
2. The Commercial General Liability policy must include the following:
 - (a) Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
 - (b) Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
 - (c) Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.
 - (d) Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
 - (e) Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
 - (f) Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
 - (g) Employees and, if applicable, Volunteers must be included as Additional Insured.
 - (h) Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program).
 - (i) Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
 - (j) Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
 - (k) If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
 - (l) Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.
 - (m) Litigation Rights: Pursuant to subsection 5(d) of the Department of Justice Act, S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance

policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

For the province of Quebec, send to: Director Business Law Directorate,
Quebec Regional Office (Ottawa),
Department of Justice,
284 Wellington Street, Room SAT-6042, Ottawa, Ontario, K1A 0H8

For other provinces and territories, send to: Senior General Counsel,
Civil Litigation Section, Department of Justice
234 Wellington Street, East Tower
Ottawa, Ontario K1A 0H8

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

6.19.2 Marine Liability Insurance

1. The Contractor must obtain Protection & Indemnity (P&I) insurance that must include excess collision liability and pollution liability. The insurance must be placed with a member of the International Group of Protection and Indemnity Associations or with a fixed market in an amount of not less than the limits determined by the Marine Liability Act, S.C. 2001, c. 6. Coverage must include crew liability, if it is not covered by Worker's Compensation as detailed in paragraph (2.) below.
2. The Contractor must obtain Worker's Compensation insurance covering all employees engaged in the Work in accordance with the statutory requirements of the Territory or Province or state of nationality, domicile, employment, having jurisdiction over such employees. If the Contractor is assessed any additional levy, extra assessment or super-assessment by a Worker's Compensation Board, as a result of an accident causing injury or death to an employee of the Contractor or subcontractor, or due to unsafe working conditions, then such levy or assessment must be paid by the Contractor at its sole cost.
3. The Protection and Indemnity insurance policy must include the following:
 - (a) Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada as additional insured should read as follows: Canada represented by Public Works and Government Services Canada.
 - (b) Waiver of Subrogation Rights: Contractor's Insurer to waive all rights of subrogation against Canada as represented by Department of Fisheries and Oceans and Public Works and Government Services Canada for any and all loss of or damage to the watercraft however caused.
 - (c) Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of cancellation.
 - (d) Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
 - (e) Litigation Rights: Pursuant to subsection 5(d) of the Department of Justice Act, S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance

policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

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Senior General Counsel, Civil Litigation Section, Department of Justice
234 Wellington Street, East Tower
Ottawa, Ontario K1A 0H8

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

6.20 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____.

6.21 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

1. The Articles of Agreement;
2. The Supplemental General Conditions **1028, 2010-08-16**, Ship Construction - Firm Price;
3. The General Conditions **2030, 2016-04-04**, Goods (Higher Complexity);
4. Annex A - Statement of Work;
5. Annex B – Question & Answer;
6. Annex C, Inspection/Quality Assurance/Quality Control;
7. Annex D, Basis of Payment;
8. The Contractor's bid dated _____.

6.22 Acceptance

1. The Inspection Authority, in conjunction with the Contractor, will prepare a list of outstanding work items at the end of the vessel's construction period. This list will form the annexes to the formal acceptance document for the vessel. A vessel acceptance meeting or telephone conference will be convened by the Inspection Authority on the work completion date of the vessel to review and sign off the form PWGSC-TPSGC 1105, Contractor's Certification.
2. The Inspection Authority must complete the above form and obtain the signatures of the Contractor and the Contracting Authority. The form will then be distributed by the Inspection Authority as follows:
 - a. one copy to the Contracting Authority;
 - b. one copy to the Technical Authority;
 - c. one copy to the Contractor.

ANNEX A - STATEMENT OF WORK

- A1. VESSEL: Oct 2016**
a. 2 x 7.25 – 7.75 METER ALUMINUM CABIN RIB's:
b. Configured as is a fully enclosed Pilot Cabin RIB with forward cuddy.

A2. ABBREVIATIONS

ABYC	American Boat and Yacht Council
AC	Alternating Current
ASTM	American Society for Testing and Materials
CFM	Contractor Furnished Material
CSA	Canadian Shipping Act
CSA	Canadian Standards Association
COLREGS	Collision Regulations
DC	Direct Current
GPS	Global Positioning System
GSM	<i>Government Supplied material</i>
ISO	International Organization for Standardization
PVC	<i>Polyvinylchloride</i>
TA	<i>Technical Authority (As defined by the Contract)</i>
TCMS	<i>Transport Canada Marine Safety</i>
UV	Ultraviolet
VHF	Very High Frequency

A3. LIST OF REFERENCE DOCUMENTS

REFERENCE	TITLE
ASTM F1166	Standard Practice for Human Engineering Design for Marine Systems, Equipment and Facilities
TP 1332	Construction Standards for Small Boats
TP 13430	Standard For Tonnage Measurement of Ships
TP 14070	Small Commercial Vessel Safety Guide
ISO 12217	Small Craft – Stability and Buoyancy Assessment and Categorization
ISO 6185	Shipbuilding and Marine Structures – Inflatable Boats
Canada Shipping Act	Small Vessel Regulations
Canada Shipping Act	Collision Regulations (COLREGS)
ABYC	American Boat and Yacht Council Standards
Canadian Standards Association(CSA) CSA W47.2-M1987	Certification of Companies for Fusion Welding of Aluminium
(CSA) C22.2 No. 183.2-M1983 (R1999)	Standards for DC Electrical Installations on Boats

A4. PWGSC SMALL CRAFT SOLICITATION INFORMATION

- a.** General Information: This vessel is intended to be built based on stock small working or commercial vessel hull forms with a minimum of customization as indicated herein. Prototype hulls will not be considered for this procurement. A number of proven hulls must be shown to have been produced and be in service for the Contractor to indicate suitability of the hull for this procurement. Bidders must submit brochures, photographs, references, builder's plates, hull identification numbers confirming multiple builds, etc. as applicable.
- b.** Annex A Section A5, TECHNICAL SPECIFICATION is divided into four parts:
- | | | |
|--------|----------------|---|
| Part 1 | Article 1 | General Description of Vessel Role and Function |
| Part 2 | Articles 2-9 | Contractor Design and Construction Practices |
| Part 3 | Articles 10-16 | Vessel Particulars |
| Part 4 | Articles 17-20 | Outfitting and Equipment |
- Part 1 provides a brief description of the vessel's role and function. Part 2, Contractor Design and Construction Practices provides general information on a wide range of construction practices, standards, vessel shipping and packaging, etc. Part 3, Vessel Particulars, provides information on vessel description, physical construction and arrangement. Part 4, Outfitting and Equipment, covers the vessel's fitted equipment such as electronics, propulsion, steering and trailer (if required).

A5. TECHNICAL SPECIFICATION

a. Table of Contents

- 1.0 General Description of Vessel Role and Functions

b. General Construction Practises and Standards

- 2.0 General Marine Construction Practices
3.0 Material and Construction Technicalities
4.0 Warranty Service and Parts
5.0 Documentation
6.0 Quality Assurance
7.0 Test and Trials
8.0 Packaging and Shipping
9.0 Trailer Information

c. Vessel Particulars

- 10.0 Physical Characteristics
11.0 Operational Performance
12.0 Environmental Conditions
13.0 Vessel Configuration
14.0 Construction Standards
15.0 Construction Drawings and Data
16.0 Construction and Finish

d. Outfitting And Equipment

- 17.0 Outfitting Detail
18.0 Propulsion
19.0 Steering
20.0 A trailer, if required
21.0 Optional requirements

1.0 General Description of Vessel Role and Functions

1.1 Mission Statement: RCMP, manages and operates numerous small craft in support of its Departmental programs. The requirement is for a Rigid Inflatable Boat in the 7.25 to 7.75 meter range. The vessel will be used on the West Coast waters of British Columbia Canada within 25 miles of shore. Requirement is for an ISO classification for 'B' service, and an ISO 6185-3 stability and structural classification.

1.2 Utilization: The vessels will be shore-based and ramp launched or kept at a dock. The vessel must

have an all weather capability to Beaufort Force 7.

CONTRACTOR DESIGN AND CONSTRUCTION PRACTICES

General Marine Construction Practises: As applies to Vessel's Specific Construction and equipment, found in Section 10 onward.

2.0 Unless stated otherwise all components, equipment and material must be Contractor furnished material, (CFM).

2.2 Ergonomic Design – General

Hazardous operating conditions must be prevented by arranging machinery and equipment in a safe manner; providing guards for all electrical, mechanical and thermal hazards to personnel; and providing guards or covers for any controls that might accidentally be activated by contact of personnel.

Human engineering factors considered in design must include accessibility, visibility, readability, crew efficiency and comfort for a range of physiques for individuals from approx. 5 ft. to 6' 4" in height, wearing cold weather clothing and equipment which must be accessible for use, inspection, cleaning and maintenance per ASTM F1166-88.

2.3 Vibration

1. The boat and all components must be free of local vibration that could endanger boat personnel, damage boat structure, machinery or systems, or interfere with the operation or maintenance of boat machinery or systems.
2. Mounts for movable components, including items moved for stowage, towing or transport must be provided with resilient material as necessary to prevent rattling.
3. Loosening of fasteners under vibration must be prevented by the use of self-locking fasteners, as applicable.

2.4 Equipment Protection: The Contractor is responsible for the care of all equipment. All parts, especially those having working surfaces or passages intended for lubricating oil, must be kept clean and protected during manufacture, storage, assembly and after installation. Equipment must at all times be protected against dust, moisture or foreign matter and must not be subject to rapid temperature changes or extremes in temperature.

2.5 Site Cleanliness: During construction, all chips, shavings, refuse, dirt and water must be removed at the completion of the work shift or sooner. The Contractor must ensure measures are taken to avoid wear and damage incident to construction, and to prevent corrosion or other deterioration. Equipment subject to freezing must be kept drained, except during test and trials. Equipment must be kept clean and protected from the environment prior to installation.

2.6 Facilities (applicable to GRP lamination, Collar and Painting facilities only): The Contractor must have a shop capable of maintaining temperature and humidity. It should be capable of maintaining temperature between 16°C and 25°C. It should be capable of maintaining relative humidity below 70 percent.

3.0 Material and Construction Technicalities

3.1 Structural Integrity - All structures and components (hull, deck, collar, console, seating, etc.) must be of sufficient strength to withstand, when in a Maximum Load condition per **builders' plate**, the lateral and vertical impact loading that equates to the conditions of the operational profile and mission requirements.

3.2 Materials – General

1. Environmental Exposure; All materials must be corrosion resistant and suitable for use in a salt-water environment as detailed in the Environmental Conditions portion of the Performance Requirements. All materials normally subjected to sunlight must resist degradation caused by ultraviolet radiation.
2. Direct contact of electrolytically dissimilar metals is not allowed. Electrolytic corrosion must be prevented by insulating dissimilar materials from each other with gaskets, washers, sleeves, or bushings of suitable insulating material.
3. Aluminium alloy types 5086, or dual rated 5086/5083 H116/321 must be used for plate; aluminium alloy 6061-T6 (anodized grade), suitable for type 5356 filler alloy, must be used for extruded shapes and welded tubing and pipe. Stiffened transverse bulkheads or lightened plate frames may use type 5052 to facilitate braked tabs. Specialized use of type 6061 T6 plate in fresh water for high strength delta pads is allowed. Non-hull structural items of trim and outfit such as hatch frames, castings, deck components

with braked elements, consoles, and hardware items may be of other aluminium alloys suitable for commercial saltwater marine use such as type 5052 or 6063. Thin hull topside plate, from chine to deck edge, must be alloy 5086 if .15 or .16 plate, with shallow or 45 degree embossed strakes, if required. Thicker topsides will not be embossed. Thinner topsides plate may be alloy 5052.

4. Stainless Steel: Stainless steel plate type 316 must be used for all stainless steel applications except as noted. Alloy 316L must be used in welded underwater components. Many commercial components, some fasteners and rivets, use other acceptable grades of stainless steel such as types 18-8 and 304.
5. FRP and Resins - for FRP components, if any:
 - a. Minimum laminating material specification must include gel coats and skin-out of isophthalic resins with a barrier coat wash of the skin-out prior to main laminate and coring materials, which can be laid in GP resins. DCPD resins must not be used.
 - b. Fibre materials to be standard mat / rovings, or "stitch" combined materials, some of which may use Carbon or Kevlar strands. NO "chopper" materials to be used.
 - c. Coring materials to be vacuum bagged and to be designed for usage in these specified vessels. Suitable densities of core materials such as 'Termanto', 'Kleige-cell', and 'Core-cell' are acceptable and Balsa or wood, plywood, and non-structural foam materials must not be used, unless specifically required, for example, transom core.

3.3 Fasteners

1. All fasteners must be of corrosion resistant materials.
2. Cadmium plated parts and fasteners, including washers, must not be used.
3. Direct attachment of alloys containing copper to aluminium is not permitted except for an electrical bonding strap, with contact bolt and separating isolation washer.
4. No fasteners must be directly threaded into aluminium alloys, except with adequate bolt or insert sizes, minimum 1/4" diameter, tapped into a suitable alloy type, and thickness, such as 1/4" 6061, with the use of thread adhesive type material. Aluminium or Stainless steel washers or backing plates must be used as appropriate.
5. Where nuts will become inaccessible after assembly of the vessel, nuts must be captured, or tapped inserts used, to allow reassembly and prevent backing off. Unless otherwise specified, self-locking nuts must be installed to prevent loosening of fasteners due to shock and vibration, and adequate thread showing as required.
6. Fasteners in deck traffic areas must be flush-mounted, flat head or oval head, to eliminate tripping and snagging hazards.

3.4 Construction Procedures: Hulls must be fabricated as per the requirements quoted in Construction Standards, Sec 14, and requirements of Vessel Particulars.

3.4.1 Main Hull and Appendages - Hull Form and flotation.

- a. Hull shape must not impede water flow to the propulsion units and must direct spray and waves away from onboard personnel.
- b. Watertight and Tank Bulkheads: The hull design must be such that a sufficient number of compartments, or amount of flotation, including hull compartments, and / or low smoke and flame spread flotation foam, or fire retardant flotation, or flotation devices, will allow for adequate stability and positive buoyancy in a flooded condition. See references to vessel certification, re: TP 1332 / ISO testing.
- c. **Stowage** : Weather tight stowage for small items of equipment must be provided in void spaces beneath seats, and where practicable, inside console(s). All exterior stowage compartments must be lockable, secured by positive means and operable by gloved or insensitive hands.

3.5 Painting and Preservation

1. Fibreglass components must have a coloured gel-coat finish on all exterior surfaces. Gelcoat to be applied at 20-22 mil thicknesses. Finish colour(s) as per Vessel Particulars.
2. Aluminium components must have a painted finish, or powdercoat, on all specified exterior and interior surfaces, comprised of suitable etch, primers, and topcoat per the Vessel Particulars. Typical single coat paint systems can be applied in the 5 to 7-mil thickness range per coating set. Typical system components would be: a) etch-primer; b) two coats of primer; and c) minimum two topcoats. Powdercoat finishes will typically finish at 2 to 3 mils thickness.
3. Prior to delivery the Contractor must ensure that all non-painted exposed alum. is free of cosmetic blemishes, including all construction marks, scratches, gouges and stains.

3.6 Propulsion: Unless otherwise specified, propulsion motor(s) will be supplied and installed, per Outfitting section 18.

1. **Run-in operation:** The Engines must be installed and operated in accordance with the engine manufacturer's recommendations. The use of engine manufacturer's approved accessories and equipment is required except for outboard motor control cables (which must be heavy duty Morse 33C Supreme Red-Jacket ® cables, with manufacturer's cable ends installed, **or manufacturer's best quality cable sets**). Equipment and components must not be used, or trials performed on the engines that would, in any way, void the engine manufacturer's warranties. **See Section 7.3 also.**
2. **Warranty:** All components of the propulsion system must be warranted by the original equipment manufacturer for the standard term, sourced by GSM or as Contractor Furnished Material (CFM).
3. **Propellers/Impellers:** Unless otherwise specified, propeller(s)/impeller(s) must be as per Sec 18. Contractor must record in the trials report and equipment lists, the appropriate pitch and diameter to meet the Performance Requirements as determined by the Contractor developed design check, and trials. Propellers must be CFM.

3.6.5 Steering Systems

- a. Steering system must be remote hydraulic with self-contained oil reservoir, and replaceable seals on the rams, unless propulsion system builder requires alternate steering arrangement per Section 19.
- b. Hydraulic hoses must be of sufficient size and length to prevent pulsing. Hoses must be suitable for use in an exposed marine environment complete with stainless steel fittings.

3.7.0 Electrical System

- a. The electrical system design, component selection and installation must be in accordance with Canadian Standards Association C22.2 NO. 183.2-M1983 (R1999) "Standards for D.C. Electrical Installations on Boats", or ABYC 'E' as referenced by TP1332. All electrical equipment and hardware must be installed in accordance with the manufacturer's specifications. AC systems will be called up in sec. 17, Outfitting.
- b. All fitted electrical equipment must be capable of operating simultaneously with any other fitted electronics equipment without causing interference to any electronic equipment or to the magnetic compass.
- c. Galvanic corrosion is to be controlled by installation of an effective bonding and grounding systems with galvanic isolation. Cathodic protection is to be effected by installation of sufficient anodes positioned so as to minimise cathodic currents per ABYC and TP1332.

3.7.1 Twelve (12) volt DC distribution system must be provided to power the engine starting and boat service loads including:

- a. Navigation, interior, and exterior lighting.
- b. Electrical equipment.
- c. Instrumentation.
- d. Bilge Pumps.

3.7.2 Batteries and Switches

- a. Batteries must be marine grade, 12 V, deep cycle maintenance free, and with the ability to cross connect for twin-engine start up of either engine from either battery. Some engine packages may require larger capacity for injection systems, see Sec.17, Outfitting.

<p>b. Battery switch must be Certification Agency, (CE, CSA, USCG, etc.) approved and must be mounted to prevent snagging or accidental switching.</p> <p>c. Battery compartment must be weather tight and fitted with a suitable means of gas venting including for 'sealed' batteries.</p>
<p>3.7.3 Power Distribution: Cables for all electrical distribution must be ample in size for the particular service, of marine grade tinned boat cable.</p>
<p>3.7.4 Cabling Installation</p> <p>a. Cables must be grouped into wiring harnesses wherever possible. All wiring harnesses must be routed below deck. All below deck cabling must be through conduit pipe. A rope leash will be added to each conduit pipe for ease of future service and or additional cabling</p> <p>b. Cabling / conductors passing through watertight boundaries, decks, bulkheads or other exposed surfaces must be installed to maintain watertight integrity of the structure. Cable entry into watertight enclosures must be through watertight marine glands of suitable size. All electrical equipment must be readily accessible for performing maintenance.</p> <p>c. Cables and conductors must be supported with clamps or straps at least every 18 inches on horizontal runs and every 14 inches on vertical runs. No ties are to be used on cabling running through underdeck conduit pipe.</p> <p>d. Cabling / conductors passing through structures without watertight glands, must be protected against chafing by the use of abrasive resistant grommets.</p> <p>e. Routing cables through foamed spaces must be avoided wherever possible. Cables that must be routed through foamed spaces must be run in PVC conduit pipe. The pipe must be arranged in a manner that prevents water from becoming entrapped in the pipe.</p>
<p>3.7.5 Control and Monitoring Systems: Gauges and Indicators: Dimensions and Mounting</p> <p>a. Unless otherwise specified, gauges must be analogue-style, or Engine Manufacturers' digital equipment. Gauges must be sized and installed so they are readily visible by the operator while operating the boat.</p> <p>b. All gauges must be backlit with an adjustable dimmer. Lighting for gauges and lighting for compass must use separate dimmers.</p> <p>c. Propulsion control system installation must include single-lever combined engine control, for each engine, to be located at the operator's position on the starboard side of the control station. Controls must conform to engine manufacturer's recommendations for commercial use.</p> <p>d. The Operator's position must be fitted with a lanyard style emergency shut down switch which is attached to the operator and must shut down the engine if the lanyard is pulled from the switch, as well as the following:</p> <p>e. Bilge Pump operation indication for each compartment so equipped.</p> <p>f. High water alarm for the engine installation space, which could be the 'pod' for outboards, and every other space serviced by a bilge pump.</p> <p>g. Engine space heat rise for inboard installation, with required fire system alarm.</p> <p>h. Allowance for at least one additional input, if a single integrated alarm panel used.</p>
<p>3.7.6 Piping, Tanks and Ventilation Systems</p> <p>a. Flexible Connections - Where flexible connections are required for steering and fuel systems, suitable hose with permanently crimped, detachable reusable type fittings must be used.</p> <p>b. Fuel Tanks must be hydrostatically tested, or air tested to 3.0 p.s.i. and be labelled per the requirements of TP1332. See Sec. 18.</p> <p>c. Fittings and clamps must be stainless steel. Bolts used in all fittings must be Type 316 stainless steel.</p> <p>d. Each watertight Hull compartment is to have its own 12V DC bilge pump, plumbed to discharge overboard from the compartment, as per TP1332.</p> <p>e. Enclosed compartments with gasoline engine or tanks spaces must have passive and powered ventilation.</p>
<p>3.8 Fire Suppression - Inboard Engine Configuration</p> <p>N/A</p>
<p>3.9 Navigation Equipment (COLREGS)</p> <p>http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/regulations/010/csa014/csa14.html</p> <p>1. Navigation lighting fixtures must be of such a design as to resist the effects of vibration and moisture</p>

- and must be provided with adequate protection from damage.
2. Particular COLREGS rules to note (vessels under 12 M.); Rules 22, 23, and Annex 1, rules 2, 9, and 10. (**NOTE:** The lights must be installed parallel to the "Normal Load" waterline that often may not be parallel to the deck.)
 3. The navigation lights must be mounted so as not to interfere with vision of the operator.
 4. The navigation lights must be permanently mounted.
 5. The Contractor must supply and install an electric horn that ensures the requirements of the Collision Regulations, Rule 32 are met, i.e. with a standard small vessel 'horn' audible 0.5 NM. The horn must be installed on the vessel exterior with the 'horn' facing forward. (See Section 13.6.)
 6. A Magnetic Compass must be mounted near the centreline of the helm station, in easy view of the operator when facing forward. Deviation card development is an Owner responsibility.
 7. All navigational lighting must be LED

4.0 Warranty and Service Provisions:

4.1 Components and Equipment Support : All components and all mechanical, auxiliary, electronic and electrical equipment installed on the boat, with the exception of the collar, must be supportable by parts and service in Canada within 30 days. A collar, if any, must be supportable by parts and service in Canada within 30 days. All components and equipment must be current models.

4.2 Spare Parts: To facilitate replacement and inter-changeability of parts, as well as maintenance procedures and operator training wherever practicable the Contractor must standardize on selection of equipment, fittings and fabrication methods within all boats supplied.

4.3 Parts and Service Depot(s)
Contractor's parts depots must be capable of efficiently supplying all of the Client service area for this vessel, with spare parts for all components of the vessel and warranty service for all components of the vessel. It is recognized that many equipment items will have their own manufacturer's warranty cards for owner registration. Contractors must have a factory authorized service representative capable of call back response in all regions of Canada within **48** hours of receiving a service call.

5.0 Documentation

5.1 Technical Publications General: The Contractor must provide, upon delivery of the vessel, one (1) hard copy and one (1) electronic copy per vessel produced for the operator of the vessel, plus one (1) hard copy and one (1) electronic copy for the Technical Authority, shipped to the same address as identified for invoicing: of a comprehensive owner/operator manual that provides a physical and functional description of the craft, its machinery and equipment, as well as delivery testing and sea-trial result documentation. The manual should include but not be limited to sections such as: General Information, Technical Information, and an Initial Spare Parts List.
See also section 7.8 for the listing of Deliverables "with each completed vessel".

5.2 General Information Section: The General Information Section must include a description of the arrangement and function of all structures, systems, fittings and accessories that comprise the boat, with illustrations as appropriate:

1. Operating procedures.
2. Basic operating characteristics (such as temperatures, pressures, flow rates, etc.)
3. Installation criteria and drawings, assembly and disassembly instructions with comprehensive illustrations showing each step.
4. Recommended planned maintenance.
5. Complete troubleshooting procedures.

5.3 Technical Information Section: The technical manual should include a complete set of detailed owner / operator instructions, drawings (Section 15), parts lists and supplemental data for all components of the boat (whether acquired from external sources or custom-manufactured).

1. The list must include the name, part number and serial number if applicable of the parts, items or components and must indicate the supplier (name, address, phone number, email address) of this part, equipment or component and in which part of the specification the item appears.
2. Hull; including hull data, hull and deck equipment serial or manufacturer's numbers, including tank test reports, Life Saving Appliances, lifting gear, extinguishers, etc. TEST and TRIAL results, and certification notices, instructions, and warranty cards that distribute with equipment.
3. Engine(s) and propulsion manuals: including engine and propulsion serial numbers.

<p>4. Electronics manuals, (if applicable): including model and serial numbers.</p> <p>5. Collar, if any; including collar materials and glue materials and product sheets, and procedures necessary for onboard repair of the collar, including a materials repair kit.</p> <p>6. Regulatory and Stability information: as required per TP 1332, which references ABYC, TC publications, or ISO12217 that further references ISO 6185 for RIBs. ISO 11812 for drainage times of cockpits, and ISO 11216 for hatch and portal watertightness are required as well.</p> <p>7. Contractor to fill out Simplified Method of Tonnage Measurement, TC form 4a.</p> <p>8. NOTE: Builder is encouraged to use the "Small Vessel Detailed Compliance Report" sheets as a check off sheet for hull and equipment and list the name/ Company of the person checking the data in the "Independent Marine Consultant" space on P.7 of the form. http://www.tc.gc.ca/eng/marinesafety/svcp-menu-3633.htm</p>
<p>5.4 Initial Spare Parts List: The Technical manual must also include a list of recommended initial onboard spare parts to be stocked for the craft. At a minimum this list must include the following items (as applicable):</p> <ol style="list-style-type: none">1. Propulsion: Propeller / impeller, filters, water pump impeller, starting battery, throttle and shift cables, any special engine tools.2. Electrical: fuses, light bulbs, electrical panel breakers;3. Boat Structures and Fittings: Miscellaneous commonly used fasteners.
<p>6.0 Quality Assurance The basic reference to ISO 900x compliance is as per the contract document.</p>
<p>7.0 Test and Trials:</p>
<p>7.1 The Contractor must inspect and test the following items, as a minimum, for adherence to the contract requirements and proper operation (proper operation means that the equipment can be started, operated, connected together and demonstrated to function in a normal fashion, as applicable). All discrepancies must be corrected prior to delivery.</p> <p>- The required inspections and tests are minimums and are not intended to supplant any controls, examinations, inspections or tests normally employed by the Contractor to assure the quality of the boat:</p> <ol style="list-style-type: none">1. Weight2. Construction Quality3. Lifting Gear4. Propulsion Engines including Starting and Controls5. Steering System6. Fuel System7. Electrical System8. Electronics
<p>7.2 Sea Trials – General: The Technical Authority must be notified no less than 48 hours prior to sea trials. The Technical Authority reserves the right to witness or decline attendance of sea trials, or to require the Inspector to attend. Absence of the Technical Authority, or Inspector at sea trials does not relieve the Contractor of its responsibility to conduct and record sea trials. Sea trial results must be forwarded to the Contract and Technical Authorities prior to delivery of the vessel. The Technical Authority will inform the Inspector of trials so they may attend.</p>
<p>7.3 Sea trials must be conducted by the Contractor to demonstrate the boat and its equipment conform to the requirements as stated in the Contract and the Performance Requirements. All expenses incident to the trials must be borne by the Contractor, including fuel unless otherwise specified. A crew provided by the Contractor must operate the vessel during sea trials. Residual fuel, if not drained for shipping, must be delivered in its tank with the boat.</p> <ol style="list-style-type: none">1. All Sea Trial instrumentation and equipment must be furnished and operated by the Contractor. Trial instrumentation, where applicable, is not to replace the boat's instruments (e.g., engine tachometer, pressure gauges, thermometers). The Contractor must furnish all necessary hardware and fittings and must install the measuring devices. After satisfactory completion of the trials, all instrumentation must be removed and all systems restored. The Contractor must provide calibration data certifying the accuracy of the instrumentation for the tests.2. The Contractor is required to run the vessel during builders' trials until the engine(s) have accumulated the operation hours sufficient for the initial engine service by the engine supplier, or for 10 hours, whichever is least, and to have a manufacturers' service agent perform the service and provide

an initial service report.	
7.4	<p>The Contractor must submit a Test & Trials Plan, including a description of all of the acceptance trials to be performed. As a minimum, the following trials must be conducted: The vessel must operate in the Normal Loaded Condition, per Sec 10..</p> <ol style="list-style-type: none">1. Speed Trials - The speed trials must be done over a course at least one nautical mile in length. Two runs must be made over the course, one in each direction with the speeds for the two runs averaged. The use of GPS data (averaged) is acceptable.2. Endurance Trial - During the endurance trials, it must be demonstrated that all parts of the propulsion system are in full operation. All systems must be operated to check for proper installation. Fuel consumption can be calculated using manufacturers' data.3. Astern Propulsion - The vessel must be operated and manoeuvred using astern propulsion to establish the astern performance. During the backing performance tests the throttles must be set to provide approximately 1/3 of the rated engine horsepower.4. Steering Gear; Tests must be conducted on the steering gear to demonstrate the adequacy of the steering system under all operations. Manoeuvring tests must be performed to ensure that the boat meets the stated Basic Performance requirements, per Sec 11. Manoeuvring trials must be conducted in the Normal Operating Condition.5. Lifting Gear Load Test; Vessel and bridle or lift frame may be tested at 150% of normal load condition, as specified in the Vessel Particulars; to lift and hold without deformation of the lift points or associated hull. Lift points to be recessed flush with deck, and certified for load.6. Stern towing arrangement: Testing bollard pull to design capacity in a direct astern load. Data from previous test to same standard, for same post and construction accepted7. At the conclusion of sea trials each boat must be thoroughly cleaned and inspected. Outboard engine cooling systems must be flushed through with fresh water. The Contractor must repair any damage to the vessel or ancillary equipment resulting from sea trials, to the satisfaction of the Inspection Authority.8. For the purpose of the trials, Normal Loaded Condition is to be considered to be the basic boat, fitted with all normal equipment, full fuel, with complement and loads per Vessel Particulars, section 10.
7.5	<p>Final Inspection and Acceptance (PWGSC Acceptance Document) for delivery; Final Inspection must not be performed until all tests have been satisfactorily completed with data available for review. The boat must be ready for delivery in all respects, except for final preparation for shipment. The Contractor must provide personnel, as required, to resolve questions and to demonstrate equipment operation maintenance accessibility, removal and installation. The Contractor must document the results of the final inspection and submit these results to the Inspection Authority; a copy of the trial results must be shipped with the deliverables for each boat, per 7.6/ 7.7.</p>
7.6	<p>Stability examination per TP1332, from ISO standards 12217 which for RIBs delegates to ISO 6185, or by TP 7301, requires the Contractor to record all stability/ structural, calculation and trial results and provide a copy for each boat produced, to be placed in the technical manual. See Sec. 14 Standards. The stability trial of the first of a series of vessels can be used for all identical vessels.</p>
7.7	<p>Trial Records - The Contractor must maintain records of testing for each boat for a minimum of two years. The Contractor must prepare a trials check sheet that certifies that each test has been completed. The check sheet must indicate the actual weight of the boat in Light Condition, per section 10. The check sheet must also indicate the Normal Loaded weight and the date for the 150% "normal load" lifting gear test, if required. This check sheet must be included with the deliverables of each vessel.</p>
7.8	<p>Standard Deliverables with each completed vessel, one manual and one USB stick per vessel delivered plus one manual and one USB stick for the client department TA.</p> <ol style="list-style-type: none">1. A detailed operator manual must be provided for all equipment, and systems, per Sec 5. This may be developed using equipment instruction sheets and manuals.2. Sea Trial results, and shop testing sheets, including Builders' technical data, per Sec 5.3. Acceptance Certificates, and compliance sheets or certificates distributed with equipment, per Sec. 5.3.2-5.4. Regulatory Compliance data, including ISO, ABYC, or TC calculation sheets for stability, drainage, watertightness, tonnage, or Builder's flotation tests, per Sec 5.6-7.5. The initial inspection of the vessel(s) after delivery, by Owner / Department Self Inspector, will establish TP 1332 / ISO compliance, using SVCP self inspection.6. Vessel drawings; The Annex A Specification calls for the submission of Preliminary drawings and the As Fitted update of drawings must be included for the manuals.

7.	Ensure all labelling is in place as per the Small Vessel Regulations Section 5.19 including a dedicated locker compartment for safety gear clearly marked Safety Equipment .
8.	NOTE: Regarding Documentation for vessel entry in the Small Vessel Registry. The Contractor should inform the Client TA as soon as they have deposited the payment on the final invoice, as this will determine when the Client department can fill out the new TC Form 19 registration for the vessel and get their O.N. assigned. The Client TA or financial authority will distribute a copy of the invoice for the end user files. Regarding the establishment of full payment occurring before registration, for the present PWGSC will consider that full payment and taxes have been made, and that we are holding any warranty holdback amount, against warranty performance, on our contract to acquire a vessel, until it is used for warranty work or released by PWGSC, (and paid by the Client Department at the end of the Warranty Period).
8.0	Packaging and Shipping: Shipping other than Towing on Trailer
8.1	Prior to shipping, the boat must be cleaned throughout, preserved and covered (shrink wrap), secured on the boat trailer if any, or chocked as required, in accordance with this section.
8.2	Bilges must be dry and free of oil and debris and the fuel tanks must be drained.
8.3	The propulsion system must be preserved in accordance with the manufacturer's recommendations for storage of up to one year in an environment that will be subjected to freezing temperatures.
8.4	The battery must be disconnected.
8.5	A durable warning tag must be wire tied to the steering wheel indicating that the boat has been preserved for shipping and storage and should not be started until the propulsion machinery has been reactivated.
8.6	Lengthy shipping arrangements must protect the boat hull from deformation from road irregularities producing, due to repeated bouncing, dents in hulls supported on roller assemblies, by the insertion of a temporary bunk to distribute loads.
8.7	Towed Delivery on the boats' trailer: In local short haul trips in non-freezing weather, <u>only the cleaning and covering provisions may be required</u> , with the approval of the Inspection Authority.
9.0	Trailer Information: IF required: (See Solicitation Annex 'I' pricing sheet for requested pricing, if any, and section 20 at the end of Vessel Particulars for specific trailer information)

VESSEL PARTICULARS	
10.0	Physical Characteristics:
1.	Length of RIB's between 7.25 and 7.75 meters.
2.	Breadth overall (collar inflated), 3.0 M to 3.2 meters.
3.	Maximum draft (outboard drive lowered) between 0.90 and 1.0 meters.
4.	Maximum draft (outboard drive raised) between 0.60 and 0.70 meters.
5.	Cabin sides to land on tube cradle /side deck, near inner edge, or form inner face of tube cradle and support side deck.
6.	Normal load conditions: (Light loaded vessel is complete vessel; no fuel, cargo, or personnel):
-	Crew of 4 = 450 kg
-	Fuel = minimum 600 litres in two tank(s),(500 kg)
-	Equipment and supplies = 400 kg.
10.8	Vessel Tonnage Requirements: This vessel must NOT exceed 5 GRT. The builder is required to use the dimensions of the vessel to fill out the Simplified Tonnage Measurement form from Transport Canada, for inclusion in manual. (TC Form 4a.)
11.0	Operational Performance:
1.	Unless otherwise stated, Performance will be for conditions of zero sea state and no wind, in salt water with Normal Load and complement. The craft must be designed and constructed for ease of maintenance and repair, long life, and to be easily supportable by local commercial facilities and suppliers. The craft is expected to have a service life of at least 10 years, with an expected usage of

- between 250 and 500 hours per year.
2. Maximum top speed: minimum 35 knots
 3. Minimum speed: cruise at 20 knots in Beaufort Force 5 with 21 knot wind.
 4. Endurance: maximum speed for 2 hours.
 5. REQUIRED Range: 180 nautical miles with 10% reserve at 25 knot minimum speed
 6. Capable of steering 15° from heading, in Beaufort Force 7, seas from any direction.
 7. Steer and manoeuvre effectively at 3 knots in Beaufort Force 7.
 8. Maintain course, made good over ground, when proceeding at 3 knots with relative crosswind of 35 knots.
 9. Capable of steering effectively in Beaufort force 7 with winds up to 33 knots while towing a 10 tonne (displacement) vessel at 5 knots.

11.1 Beaching:

1. Capable of beaching on soft (sand, earth or clay) surfaces at a speed of up to 5 knots without damage to the hull.
2. Capable of beaching on hard (stone or concrete) surfaces at speeds of up to 3 knots without damage to the hull.

11.2 Depth Under Keel:

1. Operate carefully in depths of 1.0 meter with outboard motor lowered.
2. Basic manoeuvring in depths of 0.75 meters with outboard motor partially raised.

12.0 Environmental Conditions

12.1 Must operate day or night in the following conditions:

1. Average ambient air temperature range: -15°C to + 30°C.
2. Average water temperature: 0°C to +20°C.
3. Wave heights of up to 5.5 meters (max for Beaufort Force 7).
4. Wind speeds of 28 – 33 knots.
5. Operate in freezing spray or rain while maintaining stability in Beaufort 7.

13.0 Cabin Vessel Configuration

13.1 General Arrangement Notes:

1. The cabin length must be not more than 70% the interior length of the hull.
2. The cabin sides must land on the side decks and may be flush with inboard face of tube cradle with cradle top forming the side decks.
3. The forward cuddy area of the vessel, to have a door at the dash and to be equipped with an overhead, "Ocean Class" hatch to allow ventilation for forward cuddy.
4. The forward cuddy shall be fitted with two full length bench / berths one each port and starboard.
5. The main cabin must be equipped with a lockable weather tight door aft with a vertical sliding aluminium framed window. The cabin door must have positive retention open position and lockset with an exterior protective plate to prevent access to the latch bolts, and all locks and hardware must be of stainless steel construction.
6. The cabin must be designed in such a way as to allow access between the navigator and helms stations to the bow's cuddy area.
7. The cabin area must seat four on shock mitigation seating, and house the controls and navigation electronics. Aft port and starboard side there must be stowage boxes with seating cushions on top and fold away desk for report writing on Stbd side. Temporary seating to have seat belts, (inboard facing seating).
8. The main cabin must have at least 193 centimetres of headroom (6'-4").
9. Windows: The cabin must be fitted with proven manufacturers' aluminium framed windows of Tempered and Laminated glass as follows, and generally per section 16.4, certified for Category B, ISO category of operations.
 - a. Minimum two (2) forward (fixed), with pantograph wiper each window.
 - b. Two (2) side sliding windows, with positive retention open and closed, aft of forward window corner post.
 - c. Two (2) side fixed windows aft of the forward side sliding windows.
 - d. Two (2) aft fixed windows, either side of door with one opening window in the aft door.

<p>10. Forward bow section to incorporate a bow locker to store anchor rode. The locker must have a separate access hatch below deck to provide access and a chain pipe through the deck.</p> <p>11. A side tray is to be incorporated into both port and starboard cabin sides running full length of seating array accommodating all seated positions. Tray to be used for temporary storage of small miscellaneous personal items, charts or other items.</p> <p>12. A head is to be incorporated into the forward cuddy. Head to be centered between cuddy full length port and starboard berths. A cushioned cover is to be provided made of same materials and thickness's and when installed over head assembly be flush with upholstered full length berths. Head is to have separate storage and ability to be pumped or vacuumed at any designated marine waste disposal station.</p>
<p>13.2 General Deck Arrangement - Cabin Vessel:</p> <ol style="list-style-type: none">1. There must be at least 9 tie up points along the side deck / Two (2) forward, 4 mid ship, 2 aft on transom corners with one bow bit.2. There must be a tow post fitted near the centre of the transom with triangulating braces to the transom, used for EMERGENCY towing, rated for 3000 lb. (1360 kg.), ahead of the thrust point of the craft.3. A permanently mounted hand cranked towline recovery reel shall be installed, with 100m of buoyant ¾ inch diameter towline. Tow Recovery Reel must have a cover made of marine grade weather resistant material that protects the tow rope from the elements when not in use. The hand crank shall be removable and have permanent storage pocket for the handle. There must be a screen protection barrier fitted on the transom to prevent aft egress and recoil of towing line. Tow reel must be of a height that ensures tow line when deployed clears the engines and engine guard in all applicable sea states.4. There must be an anchoring bit / cleat on the bow of the vessel.5. Vessel must be outfitted on the cabin top with a ruggedly constructed arch built to withstand the loads anticipated and support the radar, lighting, and antennas.6. Vessel must be fitted with aluminium protective pipe bracket, which extends around the outside of the outboard motors. This guard must be fabricated so as to be easily removed to facilitate the removal of the outboard engines.8. There must be bolt on inboard handrails port and starboard at the bow, near the cuddy trunk edge, with a break across bow, to tie in with cabin top rails running aft on the cabin top, above the cabin sides outboard.. There must be bolt on outboard cockpit rails from aft of the cabin side aft edge to the stern to return inboard to a stanchion 30 cm inboard from transom corners, with aft corner cleats on the transom corners under the railing. Rail heights from the deck, must be as required for working vessels as approved by TA, Inspection Authority, and client dept. self-inspector, minimum 30" to 36 ' from decks for working cockpit safety.9. Vessel must be equipped with securing eyes fitted to the outside of the transom used for trailer tie downs.
<p>13.3 Cabin Interior Outfit</p>
<p>13.3.1 Seating:</p> <ol style="list-style-type: none">a. This vessel must be equipped with 4 shock mitigating marine seats with ballistic nylon or other durable upholstery and seat belts. Seats to be 'Grammer' or equal.b. Shock mitigating seats must be arranged two on Stbd., and two on Port, all facing forward and be mounted to reinforced raised seat base(s) on port and starboard. The helm seat location must slide to provide adjustment for operation of the helm.c. These seat bases, must permit the storage of larger items such as deck brush, boat hook, and other equipment. Part of the seat base on each side must be arranged as locking lockers with inboard access.e. All console electronics wiring, breaker panels or other systems infrastructure must be protected and secured from any common area, in particular the cuddy, by use of durable lockable hinged covers or doors.
<p>13.3.2 Cabin Lighting:</p> <ol style="list-style-type: none">a. The cabin must be equipped with at least two rows of overhead white lights.b. The lights must have individual switches, and dimmers.c. The vessel must also be equipped with two rows of dimmer controlled RED night-lights in the cabin.

d. There must be a red chart lamp on each side of the dash, one for the operator and one for the navigator each with switch controls, and dimmer.
e. The forward cuddy must have an overhead 12 V red / white light with switching.
f. All cabin lightning must be LED
13.3.3 Grab Handles: There must be grab handles positioned as follows: <ol style="list-style-type: none">Two overhead, on both P & S, continuous or intermittent, along the length of the cabin.Two (2) at the aft door, (interior) one on each side.One (1), vertical in the passage way forward at the console forward edge.At the navigator's position on the dash, integrated at the aft edge of the dash top.Located outside aft companion door, and vertical between door frame and window.
13.3.4 Foot Rests: There must be two (2) foot rests, one for each forward shock-mitigating seat.
13.3.5 Flooring : All interior floor covering must be approx 3/8" shock and sound absorbing rubber with embossed tread pattern.
13.3.6 Interior Finish: The interior of the vessel must be in a speckled grey colour, Granite Zolotone or equal. All rough edges and sharp angled corners must be rounded and ergonomically adapted. The space between interior linings and exterior plate must be insulated between frames with thermal insulation. Frame faces must have thermal barrier tape isolating interior panels.
13.4 Interior Utilities <ol style="list-style-type: none">This vessel must be equipped with a 3.0 kW power charger / inverter that connected s tied to one (1) deep cycle large capacity marine house battery and a start battery per engine.There must be two (2) 110 VAC power receptacles in the main cabin area one located near each forward shock mitigating seat.There must be a shore power 110v receptacle, 30-amp connection, exterior on aft bulkhead of house.The cabin must be equipped with an interior diesel heater capable of heating the interior area of the vessel with a 20% reserve BTU rating; model 10DW Webasto or equal.Outlets from the diesel furnace must be located in the cabin, at the navigation and helm positions near the deck, and the window supply plenum(s) port and starboard.The front windshield defroster(s) must have a variable three-speed fan and be capable of clearing the entire front windshield area of the vessel. Heater switching and defrosting controls to be mounted on the dash, navigator's position.The front windshield defroster must be capable of blowing both cold and heated air.The cabin must have at least two variable speed fans capable of circulating the air in the cabin. A positive pressure intake fan with water exclusion intake protection must supply air to the cabin.The fuel reservoir for the furnace must be approximately 10 litre capacity, (with marked diesel fill near lazarette box or side deck over the tank).
13.5 Helm Station: There must be an array of electronic equipment at the helm and navigation positions, see electronics section 17.5. <ol style="list-style-type: none">There must be a dash-mounted magnetic compass, see section 13.6.5.All light switches and the switched control panels must be within easy reach of the helm.In addition to the factory supplied individual propulsion leg trim controls there must be a SYNCRO trim switch to integrate the controls on one switch at helm.The vessel must be equipped with heavy-duty marine commercial grade pantograph windshield wipers, one per forward window. The switches for the wipers must allow for three speed operation (intermittent). Switches also to be on single circuit with controls to the inboard side of the helm position.Provision required for additional space for installations; e.g. for trim tab controls.e.
13.6 Navigation Lighting and Equipment <ol style="list-style-type: none">The Contractor shall supply and install an electric horn that meets the requirements of the Collision Regulations. The horn must be operated by a spring-loaded switch located on the operators' console. The "Signaltone" model RB-85, or Ongaro electric horn meets this requirement, to be mounted facing forward.Navigation lights must be permanently fitted to the cabin and / or antenna arch with protected wiring and must be waterproof. The fitting of a combined navigation sidelight lantern on the bow deck forward will not be acceptable. Mounting location not to impair access to cabin top handrails by personnel on side decks in any way.

3. The fixtures must be of such a design as to resist the effects of vibration and must be provided with adequate protection from damage that may occur when laying along side a vessel or a pier. (The Hella NaviLED Series of lights, including the NaviLED 360 all-round light, and NaviLED sidelights meet this requirement.)
4. Non-white navigation lighting must be wired together on a separate breaker of the 12 volt DC electrical system and all around Mast /Anchor light showing clear above the radar scanner must be on a separate switch. Two switches to be provided, labelled: Nav 1 (masthead / anchor) and Nav 2 (side [running] lights).
5. Magnetic Compass - The Contractor must provide and install a direct read compass, with light, and dimmer, near the centreline of the helm. A direct readable three or four-inch compass required, the Ritchie Helmsman series meets this requirement.

14.0 Construction Standards

1. Transport Canada Marine Safety Regulation TP 1332 "Construction Standards for Small Vessels", which incorporate references to ABYC standards for equipment such as fuel tanks and fuel systems, as well as tank space ventilation, and ISO standards for stability, loading capacity, deck drainage etc. as delegated to ISO 11812 / 12216 / 12217, 6185, etc. ISO 6185-3 compliance provides testing for "Type VIII Offshore Inflatable" classification, certifiable for operation in Near Coastal 2 waters in Beaufort Force 7 conditions.
2. Under ISO 6185-3 upper limit at 8 meters, full structural (Drop Testing) and stability testing must be arranged for this vessel, as described in ISO 6185-3, near the completion of construction to verify compliance.
<http://www.tc.gc.ca/MarineSafety/Directorate/TP/tp1332/tp1332e.htm>
3. Canadian Standards Association C22.2 NO. 183.2-M1983 (R1999) "Standards for D.C. Electrical Installations on Boats and ABYC 'E' electrical standards."
4. Transport Canada Marine Safety Regulation TP 1324 "Coated Fabrics".
<http://www.tc.gc.ca/MarineSafety/Directorate/TP/tp1324/tp1324e.htm>
5. CSA W47.2-M1987: Certification of Companies for Fusion Welding of Aluminium;

15.0 Construction Drawings and Data

1. The following, "As Fitted", dimensioned drawings must be produced for manuals to record the vessel particulars.
2. - Lines Plan with approximately eight sections through hull. plus deadrise angles as indicated in 16.2, at transom and second station aft (25% aft) from chine at stem.
 - Vessel midship section showing the console / operating position in the deck.
 - Plan and Profile, general arrangement which may indicate some of following.
 - Systems drawings presented on as many sheets as required for clarity covering Bilge, Fuel, Electrical one-line, Fire fighting, and Driveline drawing as required.

16.0 Construction and Finish

16.1 Hull and Deck : The hull, and deck, must be constructed using Aluminium materials as referenced in "General Practises" section. Mil Certificates are required for all aluminium used in the fabrication.

16.2 The Hull is to be a minimum 23 to 24 degree deadrise "V" style monohull with a reverse chine flat and hull bottom to incorporate a spray strake on the bottom, one per side approximately 2/3 out from keel, which should run out to the stem. Transverse deadrise at 25% aft from chine at stem to transom, not to be less than 32 degrees.

1. Vessel to have a continuous external welded hull, deck, and motor pod. Internal framing welds must be continuous in areas subject to vibration in the vicinity of machinery mounting / bedplates and bow areas subject to impact.
2. The hull may have a minimum 3/8" thick 'delta pad' keel with interior vertical stiffener on the centreline, from the bar keel stem of minimum 3/8" thick plate to the motor POD transom, OR be a continuous V shape with bar keel protruding from motor pod transom to chine at stem. Outboard mount transom to be minimum 1/2" material.
3. The hull and decks are to be transversely framed and longitudinally stringered, with 1/4" bottom and chine plating and minimum 3/16" hull side and deck plating.

<p>4. An array of strake(s) port and starboard are to be strategically incorporated onto the hull bottom to ensure the vessel will meet acceptable standard of high performance tight turns and or evasive manoeuvres.</p>
<p>16.3 Deck: Deck wells or cockpits must be self-draining, and meet the regulatory requirements by means of non-return freeing ports in the transom, or aft end of the cockpits and wells. Aluminium "Slash Cut" hinged flap drains required.</p>
<p>16.4 Windows: (forward) are to be laminated tempered glass, and carry the manufacturers' certificate confirming construction and applicable ISO certificate for category of operation,(Class B). Forward windows close above wet decks are to be 1/2" glass. Side windows and aft windows can be minimum 1/4" thick laminated, safety glass.</p>
<p>16.5 Anchor Stowage: and Trailer Securing Points:</p> <ol style="list-style-type: none">1. Arrangements must be provided for safe, secure and accessible stowage of an anchor and cable, with the anchor to be a 'Danforth' style, and stowed on the cuddy top between hatch and chain pipe.2. Tie Downs: Port and Starboard trailering tie down points to be incorporated in transom.
<p>16.6 Bow Eye: A system is to be designed and incorporated into the construction of the stem that allows for the bowline and or trailering hook to be attached to the bow and which must not protrude from the line of the stem. The fitting must be of a non-corrosive material and of sufficient strength to allow for towing the vessel at a speed of 20 knots in calm water in the normal loaded condition, on an even keel, without damaging the vessel or causing chafing of the towline. Bow eye must of a size to allow easy connect and disconnect of winch strap hook and all additional trailering secures such as the safety chain and or turnbuckle retainers.</p>
<p>16.7 Pumping and Drainage: Electric and Manual pumps</p> <ol style="list-style-type: none">1. An electric bilge pump with 2000 gph capacity shall be fitted in the main watertight division as well as a fixed manual operated bilge pump of the diaphragm type. The bilge pumps shall be located so that they take suction from the lowest point of the hull. Smooth bore piping shall be installed which will allow the bilge pump to discharge directly overboard. Discharge non-return valves will be required, or loop above discharge. Any additional watertight division of the hull must be serviced by a bilge pump of minimum 1500 GPH capacity, and have a high water sensor and alarm.2. An individual automatic control shall be fitted that turns on the electric bilge pump when water is present in the bilge. (An Ultra JR Float Switch meets this requirement; DO NOT Connect integrated caged switches in the base of pumps.) The electric bilge pump control switch shall be located on the operator's console, with settings for 'on', 'off', and 'automatic' operation. An indicator light shall be provided at the control that lights when the bilge pump is operating.3. A HIGH-level float switch must be used in each hull compartment and engine-mounting compartment. The HIGH LEVEL switch(s) must activate an audible (cancellable) and visible alarm at the helm, and must be in plain sight of operator.4. Hull drainage: A non-corrosive threaded plug shall be provided in the lowest point to drain the hull when out of the water.5. Valves and handles shall be stainless steel and shall be located where they are readily accessible for operation, maintenance or removal.6. All Bilge switching and or panel array including visual indicators for alarms and function must be in clear view of both helms and navigator positions.7. All quick access hatched to be made of aluminum.
<p>16.8 Collars</p> <ol style="list-style-type: none">1. Collar must be an inflatable type with at least 5 separate chambers of approximately equal volume, each chamber fitted with a suitable inflation system and over-pressure relief valves calibrated to 3 psi (the Halkey Roberts model 690BV inflation valve and the Mirada model B51019 3.5 psi over pressure relief valve, meet this requirement). Inflatable collars fitted must be constructed of material that meets the criteria for strength, elasticity, resistance to wear and longevity as defined in TP 1324. (1650 / 1880 Decitex Neoprene / Hypalon coated nylon fabric meet this requirement). New Polyurethane materials may be proposed. Collars are to be grey in colour.2. Collar systems must be attached to the hull using mechanical fasteners in such a manner that the

collar can be easily removed for repair or replacement. The use of screws and lag bolts or glue-on type collars are not acceptable.

3. Collars shall be interchangeable in multiple build contracts, and have a diameter of between 560 and 600 millimeters so that custom fitting of spare collars is not required.
4. Collars must be provided with minimum 5 protective wear strips all around. Extruded neoprene rubber, or equivalent, rubbing strakes (minimum 75mm wide, 'Bombard' style) must be glued along the entire length of the outboard side of the collar to provide protection against abrasion and puncture. The bottom of the collar wetted surface of the tubes (if any) will have a protective layer of material installed, and the bow of the tubes from stem to aft of bow boarding area to be protected above and below the Bombard strips with additional glue on patches of rubberized material. (DPDM or equal) Boarding area aft, between forward end of side rails and aft end of cabin, to be similarly protected.
5. Grab lines of nylon braided rope construction 1/2" diameter, must be fitted along the collar on both the port and starboard sides to provide access from both within the boat and for persons in the water. Grab lines must be mounted just outboard of the top of the collar, by means of a lacing cuff (not by D-Ring attachment), or to the outboard side of the sheer guard of the side deck.
6. A repair kit must be provided for Collars.
7. All seams are to be hand buffed and glued.
8. Polyurethane sealant should be used on all interior seams and baffle edge.
9. **An operator activated inflation system** must be installed to provide approx. 5 p.s.i. air (manually directed and valved at a manifold) to each chamber of the tube assembly with controls located inside the cabin.

16.9 Exterior Finish: The standard color of the inflatable collar must be neptune grey. Upholstery on the seats must be black or gray. All exposed aluminum surfaces not part of the hull, deck or console must be non-reflective finished. Deck areas must be painted with non-skid (black or dark gray), including the trunk / deck ahead of forward windshields. Exterior colour of the vessel to be white. Interior to be painted grey overhead on exposed aluminium and with Granite Zolotone on all consoles and side and interior panelling, seat bases, deck boxes, doors, and cabinets

OUTFITTING AND EQUIPMENT

17.0 Outfitting Detail

17.1 A. Lifesaving Emergency Equipment - The following items must be supplied and provided with stowage / securing arrangements (as appropriate for each item). All CFM fittings must be heavy duty, corrosion resistant stainless steel fittings. All items must be readily accessible (the foot pump and the repair kits must be stowed in a stowage locker):

1. Fire extinguishers (Class B1, marine type; three of, 2 aft in cabin, one in the forward console area near the electrical systems.
2. Two (2 paddles of a useful length).
3. 'Danforth' style galvanised steel anchor of a size suitable with chain and rode.
4. One manual bilge pump, as specified elsewhere.
5. One heaving line not less than 15 meters, with life buoy or quoit,
6. One watertight flashlight.
7. Pyrotechnics Type A. Qty. three (3), and Type B or C Qty. three (3).
8. Re boarding device if vessel freeboard is above 0.5 meters.
9. Marine First Aid Kit as per Small Vessel regulations 2010 Section 8.1.

B. Additional Operator Safety Equipment

1. Fume (gas) detector in the bilge.
2. Carbon monoxide detector in the cabin.
3. Drogue sea anchor and 100 feet of 1/2 " braided nylon line.
4. Mooring lines, four (4) X 20 X 5/8" braided nylon line with eye spliced into one end.
5. Collar patch kit (for inflatable collar).
6. One EPIRB ACR Globalfix Category 1 with Hydro static housing mounted to the aft exterior of the cuddy cabin.
7. Boat Hook; telescopic

17.2 Electrical System

The electrical system is to be of the marine type and generally protected from a fresh-water environment. All wires are to be of the marine type, with tinned copper strands (UL 1426) and are to be identified on the electrical drawing provided by the Contractor. The system's distribution is to be operated by way of panel(s) with minimum 15 circuit breakers for additional electronic devices. All circuit breakers are to be clearly identified.

17.3 Batteries

1. The boat is to be equipped with a system of deep-cycle batteries with a selector on/off switch and connected in accordance with the motor manufacturer's technical specifications.
2. Additional battery needs to be noted here: Third House Battery required for house and electronic loads. The batteries must be of marine quality equipped with rollover caps and a capacity to adequately service engines and ancillary vessel loads.
3. Third house battery charging must be accommodated by means of ACR system incorporated into engine charging array with independent battery on off switching.

17.4 Wipers, Lights and Utilities:

Two or three wipers (pantograph arms for three windows) are to be installed on the port, centre (if any), and starboard fore windows. They are to be activated individually by a variable speed switch configuration starboard, port and center, if any, located on the operator's console.

1. One remote control spotlight to be mounted approx 6" from center of fwd edge of cabin top; Model ACR 100 or eq.
2. Contractor must supply two (2) handheld searchlights for the vessel. Each light must be 12 volt and must produce 1 million candela.
3. Two blue flashing lights (strobe type) must be fitted on the antenna arch. (The Aqua Signal Corporation, series 40 strobe light, or equal, meets this requirement.) Strobes must installed and programed if applicable to meet all applicable Collision Regulations.
4. The deck flood lights (6 of) to be fitted on the arch of the vessel 2 each facing to bow, stern, port and starboard; model # Hella 1GB-998-541-001 or equal..
5. Three 12 VDC power points required, in cockpit, port nav. station, and forward on cabin.

17.5 Navigation Electronics

This vessel is to be equipped with the following integrated electronics navigation package, with displays located across the forward dash, in addition to the COLREGS required equipment. Both displays to be interconnected with navionics gold cartography included for Canada with VHF interfaced with the master chart plotter monitor.

1. One RAYMARINE C-97 Multifunction display at helm station
2. One RAYMARINE C-127 Multifunction display at the navigation station.
3. One RAYMARINE 24"4 KW Raydome Standard Definition Radar dome
4. One (1) ICOM Model 604 DSC VHF radio flush mount at navigators position.
5. One Airmar GH 2183 Electronic compass heading sensor.
6. One Morad VHF-156HD antenna with composite transition mounts.
7. One plastic through hull transducer.
8. One Comar AIS (receive only) with VHF splitter.
9. Builder to supply all inter-connect cables for above.

18.0 Propulsion

1. The Contractor is to fit two (2) Yamaha, (one counter rotation), 4-Stroke, gasoline outboard motors, GSM supplied. Contractor to provide recommendations of engine horsepower capable of meeting performance requirements as outlined in Section 11
2. Contractor to ensure that engine installation and pre-start-up service is complete in accordance with manufacturer's instructions.
3. Engine package must incorporate an automatic shutdown feature (kill switch) for the engine to be mounted near the ignition switch.
4. Control cables must be CFM, see Section 8.6.2 .
5. In addition to the factory supplied individual propulsion leg trim controls there must be a SYNCRO trim switch to integrate the two drive leg trim controls on one switch.

6. Contractor to supply and install any of the following equipment included in the manufacturers' standard and optional gauge package (e.g. Mercury Smart Craft) for the specified engine: All gauges must be backlit with an adjustable dimmer. Lighting for gauges and lighting for compass must use separate dimmers.
 - a. Tachometer for engine.
 - b. Water temperature / gauge/ alarm.
 - c. Trim gauge.
 - d. Controls, cables.
 - e. Ignition harness.
 - f. Hour meter for engine (separate analogue for each engine in addition to any multi-function gauges supplied by the manufacturer.
 - g. Voltmeter.

18.1 Fuel Systems: NOTE: Regardless of TP 1332 requirements the engine/ fuel tank space must have flow through bow to stern passive AND powered ventilation.

1. Fuel systems must meet with all requirements of TP 1332 "Construction Standards for Small Vessels", which reference the ABYC standards.
2. The vessel must be fitted with two (2) fuel tanks with baffles, to be located under the deck for a total capacity of no less than six hundred (600) litres. Contractor may propose additional fuel capacity.
3. There must be "quick access", per TC, inspection hatches (8") in the deck, to allow access to the fuel pick-ups, vent, fill connections, and tank level indicators.
4. Arrangements must be provided for two fuel tanks and associated lines, vents, fills, and on / off selector manifold, using three way valves, to be fitted to the boat.
5. Fuel lines from the inboard shutoff valve or manifold to the outboard motor(s) to be protected against chafing and wear.
6. A fuel / water separator filter is to be mounted "in-line" to each engine with easy access to drain the sediment bowl.
7. Fuel shutoff valves are to be installed at fuel tank outlets and be easily accessible, outside of tank or manifold spaces, by vessel operators. Near the filters and engines, additional 'service' fuel shutoff valves to be located, to facilitate engine or filter service.
8. Lockable/ labelled fuel fill, and vent station must be located at the starboard side of the aft cabin bulkhead. Contractor may propose a location ahead of the forward tank.
9. The Fuel tank space must have a fume detector, Marine Tech 2" or equal.
10. Lockable / labelled diesel heater tank fill station to be located aft above tank.
11. All quick access hatches to be made aluminum.

19.0 Steering

1. Steering systems must be hydraulic with a maximum of 3.5 turns from hard over to hard over. The SeaStar® and / or Uflex steering systems meet this requirement). Particular propulsion systems may have their own requirements for steering that must be adhered to, e.g. Jet steering systems.
2. All hydraulic steering hoses must be routed below deck and all hoses must be routed so that there is no pinch or chafing points on the hoses.
3. The wheel / console connection must be of robust construction, to eliminate fore and aft or lateral movement of wheel / steering shaft fixture.
4. The Steering wheel must be stainless steel and may be rubber or plastic covered, or the steering wheel must be stiff enough that during rough water operations there is no flexing of the wheel and the wheel should be padded to provide a comfortable non-slip surface for the operator to grip. (Momo Marine steering wheels meet these requirements.)

20.0 Trailer

1. The trailer must be rated approximately 20% over the anticipated 'wet' weight of the vessel having the following features:
 - welded galvanized modular steel or aluminum I Beam construction, tandem axle;
 - with Vault Style axle hubs.
 - brake, running, turn signal, and backing lighting with seven (7) pin RV wiring connector
 - electric/hydraulic, jurisdiction compliant disc braking system;
 - bow winch assembly with winch strap and bow chock;

- radial tires;
 - tongue jack, 2500 lb. with pad;
 - full size wheel mounted spare tire;
 - combination double bunks forward with aft rollers, and spare tire and carrier;
 - heavy duty 'stand-on' fenders and hitch to accommodate a two (2 5/16") inch ball.
2. The trailer shall be equipped with fenders and mudguards, which conform to Transport Canada Standards, and have required lighting using LED lights. The trailer must be provided with two 2 galvanized safety chains and shackles of suitable size and rating. All electrical connections are to be sealed from the atmosphere.
 3. The trailer must be equipped with a two (2) speed manually operated winch of a suitable size and rating with a web strap cable with a hook rated for the trailer design load. Web strap length must be at least 914 cm, or 29 ft. 11 3/4". The sides of the trailer shall be fitted with two (2) eyes per side for shackles to secure the vessel to the trailer.
 4. The Contractor must supply two (2) suitable adjustable hold down cables/straps. A galvanized safety chain and shackle must be provided on the front of the yoke assembly for securing the bow of the vessel.
 5. The trailer must be adjusted for the vessel. The winch, stand and turnbuckles are to be capable of withstanding long journeys on rough terrain.

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File No. - N° du dossier
XLV-6-39021

Buyer ID - Id de l'acheteur
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CCC No./N° CCC - FMS No./N° VME

ANNEX B - QUESTION & ANSWER

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To be completed as required during the bid solicitation period.

Item	Spec-RFP description	Questions	Answers

ANNEX C - INSPECTION/QUALITY ASSURANCE/QUALITY CONTROL

1. Conduct of Inspection

- (a) Inspections will be conducted in accordance with the ITP provided and accepted by the Inspection Authority and as detailed in this Annex.
- (b) The Contractor must provide its own staff or subcontractors to conduct inspections, tests and trials; excepting that Technical Authority or Inspection Authority personnel may be designated in the specifications, in which case the Contractor must ensure that its own staff are provided in support of such inspection/test/trial.
- (c) As applicable, the Contractor must ensure that the required conditions stated in the specification prevail at the commencement of, and for the duration of, each inspection/test/trial.
- (d) The Contractor must ensure that personnel required for equipment operation and records taking during the inspection/test/trial are briefed and available at the start and throughout the duration of the inspection/test/trial. Tradesmen or FSRs who may be required to effect minor changes or adjustments in the installation must be available at short notice.
- (e) The Contractor is to coordinate the activities of all personnel taking part in each inspection/test/trial and ensure that safe conditions prevail throughout the inspection/test/trial.

2. Inspection Records and Reports

- (a) The Contractor on the inspection record, test or trials sheets as applicable must record the results of each inspection. The Contractor must maintain files of completed inspection records.
- (b) The Contractor's Quality Control (QC) representative (and the FSR when required) must sign as having witnessed the inspection, test or trial on the inspection record. The Contractor must forward originals of completed inspection records, together with completed test(s) and/or trials sheets to the Inspection Authority as they are completed.
- (c) Unsatisfactory inspection/test/trial results, for which corrective action cannot be completed during the normal course of the inspection/test/trial, will require the Contractor to establish and record the cause of the unsatisfactory condition to the satisfaction of the Inspection Authority. Canada representatives may assist in identification where appropriate.
- (d) Corrective action to remove cause of unsatisfactory inspections must be submitted to the Contracting Authority and to the Inspection Authority in writing by the Contractor, for approval before affecting such repairs and rescheduling of the unsatisfactory inspection/test/trial. Such notices must be included in the final records passed to the Contracting Authority and to the Inspection Authority.
- (e) The Contractor must undertake rectification of defects and deficiencies in the Contractor's installation or repair as soon as practicable. The Contractor is responsible to schedule such repairs at its own risk.
- (f) The Contractor must reschedule unsatisfactory inspections after any required repairs have been completed.
- (g) Quality Control, Inspection and Test records that substantiate conformance to the specified requirements, including records of corrective actions, must be retained by the Contractor for three (3) years from the date of completion or termination of the Contract and must be made available to the Contracting Authority and to the Inspection Authority upon request.

3. Inspection and Trials Process

3.1 Drawings and Purchase Orders

- (a) Upon receipt of two (2) copies of each drawing or purchase order, the designated Inspection Authority will review its content against the provisions of the SOW. Where discrepancies are noted, the Inspection Authority will formally advise all concerned, in writing using a Discrepancy Notice. The resolution of any such discrepancy is a matter for consultation between the Contractor and other Government of Canada Authorities.

3.2 Inspection

- (a) Upon receipt and acceptance of the Contractor's ITP, inspection will consist of a number of Inspection Points supplemented by such other inspections, tests, demonstrations and trials as may be deemed necessary by the Inspection Authority to permit him to certify that the work has been performed in compliance with the provisions of the specification. The Contractor must be responsible for notifying the designated Inspection Authority of when the work will be available for inspection, sufficiently in advance to permit the designated Inspection Authority to arrange for the appropriate inspection.
- (b) The Inspection Authority will inspect the materials, equipment and work throughout the project against the provisions of the specification and, where non-conformances are noted, will issue appropriate INSPECTION NON-CONFORMANCE REPORTS.
- (c) The Contract requires the implementation of a Quality Assurance/Quality Control system, so the Inspection authority must require that the Contractor provide a copy of its internal inspection report pertaining to a work item before conducting the requested inspection. If third party inspections are required by the Contract (e.g. inspections by a certified CWB 178.2 welding inspector), the reports of these inspections are required before the Work is inspected by the Inspection Authority.
- (d) The QA/QC system is a requirement, so if the documentation is presented to the Inspection Authority before an inspection stating that the Work is satisfactory but the Inspection Authority finds that the Work has not been satisfactorily inspected, the Inspection Authority must issue an Inspection Non-conformance Report against the Work and another against the failure of the Contractor's QA/QC system.
- (e) Before carrying out any inspection, the Inspection Authority must review the requirements for the Work and the acceptance and/or rejection standards to be applied. Where more than one standard or requirement is called up and they are potentially conflicting, the Inspection Authority must refer to the order of precedence in the Contract to determine the standard or requirement to be applied.

3.3 Inspection Non-conformance report

- (a) An Inspection Non-conformance report will be issued for each non-conformance noted by the Inspection Authority. Each report will be uniquely numbered for reference purposes, will be signed and dated by the Inspection Authority, and will describe the non-conformance.
- (b) When the non-conformance has been corrected by the Contractor and has been re-inspected and accepted by the Inspection Authority, the Inspection Authority will complete the Report by adding an applicable signed and dated notation.
- (c) At the end of the project, the content of all Inspection Non-conformance Reports which have not been signed-off by the Inspection Authority will be transferred to the Acceptance documents before the Inspection Authority's certification of such documents.

3.4 Tests, Trials, and Demonstrations

- (a) To enable the Inspection Authority to certify that the Work has been performed satisfactorily, in accordance with the Contract and specifications, the Contractor must schedule, co-ordinate, perform, and record all specified tests, trials and demonstrations required by the Inspection

Authority and the Specifications and any additional tests and trials performed by the Contractor required by the Inspection Authority.

- (b) Where the specifications contain a specific performance requirement for any component, equipment, sub-system or system, the Contractor must test such component, equipment, sub-system or system to the satisfaction of the Inspection Authority, to prove that the specified performance has been achieved and that the component, equipment, sub-system or system performs as required by the specifications.
- (c) Tests, trials and demonstrations must be conducted in accordance with a logical, systematic schedule which must ensure that all associated components and equipment are proven before sub-systems demonstration or testing, and that sub-systems are proven before system demonstration or testing.
- (d) Where the Specifications do not contain specific performance requirements for any component, equipment, sub-system or system, the Contractor must demonstrate such component, equipment, sub-system or system to the satisfaction of the Inspection Authority.
- (e) The Contractor must co-ordinate each test, trial and demonstration with all interested parties, including the Inspection, Contracting and Technical Authorities; regulatory authorities; Classification Society; Sub-contractors; etc. The Contractor must provide the Inspection Authority and other Government of Canada Authorities with a minimum of ten (10) working days notice of each scheduled test, trial, or demonstration.
- (f) The Contractor must keep written records of all tests, trials, and demonstrations conducted required by the QA System.
- (g) The Contractor must in all respects be responsible for the conduct of all tests and trials in accordance with the requirements of the Contract.
- (h) The Contracting Authority and the Inspection/Technical Authority reserve the right to defer starting or continuing with any sea trials for any reasonable cause including but not limited to adverse weather, visibility, equipment failure or degradation, lack of qualified personnel and inadequate compliance with safety standards.

ANNEX D - DETAILED FINANCIAL BID PRESENTATION SHEET

D-1 Proposed Work Location:

Contractor's Facility _____

D-2 Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, customs duties are included and applicable taxes are extra, Incoterms 2000 Delivered Duty Paid (DDP) to destination.

a.	Known Work – First Unit (1 boat, 1 Trailer) With included delivery Incoterms 2000 DDP to: Sechelt RCMP Box 188 Sechelt, BC V0N 3A0	\$ _____
b.	Known Work – Second Unit (1 boat, 1 trailer) With included delivery Incoterms 2000 DDP to: Comox RCMP 800 Ryan Road Courtenay, BC V9N 7T1	\$ _____
c.	Option Unit #1 – 1 boat, 1 Trailer With included delivery Incoterms 2000 DDP to: Ladysmith RCMP	\$ _____
d.	Option Unit #2 – 1 boat, 1 Trailer Location TBD – delivery to be addressed in contract.	\$ _____
e.	Option Unit #3 – 1 boat, 1 Trailer Location TBD – delivery to be addressed in contract.	\$ _____
f.	Unscheduled Work <i>Labour Cost:</i> Estimated labour hours at a firm <i>Charge-out Labor Rate</i> , including overhead and profit: 50 person hours X \$ _____ per hour for a PRICE of: See articles D-3 and D3.1 below.	\$ _____
g.	EVALUATION PRICE [a + b + c + d + e + f] For an EVALUATION PRICE of: (customs duties are included and applicable taxes are excluded)	\$ _____

D-3 Unscheduled Work

Unscheduled work arising, as authorized by the Minister, will be calculated in the following manner:

"Number of hours (to be negotiated) X \$ _____ your firm hourly *Charge-out Labour Rate* which includes *Overhead* and profit, plus net laid-down cost of materials to which will be added a 10% mark-up, plus Goods and Services Tax or Harmonized Sales Tax as applicable, of the total cost of material and labour.

The firm hourly *Charge-out Labour Rate* and the material mark-up will remain firm for the duration of the Contract and any subsequent amendments."

D-3.1 Notwithstanding definitions or usage elsewhere in this document, or in the Bidder's Cost Management System, when negotiating *Hours* for unscheduled work, PWGSC will consider only those hours of labour directly involved in the production of the subject work package.

Elements of *Related Labour Costs* identified in D-3.2 will not be negotiated, but must be included within the *Charge-out Labour Rate*. It is therefore incumbent upon the Bidder to enter values in the above table which will result in fair compensation, regardless of the structure of their Cost Management System.

D-3.2 Allowance for *Related Labour Costs* such as: Management, Direct Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Inspecting and Reporting, and Estimating must be included as *Overhead* for the purposes of determining the *Charge-out Labour Rate* entered in line D-2b and Article D-3 above.

D-3.3 A 10% mark-up rate will be allowed for materials and this rate will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in the *Charge-out Labour Rate*. A separate labour component for the purchase and handling of materials or subcontract administration is not allowable.

D-4 Boat Delivery Proposal

While the delivery of the boats and all deliverable to destination required by the Contract is desired for **October 31, 2016**.

The best delivery that could be offered is _____ weeks after Receipt of Order (ARO).

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xlV166
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ANNEX E - SUBCONTRACTOR LIST

Specification Item	Description of Goods/Services (Including Make, Model Number as	Name of Supplier	Address of Supplier

ANNEX F - INFORMATION REQUIRED FOR THE VERIFICATION OF INTEGRITY PROVISIONS

Please provide a list of names of the following entities, according to the ownership nature of the company

1. For a Corporation - each current member of the Bidder's Board of Directors;

2. For a Partnership, General Partnership or Limited Partnership - the names of all current partners;

3. For a Sole Proprietorship or an individual doing business under a firm name - the name of the sole proprietor or individual;

4. For a Joint Venture - the names of all current members of the Joint venture;

5. For an individual - the full name of the person

ANNEX G – BID PACKAGE CHECKLIST

Instruction to Bidders: Table G-1 is a check list for self-verification purposes.

Table G-1 Bidder's Bid Package Check List

G1.1

Notwithstanding deliverable requirements specified anywhere else within this bid solicitation and its associated Technical Specifications, the following are the only mandatory deliverables that must be submitted with the Bid documents at the time of bid closing. The following are mandatory and the Bidder must be compliant on each item to be considered responsive.

No	Part	Article	Description	Condition	Document provided
<u>Section I- Technical Bid</u>					
1		Front page	Request for Proposal document part 1 page 1 completed and signed;	Mandatory with the bid	<input type="checkbox"/>
2	3	3.2.1	Annex G - Bidder package Check list	Mandatory with the bid	<input type="checkbox"/>
3	3	3.2.3	Drawing and other documentations	Mandatory with the bid	<input type="checkbox"/>
4	3	3.2.5	Vessel construction experience	Mandatory with the bid	<input type="checkbox"/>
5	Annex H	All	Technical Bid - Annex H Technical Evaluation Plan	Mandatory with the bid	<input type="checkbox"/>
<u>Section II- Financial Bid</u>					
6	Annex D	All	Annex D- Detailed Financial Bid Presentation Sheet	Mandatory with the bid	<input type="checkbox"/>

G1.2 Supporting Deliverable Requirements

If the following information which supports the bid is not submitted with the Bid; it will be requested by the Contracting Authority, and it must be provided within 48 hours (2 business days) of the written request:

No	Part	Article	Description	Condition	Document provided
<u>Section I- Technical Bid</u>					
1	3	3.2.2	Inspection and Test Plan	48 hrs of written request	<input type="checkbox"/>
2	3	3.2.4	Subcontractor list	48 hrs of written request	<input type="checkbox"/>
3	3	3.2.6	Marine Drafting and Engineering capability	48 hrs of written request	<input type="checkbox"/>
4	3	3.2.7	Contractor Quality Management system	48 hrs of written request	<input type="checkbox"/>
5	3	3.2.8	Insurance requirement	48 hrs of written request	<input type="checkbox"/>
6	6	6.5.4	Contractor representative	48 hrs of written request	<input type="checkbox"/>
<u>Section III- Certification</u>					

7	6	6.9	Welding certification	48 hrs of written request	<input type="checkbox"/>
8	5	5.2.1	Annex F Information required for the Verification of Integrity Provisions	48 hrs of written request	<input type="checkbox"/>
9	5	5.2.3	Canadian Content, completed	48 hrs of written request	<input type="checkbox"/>
10	6	6.20	Applicable laws	48 hrs of written request	<input type="checkbox"/>

G1.3 Contract Deliverable Requirements

The following information may be requested by the Contracting Authority, and it must be provided within the conditions stated in the table below of the written request:

No	Part	Article	Description	Condition	Document provided
Other documentation after contract award (Reminder)					
1	6	6.10	Project Schedule	5 days after contract award	
2	6	6.17	Inspection and Test Plan	7 days after contract award	
3	6	6.19	Insurance certificate	10 days after contract award	

ANNEX H – TECHNICAL EVALUATION PLAN

H-1.0 Technical Bid Format

The bidder is to respond to the RFP by using the **Table H-1 of this ANNEX - Column B ONLY**

This is a model for the bidder to use. Table's contents are fictional and represent a sample only.

STATEMENT OF WORK	BIDDER "NAME" RESPONSE
2.0 General	2.0 General
2.1 The seventeen foot vessel must be a cock pit design with stowage below the closed bow deck commonly referred as a "Cuddy" style	The proposed seventeen foot vessel features an open cockpit design with stowage below the closed bow deck, commonly referred in the industry as to a "Cuddy" style vessel.
2.2 Not applicable	2.2 Not applicable
2.3 Not applicable	2.3 Not applicable
2.4 All components, equipment and material must be contractor supplied unless addressed as Government Supplied Material (GSM)	Unless stated otherwise, a;; components, equipment and material will be supplied by the " Bidder names "
4.0 Vessel particulars Seventeen foot	4.0 Vessel particulars Seventeen foot
4.1.1 Physical length	4.1.1 Physical length
a) Length- 6.0 to 6.2 M	a) Length- 6.19 M
b) Breadth overall Min 2.4 M	b) Breadth overall Min 2.42 M
c) Dead rise Min 16 degrees	c) Dead rise Min 18 degrees
d) Draft (Outboard down) max 0.9. M	d) Draft (Outboard down) max 0.80. M
e) Draft (Outboard Up) Max 0.5 M	e) Draft (Outboard Up) Max 0.42 M
f) Freeboard between 0.9. to 1.00 M	f) Freeboard between 0.95

H-1.1 Technical Evaluation

The bidder must use the Statement of requirement Annex "A" numbering sequence for the tables below.

The Bidder shall provide, as part of its Technical Proposal, all documents essential to demonstrate compliance with each technical mandatory requirement, including, without limitation, photographs, maps, drawings, calculations, Original Equipment Manufacturer (OEM) specifications, documents, purchase orders (less cost data), job or Quality Control or Quality Assurance record sheets, personnel resumes, current trade certificates and, other such evidence.

The Bidder itself must meet the requirements of each evaluation item listed below, except as otherwise expressly provided in the evaluation item. If an evaluation item expressly provides that it or any element of it may be met by a subcontractor to the Bidder, then the Bidder shall provide documented evidence of such compliance by its subcontractor. In that event, the Bidder shall also provide evidence that it has a binding commitment with that

subcontractor under which the subcontractor will perform services under subcontract with the Bidder under any contract issued pursuant to this RFP, and that such services are of the same type as are specified in the relevant evaluation item.

Lines annotated with the following symbol “◀” requires drawing to demonstrate compliance with the requirement

(Table H-1- Column C- filled by the technical evaluators)

Table H-1 Mandatory Requirement

COLUMN A Description	COLUMN B Bidder Proposal	COLUMN C	
		Mandatory Requirement Bid Ref Page	Pass / Fail
<p>CONTRACTOR DESIGN AND CONSTRUCTION PRACTICES</p> <p>General Marine Construction Practices: As applies to Vessel's Specific Construction and equipment, found in Section 10 onward.</p> <p>2.0 Unless stated otherwise all components, equipment and material must be Contractor furnished material, (CFM).</p> <p>2.2 Ergonomic Design – General Hazardous operating conditions must be prevented by arranging machinery and equipment in a safe manner; providing guards for all electrical, mechanical and thermal hazards to personnel; and providing guards or covers for any controls that might accidentally be activated by contact of personnel. Human engineering factors considered in design must include accessibility, visibility, readability, crew efficiency and comfort for a range of physiques for individuals from approx. 5 ft. to 6' 4" in height, wearing cold weather clothing and equipment which must be accessible for use, inspection, cleaning and maintenance per ASTM F1166-88.</p> <p>2.3 Vibration 1. The boat and all components must be free of local vibration that could endanger boat personnel, damage boat structure, machinery or systems, or interfere with the operation or maintenance of boat machinery or systems. 2. Mounts for movable components, including items moved for stowage, towing or transport must be provided with resilient material as necessary to prevent rattling. 3. Loosening of fasteners under vibration must be prevented by the use of self-locking fasteners, as applicable.</p>			

<p>2.4 Equipment Protection: The Contractor is responsible for the care of all equipment. All parts, especially those having working surfaces or passages intended for lubricating oil, must be kept clean and protected during manufacture, storage, assembly and after installation. Equipment must at all times be protected against dust, moisture or foreign matter and must not be subject to rapid temperature changes or extremes in temperature.</p>			
<p>2.5 Site Cleanliness: During construction, all chips, shavings, refuse, dirt and water must be removed at the completion of the work shift or sooner. The Contractor must ensure measures are taken to avoid wear and damage incident to construction, and to prevent corrosion or other deterioration. Equipment subject to freezing must be kept drained, except during test and trials. Equipment must be kept clean and protected from the environment prior to installation.</p>			
<p>2.6 Facilities (applicable to GRP lamination, Collar and Painting facilities only): The Contractor must have a shop capable of maintaining temperature and humidity. It should be capable of maintaining temperature between 16°C and 25°C. It should be capable of maintaining relative humidity below 70 percent.</p>			
<p>3.0 Material and Construction Technicalities</p>			
<p>3.1 Structural Integrity - All structures and components (hull, deck, collar, console, seating, etc.) must be of sufficient strength to withstand, when in a Maximum Load condition per builders' plate, the lateral and vertical impact loading that equates to the conditions of the operational profile and mission requirements.</p>			
<p>3.2 Materials – General</p> <ol style="list-style-type: none"> 1. Environmental Exposure; All materials must be corrosion resistant and suitable for use in a salt-water environment as detailed in the Environmental Conditions portion of the Performance Requirements. All materials normally subjected to sunlight must resist degradation caused by ultraviolet radiation. 2. Direct contact of electrolytically dissimilar metals is not allowed. Electrolytic corrosion must be prevented by insulating dissimilar materials from each other with gaskets, washers, sleeves, or bushings of suitable insulating material. 3. Aluminium alloy types 5086, or dual rated 5086/5083 H116/321 must be used for plate; aluminium alloy 6061-T6 (anodized grade), suitable for type 5356 filler alloy, must be used for extruded shapes and welded tubing and pipe. Stiffened transverse bulkheads or lightened plate frames may use type 5052 to facilitate braked tabs. Specialized use of type 6061 T6 plate in fresh water for high strength delta pads is allowed. Non-hull structural items of trim 			

<p>and outfit such as hatch frames, castings, deck components with braked elements, consoles, and hardware items may be of other aluminium alloys suitable for commercial saltwater marine use such as type 5052 or 6063. Thin hull topside plate, from chine to deck edge, must be alloy 5086 if .15 or .16 plate, with shallow or 45 degree embossed strakes, if required. Thicker topsides will not be embossed. Thinner topsides plate may be alloy 5052.</p> <p>4. Stainless Steel: Stainless steel plate type 316 must be used for all stainless steel applications except as noted. Alloy 316L must be used in welded underwater components. Many commercial components, some fasteners and rivets, use other acceptable grades of stainless steel such as types 18-8 and 304.</p> <p>5. FRP and Resins - for FRP components, if any:</p> <p>a. Minimum laminating material specification must include gel coats and skin-out of isophthalic resins with a barrier coat wash of the skin-out prior to main laminate and coring materials, which can be laid in GP resins. DCPD resins must not be used.</p> <p>b. Fibre materials to be standard mat / rovings, or "stitch" combined materials, some of which may use Carbon or Kevlar strands. NO "chopper" materials to be used.</p> <p>c. Coring materials to be vacuum bagged and to be designed for usage in these specified vessels. Suitable densities of core materials such as 'Termanto', 'Klege-cell', and 'Core-cell' are acceptable and Balsa or wood, plywood, and non-structural foam materials must not be used, unless specifically required, for example, transom core.</p>		
<p>3.3 Fasteners</p> <ol style="list-style-type: none"> 1. All fasteners must be of corrosion resistant materials. 2. Cadmium plated parts and fasteners, including washers, must not be used. 3. Direct attachment of alloys containing copper to aluminium is not permitted except for an electrical bonding strap, with contact bolt and separating isolation washer. 4. No fasteners must be directly threaded into aluminium alloys, except with adequate bolt or insert sizes, minimum 1/4" diameter, tapped into a suitable alloy type, and thickness, such as 1/4" 6061, with the use of thread adhesive type material. Aluminium or Stainless steel washers or backing plates must be used as appropriate. 5. Where nuts will become inaccessible after assembly of the vessel, nuts must be captured, or tapped inserts used, to allow reassembly and prevent backing off. Unless otherwise specified, self-locking nuts must be installed to prevent loosening of fasteners due to shock and vibration, and adequate thread showing as required. 		

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<p>6. Fasteners in deck traffic areas must be flush-mounted, flat head or oval head, to eliminate tripping and snagging hazards.</p>			
<p>3.4 Construction Procedures: Hulls must be fabricated as per the requirements quoted in Construction Standards, Sec 14, and requirements of Vessel Particulars.</p> <p>3.4.1 Main Hull and Appendages - Hull Form and flotation.</p> <p>a. Hull shape must not impede water flow to the propulsion units and must direct spray and waves away from onboard personnel.</p> <p>b. Watertight and Tank Bulkheads: The hull design must be such that a sufficient number of compartments, or amount of flotation, including hull compartments, and / or low smoke and flame spread flotation foam, or fire retardant flotation, or flotation devices, will allow for adequate stability and positive buoyancy in a flooded condition. See references to vessel certification, re: TP 1332 / ISO testing.</p> <p>c. Stowage : Weather tight stowage for small items of equipment must be provided in void spaces beneath seats, and where practicable, inside console(s). All exterior stowage compartments must be lockable, secured by positive means and operable by gloved or insensitive hands.</p>			

<p>3.5 Painting and Preservation</p> <ol style="list-style-type: none"> 1. Fibreglass components must have a coloured gel-coat finish on all exterior surfaces. Gelcoat to be applied at 20-22 mil thicknesses. Finish colour(s) as per Vessel Particulars. 2. Aluminium components must have a painted finish, or powdercoat, on all specified exterior and interior surfaces, comprised of suitable etch, primers, and topcoat per the Vessel Particulars. Typical single coat paint systems can be applied in the 5 to 7-mil thickness range per coating set. Typical system components would be: a) etch-primer; b) two coats of primer; and c) minimum two topcoats. Powdercoat finishes will typically finish at 2 to 3 mils thickness. 3. Prior to delivery the Contractor must ensure that all non-painted exposed alum. is free of cosmetic blemishes, including all construction marks, scratches, gouges and stains. 		
<p>3.6 Propulsion: Unless otherwise specified, propulsion motor(s) will be supplied and installed, per Outfitting section 18.</p> <p>1. Run-in operation: The Engines must be installed and operated in accordance with the engine manufacturer's recommendations. The use of engine manufacturer's approved accessories and equipment is required except for outboard motor control cables (which must be heavy duty Morse 33C Supreme Red-Jacket ® cables, with manufacturer's cable ends installed, or manufacturer's best quality cable sets). Equipment and components must not be used, or trials performed on the engines that would, in any way, void the engine manufacturer's warranties. See Section 7.3 also.</p> <p>2. Warranty: All components of the propulsion system must be warranted by the original equipment manufacturer for the standard term, sourced by GSM or as Contractor Furnished Material (CFM).</p> <p>3. Propellers/Impellers: Unless otherwise specified, propeller(s)/impeller(s) must be as per Sec 18. Contractor must record in the trials report and equipment lists, the appropriate pitch and diameter to meet the Performance Requirements as determined by the Contractor developed design check, and trials. Propellers must be CFM.</p>		
<p>3.6.5 Steering Systems</p> <ol style="list-style-type: none"> a. Steering system must be remote hydraulic with self-contained oil reservoir, and replaceable seals on the rams, unless propulsion system builder requires alternate steering arrangement per Section 19. b. Hydraulic hoses must be of sufficient size and length to prevent pulsing. Hoses must be suitable for use in an exposed marine environment complete with stainless steel fittings. 		

<p>3.7.0 Electrical System</p> <p>a. The electrical system design, component selection and installation must be in accordance with Canadian Standards Association C22.2 NO. 183.2-M1983 (R1999) "Standards for D.C. Electrical Installations on Boats", or ABYC 'E' as referenced by TP1332. All electrical equipment and hardware must be installed in accordance with the manufacturer's specifications. AC systems will be called up in sec. 17, Outfitting.</p> <p>b All fitted electrical equipment must be capable of operating simultaneously with any other fitted electronics equipment without causing interference to any electronic equipment or to the magnetic compass.</p> <p>c. Galvanic corrosion is to be controlled by installation of an effective bonding and grounding systems with galvanic isolation. Cathodic protection is to be effected by installation of sufficient anodes positioned so as to minimise cathodic currents per ABYC and TP1332.</p>			
<p>3.7.1 Twelve (12) volt DC distribution system must be provided to power the engine starting and boat service loads including:</p> <ul style="list-style-type: none"> a. Navigation, interior, and exterior lighting. b. Electrical equipment. c. Instrumentation. d. Bilge Pumps. 			
<p>3.7.2 Batteries and Switches</p> <ul style="list-style-type: none"> a. Batteries must be marine grade, 12 V, deep cycle maintenance free, and with the ability to cross connect for twin-engine start up of either engine from either battery. Some engine packages may require larger capacity for injection systems, see Sec.17, Outfitting. b Battery switch must be Certification Agency, (CE, CSA, USCG, etc.) approved and must be mounted to prevent snagging or accidental switching. c. Battery compartment must be weather tight and fitted with a suitable means of gas venting including for 'sealed' batteries. 			
<p>3.7.3 Power Distribution: Cables for all electrical distribution must be ample in size for the particular service, of marine grade tinned boat cable.</p>			

3.7.3 Cabling Installation

- a. Cables must be grouped into wiring harnesses wherever possible. All wiring harnesses must be routed below deck. All below deck cabling must be through conduit pipe. A rope leash will be added to each conduit pipe for ease of future service and or additional cabling
- b. Cabling / conductors passing through watertight boundaries, decks, bulkheads or other exposed surfaces must be installed to maintain watertight integrity of the structure. Cable entry into watertight enclosures must be through watertight marine glands of suitable size. All electrical equipment must be readily accessible for performing maintenance.
- c. Cables and conductors must be supported with clamps or straps at least every 18 inches on horizontal runs and every 14 inches on vertical runs. No ties are to be used on cabling running through underdeck conduit pipe.
- d Cabling / conductors passing through structures without watertight glands, must be protected against chafing by the use of abrasive resistant grommets.
- e. Routing cables through foamed spaces must be avoided wherever possible. Cables that must be routed through foamed spaces must be run in PVC conduit pipe. The pipe must be arranged in a manner that prevents water from becoming entrapped in the pipe.

3.7.5 Control and Monitoring Systems: Gauges and Indicators:

- Dimensions and Mounting
- a. Unless otherwise specified, gauges must be analogue-style, or Engine Manufacturers' digital equipment. Gauges must be sized and installed so they are readily visible by the operator while operating the boat.
 - b. All gauges must be backlit with an adjustable dimmer. Lighting for gauges and lighting for compass must use separate dimmers.
 - c. Propulsion control system installation must include single-lever combined engine control, for each engine, to be located at the operator's position on the starboard side of the control station. Controls must conform to engine manufacturer's recommendations for commercial use.
 - d. The Operator's position must be fitted with a lanyard style emergency shut down switch which is attached to the operator and must shut down the engine if the lanyard is pulled from the switch, as well as the following:
 - e. Bilge Pump operation indication for each compartment so equipped.
 - f. High water alarm for the engine installation space, which could be

<p>the 'pod' for outboards, and every other space serviced by a bilge pump.</p> <ul style="list-style-type: none"> g. Engine space heat rise for inboard installation, with required fire system alarm. h. Allowance for at least one additional input, if a single integrated alarm panel used. 			
<p>3.7.6 Piping, Tanks and Ventilation Systems</p> <ul style="list-style-type: none"> a. Flexible Connections - Where flexible connections are required for steering and fuel systems, suitable hose with permanently crimped, detachable reusable type fittings must be used. b. Fuel Tanks must be hydrostatically tested, or air tested to 3.0 p.s.i. and be labelled per the requirements of TP1332. See Sec. 18. c. Fittings and clamps must be stainless steel. Bolts used in all fittings must be Type 316 stainless steel. d. Each watertight Hull compartment is to have its own 12V DC bilge pump, plumbed to discharge overboard from the compartment, as per TP1332. e. Enclosed compartments with gasoline engine or tanks spaces must have passive and powered ventilation. 			
<p>3.8 Fire Suppression - Inboard Engine Configuration N/A</p>			
<p>3.9 Navigation Equipment (COLREGS) http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/regulations/010/csa014/csa14.html</p> <ul style="list-style-type: none"> 1. Navigation lighting fixtures must be of such a design as to resist the effects of vibration and moisture and must be provided with adequate protection from damage. 2. Particular COLREGS rules to note (vessels under 12 M.): Rules 22, 23, and Annex 1, rules 2, 9, and 10. (NOTE: The lights must be installed parallel to the "Normal Load" waterline that often may not be parallel to the deck.) 3. The navigation lights must be mounted so as not to interfere with vision of the operator. 4. The navigation lights must be permanently mounted. 5. The Contractor must supply and install an electric horn that ensures the requirements of the Collision Regulations, Rule 32 are met, i.e. with a standard small vessel 'horn' audible 0.5 NM. The horn must be installed on the vessel exterior with the 'horn' facing forward. (See Section 13.6.) 6. A Magnetic Compass must be mounted near the centreline of the 			

<p>helm station, in easy view of the operator when facing forward. Deviation card development is an Owner responsibility. 7. All navigational lighting must be LED</p>			
<p>4.0 Warranty and Service Provisions:</p>			
<p>4.1 Components and Equipment Support : All components and all mechanical, auxiliary, electronic and electrical equipment installed on the boat, with the exception of the collar, must be supportable by parts and service in Canada within 30 days. A collar, if any, must be supportable by parts and service in Canada within 30 days. All components and equipment must be current models.</p>			
<p>4.2 Spare Parts: To facilitate replacement and inter-changeability of parts, as well as maintenance procedures and operator training wherever practicable the Contractor must standardize on selection of equipment, fittings and fabrication methods within all boats supplied.</p>			
<p>4.3 Parts and Service Depot(s) Contractor's parts depots must be capable of efficiently supplying all of the Client service area for this vessel, with spare parts for all components of the vessel and warranty service for all components of the vessel. It is recognized that many equipment items will have their own manufacturer's warranty cards for owner registration. Contractors must have a factory authorized service representative capable of call back response in all regions of Canada within 48 hours of receiving a service call.</p>			
<p>5.0 Documentation</p>			
<p>5.1 Technical Publications General: The Contractor must provide, upon delivery of the vessel, one (1) hard copy and one (1) electronic copy per vessel produced for the operator of the vessel, plus one (1) hard copy and one (1) electronic copy for the Technical Authority, shipped to the same address as identified for invoicing: of a comprehensive owner/operator manual that provides a physical and functional description of the craft, its machinery and equipment, as well as delivery testing and sea-trial result documentation. The manual should include but not be limited to sections such as: General Information, Technical Information, and an Initial Spare Parts List. See also section 7.8 for the listing of Deliverables "with each completed vessel".</p>			
<p>5.2 General Information Section: The General Information Section must include a description of the arrangement and function of all structures, systems, fittings and accessories that comprise the boat, with</p>			

<p>illustrations as appropriate:</p> <ol style="list-style-type: none"> 1. Operating procedures. 2. Basic operating characteristics (such as temperatures, pressures, flow rates, etc.) 3. Installation criteria and drawings, assembly and disassembly instructions with comprehensive illustrations showing each step. 4. Recommended planned maintenance. 5. Complete troubleshooting procedures. 		
<p>5.3 Technical Information Section: The technical manual should include a complete set of detailed owner / operator instructions, drawings (Section 15), parts lists and supplemental data for all components of the boat (whether acquired from external sources or custom-manufactured).</p> <ol style="list-style-type: none"> 1. The list must include the name, part number and serial number if applicable of the parts, items or components and must indicate the supplier (name, address, phone number, email address) of this part, equipment or component and in which part of the specification the item appears. Hull; including hull data, hull and deck equipment serial or manufacturer's numbers, including tank test reports, Life Saving Appliances, lifting gear, extinguishers, etc. TEST and TRIAL results, and certification notices, instructions, and warranty cards that distribute with equipment. 2. Engine(s) and propulsion manuals: including engine and propulsion serial numbers. 3. Electronics manuals, (if applicable): including model and serial numbers. 4. Collar, if any; including collar materials and glue materials and product sheets, and procedures necessary for onboard repair of the collar, including a materials repair kit. Regulatory and Stability information: as required per TP 1332, which references ABYC, TC publications, or ISO12217 that further references ISO 6185 for RIBs. ISO 11812 for drainage times of cockpits, and ISO 11216 for hatch and portal watertightness are required as well. 5. Contractor to fill out Simplified Method of Tonnage Measurement, TC form 4a. 6. NOTE: Builder is encouraged to use the "Small Vessel Detailed Compliance Report" sheets as a check off sheet for hull and equipment and list the name/ Company of the person checking the 		

	<p>data in the "Independent Marine Consultant" space on P.7 of the form. http://www.tc.gc.ca/eng/marinesafety/svcp-menu-3633.htm</p>	
<p>5.4 Initial Spare Parts List: The Technical manual must also include a list of recommended initial onboard spare parts to be stocked for the craft. At a minimum this list must include the following items (as applicable):</p> <ol style="list-style-type: none"> 1. Propulsion: Propeller / impeller, filters, water pump impeller, starting battery, throttle and shift cables, any special engine tools. 2. Electrical: fuses, light bulbs, electrical panel breakers; 3. Boat Structures and Fittings: Miscellaneous commonly used fasteners. 		
<p>6.0 Quality Assurance The basic reference to ISO 900x compliance is as per the contract document.</p>		
<p>7.0 Test and Trials:</p>		
<p>7.1 The Contractor must inspect and test the following items, as a minimum, for adherence to the contract requirements and proper operation (proper operation means that the equipment can be started, operated, connected together and demonstrated to function in a normal fashion, as applicable). All discrepancies must be corrected prior to delivery.</p> <ul style="list-style-type: none"> - The required inspections and tests are minimums and are not intended to supplant any controls, examinations, inspections or tests normally employed by the Contractor to assure the quality of the boat: <ol style="list-style-type: none"> 1. Weight 2. Construction Quality 3. Lifting Gear 4. Propulsion Engines including Starting and Controls 5. Steering System 6. Fuel System 7. Electrical System 8. Electronics 		
<p>7.2 Sea Trials – General: The Technical Authority must be notified no less than 48 hours prior to sea trials. The Technical Authority reserves the right to witness or decline attendance of sea trials, or to require the Inspector to attend. Absence of the Technical Authority, or Inspector at sea trials does not relieve the Contractor of its responsibility to conduct and record sea trials. Sea trial results must be forwarded to the Contract and Technical Authorities prior to delivery of the vessel. The Technical Authority will inform the</p>		

<p>7.3 Inspector of trials so they may attend.</p> <p>Sea trials must be conducted by the Contractor to demonstrate the boat and its equipment conform to the requirements as stated in the Contract and the Performance Requirements. All expenses incident to the trials must be borne by the Contractor, including fuel unless otherwise specified. A crew provided by the Contractor must operate the vessel during sea trials. Residual fuel, if not drained for shipping, must be delivered in its tank with the boat.</p> <ol style="list-style-type: none"> All Sea Trial instrumentation and equipment must be furnished and operated by the Contractor. Trial instrumentation, where applicable, is not to replace the boat's instruments (e.g., engine tachometer, pressure gauges, thermometers). The Contractor must furnish all necessary hardware and fittings and must install the measuring devices. After satisfactory completion of the trials, all instrumentation must be removed and all systems restored. The Contractor must provide calibration data certifying the accuracy of the instrumentation for the tests. The Contractor is required to run the vessel during builders' trials until the engine(s) have accumulated the operation hours sufficient for the initial engine service by the engine supplier, or for 10 hours, whichever is least, and to have a manufacturers' service agent perform the service and provide an initial service report. 		
<p>7.5 The Contractor must submit a Test & Trials Plan, including a description of all of the acceptance trials to be performed. As a minimum, the following trials must be conducted: The vessel must operate in the Normal Loaded Condition, per Sec 10..</p> <ol style="list-style-type: none"> Speed Trials - The speed trials must be done over a course at least one nautical mile in length. Two runs must be made over the course, one in each direction with the speeds for the two runs averaged. The use of GPS data (averaged) is acceptable. Endurance Trial - During the endurance trials, it must be demonstrated that all parts of the propulsion system are in full operation. All systems must be operated to check for proper installation. Fuel consumption can be calculated using manufacturers' data. Astern Propulsion - The vessel must be operated and manoeuvred using astern propulsion to establish the astern performance. During the backing performance tests the throttles must be set to provide approximately 1/3 of the rated engine horsepower. Steering Gear; Tests must be conducted on the steering gear to demonstrate the adequacy of the steering system under all operations. Manoeuvring tests must be performed to ensure that the boat meets the stated Basic Performance requirements, per Sec 11. Manoeuvring trials 		

<p>5. must be conducted in the Normal Operating Condition.</p> <p>Lifting Gear Load Test: Vessel and bridle or lift frame may be tested at 150% of normal load condition, as specified in the Vessel Particulars; to lift and hold without deformation of the lift points or associated hull. Lift points to be recessed flush with deck, and certified for load.</p> <p>Stern towing arrangement: Testing bollard pull to design capacity in a direct astern load. Data from previous test to same standard, for same post and construction accepted</p> <p>7. At the conclusion of sea trials each boat must be thoroughly cleaned and inspected. Outboard engine cooling systems must be flushed through with fresh water. The Contractor must repair any damage to the vessel or ancillary equipment resulting from sea trials, to the satisfaction of the Inspection Authority.</p> <p>8. For the purpose of the trials, Normal Loaded Condition is to be considered to be the basic boat, fitted with all normal equipment, full fuel, with complement and loads per Vessel Particulars, section 10.</p>		
<p>7.5 Final Inspection and Acceptance (PWGSC Acceptance Document) for delivery;</p> <p>Final Inspection must not be performed until all tests have been satisfactorily completed with data available for review. The boat must be ready for delivery in all respects, except for final preparation for shipment. The Contractor must provide personnel, as required, to resolve questions and to demonstrate equipment operation maintenance accessibility, removal and installation. The Contractor must document the results of the final inspection and submit these results to the Inspection Authority; a copy of the trial results must be shipped with the deliverables for each boat, per 7.6/7.7.</p>		
<p>7.6 Stability examination per TP1332, from ISO standards 12217 which for RIBs delegates to ISO 6185, or by TP 7301, requires the Contractor to record all stability/ structural, calculation and trial results and provide a copy for each boat produced, to be placed in the technical manual. See Sec. 14 Standards. The stability trial of the first of a series of vessels can be used for all identical vessels.</p>		
<p>7.7 Trial Records - The Contractor must maintain records of testing for each boat for a minimum of two years. The Contractor must prepare a trials check sheet that certifies that each test has been completed. The check sheet must indicate the actual weight of the boat in Light Condition, per section 10. The check sheet must also indicate the Normal Loaded weight and the date for the 150% "normal load" lifting gear test, if required. This check sheet must be included with the deliverables of each vessel.</p>		

<p>7.9</p>	<p>Standard Deliverables with each completed vessel, one manual and one USB stick per vessel delivered plus one manual and one USB stick for the client department TA.</p> <ol style="list-style-type: none"> 1. A detailed operator manual must be provided for all equipment, and systems, per Sec 5. This may be developed using equipment instruction sheets and manuals. 2. Sea Trial results, and shop testing sheets, including Builders' technical data, per Sec 5. 3. Acceptance Certificates, and compliance sheets or certificates distributed with equipment, per Sec. 5.3.2-5. 4. Regulatory Compliance data, including ISO, ABYC, or TC calculation sheets for stability, drainage, watertightness, tonnage, or Builder's flotation tests, per Sec 5.6-7. 5. The initial inspection of the vessel(s) after delivery, by Owner / Department Self Inspector, will establish TP 1332 / ISO compliance, using SVCP self inspection. 6. Vessel drawings; The Annex A Specification calls for the submission of Preliminary drawings and the As Fitted update of drawings must be included for the manuals. 7. Ensure all labeling is in place as per the Small Vessel Regulations Section 5.19 including a decicated locker compartment for safety gear clearly marked Safety Equipment. 8. NOTE: Regarding Documentation for vessel entry in the Small Vessel Registry. The Contractor should inform the Client TA as soon as they have deposited the payment on the final invoice, as this will determine when the Client department can fill out the new TC Form 19 registration for the vessel and get their O.N. assigned. The Client TA or financial authority will distribute a copy of the invoice for the end user files. Regarding the establishment of full payment occurring before registration, for the present PWGSC will consider that full payment and taxes have been made, and that we are holding any warranty holdback amount, against warranty performance, on our contract to acquire a vessel, until it is used for warranty work or released by PWGSC, (and paid by the Client Department at the end of the Warranty Period). 	
<p>8.0</p>	<p>Packaging and Shipping: Shipping other than Towing on Trailer</p>	
<p>8.1</p>	<p>Prior to shipping, the boat must be cleaned throughout, preserved and</p>	

	covered (shrink wrap), secured on the boat trailer if any, or chocked as required, in accordance with this section.		
8.2	Bilges must be dry and free of oil and debris and the fuel tanks must be drained.		
8.3	The propulsion system must be preserved in accordance with the manufacturer's recommendations for storage of up to one year in an environment that will be subjected to freezing temperatures.		
8.4	The battery must be disconnected.		
8.5	A durable warning tag must be wire tied to the steering wheel indicating that the boat has been preserved for shipping and storage and should not be started until the propulsion machinery has been reactivated.		
8.6	Lengthy shipping arrangements must protect the boat hull from deformation from road irregularities producing, due to repeated bouncing, dents in hulls supported on roller assemblies, by the insertion of a temporary bunk to distribute loads.		
8.7	Towed Delivery on the boats' trailer: In local short haul trips in non-freezing weather, only the cleaning and covering provisions may be required, with the approval of the Inspection Authority.		
9.0	Trailer Information: IF required: (See Solicitation Annex 'I' pricing sheet for requested pricing, if any, and section 20 at the end of Vessel Particulars for specific trailer information)		

VESSEL PARTICULARS

10.0 Physical Characteristics:

1. Length of RIB's between 7.25 and 7.75 meters.
2. Breadth overall (collar inflated), 3.0 M to 3.2 meters.
3. Maximum draft (outboard drive lowered) between 0.90 and 1.0 meters.
4. Maximum draft (outboard drive raised) between 0.60 and 0.70 meters.
5. Cabin sides to land on tube cradle /side deck, near inner edge, or form inner face of tube cradle and support side deck.
6. Normal load conditions: (Light loaded vessel is complete vessel; no fuel, cargo, or personnel):
 -Crew of 4 = 450 kg
 -Fuel = minimum 600 litres in two tank(s),(500 kg)

<p>- Equipment and supplies = 400 kg.</p>			
<p>10.8 Vessel Tonnage Requirements: This vessel must NOT exceed 5 GRT. The builder is required to use the dimensions of the vessel to fill out the Simplified Tonnage Measurement form from Transport Canada, for inclusion in manual. (TC Form 4a.)</p>			
<p>11.0 Operational Performance:</p> <ol style="list-style-type: none"> 1. Unless otherwise stated, Performance will be for conditions of zero sea state and no wind, in salt water with Normal Load and complement. The craft must be designed and constructed for ease of maintenance and repair, long life, and to be easily supportable by local commercial facilities and suppliers. The craft is expected to have a service life of at least 10 years, with an expected usage of between 250 and 500 hours per year. 2. Maximum top speed: minimum 35 knots 3. Minimum speed: cruise at 20 knots in Beaufort Force 5 with 21 knot wind. 4. Endurance: maximum speed for 2 hours. 5. REQUIRED Range: 180 nautical miles with 10% reserve at 25 knot minimum speed 6. Capable of steering 15° from heading, in Beaufort Force 7, seas from any direction. 7. Steer and manoeuvre effectively at 3 knots in Beaufort Force 7. 8. Maintain course, made good over ground, when proceeding at 3 knots with relative crosswind of 35 knots. 9. Capable of steering effectively in Beaufort force 7 with winds up to 33 knots while towing a 10 tonne (displacement) vessel at 5 knots. <p>11.1 Beaching:</p> <ol style="list-style-type: none"> 1. Capable of beaching on soft (sand, earth or clay) surfaces at a speed of up to 5 knots without damage to the hull. 2. Capable of beaching on hard (stone or concrete) surfaces at speeds of up to 3 knots without damage to the hull. <p>11.2 Depth Under Keel:</p> <ol style="list-style-type: none"> 1. Operate carefully in depths of 1.0 meter with outboard motor lowered. 2. Basic manoeuvring in depths of 0.75 meters with outboard motor partially raised. 			

<p>12.0 Environmental Conditions</p>	<p>12.1 Must operate day or night in the following conditions:</p> <ol style="list-style-type: none"> 1. Average ambient air temperature range: -15°C to + 30°C. 2. Average water temperature: 0°C to +20°C. 3. Wave heights of up to 5.5 meters (max for Beaufort Force 7). 4. Wind speeds of 28 – 33 knots. 5. Operate in freezing spray or rain while maintaining stability in Beaufort 7. 			
<p>13.0 Cabin Vessel Configuration</p>	<p>13.1 General Arrangement Notes:</p>	<ol style="list-style-type: none"> 1. The cabin length must be not more than 70% the interior length of the hull. 2. The cabin sides must land on the side decks and may be flush with inboard face of tube cradle with cradle top forming the side decks. 3. The forward cuddy area of the vessel, to have a door at the dash and to be equipped with an overhead, "Ocean Class" hatch to allow ventilation for forward cuddy. 4. The forward cuddy shall be fitted with two full length bench / berths one each port and starboard. 5. The main cabin must be equipped with a lockable weather tight door aft with a vertical sliding aluminium framed window. The cabin door must have positive retention open position and lockset with an exterior protective plate to prevent access to the latch bolts, and all locks and hardware must be of stainless steel construction. 6. The cabin must be designed in such a way as to allow access between the navigator and helm stations to the bow's cuddy area. 7. The cabin area must seat four on shock mitigation seating, and house the controls and navigation electronics. Aft port and starboard side there must be stowage boxes with seating cushions on top and fold away desk for report writing on Stbd side. Temporary seating to have seat belts, (inboard facing seating). 8. The main cabin must have at least 193 centimetres of headroom (6'-4"). 9. Windows: The cabin must be fitted with proven manufacturers' aluminium framed windows of Tempered and Laminated glass as follows, and generally per section 16.4, certified for Category B, ISO category of operations. <ol style="list-style-type: none"> a. Minimum two (2) forward (fixed), with pantograph wiper each window. 		

<p>a. Two (2) side sliding windows, with positive retention open and closed, aft of forward window corner post.</p> <p>b. Two (2) side fixed windows aft of the forward side sliding windows.</p> <p>c. Two (2) aft fixed windows, either side of door with one opening window in the aft door.</p> <p>10. Forward bow section to incorporate a bow locker to store anchor rode. The locker must have a separate access hatch below deck to provide access and a chain pipe through the deck.</p> <p>11. A side tray is to be incorporated into both port and starboard cabin sides running full length of seating array accommodating all seated positions. Tray to be used for temporary storage of small miscellaneous personal items, charts or other items.</p> <p>12. A head is to be incorporated into the forward cuddy. Head to be centered between cuddy full length port and starboard berths. A cushioned cover is to be provided made of same materials and thickness and when installed over head assembly be flush with upholstered full length berths. Head is to have separate storage and ability to be pumped or vacuumed at any designated marine waste disposal station.</p>		
<p>13.3 General Deck Arrangement - Cabin Vessel:</p> <p>1. There must be at least 9 tie up points along the side deck /</p> <p>2. Two (2) forward, 4 mid ship, 2 aft on transom corners with one bow bit. There must be a tow post fitted near the centre of the transom with triangulating braces to the transom, used for EMERGENCY towing, rated for 3000 lb. (1360 kg.), ahead of the thrust point of the craft.</p> <p>3. A permanently mounted hand cranked towline recovery reel shall be installed, with</p> <p>a. 100m of buoyant 3/4 inch diameter towline. Tow Recovery Reel must have a cover made of marine grade weather resistant material that protects the tow rope from the elements when not in use. The hand crank shall be removable and have permanent storage pocket for the handle. There must be a screen protection barrier fitted on the transom to prevent aft egress and recoil of towing line. Tow reel must be of a height that ensures tow line when deployed clears the engines and engine guard in all applicable sea states.</p> <p>4. There must be an anchoring bit / cleat on the bow of the vessel.</p> <p>5. Vessel must be outfitted on the cabin top with a ruggedly constructed arch built to</p> <p>a. withstand the loads anticipated and support the radar, lighting,</p>		

	<p>and antennas.</p> <p>6. Vessel must be fitted with aluminium protective pipe bracket, which extends around</p> <ol style="list-style-type: none"> a. the outside of the outboard motors. This guard must be fabricated so as to be easily b. removed to facilitate the removal of the outboard engines. <p>7. There must be bolt on inboard handrails port and starboard at the bow, near the cuddy trunk edge, with a break across bow, to tie in with cabin top rails running aft on the cabin top, above the cabin sides outboard.. There must be bolt on outboard cockpit rails from aft of the cabin side aft edge to the stern to return inboard to a stanchion 30 cm inboard from transom corners, with aft corner cleats on the transom corners under the railing. Rail heights from the deck, must be as required for working vessels as approved by TA, Inspection Authority, and client dept. self-inspector, minimum 30" to 36 ' from decks for working cockpit safety.</p> <p>8. Vessel must be equipped with securing eyes fitted to the outside of the transom used for trailer tie downs.</p>	
	<p>13.3 Cabin Interior Outfit</p> <p>13.3.1 Seating:</p> <ol style="list-style-type: none"> a. This vessel must be equipped with 4 shock mitigating marine seats with ballistic nylon or other durable upholstery and seat belts. Seats to be 'Grammer' or equal. b. Shock mitigating seats must be arranged two on Stbd., and two on Port, all facing forward and be mounted to reinforced raised seat base(s) on port and starboard. The helm seat location must slide to provide adjustment for operation of the helm. c. These seat bases, must permit the storage of larger items such as deck brush, boat hook, and other equipment. Part of the seat base on each side must be arranged as locking lockers with inboard access. e. All console electronics wiring, breaker panels or other systems infrastructure must be protected and secured from any common area, in particular the cuddy, by use of durable lockable hinged covers or doors. 	
	<p>13.3.2 Cabin Lighting:</p> <ol style="list-style-type: none"> a. The cabin must be equipped with at least two rows of 	

	<p>overhead white lights.</p> <ul style="list-style-type: none"> b. The lights must have individual switches, and dimmers. c. The vessel must also be equipped with two rows of dimmer controlled RED night-lights in the cabin. d. There must be a red chart lamp on each side of the dash, one for the operator and one for the navigator each with switch controls, and dimmer. e. The forward cuddy must have an overhead 12 V red / white light with switching. f. All cabin lightning must be LED 	
	<p>13.3.3 Grab Handles: There must be grab handles positioned as follows:</p> <ul style="list-style-type: none"> a. Two overhead, on both P & S, continuous or intermittent, along the length of the cabin. b. Two (2) at the aft door, (interior) one on each side. c. One (1), vertical in the passage way forward at the console forward edge. d. At the navigator's position on the dash, integrated at the aft edge of the dash top. e. Located outside aft companion door, and vertical between door frame and window. 	
	<p>13.3.4 Foot Rests: There must be two (2) foot rests, one for each forward shock-mitigating seat.</p>	
	<p>13.3.5 Flooring : All interior floor covering must be approx 3/8" shock and sound absorbing rubber with embossed tread pattern.</p>	
	<p>13.3.6 Interior Finish: The interior of the vessel must be in a speckled grey colour, Granite Zolotone or equal. All rough edges and sharp angled corners must be rounded and ergonomically adapted. The space between interior linings and exterior plate must be insulated between frames with thermal insulation. Frame faces must have thermal barrier tape isolating interior panels.</p>	
	<p>13.4 Interior Utilities</p> <ul style="list-style-type: none"> 1. This vessel must be equipped with a 3.0 kW power charger / inverter that connected s tied to one (1) deep cycle large capacity marine house battery and a start battery per engine. 2. There must be two (2) 110 VAC power receptacles in the main cabin area one located near each forward shock mitigating seat. 3. There must be a shore power 110v receptacle, 30-amp connection, exterior on aft bulkhead of house. 4. The cabin must be equipped with an interior diesel heater capable of heating the interior area of the vessel with a 20% reserve BTU rating; 	

<p>model 10DW Webasto or equal.</p> <ol style="list-style-type: none"> 5. Outlets from the diesel furnace must be located in the cabin, at the navigation and helm positions near the deck, and the window supply plenum(s) port and starboard. 6. The front windshield defroster(s) must have a variable three-speed fan and be capable of clearing the entire front windshield area of the vessel. Heater switching and defrosting controls to be mounted on the dash, navigator's position. 7. The front windshield defroster must be capable of blowing both cold and heated air. 8. The cabin must have at least two variable speed fans capable of circulating the air in the cabin. A positive pressure intake fan with water exclusion intake protection must supply air to the cabin. 9. The fuel reservoir for the furnace must be approximately 10 litre capacity, (with marked diesel fill near lazarette box or side deck over the tank). 		
<p>13.5 Helm Station: There must be an array of electronic equipment at the helm and navigation positions, see electronics section 17.5.</p> <ol style="list-style-type: none"> 1. There must be a dash-mounted magnetic compass, see section 13.6.5. 2. All light switches and the switched control panels must be within easy reach of the helm. 3. In addition to the factory supplied individual propulsion leg trim controls there must be a SYNCRO trim switch to integrate the controls on one switch at helm. 4. The vessel must be equipped with heavy-duty marine commercial grade pantograph windshield wipers, one per forward window. The switches for the wipers must allow for three speed operation (intermittent). Switches also to be on single circuit with controls to the inboard side of the helm position. 5. Provision required for additional space for installations; e.g. for trim tab controls.e. 		
<p>13.6 Navigation Lighting and Equipment</p> <ol style="list-style-type: none"> 1. The Contractor shall supply and install an electric horn that meets the requirements of the Collision Regulations. The horn must be operated by a spring-loaded switch located on the operators' console. The "Signalone" model RB-85, or Ongaro electric horn meets this requirement, to be mounted facing forward. 2. Navigation lights must be permanently fitted to the cabin and 		

	<p>/ or antenna arch with protected wiring and must be waterproof. The fitting of a combined navigation sidelight lantern on the bow deck forward will not be acceptable. Mounting location not to impair access to cabin top handrails by personnel on side decks in any way.</p> <p>3. The fixtures must be of such a design as to resist the effects of vibration and must be provided with adequate protection from damage that may occur when laying along side a vessel or a pier. (The Hella NavILED Series of lights, including the NavILED 360 all-round light, and NavILED sidelights meet this requirement.)</p> <p>4. Non-white navigation lighting must be wired together on a separate breaker of the 12 volt DC electrical system and all around Mast /Anchor light showing clear above the radar scanner must be on a separate switch. Two switches to be provided, labelled: Nav 1 (masthead / anchor) and Nav 2 (side [running] lights).</p> <p>5. Magnetic Compass - The Contractor must provide and install a direct read compass, with light, and dimmer, near the centreline of the helm. A direct readable three or four-inch compass required, the Ritchie Helmsman series meets this requirement.</p>
	<p>14.0 Construction Standards</p> <p>1. Transport Canada Marine Safety Regulation TP 1332 "Construction Standards for Small Vessels", which incorporate references to ABYC standards for equipment such as fuel tanks and fuel systems, as well as tank space ventilation, and ISO standards for stability, loading capacity, deck drainage etc. as delegated to ISO 11812 / 12216 / 12217, 6185, etc. ISO 6185-3 compliance provides testing for "Type VIII Offshore Inflatable" classification, certifiable for operation in Near Coastal 2 waters in Beaufort Force 7 conditions.</p> <p>2. Under ISO 6185-3 upper limit at 8 meters, full structural (Drop Testing) and stability testing must be arranged for this vessel, as described in ISO 6185-3, near the completion of construction to verify compliance.</p> <p>http://www.tc.gc.ca/MarineSafety/Directorate/TP/tp1332/tp1332e.htm</p> <p>3. Canadian Standards Association C22.2 NO. 183.2-M1983 (R1999) "Standards for D.C. Electrical Installations on Boats and ABYC 'E'</p>

	<p>electrical standards.”</p> <p>4. Transport Canada Marine Safety Regulation TP 1324 “Coated Fabrics”.</p> <p>http://www.tc.gc.ca/MarineSafety/Directorate/TP/tp1324/tp1324e.htm</p> <p>5. CSA W47.2-M1987: Certification of Companies for Fusion Welding of Aluminium;</p>	
	<p>15.0 Construction Drawings and Data</p> <p>1. The following, “As Fitted”, dimensioned drawings must be produced for manuals to record the vessel particulars.</p> <p>2. - Lines Plan with approximately eight sections through hull. plus deadrise angles as indicated in 16.2, at transom and second station aft (25% aft) from chine at stem.</p> <ul style="list-style-type: none"> - Vessel midship section showing the console / operating position in the deck. - Plan and Profile, general arrangement which may indicate some of following. - Systems drawings presented on as many sheets as required for clarity covering Bilge, Fuel, Electrical one-line, Fire fighting, and Driveline drawing as required. 	
	<p>16.0 Construction and Finish</p> <p>16.1 Hull and Deck : The hull, and deck, must be constructed using Aluminium materials as referenced in “General Practises” section. Mil Certificates are required for all aluminium used in the fabrication.</p>	
	<p>16.2 The Hull is to be a minimum 23 to 24 degree deadrise “V” style monohull with a reverse chine flat and hull bottom to incorporate a spray strake on the bottom, one per side approximately 2/3 out from keel, which should run out to the stem. Transverse deadrise at 25% aft from chine at stem to transom, not to be less than 32 degrees.</p> <p>1. Vessel to have a continuous external welded hull, deck, and motor pod. Internal framing welds must be continuous in areas subject to vibration in the vicinity of machinery mounting / bedplates and bow areas subject to impact.</p> <p>2. The hull may have a minimum 3/8” thick ‘delta pad’ keel with interior vertical stiffener on the centreline, from the bar keel stem of minimum 3/8” thick plate to the motor POD transom, OR be a continuous V shape with bar keel protruding from motor pod transom to chine at stem. Outboard</p>	

<p>3. mount transom to be minimum 1/2" material. The hull and decks are to be transversely framed and longitudinally stringered, with 1/4" bottom and chine plating and minimum 3/16" hull side and deck plating.</p> <p>4. An array of strake(s) port and starboard are to be strategically incorporated onto the hull bottom to ensure the vessel will meet acceptable standard of high performance tight turns and or evasive manoeuvres.</p>		
<p>16.3 Deck: Deck wells or cockpits must be self-draining, and meet the regulatory requirements by means of non-return freeing ports in the transom, or aft end of the cockpits and wells. Aluminium "Slash Cut" hinged flap drains required.</p>		
<p>16.4 Windows: (forward) are to be laminated tempered glass, and carry the manufacturers' certificate confirming construction and applicable ISO certificate for category of operation,(Class B). Forward windows close above wet decks are to be 1/2" glass. Side windows and aft windows can be minimum 1/4" thick laminated, safety glass.</p>		
<p>16.7 Anchor Stowage: and Trailer Securing Points:</p> <p>1. Arrangements must be provided for safe, secure and accessible stowage of an anchor and cable, with the anchor to be a 'Danforth' style, and stowed on the cuddy top between hatch and chain pipe.</p> <p>2. Tie Downs: Port and Starboard trawling tie down points to be incorporated in transom.</p>		
<p>16.8 Bow Eye: A system is to be designed and incorporated into the construction of the stem that allows for the bowline and or trawling hook to be attached to the bow and which must not protrude from the line of the stem. The fitting must be of a non-corrosive material and of sufficient strength to allow for towing the vessel at a speed of 20 knots in calm water in the normal loaded condition, on an even keel, without damaging the vessel or causing chafing of the towline. Bow eye must of a size to allow easy connect and disconnect of winch strap hook and all additional trawling secures such as the safety chain and or turnbuckle retainers.</p>		
<p>16.7 Pumping and Drainage: Electric and Manual pumps</p> <p>1. An electric bilge pump with 2000 gph capacity shall be fitted in the main watertight division as well as a fixed manual operated bilge pump of the diaphragm type. The bilge pumps shall be located so that they take suction from the lowest point of the hull. Smooth bore piping shall be installed which will allow the bilge pump to discharge directly overboard. Discharge non-return valves will be required, or loop above discharge. Any additional watertight division of the hull must</p>		

	<p>be serviced by a bilge pump of minimum 1500 GPH capacity, and have a high water sensor and alarm.</p> <ol style="list-style-type: none"> 2. An individual automatic control shall be fitted that turns on the electric bilge pump when water is present in the bilge. (An Ultra JR Float Switch meets this requirement; DO NOT Connect integrated caged switches in the base of pumps.) The electric bilge pump control switch shall be located on the operator's console, with settings for 'on', 'off', and 'automatic' operation. An indicator light shall be provided at the control that lights when the bilge pump is operating. 3. A HIGH-level float switch must be used in each hull compartment and engine-mounting compartment. The HIGH LEVEL switch(s) must activate an audible (cancellable) and visible alarm at the helm, and must be in plain sight of operator. 4. Hull drainage: A non-corrosive threaded plug shall be provided in the lowest point to drain the hull when out of the water. 5. Valves and handles shall be stainless steel and shall be located where they are readily accessible for operation, maintenance or removal. 6. All Bilge switching and or panel array including visual indicators for alarms and function must be in clear view of both helms and navigator positions. 7. All quick access hatched to be made of aluminum. 		
	<p>16.8 Collars</p> <ol style="list-style-type: none"> 1. Collar must be an inflatable type with at least 5 separate chambers of approximately equal volume, each chamber fitted with a suitable inflation system and over-pressure relief valves calibrated to 3 psi (the Halkey Roberts model 690BV inflation valve and the Mirada model B51019 3.5 psi over pressure relief valve, meet this requirement). Inflatable collars fitted must be constructed of material that meets the criteria for strength, elasticity, resistance to wear and longevity as defined in TP 1324. (1650 / 1880 Decitex Neoprene / Hypalon coated nylon fabric meet this requirement). New Polyurethane materials may be proposed. Collars are to be grey in colour. 2. Collar systems must be attached to the hull using mechanical fasteners in such a manner that the collar can be easily removed for repair or replacement. The use of screws and lag bolts or 		

<p>glue-on type collars are not acceptable.</p> <ol style="list-style-type: none"> 3. Collars shall be interchangeable in multiple build contracts, and have a diameter of between 560 and 600 millimeters so that custom fitting of spare collars is not required. 4. Collars must be provided with minimum 5 protective wear strips all around. Extruded neoprene rubber, or equivalent, rubbing strakes (minimum 75mm wide, 'Bombard' style) must be glued along the entire length of the outboard side of the collar to provide protection against abrasion and puncture. The bottom of the collar wetted surface of the tubes (if any) will have a protective layer of material installed, and the bow of the tubes from stem to aft of bow boarding area to be protected above and below the Bombard strips with additional glue on patches of rubberized material. (DPDM or equal) Boarding area aft, between forward end of side rails and aft end of cabin, to be similarly protected. 5. Grab lines of nylon braided rope construction 1/2" diameter, must be fitted along the collar on both the port and starboard sides to provide access from both within the boat and for persons in the water. Grab lines must be mounted just outboard of the top of the collar, by means of a lacing cuff (not by D-Ring attachment), or to the outboard side of the sheer guard of the side deck. 6. A repair kit must be provided for Collars. 7. All seams are to be hand buffed and glued. 8. Polyurethane sealant should be used on all interior seams and baffle edge. 9. An operator activated inflation system must be installed to provide approx. 5 p.s.i. air (manually directed and valved at a manifold) to each chamber of the tube assembly with controls located inside the cabin. 		
<p>16.9 Exterior Finish: The standard color of the inflatable collar must be neptune grey. Upholstery on the seats must be black or gray. All exposed aluminum surfaces not part of the hull, deck or console must be non-reflective finished. Deck areas must be painted with non-skid (black or dark gray), including the trunk / deck ahead of forward windshields. Exterior colour of the vessel to be white. Interior to be painted grey overhead on exposed aluminium and with Granite Zolotone on all consoles and side and interior panelling, seat bases, deck boxes, doors, and cabinets</p>		

<u>OUTFITTING AND EQUIPMENT</u>			
17.0	<u>Outfitting Detail</u>		
17.1	<p>A. Lifesaving Emergency Equipment - The following items must be supplied and provided with stowage / securing arrangements (as appropriate for each item). All CFM fittings must be heavy duty, corrosion resistant stainless steel fittings. All items must be readily accessible (the foot pump and the repair kits must be stowed in a stowage locker):</p> <ol style="list-style-type: none"> 1. Fire extinguishers (Class B1, marine type; three of, 2 aft in cabin, one in the forward console area near the electrical systems. 2. Two (2) paddles of a useful length). 3. 'Danforth' style galvanised steel anchor of a size suitable with chain and rode. 4. One manual bilge pump, as specified elsewhere. 5. One heaving line not less than 15 meters, with life buoy or quoit, 6. One watertight flashlight. 7. Pyrotechnics Type A. Qty. three (3), and Type B or C Qty. three (3). 8. Re boarding device if vessel freeboard is above 0.5 meters. 9. Marine First Aid Kit as per Small Vessel regulations 2010 Section 8.1. <p>B. Additional Operator Safety Equipment</p> <ol style="list-style-type: none"> 1. Fume (gas) detector in the bilge. 2. Carbon monoxide detector in the cabin. 3. Drogue sea anchor and 100 feet of 1/2 " braided nylon line. 4. Mooring lines, four (4) X 20 X 5/8" braided nylon line with eye spliced into one end. 5. Collar patch kit (for inflatable collar). 6. One EPIRB ACR Globalfix Category 1 with Hydro static housing mounted to the aft exterior of the cuddy cabin. 7. Boat Hook; telescopic 		
17.2	<p>Electrical System</p> <p>The electrical system is to be of the marine type and generally protected from a fresh-water environment. All wires are to be of the marine type, with tinned copper strands (UL 1426) and are to be identified on the electrical drawing provided by the Contractor. The system's distribution is to be operated by way of panel(s) with minimum 15 circuit breakers for additional electronic devices. All circuit breakers are to be clearly identified.</p>		

	<p>17.3 Batteries</p> <ol style="list-style-type: none"> The boat is to be equipped with a system of deep-cycle batteries with a selector on/off switch and connected in accordance with the motor manufacturer's technical specifications. Additional battery needs to be noted here: Third House Battery required for house and electronic loads. The batteries must be of marine quality equipped with rollover caps and a capacity to adequately service engines and ancillary vessel loads. Third house battery charging must be accommodated by means of ACR system incorporated into engine charging array with independent battery on off switching. 		
	<p>17.4 Wipers, Lights and Utilities:</p> <p>Two or three wipers (pantograph arms for three windows) are to be installed on the port, centre (if any), and starboard fore windows. They are to be activated individually by a variable speed switch configuration starboard, port and center, if any, located on the operator's console.</p> <ol style="list-style-type: none"> One remote control spotlight to be mounted approx 6" from center of fwd edge of cabin top; Model ACR 100 or eq. Contractor must supply two (2) handheld searchlights for the vessel. Each light must be 12 volt and must produce 1 million candela. Two blue flashing lights (strobe type) must be fitted on the antenna arch. (The Aqua Signal Corporation, series 40 strobe light, or equal, meets this requirement.) Strobes must be installed and programmed if applicable to meet all applicable Collision Regulations. The deck flood lights (6 of) to be fitted on the arch of the vessel 2 each facing to bow, stern, port and starboard; model # Hella 1GB-998-541-001 or equal.. Three 12 VDC power points required, in cockpit, port nav. station, and forward on cabin. 		
	<p>17.5 Navigation Electronics</p> <p>This vessel is to be equipped with the following integrated electronics navigation package, with displays located across the forward dash, in addition to the COLREGS required equipment. Both displays to be interconnected with navionics gold cartography included for Canada with VHF interfaced with the master chart plotter monitor.</p> <ol style="list-style-type: none"> One RAYMARINE C-97 Multifunction display at helm station One RAYMARINE C-127 Multifunction display at the navigation station. 		

<p>3. One RAYMARINE 24" 4 KW Raydome Standard Definition Radar dome</p> <p>4. One (1) ICOM Model 604 DSC VHF radio flush mount at navigators position.</p> <p>5. One Airmar GH 2183 Electronic compass heading sensor.</p> <p>6. One Morad VHF-156HD antenna with composite transition mounts.</p> <p>7. One plastic through hull transducer.</p> <p>8. One Comar AIS (receive only) with VHF splitter.</p> <p>9. Builder to supply all inter-connect cables for above.</p>		
<p>18 Propulsion</p>		
<p>1. The Contractor is to fit two (2) Yamaha, (one counter rotation), 4-Stroke, gasoline outboard motors, GSM supplied. Contractor to provide recommendations of engine horsepower capable of meeting performance requirements as outlined in Section 11</p> <p>2. Contractor to ensure that engine installation and pre-start-up service is complete in accordance with manufacturer's instructions.</p> <p>3. Engine package must incorporate an automatic shutdown feature (kill switch) for the engine to be mounted near the ignition switch.</p> <p>4. Control cables must be CFM, see Section 8.6.2 .</p> <p>5. In addition to the factory supplied individual propulsion leg trim controls there must be a SYNCRO trim switch to integrate the two drive leg trim controls on one switch.</p> <p>6. Contractor to supply and install any of the following equipment included in the manufacturers' standard and optional gauge package (e.g. Mercury Smart Craft) for the specified engine: All gauges must be backlit with an adjustable dimmer. Lighting for gauges and lighting for compass must use separate dimmers.</p> <p>a. Tachometer for engine.</p> <p>b. Water temperature / gauge/ alarm.</p> <p>c. Trim gauge.</p> <p>d. Controls, cables.</p> <p>e. Ignition harness.</p> <p>f. Hour meter for engine (separate analogue for each engine in addition to any multi-function gauges supplied by the manufacturer.</p> <p>g. Voltmeter.</p>		

	<p>18.1 Fuel Systems: NOTE: Regardless of TP 1332 requirements the engine/ fuel tank space must have flow through bow to stern passive AND powered ventilation.</p> <ol style="list-style-type: none"> 1. Fuel systems must meet with all requirements of TP 1332 "Construction Standards for Small Vessels", which reference the ABYC standards. 2. The vessel must be fitted with two (2) fuel tanks with baffles, to be located under the deck for a total capacity of no less than six hundred (600) litres. Contractor may propose additional fuel capacity. 3. There must be "quick access", per TC, inspection hatches (8") in the deck, to allow access to the fuel pick-ups, vent, fill connections, and tank level indicators. 4. Arrangements must be provided for two fuel tanks and associated lines, vents, fills, and on / off selector manifold, using three way valves, to be fitted to the boat. 5. Fuel lines from the inboard shutoff valve or manifold to the outboard motor(s) to be protected against chafing and wear. 6. A fuel / water separator filter is to be mounted "in-line" to each engine with easy access to drain the sediment bowl. 7. Fuel shutoff valves are to be installed at fuel tank outlets and be easily accessible, outside of tank or manifold spaces, by vessel operators. Near the filters and engines, additional 'service' fuel shutoff valves to be located, to facilitate engine or filter service. 8. Lockable/ labelled fuel fill, and vent station must be located at the starboard side of the aft cabin bulkhead. Contractor may propose a location ahead of the forward tank. 9. The Fuel tank space must have a fume detector, Marine Tech 2" or equal. 10. Lockable / labelled diesel heater tank fill station to be located aft above tank. 11. All quick access hatches to be made aluminum. 		
	<p>19.0 Steering</p> <ol style="list-style-type: none"> 1. Steering systems must be hydraulic with a maximum of 3.5 turns from hard over to hard over. The SeaStar® and / or Uflex steering systems meet this requirement). Particular propulsion systems may have their own requirements for steering that must be adhered to, e.g. Jet steering systems. 2. All hydraulic steering hoses must be routed below deck and all hoses must be routed so that there is no pinch or chafing points on the hoses. 		

<p>3. The wheel / console connection must be of robust construction, to eliminate fore and aft or lateral movement of wheel / steering shaft fixture. 4. The Steering wheel must be stainless steel and may be rubber or plastic covered, or the steering wheel must be stiff enough that during rough water operations there is no flexing of the wheel and the wheel should be padded to provide a comfortable non-slip surface for the operator to grip. (Momo Marine steering wheels meet these requirements.)</p>			
<p>20.0 Trailer</p> <p>1. The trailer must be rated approximately 20% over the anticipated 'wet' weight of the vessel having the following features:</p> <ul style="list-style-type: none"> - welded galvanized modular steel or aluminum I Beam construction, tandem axle; - with Vault Style axle hubs. - brake, running, turn signal, and backing lighting with seven (7) pin RV wiring connector - electric/hydraulic, jurisdiction compliant disc braking system; - bow winch assembly with winch strap and bow chock; - radial tires; - tongue jack, 2500 lb. with pad; - full size wheel mounted spare tire; - combination double bunks forward with aft rollers, and spare tire and carrier; - heavy duty 'stand-on' fenders and hitch to accommodate a two (2) 5/16" inch ball. <p>2. The trailer shall be equipped with fenders and mudguards, which conform to Transport Canada Standards, and have required lighting using LED lights. The trailer must be provided with two 2 galvanized safety chains and shackles of suitable size and rating. All electrical connections are to be sealed from the atmosphere.</p> <p>3. The trailer must be equipped with a two (2) speed manually operated winch of a suitable size and rating with a web strap cable with a hook rated for the trailer design load. Web strap length must be at least 914 cm, or 29 ft. 11 3/4". The sides of the trailer shall be fitted with two (2) eyes per side for shackles to secure the vessel to the trailer.</p> <p>4. The Contractor must supply two (2) suitable adjustable hold down cables/straps. A galvanized safety chain and shackle must be provided on the front of the yoke assembly for securing the bow of the vessel.</p> <p>5. The trailer must be adjusted for the vessel. The winch, stand and</p>			

Solicitation No. - N° de l'invitation
M2989-170193/A
Client Ref. No. - N° de réf. du client
M2989-170193

Amd. No. - N° de la modif.
XLV166
File No. - N° du dossier
XLV-6-39021

Buyer ID - Id de l'acheteur
XLV166
CCC No./N° CCC - FMS No./N° VME

tumbuckles are to be capable of withstanding long journeys on rough terrain.

Evaluator's Certification

print name	signature		date
print name	signature		date
print name	signature		date