



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Réception des soumissions - TPSGC / Bid

Receiving - PWGSC

1550, Avenue d'Estimauville

1550, D'Estimauville Avenue

Québec

Québec

G1J 0C7

INVITATION TO TENDER

APPEL D'OFFRES

**Tender 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.

**Soumission 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 et sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Vendor/Firm Name and Address

Raison sociale et adresse du

fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

TPSGC/PWGSC

601-1550, Avenue d'Estimauville

Québec

Québec

G1J 0C7

Title - Sujet Engines & Transmissions	
Solicitation No. - N° de l'invitation F3084-17N137/A	Date 2017-08-04
Client Reference No. - N° de référence du client F3084-17N137	GETS Ref. No. - N° de réf. de SEAG PW-\$QCL-037-17179
File No. - N° de dossier QCL-7-40047 (037)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2017-09-19	
Time Zone Fuseau horaire Heure Avancée de l'Est HAE	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Woods, Michael	Buyer Id - Id de l'acheteur qcl037
Telephone No. - N° de téléphone (418) 649-2715 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: MINISTERE DES PECHEES ET DES OCEANS NGCC FREDERICK G CREED, Machines 101 Boul Champlain, Québec PQ Attn : C/E Québec Québec G1K 7Y7 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée Voir doc.	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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PART 1 – GENERAL INFORMATION

1.1 Requirement

The requirement is detailed under Annex A - Requirement.

1.2 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 from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.3 Trade Agreements

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), and the Canadian Free Trade Agreement (CFTA).

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-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) 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 (2017-04-27) 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

B1000T (2017-04-07), Condition of Material - Bid

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.

Bidders can also submit your bid by facsimile at (1) 418-648-2209, 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 (7) 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 Québec.

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.

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 (1 hard copy)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (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 (216 mm 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) (<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.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

3.1.1 Exchange Rate Fluctuation

[C3011T](#) (2013-11-06), Exchange Rate Fluctuation

3.1.3 SACC Manual Clauses

Section III: Certifications

Bidders must submit the certifications and additional information 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.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

The bidder must clearly demonstrate with his proposal, that it is compliant with the requirement.

The bidder must provide the required information in accordance with Annex C, including references to the proof of compliance provided; the tenderer should indicate the exact location of the information, including the title of the documents, as well as the page and paragraph numbers. Proof of compliance must provide sufficient detail and explanation to allow for a full assessment and demonstrate that each of the Mandatory Technical Criteria is compliant.

Canada will not evaluate information such as referrals to websites where additional can be found, or technical manuals or brochures that do not accompany the bid.

Mandatory Requirement to be met by bid closing

a) Certification from the Original Equipment Manufacturer (OEM)

The bidder must be 'Original Equipment Manufacturer' (OEM) or be an authorized representative of the OEM for parts and services and provide a certification from the OEM.

b) Manufacturers' expertise

The equipment manufacturer (OEM) or his authorized representative must have already supplied engines and transmissions that have been installed for a similar application (SWATH OCEAN 2000 CLASS VESSEL) during the last 3 years.

By similar application we intend: powertrain units installed on a commercial vessel under Canadian flag, over 18m in length, with a power between 900 and 1200 BHP. Provide two references. For each references provide the name of the vessel(s), the size and type of powertrain provided and the year of supply.

c) Minimum performance characteristics of equipment submitted

Provide brand and model of proposed engines and transmissions as well as Technical data from the manufacturer (Specifications, sketches and printed descriptive).

Although tenderers must offer products meeting all of the minimum performance characteristics of the equipment listed in Annex A – Requirement, at bid closing, bids will be evaluated, among other things, on the selected minimum performance characteristics listed at Annex C. Simply indicating that the proposed product is "compliant" or that it meets the minimum performance characteristics selected is not sufficient. To demonstrate that their products meet all of the minimum performance characteristics, the bidders must submit proof of compliance to their bid.

Proof of compliance is a document such as a brochure, a technical document, or a test report prepared by a nationally or internationally recognized independent testing organization.

Mandatory Requirement before contract award

The following information, which supports the bid, may be requested by the Contracting Authority from the bidder and it must be provided within **two (2)** working days of the written request:

d) After-sale services capability

The bidder must demonstrate that it has a service center and a parts distribution center that includes a mobile unit that can be deployed to the Port of Quebec, QC, within a maximum of 24 hours. The bidder must provide the address of the service and parts distribution center and a photograph of the service unit.

4.1.2 Financial Evaluation

SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price

4.2 Basis of Selection– Mandatory Technical Criteria

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

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default 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 to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will 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 available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969) website (http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969).

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.

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 Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Requirement

The Contractor must provide the items detailed under the "Requirement" at Annex "A".

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-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

[2010A](#) (2016-04-04), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

6.4 Term of Contract

The contract period is from the date of the contract award until the end of the warranty period, inclusively.

6.4.1 Delivery Date

All the deliverables must be received within 7 months of contract award

6.4.2 Delivery Points

Delivery of the requirement will be made to delivery point(s) specified at Annex "B" of the Contract.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Michael Woods
Title: Supply Specialist (Marine)
Public Works and Government Services Canada
Acquisitions Branch
Directorate: Supply
Address: 1550, avenue D'Estimauville, Québec, (Québec) G1J 0C4, Quebec, Canada

Telephone: 418-649-2715
Facsimile: 418-648-2209
E-mail address: michael.woods@tpsgc-pwgsc.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 Project Authority

The Project Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____

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

The Project Authority 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 Project Authority, however the Project 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 Contractor's Representative

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: _____
Facsimile: _____
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, as specified in Annex B for a cost of \$ _____CDN (insert the amount at contract award). DDP at destination, customs duties are included and Applicable Taxes are extra.

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 Single Payment

SACC Manual clause H1000C (2008-05-12) Single Payment

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:

DFOinvoicing-MPOfacturation@dfo-mpo.gc.ca

Important:

Write the name of the following person on invoice;

[REDACTED]

AND

- a) An electronic copy must be transmitted to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

6.8 Certifications and Additional Information

6.8.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____. (*Insert the name of the province or territory as specified by the Bidder in its bid, if applicable*)

6.10 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.

- (a) the Articles of Agreement;
- (b) the supplemental general conditions 2010A (2016-04-04), General Conditions – Goods (Medium Complexity);
- (c) Annex A, Requirement;
- (d) Annex B, Basis of payment;
- (e) the Contractor's bid dated _____ (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award: " , as clarified on _____ " or " , as amended on _____ " and insert date(s) of clarification(s) or amendment(s)*)

6.11 Defence Contract

SACC *Manual* clause [A9006C](#) (2012-07-16) Defence Contract

6.12 Delivery, Inspection and Acceptance

The Project Authority is the Inspection Authority. All reports, deliverable items, documents, goods and all services rendered under the Contract are subject to inspection by the Inspection Authority or representative. Should any report, document, good or service not be in accordance with the requirements of the Statement of Work and to the satisfaction of the Inspection Authority, as submitted, the Inspection Authority will have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment.

6.13 Excess Goods

SACC *Manual* clause [B7500C](#) (2006-06-16) Excess Goods

6.14 Insurance – No Specific Requirement

SACC *Manual* clause [G1005C](#) (2016-01-28) Insurance – No Specific Requirement

ANNEX "A"

REQUIREMENT

Diesel Engines/Transmissions Purchase

CCGS Frederik G. Creed

Supply two new diesel engines and transmissions as well as all control levers, control panels, and information/alarm displays, to replace existing Detroit Diesel engines, model 8122-7400, serial numbers 12VF003743 and 12VF003734, and ZF-type transmissions, model BW250, serial numbers 3124 and 3123.

1. General

- 1.1. The powertrain assemblies must be of modern construction and fairly robust, and that can be installed and operated on a SWATH OCEAN 2000 CLASS VESSELL, HULL #2001 (see document F3084-17N137_GA Frederik G Creed.pdf) that navigates six months a year in the waters of the St. Lawrence River and the Gulf of St. Lawrence.
- 1.2. The powertrain's construction must be approved by Transport Canada and/or a classification society approved by Transport Canada. A certificate of approval must be provided with each engine/transmission (powertrain) group upon delivery.
- 1.3. The powertrain groups shall be capable of operating under the following environmental and vessel operation conditions:
 - Outside air temperature: 0° to 35°C
 - Sea water temperature: -2° to 31°C
 - Engine room temperature: 10° to 50°C
 - Vessel on a permanent zero list.
 - A trim of 1'9" (overall length of vessel 66'1.5") and loaded trim of 3". Both are by the stern. This represents approximately 3° by the stern maximum.
- 1.4. Each diesel engine with its transmission shall be considered as one entity and supplied completely assembled ready to function following the positioning of the mountings on its seat and alignment with the propeller shaft, the connection of piping for fuel, sea water and exhaust gas.
- 1.5. The metric system is used on the vessel. It shall be required for all measurements.
- 1.6. The working language aboard the vessel is French.
- 1.7. All information, plates and stickers on engines shall be in both official languages, with French first and English second.

1.8. Dimensions of the engines in place: 2.516 meters long (including the transmission) by 1.272 meters wide by 1.397 meters high. The dimensions of the current engines are indicated in the document #F3084-17N137 SK-10316.

The dimensions of the engine compartment are length of 4.57 meters, width of 1.78 meters and height of 1.5 meters.

1.9. The powertrains must be supplied on robust resilient mounts adapted to the vibrations of the vessel.

1.10. All piping and electrical wiring for the powertrains must be securely attached and supported so that vibration does not lead to any kind of wear on the surface of the electrical wires and piping.

1.11. The Supplier shall include monitoring and engine control stations, namely:

1.11.1 Engine room station which will include:

- A local operating panel (LOP) of approximately 12", X 14" that includes an LCD screen and the following functions:
Local operation;
Start/stop/emergency stop;
Speed control;
Alarm acceptance/cancellation of audible alarm;
Override stop protection on engine/transmission;
Tachometer;
- Transmission control interface (Drive Engagement and Disengagement).



1.11.2 Wheelhouse station which will replace the existing station and which will include:

- LCD screen, approximately 7 inches
- Functional panel that performs the following functions:
Station activation;
Start/Stop/Emergency Stop;
Audible alarm for common alarm;
Alarm acceptance/Cancellation of audible alarm;
Tachometer;
- Two-lever control head with clutch and throttle functions. Dimensions: 3 1/8" X 5"

- Two sealed (IP67) control heads to be installed outside of wheelhouse to replace existing ones. Footprint dimensions: 3 1/8" X 5"



1.11.3 Engine/transmission Compartment station

- Local panel for standard interface of the central control unit, approximately 10" X 12"

The central control unit shall perform out (at a minimum) the following checks:

- Oil pressure of the gearbox
- Differential pressure of the gearbox oil
- Oil temperature of the gearbox
- Engagement / disengagement of the gearbox

-
- 1.12. All electrical wiring and terminal boards shall be clearly identified in accordance with the references on the plans provided by the manufacturer according to TP127. Cable identifications shall be made of non-ferrous metal or heat-resistant plastic.
- 1.13. To facilitate maintenance, engines shall be designed to facilitate removal of all major components. Height above the engine should be taken into account so that it is possible to disassemble the piston, the connecting rod, and the liner assembly. Currently, the deck height over the engines is 1.46 m.
- 1.14. The two powertrain groups must be shop tested in the presence of CCG authorities and the classification society. (See Trials section.)
- 1.15. On delivery of engines/transmissions, a complete report must be provided in two letter-sized paper copies and one electronic PDF copy of all the different parameters and readings taken during the shop trials.
- 1.16. The supplier shall, at the latest, 30 working days after contract award, provide detailed technical documentation in relation to the design of the engine and transmission seats as well as the piping configuration on the engine. The documentation shall cover as a minimum the following information:
- The overall dimensions of the engine and the transmission on a drawing made specifically for the application with the options as set out to be provided at delivery (non-generic) including a description of the removable parts. The goal is to determine the minimum dimensions of the temporary opening in the hull during the installation.
 - A lifting plan of the engine and the transmission with individual center of gravity.
 - A plan showing the position of suggested lifting lugs above the engine and the transmission in order to facilitate the maintenance.
 - A plan of all the resilient mountings (engine/transmission) with the load transmitted to the structure in the form of reactions (longitudinal, transversal, vertical loads and moments).
 - Position of the exhaust piping on the engine
 - Position of the inlet and outlet of the fuel on the engine
 - Position of the inlet and outlet of the seawater on the engine
 - Position of the inlet and outlet of the lube oil on the engine
- 1.17. On delivery of engines / transmissions, installation, maintenance and parts manuals should be provided, including arrangement and installation drawings, electrical diagrams, logic controller programs, etc. The powertrain assemblies shall be as constructed (as fitted). Also, on delivery of the engine/transmission, should be provided four manuals in French and four manuals in English, in paper format and in PDF format for the manuals, and in DWG format for drawings and plans.
- 1.18. Complete training in French on the operation, maintenance, and overhaul of the powertrains must be given to the two vessel crews (four people). This training must be given in the year following the purchase of the powertrains. The training will allow the participants to undertake a major five-year overhaul of the diesels without input from a company representative. A certificate of expertise shall be delivered by the manufacturer to all crew members who will attend the training. Tools such as software, connection wires, password required to access the electronic module will be part of the training and will become the property of the Coast Guard. The engine / transmission supplier will be required to provide this training at Canadian Coast Guard premises located at 101 Champlain Boulevard, Québec.

- 1.19. The company must possess a service center and a parts distribution center that includes a mobile unit that can be deployed to the Port of Quebec, QC, within a maximum of 24 hours.

2. Diesel Engines

- 2.1. Supply two (2) modern four-stroke diesel engines with turbo-charger and after-cooler, maximum dimensions 2.516 meters in length (including transmission) by 1.272 meters wide by 1.397 meters in height. Presently, there is about 100mm clearance on both sides and above the engine between the widest and highest part of the engine and the internal structure of the compartment.
- 2.2. The two (2) diesel engines shall meet the following criteria:
- Diesel engine capacity at least 900 bhp @ 1900 rpm and a maximum of 1080 bhp @ 2250 rpm.
- 2.3. Must meet EPA 40 CFR Part 94 TIER 2 anti-pollution environmental emission standards, in accordance with IMO standards.
- 2.4. Engines shall be supplied with a marine crankcase.
- 2.5. The new diesel engines shall be adaptable to the vessel's existing piping:
- Exhaust pipes: 9 in. diameter (note that the actual turbo exhaust are situated at the aft of the engine)
 - Seawater pipes: 3 in. diameter
 - Diesel fuel pipes:
 - Supply: 3/4 in. diameter
 - Return: 3/4 in. diameter
 - Oil fill and drain pipes: 1 in. diameter
- 2.6. Combustion air required for the diesel engines shall be taken from the engine room through a filter. The air filter shall be a dry filter mounted horizontally. The air supply to the engine room with a fan is 1358 cfm.
- 2.7. The diesel engines shall operate on marine diesel fuel, according to standard CAN/CGSB-3.517-2013, UFTS low-sulphur fuel, type B, except the flashpoint must be a minimum of 43°C for standard use by CCG vessels.
- 2.8. Cupro-nickel or steel pipes are accepted. Copper pipes shall not be used. The manufacturer has the responsibility to provide the best possible alloy for the application.
- 2.9. Engines and transmissions shall be cooled in a closed circuit by a coolant, which in turn will be cooled by seawater. The coolant will cool the oil. Cooling and lubrication systems shall be effective throughout the entire operating range of the engines.
- 2.10. The engines shall be equipped with an oil cooler, a water cooler/glycol chilling unit, pipes, and isolation and thermostatic valves. These elements shall be installed on the powertrains. The smallest, high-efficiency chillers (tubes or plates) but with very good efficiency. Components in contact with seawater shall be corrosion-resistant and shall be equipped with zinc anodes on the seawater side.
- 2.11. Engines must start with a 24 VDC starter.

- 2.12. Seawater, freshwater, lube oil and engine fuel booster pumps shall be directly driven; by gears on the engines.
- 2.13. The fuel system shall be equipped with double-walled injection piping with a tank alarm. (SOLAS approved)
- 2.14. The fuel supply system shall be equipped with a duplex water separator filter that can be changed over while the engine is running. These filters, as well as the main fuel/water separator filters, shall be fitted with valves to allow drainage and air bleeding, as well as moisture sensors with a duplex connection to the selection valve.
- 2.15. The engine cooling system shall be equipped with valves and plugs to allow complete draining of the system.
- 2.16. Engines shall be supplied with a manual turning gear.
- 2.17. Engines shall be equipped with a manual oil drain pump.
- 2.18. The engines and transmissions shall be equipped with duplex oil filters with selection valve that can be changed over while the engine is running. These filters shall be fitted with valves to allow drainage and air bleeding.
- 2.19. Engines shall be equipped with a flexible coupling on the flywheel for a rigid-mounted transmission.
- 2.20. Engines shall be able to be powered up quickly in 15 minutes. Engines shall have an automatic jacket water preheating system.
- 2.21. Engines shall be equipped with a control panel of dimensions (maximum) 12" x 14" mounted on anti-vibration mounts.
- Engine Start / Stop control
 - Engine emergency Stop control with manual actuation possibility and automatic shutdown in case of engine overspeed
 - Gearbox clutch control
 - Combined control and display elements for:
 - System Stop/On/Start
 - Power Supply On
 - Emergency Engine Stop

These panels shall locally indicate the various engine parameters described below. They shall be identified by firmly-attached ID plates.

- Oil pressure
- Jacket water pressure
- Seawater pressure
- Fuel pressure
- Oil filter differential pressure
- Fuel filter differential pressure
- Air intake manifold pressure
- Freshwater temperature
- Lube oil temperature
- Engine speed
- Turbo-charger speed
- Cylinder exhaust and turbo-charger outlet temperatures.
- Running time indicator

- 2.22. Engines shall be equipped with sensors and transducers installed in wells indicating the operation of the various engine parameters described below. Their signals shall go through the control panel and reach the central surveillance system that will be installed in the wheelhouse and engine room.
- Oil temperature and pressure
 - Jacket water temperature and pressure
 - Seawater temperature and pressure
 - Fuel pressure
 - Oil filter differential pressure
 - Engine speed
 - Turbo-charger speed
 - Cylinder exhaust and turbo-charger outlet temperatures.
 - Air manifold temperature.
- 2.23. Engines shall be equipped with alarms and shutdown protections, as required by Transport Canada regulations. Locally, the control panel shall be equipped with a buzzer and lights indication for each protection. They shall be identified by firmly-attached plates. The operation of these protections shall be demonstrated during the trials in the shop.
- Electric and mechanical overspeed with manual reset.
 - Low oil pressure
 - High temperature of jacket cooling liquid
 - High oil temperature
 - Low oil level
 - Low cooling water level
 - Crankcase exhaust fault
 - High temperature ported intake
 - Low fuel pressure
 - Low pressure of jacket cooling liquid
 - Low seawater pressure
 - Filter differential pressure
 - Fuel injector leak
- 2.24. Piping supplying manometers, protective coverings, alarms, etc., shall be securely attached and supported. It shall be equipped with an isolation valve at the source.
- 2.25. Engines shall be started and stopped from the local control panel and from the wheelhouse control panel. Also, a system independent of the control panels should allow the start engines/transmissions.
- 2.26. An emergency stop shall be located on the local control panel of the engine and directly in the wheelhouse. These buttons shall be under a protective covering to prevent accidental activation.
- 2.27. Provide a complete set of tools required for the maintenance and major overhaul of the diesel engines and transmissions. A detailed price list shall be supplied for evaluation purposes. These tools shall be delivered upon delivery of the engines. Additional claims for the supply of missing tools will not be accepted in the event that the CCG discovers that not all tools have been provided in accordance to the OEM manuals, required for carrying the maintenance and major overhaul of the engines/transmissions.

- 2.28. The engines shall be equipped with a minimum of one power takeoff (PTO) to drive a hydraulic pump of equivalent capacity of that actually installed (see PC116 pump specification document F3084-17N137_Spec pompe hydraulique attelée.pdf). Supply one equivalent pump per engine at delivery.
- 2.29. The starboard engine shall be able to drive a third hydraulic pump via two straps and a double pulley mounted directly to the crank shaft flywheel at the front of the engine. The pump presently installed onboard and to consider is « Eaton Vickers model: 25VQ12A 11C20 » see specification document F3084-17N137_Spec pompe hydraulique attelée.pdf. The pump has its own magnetic clutch. The engine shall allow for the installation of a double pulley for this application (see Photo of an existing engine, front view). The double pulley will be supplied by the CCG.

3. Transmissions

- 3.1. Supply two new marine-type transmissions to replace existing ZF transmissions, model BW250, serial numbers 3124 on the port side: rotation of the output flange when engaged forward is the same as the engine rotation (counter clockwise) and serial number 3123 on the starboard side: rotation of the output flange when engage forward is opposite of the engine rotation (clockwise).
- Reduction ratio of 3.519:1
 - Capacity of 1138 bhp @ 2250 rpm for intermittent service
 - For free-standing rigid mounting
 - Inlet coupling flange according to engine coupling specifications
 - Engagement solenoids
 - Mounted oil cooler with thermostatic bypass
 - Piping for oil cooler
 - Rigid supports with four anti-vibration mounts
 - Outlet coupling flange according to existing propeller shaft flange
 - Sensors for oil pressure and temperature, clutch pressure, and filter clogging for existing transmission
 - Wiring with connector
 - Transmission data display on the local operating panel (LOP) and in the wheelhouse
- 3.2. The transmission shall allow to couple to the existing propeller shaft at its actual height. The shaft arrangement drawing is supplied see document F3084-17N137_65-C8_Shaft Line.tif. The height between the underside of the mountings and the centerline of the propeller shaft shall be of maximum ± 1 inch.

4. Trials

4.1. Powertrain (engines/transmissions) shop trials

- 4.1.1. Trials on the diesel engines/transmissions (powertrains) shall be carried out at the manufacturer's facilities, in the presence of Contractual and Inspection Authorities. Propulsive performance will be measured with a dynamometer or other approved means to determine propulsion at various engine speeds.
- 4.1.2. The following tests shall be carried out to establish fuel and lube oil consumption.
- 4.1.2.1. Four hours at full load (100%): During this period, take and record the following parameters every hour:
- Time

- rpm
- bhp
- Temperature of each cylinder and of the turbo-charger outlet
- Fuel pump racks (millimeter)
- Fuel consumption (liter/hour)
- Ignition pressure of each cylinder
- Temperature of oil and of jacket cooling liquid
- Pressure of oil and of jacket cooling liquid
- Oil consumption established by filling engine at end of trial.
- Turbo-charger speed
- Air manifold pressure
- Fuel manifold pressure

4.1.2.2. Other tests will be accepted according to the manufacturers' recommendations but must include a minimum of the parameters mentioned in 4.1.2.1.

4.1.2.3. Adjust the over speed protection to a value corresponding to the maximum operating speed plus a minimum of 10%.

4.1.2.4. Test as in 2.23. all monitoring protections on the engines.

4.1.2.5. At the end of the tests, items below shall be opened, inspected and measured according to the manufacturer's recommendations and specifications:

- Piston rings
- Connecting rods and their bearings
- Crankshaft alignment
- Crankshaft bearings
- Thrust bearings
- Valves
- Timing element adjustments
- Lube oil filters (if installed)

4.1.3 The following data must be recorded at each hour:

- Temperatures
- Vibrations
- Input and output power
- Ratio check: rpm in and rpm out
- Noise
- Oil viscosity

5. Spare parts

5.1. Diesel Engines

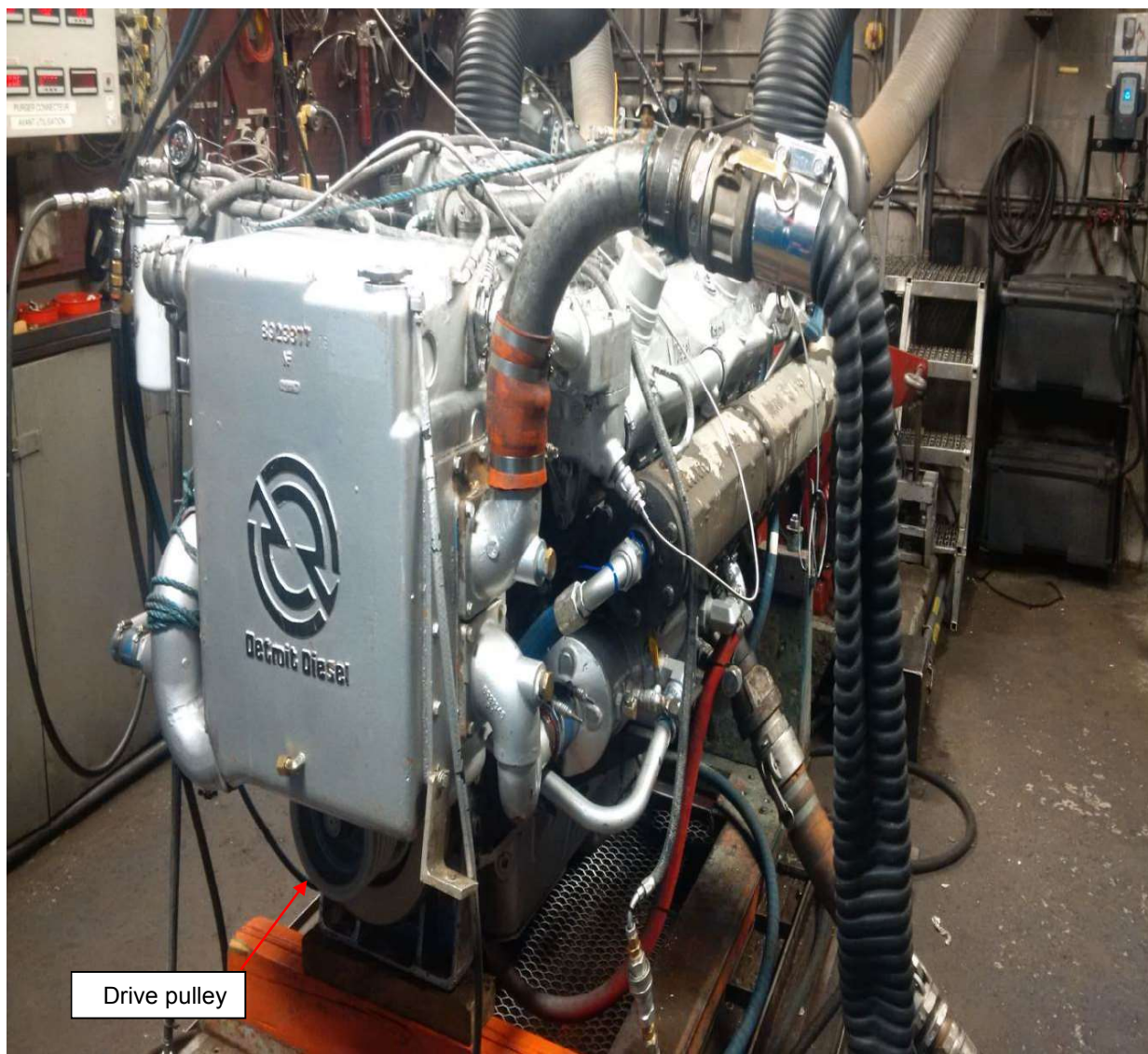
- Two complete packing kits for the pumps, including mechanical seals
- One complete set of bearings (including bushings and shells) installed on one engine
- One complete kit of flexible hoses and hoses for one powertrain
- One complete set of gears for one engine
- One complete seawater pump assembly
- One complete freshwater pump assembly
- One complete oil pump assembly
- One complete fuel pump assembly
- One complete fuel booster pump assembly
- One complete and adjusted speed regulator assembly
- One turbo-charger assembly
- Completely assembled cylinder heads half the number installed on one engine)
- Jackets (half the number installed on one engine)
- Pistons half the number installed on one engine)
- Piston rings half the number installed on one engine)
- Piston connecting rods and sleeves half the number installed on one engine)
- Two electric starters
- A complete injection tube kit for one engine
- A complete kit consisting of thermometers, manometers, probes and sensors for one engine.
- A spare air filter kit per engine
- Injectors (same number installed on one engine)
- Fuel injection and supply pumps assembly (same number installed on one engine)
- A complete camshaft kit for one engine
- Lube oil filters for a minimum 1000 hrs of use.
- Two shock absorbers for the motors and two for the transmissions.
- Two water and oil heaters

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QCL-7-40047

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CCC No./N° CCC - FMS No./N° VME

Photo of an existing engine, front view



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Photo of existing powertrains, looking forward



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Photo of existing powertrains, looking forward

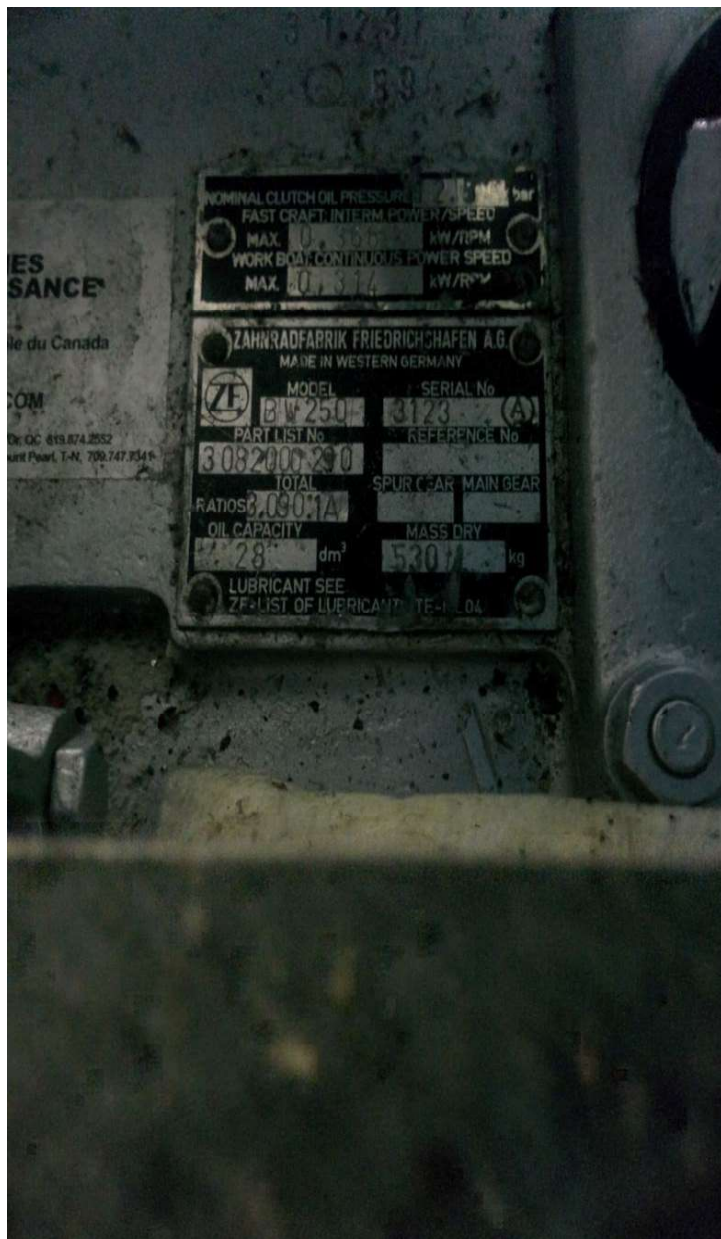


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Photo of Transmission



ANNEX "B"

BASIS OF PAYMENT

Price to supply two (2) new diesel engines and two (2) transmissions as well as all control levers, control panels, and information/alarm displays, to replace existing Detroit Diesel engines, model 8122-7400, serial numbers 12VF003743 and 12VF003734, and ZF-type transmissions, model BW250, serial numbers 3124 and 3123 for CCGS F.G. Creed as described at annex A.

The powertrain's construction must be approved by Transport Canada and/or a classification society approved by Transport Canada on a SWATH OCEAN 2000 CLASS VESSELL, HULL #2001 that navigates six months a year in the waters of the St. Lawrence River and the Gulf of St. Lawrence.

Item	Description	Qty	Unit of distribution	Price / Unit	Total Firm Price CDN
1	General				
	1.11 – Monitoring and Engine control stations				
	1.11.1 - Engine room station	1	Each	\$	\$
	1.11.2 - Wheelhouse station	1	Each	\$	\$
	1.11.3 - Engine/transmission area	1	Each	\$	\$
	1.14 – Shop tests	2	Each	\$	\$
	1.16 - Deliverables		Lot.	\$	\$
	1.17 - Training	2	Each	\$	\$
	Other deliverables not specified in this table, but specified in annex A	1	Each	\$	\$
	Total of item 1 must include all work, components and requirements specified in item 1 of annex A.				
2	Diesel Engines				
	Price for engine : Name of product : _____	2	Each	\$	\$
	Price : _____ \$ /unit				
	2.27 – Special tools set (Provide detailed price list for all spare tools with bid for evaluation)		Lot	\$	\$
	Total of item 2 must include all work, components and requirements specified in item 2 of annex A.				
3	Transmissions (Total of item 3 must include all work, components and requirements specified in item 3 of annex A.)				
	Price for 1 transmission : Name of product : _____	2	Each	\$	\$
	Price : _____ \$ /unit				

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Item	Description	Qty	Unit of distribution	Price / Unit	Total Firm Price CDN
4	Trials Powertrain (engines/transmissions) shop trials				\$
5	Spare Parts				
5.1	5.1 - Diesel Engines				
	Complete packing kits for the pumps, including mechanical seals	2	Lot	\$	
	Complete set of bearings (including bushings and shells) installed on one engine	1	Lot	\$	
	Complete kit of flexible hoses and hoses for one powertrain	1	Lot	\$	
	Complete set of gears for one engine	1	Lot	\$	
	Complete seawater pump assembly	1	Each	\$	
	Complete freshwater pump assembly	1	Each	\$	
	Complete oil pump assembly	1	Each	\$	
	Complete fuel pump assembly	1	Each	\$	
	Complete fuel booster pump assembly	1	Each	\$	
	Complete and adjusted speed regulator assembly	1	Each	\$	
	Turbo-charger assembly	1	Each	\$	
	Completely assembled cylinder heads (half the number installed on one engine) # of cylinder heads: _____ Price per cylinder head : _____ \$ /cylinder head	TB D	Lot	\$	
	Jackets (half the number installed on one engine) # of jackets: _____ Price per Jacket : _____ \$ /Jacket	TB D	Lot	\$	
	Pistons (half the number installed on one engine) # of pistons: _____ Price per piston : _____ \$ /piston	TB D	Lot	\$	
	Piston rings set (half the number installed on one engine) # of piston ring sets: _____ Price per Piston rings set: _____ \$ / Piston rings set	TB D	Lot	\$	
	Piston connecting rods and sleeves set (half the number installed on one engine) # of Piston connecting rods and sleeves sets: _____ Price per connecting rods and sleeves set : _____ \$ / connecting rods and sleeves set	TB D	Lot	\$	
	Electric starters Price per Electric starter: _____ \$ / Electric starter	2	Lot	\$	
	Complete injection tube kit for one engine	1	Lot	\$	
	Complete kit consisting of thermometers, manometers, probes and sensors for	1	Lot	\$	

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Item	Description	Qty	Unit of distribution	Price / Unit	Total Firm Price CDN
	one engine				
	Spare air filter kit Price per Spare air filter kit: _____ \$ / Spare air filter kit	2	Lot	\$	
	Injectors (same number installed on one engine) # of injectors: _____ Price per Injector: _____ \$ / Injector	TB D	Lot	\$	
	Fuel injection and supply pumps assembly (same number installed on one engine) # of Fuel injection and supply pumps assemblies: _____ Price per Fuel injection and supply pumps assembly: _____ \$ / Fuel injection and supply pumps assembly	TB D	Lot	\$	
	Complete camshaft kit for one engine	1	Lot	\$	
	Lube oil filters for 1000 hrs of use # of lube oil filters: _____ Price for lube oil filter: _____ \$ / per lube oil filter	TB D	Lot	\$	
	Shock absorbers for the engines	2	Lot	\$	
	Shock absorbers for the transmissions	2	Lot	\$	
	Water heaters Price per Water heater: _____ \$ / per Water heater	2	Lot	\$	
	Oil heaters Price per Oil heater: _____ \$ / per Oil heater	2	Lot		
	Total of item 5 must include all work, components and requirements specified in item 5 of annex A.				\$
	DDP at Canadian Coast Guard base, 101 Boul Champlain, Quebec City, Qc, G1K 7Y7, Canada, including customs duties, handling and delivery:	1	Lot		\$
A) Total firm price (CDN)					\$

*Customs duties are included and all applicable taxes are extra, if applicable.

ANNEX « C »

Mandatory Technical Criteria

#	Description	Details of bid proposal	Compliant (Yes or No)	Technical references within the bid documents (page #, para, etc.)
A – Certification from the Original Equipment Manufacturers (OEM)				
A.1	Provide a certification from the OEM			
B – Manufacturer's Expertise				
B.1	Provide first references (name of the vessel(s), the size and type of powertrain provided and the year of supply) for which the equipment manufacturer or his authorized representative have supplied engines and transmissions that have been installed for a similar application during the last 3.			
B.2	Provide second references (name of the vessel(s), the size and type of powertrain provided and the year of supply) for which the equipment manufacturer (OEM) or his authorized representative have supplied engines and transmissions that have been installed for a similar application during the last 3.			
C – Minimum performance characteristics of equipment submitted				
C.1	Provide brand and model of proposed engines and transmissions as well as Technical data from the manufacturer (Specifications, sketches and printed descriptive).			
C.2	Diesel engine capacity at least 900 bhp @ 1900 rpm and a maximum of 1080 bhp @ 2250 rpm.			
C.3	Must meet EPA 40 CFR Part 94 TIER 2 anti-pollution environmental emission standards, in accordance with IMO standards.			
C.4	Two (2) modern four stroke diesel engines with turbo charger			
C.5	Engines shall be supplied with a marine crankcase.			
C.6	Engines must start with a 24 VDC starter.			

C.7	Seawater, freshwater, lube oil and engine fuel booster pumps shall be directly driven; by gears on the engines.			
C.8	The fuel system shall be equipped with double-walled injection piping with a tank alarm. (SOLAS approved)			
C.9	The fuel supply system shall be equipped with a duplex water separator filter that can be changed over while the engine is running.			
C.10	Engines shall be supplied with a manual turning gear.			
C.11	Respect of the maximum engine dimensions: 2.516 meters in length (including transmission) by 1.272 meters wide by 1.397 meters in height.			
C.12	Engines shall be equipped with a manual oil drain pump.			
C.13	The engines and transmissions shall be equipped with duplex oil filters with selection valve that can be changed over while the engine is running.			
C.14	The transmissions operate with a capacity of 1138 bhp @ 2250 RPM in intermittent application.			
C.15	The transmissions deliver the same propeller rpm as the old transmissions as to 150 at idle speed, 450 at cruise speed and 530 at full speed.			
C.16	The weight of the new transmissions does not exceed that of the old models, ie 437 kg dry weight.			
C.17	The transmissions are designed to receive lateral loads.			
C.18	Provide Detail price list of required tools in accordance with item 2.27 of Annex B			
D – After-sale services capability (to be provided before contract award)				
D.1	The bidder must demonstrate that it has a service center and a parts distribution center that includes a mobile unit that can be deployed to the Port of Quebec, QC, within a maximum of 24 hours. The bidder must provide the address of the service and parts distribution center and a photograph of the service unit.			