



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Bid Receiving - PWGSC / Réception des
soumissions - TPSGC

11 Laurier St. / 11, rue Laurier

Place du Portage, Phase III

Core 0B2 / Noyau 0B2

Gatineau, Québec K1A 0S5

Bid Fax: (819) 997-9776

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

Ship Refits and Conversions / Radoubss et
modifications de navires and / et

11 Laurier St. / 11, rue Laurier

6C2, Place du Portage

Gatineau, Québec K1A 0S5

Title - Sujet CCGS Griffon Alongside Summer Refit	
Solicitation No. - N° de l'invitation F2599-195010/A	Date 2019-05-22
Client Reference No. - N° de référence du client F2599-195010	GETS Ref. No. - N° de réf. de SEAG PW-\$\$MD-039-27329
File No. - N° de dossier 039md.F2599-195010	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-06-18	
Time Zone Fuseau horaire Eastern Daylight Saving Time EDT	
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: Blackburn, Jessica	Buyer Id - Id de l'acheteur 039md
Telephone No. - N° de téléphone (873) 469-3297 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	
Specified Herein Précisé dans les présentes	

Instructions: See Herein

Instructions: Voir aux présentes

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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PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation is divided into seven parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation and states that the Bidder agrees to be bound by the clauses and conditions contained in all parts of the bid solicitation;
- Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, if applicable, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 Financial and Other Requirements: includes specific requirements that must be addressed by bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Technical Specification, the Basis of Payment, the Federal Contractors Program for Employment Equity - Certification, the Insurance Requirements and other Annexes.

1.2 Summary

1. The Requirement is:
 - a) For an alongside refit to carry out inspection, repair, maintenance and alterations of the Canadian Coast Guard Vessel **CCGS Griffon** in accordance with Annex A – Statement of Work, and any associated technical information.

The refit will be done at Canadian Coast Guard Base Prescott, 401 King St W., Prescott, ON K0E 1T0.
 - b) To carry out unscheduled work authorized by the Contracting Authority.
2. As per the Integrity Provisions under section 01 of Standard Instructions 2003 bidders must provide a list of all owners and/or Directors and other associated information as required. Refer to section 4.21 of the Supply Manual for additional information on the Integrity Provisions..
3. The requirement is exempt from the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), Annex 4 and the North American Free Trade Agreement (NAFTA), Chapter Ten Annex 1001.2b Paragraph 1(a). However, it is subject to the Canada Free Trade Agreement (CFTA). The sourcing strategy relating to this procurement will be limited to suppliers in Eastern Canada, in accordance with Shipbuilding, Refit, Repair and Modernization Policy (2010-08-16).
4. There is a Federal Contractors Program (FCP) for employment equity requirement associated with this procurement; see Part 5 - Certifications, Part 7 - Resulting Contract Clauses and the annex named Federal Contractors Program for Employment Equity - Certification.

1.3 Work Period - Marine

Commencement: July 03, 2019
Completion: August 02, 2019

1.4 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.

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>) 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 (2018-05-22) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

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 the front page of the bid solicitation.

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **five (5) working 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 questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

Any clarifications or changes to the bid solicitation resulting from the questions and answers will be included as an amendment to the bid solicitation.

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 Ontario.

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.

Refer to Annex "I1" for Deliverables/Certifications.

2.5 Bidders' Conference

A bidder's conference chaired by the Contracting Authority will be held at the Canadian Coast Guard Base Prescott, 401 King St W., Prescott, ON K0E 1T0 on May 29, 2019 at 3:00 PM (meeting room to be determined). The scope of the requirement outlined in the solicitation will be reviewed during the conference and questions will be answered. It is recommended that bidders who intend to submit a bid attend or send representation.

Bidders are requested to communicate with the CA before the conference to confirm attendance. Bidders should provide, in writing to the CA, the names of the person(s) who will be attending and a list of issues they wish to table no later than three (3) business days before the scheduled Conference.

Any clarifications or changes to the solicitation resulting from the Bidder's Conference will be included as an amendment to the solicitation.

Bidders who do not attend will not be precluded from submitting a bid.

2.6 Optional Site Visit - Vessel

It is recommended that the Bidder or a representative of the Bidder visit the work site. Arrangements have been made for the site visit to be held on May 29, 2019 at 1:00 pm at the Canadian Coast Guard Base Prescott, 401 King St W., Prescott, ON K0E 1T0. All visitors must have valid identification and must report to the Main Gate – Commissionaires, where they will sign in and be directed to the main boardroom.

Bidders are requested to communicate with the Contracting Authority no later than three (3) business days prior to the site visit date to confirm attendance and provide the name(s) of the person(s) who will attend. Bidders may be requested to sign an attendance sheet. Bidders who do not attend or do not send a representative will not be given an alternative appointment but they will not be precluded from submitting a bid. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation.

2.7 Work Period - Marine

Work must commence and be completed as follows:

Commencement: July 03, 2019
Completion: August 02, 2019

By submitting a bid, the Bidder certifies that they have sufficient materiel and human resources allocated or available and that the above work period is adequate to both complete the known work and absorb a reasonable amount of unscheduled work.

2.7.1 Additional Instructions to Work Period

From refit start date of July 03, 2019 to August 02, 2019 the vessel will be manned during the work period and will be considered to be in commission. The vessel during that period will be in the care and custody of the CCG and under its control.

The refit will be done at Canadian Coast Guard Base Prescott, 401 King St W., Prescott, ON K0E 1T0.

2.8 Equivalent Products

The SACC B3000T (2006-06-16) Equivalent Products, are incorporated by reference into and form part of the bid solicitation.

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 (2 hard copy)
- Section II - Financial Bid (1 hard copy)
- Section III - Certifications (2 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>). To assist Canada in reaching its objectives, bidders are encouraged to :

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and/or 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

The Bidder must provide all of the deliverables as referenced in Annex "J1" Deliverables and Certifications.

In their technical bid, Bidders must demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders must demonstrate their capability and describe their approach in a thorough, concise and clear manner for carrying out the work. Bidders must provide detailed evidence that they and/or their proposed subcontractors have completed work similar in scope and complexity.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Financial Bid Presentation Sheet in Annex "H", and the detailed Pricing Data Sheet, Appendix 1 to Annex "H". The total amount of Applicable Taxes must be shown separately.

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, management and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

Section I - Technical Bid / Certifications

Notwithstanding deliverable requirements specified within the bid solicitation and its associated Technical Specification Annex "A", mandatory deliverables that must be submitted with the Bidder's bid to be deemed responsive are summarized in Annex J – Deliverables / Certifications – I1 Mandatory Tender Deliverables Check List..

Section II - Financial Bid

In order to be compliant, the Bidder's bid must, to the satisfaction of Canada, meet all requirements and provide all information required under Part 3, Section II - Financial Bid.

Section III - Certifications

Bidders must submit the certifications required under Part 5 – Certifications.

Canada reserves the right to request information to support any bid requirement. The Bidder is instructed to address each requirement in sufficient depth to permit a complete analysis and assessment by the Evaluation Team. The Bid will be deemed responsive if it is found to meet all of the mandatory requirements.

4.2 Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

4.2.1 Unscheduled Work and Evaluation Price

In any vessel refit, repair or docking contract, unscheduled work will arise after the vessel and its equipment is opened up and surveyed.

An anticipated cost for the unscheduled work will be included in the evaluation price. The evaluation price will be calculated by including an estimated amount of additional person-hours multiplied by a firm hourly charge-out labour rate for unscheduled work and will be added to the firm price for the known work.

The Evaluation Price will be used for evaluating the bid. The additional amount of person-hours for unscheduled work will be based on historical experience and there is no minimum or maximum amount of unscheduled work nor is there a guarantee of such unscheduled work.

4.3 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. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

Bidders should note that all contract awards are subject to Canada's internal approvals process, which includes a requirement to approve funding in the amount of any proposed Contract. Notwithstanding that a Bidder may have been recommended for award of Contract, issuance of any Contract will be contingent upon internal approval in accordance with Canada's policies. If such approval is not given, no Contract will be awarded.

4.4 Deliverables after Contract Award

Refer to Annex "I2".

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 to 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 Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid but may be submitted afterwards. If any of these required certifications 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 comply with the request of the Contracting Authority and to provide the certifications within the time frame specified will render the bid non-responsive.

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 the required documentation, as applicable, to be given further consideration in the procurement process.

5.1.2 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.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed Annex C Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.1.3 Education and Experience

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

5.1.4 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared nonresponsive.

PART 6 - FINANCIAL AND OTHER REQUIREMENTS

6.1 Financial Capability

SACC Manual Clause A9033T (2012-07-16) Financial Capability

6.2 Vessel Transfer Costs

Not used

6.3 Workers' Compensation - Letter of Good Standing

The Bidder must have an account in good standing with the applicable provincial or territorial Workers' Compensation Board.

The bidder must provide with the bid, a certificate or letter from the applicable Worker's Compensation Board confirming the Bidder's good standing account. Failure to comply with the request may result in the bid being declared non-responsive.

Refer to Annex "I1" for Deliverables/Certifications.

6.4 Valid Labour Agreement

If the Bidder has a labour agreement, or other suitable instrument, in place with all its unionized labour, it must be valid for the proposed period of any resulting contract. Documentary evidence of the agreement or suitable instrument must be provided on or before bid closing date. If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex "I1" for Deliverables/Certifications

6.5 Preliminary Work Schedule

At the time of bid closing the Bidder must submit to Canada one (1) copy of its preliminary production work schedule. This schedule is to show the commencement and completion dates for the Work in the available work period, including realistic target dates for significant events. This schedule will be reviewed with the successful Bidder at the Pre-Refit Meeting.

The Contractor's Work schedule must include (as a minimum) target dates for each of the following significant events:

- a. Commencement of Work as defined at Article 7.3.1
- b. All priced work items listed in Annex I Appendix 1
- c. FSR Scheduling for Priced Work Items
- d. Completion of Work as defined at Article 7.3.1
- e. Dock and Sea Trials Period

Refer to Annex "I1", Deliverables/Certifications.

6.6 Safety Measures for Fueling and Disembarking Fuel

Fueling and disembarking fuel from Canadian government vessels must be conducted under the supervision of a responsible supervisor trained and experienced in these operations.

At bid closing date, the Bidder must provide details of its safety measures for fueling and disembarking fuel together with the name and qualifications of the person in charge of this activity. If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex "I1", Deliverables/Certifications.

6.7 ISO 9001:2008 - Quality Management Systems

The Bidder shall have in place a Quality Management System registered to ISO 9001:2008 or a Quality Management System modeled on ISO 9001-2008 and shall provide at time of bid closing:

- If registered its valid ISO 9001-2008 certification;
- Example of Quality Control Plan (QCP) as per clause 6.15.

Documentation and procedures of bidders may be subject to a Quality System Evaluation (QSE) by the Technical Authority during bid evaluation period.

Refer to Annex "I1" for Deliverables/Certifications.

6.8 Health and Safety

The Bidder must submit with its bid objective evidence that it has a documented Health and Safety system fully compliant with all current Federal, Provincial and Municipal regulations. If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex "I1" for Deliverable Requirements.

6.9 Fire Protection, Fire Fighting and Training Procedures

The Bidder must submit with its bid objective evidence that it has documented fire protection, fire fighting and training procedures compliant with current regulations and their insurance requirements. The fire protection, fire fighting and training procedures will, once accepted by Canada, form part of the Contract. Please refer to clause 7.25. If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex "I1" for Deliverable Requirements.

6.10 Hazardous Waste

1. The Bidder acknowledges that sufficient information has been provided by Canada with respect to the location and estimated amount of hazardous materials such as asbestos, lead PCBs, silica or other hazardous materials or toxic substances.
2. The price includes all costs associated with the removal, handling, storage, disposal and/or working in the vicinity of hazardous materials such as asbestos, lead, PCBs, silica and other hazardous materials or toxic substances on board the vessel, including those costs resulting from the need to comply with applicable laws and regulations in relation to the removal, handling, disposal or storage of hazardous materials or toxic substances.
3. The completion date for the Work takes into account the fact that the removal, handling, storage, disposal and/or working in the vicinity of hazardous materials such as asbestos, lead, PCBs, silica and other hazardous materials or toxic substances may be affected by the need to comply with applicable federal, provincial and municipal laws or regulations and that this will not be considered to be an excusable delay.

6.11 Insurance Requirements

The Bidder must provide with its bid 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 Annex "D". If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex "I1", Deliverables/Certifications.

6.12 Welding Certification

1. Welding must be performed by a welder certified by the Canadian Welding Bureau and in accordance with the requirements of the following Canadian Standards Association (CSA) standards:

- a. CSA W47.1-09, Certification for Companies for Fusion Welding of Steel (Division Level 1 or 2); and
- b. CSA W47.2-11, Certification for Companies for Fusion Welding of Aluminum (Minimum Division Level 3).

The bidder must submit proof of Certification for Companies for Fusion Welding of Steel with the bid. The certification must remain valid for the duration of the contract. If this information is not provided with the bid, it will render the bid non-responsive.

Proof of Certification for Companies for Fusion Welding of Aluminum is not required with the bid but must be readily available before the commencement of any fabrication work, and upon request from the Technical Authority. The certification must remain valid for the duration of the contract.

Refer to Annex " I1 " for Deliverables/Certifications.

6.13 Project Management Services

The Contractor is required to provide their own Project Management Team experienced and capable of successfully managing the ship repair contract as defined herein. Project management personnel, services and deliverables must comply with the requirements detailed in the contract.

Introduction

Project management refers to system integration and technical control as well as business management of the CCGS Griffon Inspection, Repair and Maintenance Requirement.

The Contractor must provide the following within 5 days of Contract Award:

Project Action Plan (PAP):

The Contractor must document the project management for the work in a Project Action Plan and must update this plan at monthly intervals or more frequently as required by the Contracting Authority.

The PAP must comprise:

- i) organization structure charts;
- ii) a master schedule, support schedules, sub-Contractor schedules and work;
- iii) Government Furnished Equipment (GFE), and Contractor Furnished Equipment (CFE) delivery dates as a minimum.

The monthly updates to the PAP must comprise schedule updates, a progress report and review meetings. The components of the PAP and its updates are described in the following sub-sections.

1) Project Integration Management:

The Contractor must provide an overall project organizational chart identifying all key personnel and sub-Contractors. Further, the Contractor must identify the contract-related work each sub-Contractor is responsible for.

2) Change Management Log:

The Contractor must provide a Change Management Log that must be used for the duration of the project to manage project changes.

The Change Management Log must track project issues with the following criteria:

- i) Individual tracking number;
- ii) Date issue was raised;
- iii) Expected resolution date;
- iv) Date issue was resolved;
- v) Brief note of resolution on issue;
- vi) Individual who raised issue;
- vii) Individual assigned to resolve issue;
- viii) Risk Factor.

3) Risk Management Plan:

The Contractor must identify emergent risks and rank these risks by impact on the work. Mitigation strategies must be identified for all "High" risks. The "Risk Management Plan" must be updated at least bi-weekly and provided to the Technical and Contracting Authorities. The "Risk Management Plan" must be included in the monthly progress meeting Record of Decisions.

4) Scheduling:

The Contractor must provide a schedule(s) that breaks the work down to the system and component level. The schedule must include sub-Contractor and FSR schedules to the same level. The Contractor must update the schedule(s) on a weekly basis and the updates must be submitted electronically in MS Project 2013 or equivalent format to the Contract Authority, and the Technical Authority by close of Business each Monday until the end of the project.

The schedule(s) must identify at a minimum the following elements ;
The schedule(s) must be baselined.

- a) Major Milestones
- b) The Work Breakdown Structure (WBS) on at least three or more levels for each section of the Specification package. More specifically, the WBS must include the strip outs, production, assembly, installation, bench testing, system commissioning and tests and trials, the expected and required resources, and the necessary sea trials;
- c) Predecessors and successors; start and end dates for each item;
- d) The critical path to the acceptance of the work;
- e) The subcontractors' and FSR schedules up to the same level;
- f) Long lead items and GFE;

The PMBOK eighth edition must be used as the reference for scheduling.

5) Project Reporting: must provide a monthly Progress Report describing the status of the project Time Line, Cost and Performance as an introduction. Time, Cost and Performance must then be addressed in detail, clearly demonstrating earned value using Cost Performance Index (CPI) and Schedule Performance Index (SPI). The report must identify significant risks to the program and the actions taken to resolve these risks. The risk analysis must identify any impact upon delivery and actions taken to recover any slippage that may affect the contract delivery date. The report, either in hard copy or in electronic format, must be delivered monthly, three (3) working days prior to the progress review meeting to the

Contract Manager, the Inspection Authority and the Technical Authority. The progress report must include sub-Contractor and major component supplier activity.

The following Management Reports and Documentation are to be prepared and maintained by the Contractor and submitted to Canada in accordance with the Contract or upon request by the Contracting Authority.

- i. Production Work Schedule
- ii. Inspection Summary Report
- iii. Growth Work Summary

For details refer to Annex I Deliverables / Certifications, I1 - Mandatory Tender Deliverables Check List.

6.14 List of Proposed Subcontractors

If the bid includes the use of subcontractors, the Bidder shall provide a list of all subcontractors including a description of the things to be purchased, a description of the work to be performed by specification section and the location of the performance of that work. The list should not include the purchase of off-the-shelf items, software and such standard articles and materials as are ordinarily produced by manufacturers in the normal course of business, or the provision of such incidental services as might ordinarily be subcontracted in performing the Work, i.e. subcontract work valued at less than \$ 5,000.00 aggregate for the project.

Refer to Annex "I1" for Deliverables/Certifications.

6.15 Quality Control Plan

At the time of bid closing the Bidder must submit to Canada an example of its Quality Control Plan (QCP) as applied on previous projects of the same nature.

Refer to Annex "I1" for Deliverables/Certifications.

6.16 Inspection and Test Plan

At the time of bid closing the Bidder must submit to Canada an example of an Inspection and Test Plan (ITP) complete with requirement and inspection reports as developed on previous projects of the same nature.

Refer to Annex "I1" for Deliverables/Certifications.

6.17 Environmental Protection

At the time of bid closing the Bidder must submit details of its environmental emergency response plans, waste management procedures and/or formal environmental training undertaken by its employees.

Refer to Annex "I1" for Deliverables/Certifications.

PART 7 - RESULTING CONTRACT CLAUSES

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

7.1 Requirement

The Contractor must:

- a) carry out inspection, repair, maintenance and alterations of the Canadian Coast Guard Vessel CCGS Griffon in accordance with Annex A – Statement of Work, and any associated technical information.

- b) To carry out unscheduled work authorized by the Contracting Authority.

7.2 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 issued by Public Works and Government Services Canada (PWGSC). The manual is available on the following PWGSC website:

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

7.2.1 General Conditions

2030 (2018-06-21), General Conditions - Higher Complexity - Goods, apply to and form part of the Contract.

2030 (2018-06-21) General Conditions Higher Complexity - Goods are hereby amended as follows:

Section 22 Warranty

1. The Contractor, if requested by Canada, must replace or repair at its own expense any finished work, excluding Government Issue incorporated in the Work, which becomes defective or which fails to conform to contract requirements as a result of faulty or inefficient manufacture, material or workmanship.
2. Despite acceptance of the finished work, and without restricting any other term of the Contract or any condition, warranty or provision imposed by law, the Contractor warrants that the following will be free from all defects and will conform with the requirements of the Contract:
 - (a) The painting of the underwater portion of the hull for a period of 365 days commencing from the date of undocking, except that the Contractor will only be liable to repair and/or replace to a value to be determined as follows:

Original cost to Canada of the underwater painting work, divided by 365 days and multiplied by the number of days remaining in the warranty period. The resultant sum would represent the "Dollar Credit" due to Canada from the Contractor.
 - (b) All other painting work for a period of 365 days commencing from the date of acceptance of the Work;
 - (c) All other items of work for a period of ninety (90) days commencing from the date of acceptance of the Work, except that:
 - (i) the warranty on the work related to any system or equipment not immediately placed in continuous use or service will be for a period of ninety (90) days from the date of acceptance of the vessel;
 - (ii) for all outstanding defects, deviations, and work items listed on the Acceptance Document at Delivery, the warranty will be ninety (90) days from the subsequent date of acceptance for each item.
3. The Contractor agrees to pass to Canada, and exercise on behalf of Canada, all warranties on the materials supplied or held by the Contractor which exceed the periods indicated above.
4. Refer to Annex "E" and its Appendix "1" for Warranty Defect Claim Procedures and forms.

7.2.2 Supplemental General Conditions

1031-2 (2012-07-16), Contract Cost Principles, apply and form part of the Contract.

1029 (2018-12-06) Ship Repairs, apply and form part of the Contract.

7.3 Term of Contract

7.3.1 Work Period - Marine

1. Work must commence and be completed as follows:

Commencement: July 03, 2019
Completion: August 02, 2019

7.3.2 Additional Instructions to Work Period

From refit start date of July 03, 2019 to August 02, 2019 the vessel will be manned during the work period and will be considered to be in commission. The vessel during that period will be in the care and custody of the CCG and under its control.

The refit will be done at CCG base at 401King Street, West, Prescott, ON K0E 1T0.

7.3.3 Time is of the Essence

Refer to SACC Manual Clause 2030 (2018-05-22), sub-section 10, Time is of the Essence.

7.4 Authorities

7.4.1 Contracting Authority

The Contracting Authority for the Contract is:

Jessica Blackburn
Department of Public Works and Government Services Canada (PWGSC)
Marine Sector
PWGSC, 6C2 Place du Portage, Phase III
11 Laurier Street,
Gatineau, Quebec, K1A 0S5
Tel: (873) 469-3297
Fax: (819) 956-7725
E-Mail: Jessica.blackburn@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.

7.4.2 Technical Authority

The Technical Authority for the Contract is:

Name will be determined at Contract Award

Name: _____
Telephone: _____
Cell: _____
E-mail: _____

The Technical 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 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.

7.4.3 Inspection Authority

The Inspection Authority for the Contract is the Canadian Coast Guard.

Name will be determined at Contract Award

Name: _____
Telephone: _____
Cell: _____
E-mail: _____

The Inspection Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for the 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.

7.5 Payment

7.5.1 Basis of Payment - Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price indicated in the Basis of Payment Annex " B" for the Known Work. Applicable Taxes are extra, if applicable. Payment for unscheduled work shall be in accordance with Annex "B".

No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Specifications, will be authorized or paid to the Contractor unless such design changes, modifications or interpretations have been authorized in writing, by the Contracting Authority prior to their incorporation in the Work.

7.5.2 Terms of Payment - Progress Payment

1. Canada will make progress payments in accordance with the payment provisions of the Contract, no more than once a month, for cost incurred in the performance of the Work, up to 90 percent of the amount claimed and approved by Canada if:
 - (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111 <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;

- (b) the amount claimed is in accordance with the basis of payment;
 - (c) the total amount for all progress payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Contract;
 - (d) all certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives.
2. The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted.
 3. Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the rights to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

7.5.3 Liens - Section 427 of the Bank Act

SACC Manual Clause H4500C (2010-01-11) Liens - Section 427 of the Bank Act

7.5.4 Limitation of Price

SACC Manual Clause C6000C (2017-08-17) Limitation of Price

7.5.5 Time Verification

SACC Manual Clause C0711C (2008-05-12) Time Verification

7.6 Invoicing Instructions

The Contractor must submit invoices in accordance with the information required in Section 13 of SACC 2030 (2018-06-21), General Conditions, Higher Complexity, Goods, Article 7.5 Payment and Article 7.6 Invoicing Instructions.

7.6.1 Invoices

1. Invoices are to be made out to:

Canadian Coast Guard Marine Engineering
520 Exmouth Street
Sarnia, ON, N7T 8B1
Attn: Helen Evans

And;

The original invoice to be forwarded for verification to:

Public Works and Government Services Canada
Marine Systems Directorate
Ship Refit Division
6C2 Place du Portage, Phase III
11 Laurier Street
Gatineau, Quebec K1A 0S5
Attention: Jessica Blackburn

2. Canada will only make payment upon receipt of a satisfactory invoice duly supported by specified release documents and any other documents called for under the Contract.

3. The Contractor shall not submit an invoice prior to the completion and acceptance of the Work or shipment of the items to which it relates.

7.6.2 Invoicing Instructions - Progress Claim

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111 <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>, Claim for Progress Payment.

Each claim must show:

- (a) all information required on form PWGSC-TPSGC 1111;
 - (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
2. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.
 3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Contracting Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

The Contracting Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

4. The Contractor must not submit claims until all work identified in the claim is completed.

7.6.3 Warranty Holdback

A warranty holdback of 5% of the total contract price as last amended (Applicable Taxes excluded) will be applied to the final claim for payment. This holdback will be payable by Canada upon the expiry of the 90 day warranty period(s) applicable to the Work. Applicable Taxes, as appropriate, is to be calculated and paid on the total amount of the claim before the 5% holdback is applied. At the time that the holdback is released, there will be no Applicable Taxes payable, as it was included in previous payments.

7.7 Certifications

7.7.1 Compliance

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.

7.8 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "[FCP Limited Eligibility to Bid](#)" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

7.9 Applicable Laws

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

7.10 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 1029, (2018-12-06), Ship Repairs;
- (c) the General Conditions 2030, (2018-05-22), General Conditions - Higher Complexity - Goods
- (d) the General Conditions 1031-2, (2012-07-16), Contract Cost Principles;
- (e) Bidders Questions and Answers
- (f) Annex "A", Statement of Work;
- (g) Annex "B", Basis of Payment;
- (h) Annex "C", Federal Contractors Program for Employment Equity - Certification;
- (i) Annex "D", Insurance Requirements;
- (j) Annex "E", Warranty;
- (k) Annex "F", Procedure for Unscheduled Work;
- (l) Annex "G", Quality Control/Inspection;
- (m) Annex "H", Financial Bid Presentation Sheet;
- (n) Annex "I", Deliverables/Certifications
- (o) the Contractor's bid dated _____ (insert date of bid), as amended _____ (insert date(s) of amendment(s) if applicable)

7.11 Insurance Requirements

The Contractor must comply with the insurance requirements specified in Annex "D". 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 fulfil 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) working 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.

7.12 Limitation of Contractor's Liability for Damages to Canada

1. This section applies despite any other provision of the Contract and replaces the section of the general conditions entitled "Liability". Any reference in this section to damages caused by the Contractor also includes damages caused by its employees, as well as its subcontractors, agents, and representatives, and any of their employees.
2. Whether the claim is based in contract, tort, or another cause of action, the Contractor's liability for all damages suffered by Canada caused by the Contractor's performance of or failure to perform the Contract is limited to \$10 million per incident or occurrence to an annual aggregate of \$20 million for losses or damage caused in any one year of carrying out the Contract, each year starting on the date of coming into force of the Contract or its anniversary. This limitation of the Contractor's liability does not apply to nor include:

(a) Any infringement of intellectual property rights;

(b) Any breach of warranty obligations;

(c) Any liability of Canada to a third party arising from any act or omission of the Contractor in performing the Contract; or

(d) Any loss for which the policies of insurance specified in the Contract or any other policies of insurance held by the Contractor would provide insurance coverage.

3. Each Party agrees that it is fully liable for any damages that it causes to any third party in connection with the Contract, regardless of whether the third party makes its claim against Canada or the Contractor. If Canada is required, as a result of joint and several liability, to pay a third party in respect of damages caused by the Contractor, the Contractor must reimburse Canada for that amount.

4. The Parties agree that nothing herein is intended to limit any insurable interest of the Contractor nor to limit the amounts otherwise recoverable under any insurance policy. The Parties agree that to the extent that the insurance coverage required to be maintained by the Contractor under this Contract or any additional insurance coverage maintained by the Contractor, whichever is greater, is more than the limitations of liability described in sub article (2), the limitations provided herein are increased accordingly and the Contractor shall be liable for the higher amount to the full extent of the insurance proceeds recovered.

5. If, at any time, the total cumulative liability of the Contractor for losses or damage suffered by Canada caused by the Contractor's performance of or failure to perform the Contract, excluding liability described under subsection 2(a), (b), (c) and (d) exceeds \$40 million, either Party may terminate the Contract by giving notice in writing to the other Party and neither Party will make any claim against the other for damages, costs, expected profits or any other such loss arising out of the termination. However, no such termination or expiry of the Contract shall reduce or terminate any of the liabilities that have accrued to the effective date of the termination but which liabilities are subject to the limitations as specified in sub-article (1) through (4) above.

6. The date of termination pursuant to this Article, shall be the date specified by Canada in its notice to terminate, or, if the Contractor exercises the right to terminate, in a notice to the Contractor from Canada in response to the Contractor's notice to terminate. The date of termination shall be in Canada's discretion to a maximum of 12 months after service of the original notice to terminate served by either Party pursuant to sub-article 5, above.

7. Nothing shall limit Canada's other remedies, including Canada's right to terminate the Contract for default for breach by the Contractor of any of its obligations under this Contract, notwithstanding that the Contractor may have reached any limitation of its liability hereunder.

7.13 Environmental Impairment Liability Insurance

1. The Contractor must obtain Contractor's Pollution Liability insurance, providing coverage for Asbestos Abatement, 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 \$5,000,000 per accident or occurrence and in the annual aggregate.
2. 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.
3. The Contractor's Pollution Liability insurance coverage provided under the remarks section above) 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. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
- c. Separation of Insureds: 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.
- d. 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.
- e. Incidental Transit Extension: The policy must extend to losses arising from any waste, products or materials transported, shipped, or delivered via any transportation mode to a location beyond the boundaries of a site at which the Contractor or any entity for which
- f. the Contractor is legally liable is performing or has performed the operations described in the contract.
- g. 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.

7.14 Foreign Nationals (Canadian Contractor)

The Contractor must comply with Canadian immigration requirements applicable to foreign nationals entering Canada to work temporarily in fulfillment of the Contract. If the Contractor wishes to hire a foreign national to work in Canada to fulfill the Contract, the Contractor should immediately contact the nearest Service Canada regional office to enquire about Citizenship and Immigration Canada's requirements to issue a temporary work permit to a foreign national. The Contractor is responsible for all costs incurred as a result of non-compliance with immigration requirements

7.15 Sub-contracts and Sub-contractor List

The Contracting Authority is to be notified, in writing, of any changes to the list of subcontractors before commencing the work.

When the Contractor sub-contracts work, a copy of the sub-contract purchase order is to be passed to the Contracting Authority. In addition, the Contractor must monitor progress of sub-contracted work and inform the Inspection Authority on pertinent stages of work to permit inspection when considered necessary by the Inspection Authority.

7.16 Work Schedule and Reports

No later than **five (5) working days** after contract award, the preliminary work schedule provided with the bid must be revised, detailed and resubmitted in preparation to the contract award meeting.

The Contractor must provide a detailed work schedule showing the commencement and completion dates for the Work in the available work period, including realistic target dates for significant events.

During the work period the schedule is to be reviewed on an ongoing basis by the Inspection Authority and the Contractor, updated when necessary, and available in the Contractor's office for review by Canada's authorities to determine the progress of the Work.

7.17 Insulation Materials - Asbestos Free

All materials used to insulate or re-insulate any surfaces on board the vessel must meet Transport Canada Marine standards, for commercial marine work, and, for all work, be free from asbestos in any form. The Contractor must ensure that all machinery and equipment located below or adjacent to surfaces to be re-insulated are adequately covered and protected before removing existing insulation.

7.18 Trade Qualifications

The Contractor must use qualified, certificated (if applicable) and competent tradespeople and supervision to ensure a uniform high level of workmanship. The Technical 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.

7.19 ISO 9001:2008 - Quality Management Systems

In the performance of the Work described in the Contract, the Contractor must comply with the requirements of:

ISO 9001:2008 - Quality management systems - Requirements, published by the International Organization for Standardization (ISO), current edition at date of submission of Contractor's bid.

The Contractor's quality management system must address each requirement contained in the standard, however, the Contractor is not required to be registered to the applicable standard.

7.20 Project Management Services

The Contractor is required to provide their own Project Management Team experienced and capable of successfully managing the ship repair contract as defined herein. Project management personnel, services and deliverables must comply with the requirements detailed in the contract.

Introduction

Project management refers to system integration and technical control as well as business management

of the CCGS Griffon Refit Requirement.

The Contractor must provide the following within 5 days of Contract Award:

Project Action Plan (PAP):

The PAP must comprise:

- iv) organization structure charts;
- v) a master schedule, support schedules, sub-Contractor schedules and work;
- vi) Government Furnished Equipment (GFE), and Contractor Furnished Equipment (CFE) delivery dates as a minimum.

The monthly updates to the PAP must comprise schedule updates, a progress report and review meetings. The components of the PAP and its updates are described in the following sub-sections.

1) Project Integration Management:

The Contractor must provide an overall project organizational chart identifying all key personnel and sub-Contractors. Further, the Contractor must identify the contract-related work each sub-Contractor is responsible for.

2) Change Management Log:

The Contractor must provide a Change Management Log that must be used for the duration of the project to manage project changes.

The Change Management Log must track project issues with the following criteria:

- i) Individual tracking number;
- ii) Date issue was raised;
- iii) Expected resolution date;
- iv) Date issue was resolved;
- v) Brief note of resolution on issue;
- vi) Individual who raised issue;
- vii) Individual assigned to resolve issue;
- viii) Risk Factor.

3) Risk Management Plan:

The Contractor must identify emergent risks and rank these risks by impact on the work. Mitigation strategies must be identified for all "High" risks. The "Risk Management Plan" must be updated at least bi-weekly and provided to the Technical and Contracting Authorities. The "Risk Management Plan" must be included in the monthly progress meeting Record of Decisions.

4) Scheduling:

The Contractor must provide a schedule(s) that breaks the work down to the system and component level. The schedule must include sub-Contractor and FSR schedules to the same level. The Contractor must update the schedule(s) on a weekly basis and the updates must be submitted electronically in MS Project 2013 or equivalent format to the Contract Authority, and the Technical Authority by close of Business each Monday until the end of the project.

The schedule(s) must be base-lined.

The schedule(s) must identify at a minimum the following elements ;

- a) Major Milestones
- b) The Work Breakdown Structure (WBS) on at least three or more levels for each section of the Specification package. More specifically, the WBS must include the strip outs, production, assembly, installation, bench testing, system commissioning and tests and trials, the expected and required resources, and the necessary sea trials;
- c) Predecessors and successors;

- d) The start and end dates for each item;
- e) The critical path to the acceptance of the work;
- f) The subcontractors' and FSR schedules up to the same level;
- g) Long lead items and GSM;

The PMBOK eighth edition must be used as the reference for scheduling.

5) Project Reporting:

The Contractor must provide a monthly Progress Report describing the status of the project Time Line, Cost and Performance as an introduction. Time, Cost and Performance must then be addressed in detail, clearly demonstrating earned value using Cost Performance Index (CPI) and Schedule Performance Index (SPI). The report must identify significant risks to the program and the actions taken to resolve these risks. The risk analysis must identify any impact upon delivery and actions taken to recover any slippage that may affect the contract delivery date. The report, either in hard copy or in electronic format, must be delivered monthly, three (3) working days prior to the progress review meeting to the Contract Manager, the Inspection Authority and the Technical Authority. The progress report must include sub-Contractor and major component supplier activity.

The following Management Reports and Documentation are to be prepared and maintained by the Contractor and submitted to Canada in accordance with the Contract or upon request by the Contracting Authority.

- i. Production Work Schedule
- ii. Inspection Summary Report
- iii. Growth Work Summary

7.21 Quality Control Plan

The Contractor must implement and follow the Quality Control Plan (QCP) prepared according to the latest issue (at contract date) of ISO 10005:2005 Quality management - Guidelines for quality plans, approved by the Inspection and the Technical Authority. The QCP must describe how the Contractor will conform to the specified quality requirements of the Contract and specify how the required quality activities are to be carried out, including quality assurance of subcontractors. The Contractor must include a traceability matrix from the elements of the specified quality requirements to the corresponding paragraphs in the QCP. The QCP must be made available to the Inspection and Technical Authority for review and approval **within five (5) working days** after contract award.

The documents referenced in the QCP must be made available when requested by the Inspection Authority.

The Contractor must make appropriate amendments to the QCP throughout the term of the Contract to reflect current and planned quality activities. Amendments to the QCP must be acceptable to the Inspection Authority and the Technical Authority.

Refer to Annex "G" for details.

7.22 Inspection and Test Plan

The Contractor must in support of its Quality Control Plan (QCP), implement an approved Inspection and Test Plan (ITP).

The Contractor must provide at no additional cost to Canada, all applicable test data, all Contractor technical data, test pieces and samples as may reasonably be required by the Inspection Authority to verify conformance to contract requirements. The Contractor must forward at his expense such technical data, test data, test pieces and samples to such location as the Inspection Authority may direct.

Refer to Annex "G" for details.

7.23 Equipment/Systems: Inspection/Test

Inspections, Tests and Trials of Equipment, Machinery and Systems shall be conducted in accordance with the Specification. The Contractor is responsible for performing, or having performed, all Inspections, Tests and Trials necessary to substantiate that the materiel and services provided conform to contract requirements.

Refer to Annex "G" for details.

7.24 Environmental Protection

The Contractor and its sub-contractors engaged in the Work on a Crown vessel must carry out the Work in compliance with applicable municipal, provincial and federal environmental laws, regulations and industry standards.

The Contractor must have detailed procedures and processes for identifying, removing, tracking, storing, transporting and disposing of all potential pollutants and hazardous material encountered, to ensure compliance as required above. The contractor must maintain in force their Environmental Protection procedures through the course of the contract.

All waste disposal certificates are to be provided to the Technical Authority, with information copies sent to the Contracting Authority. Furthermore, additional evidence of compliance with municipal, provincial and federal environmental laws and regulations is to be furnished by the Contractor to the Contracting Authority when so requested.

The Contractor must have environmental emergency response plans and/or procedures in place. Contractor and subcontractor employees must have received the appropriate training in emergency preparedness and response. Contractor personnel engaging in activities which may cause environmental impacts or potential non compliance situations, must be competent to do so on the basis of appropriate education, training, or experience.

7.25 Hazardous Waste

1. The Contractor acknowledges that sufficient information has been provided by Canada with respect to the location and estimated amount of hazardous materials such as asbestos, lead PCBs, silica or other hazardous materials or toxic substances.
2. The price includes all costs associated with the removal, handling, storage, disposal and/or working in the vicinity of hazardous materials such as asbestos, lead, PCBs, silica and other hazardous materials or toxic substances on board the vessel, including those costs resulting from the need to comply with applicable laws and regulations in relation to the removal, handling, disposal or storage of hazardous materials or toxic substances.
3. The completion date for the Work takes into account the fact that the removal, handling, storage, disposal and/or working in the vicinity of hazardous materials such as asbestos, lead, PCBs, silica and other hazardous materials or toxic substances may be affected by the need to comply with applicable federal, provincial and municipal laws or regulations and that this will not be considered to be an excusable delay.

7.26 Supervision of Fueling and Disembarking Fuel

The Contractor must ensure that fueling and disembarking of fuel from Canadian government vessels are conducted under the supervision of a responsible supervisor trained and experienced in these operations.

All fueling and disembarking of fuel on CCGS Griffon must be done in accordance with the Contractor's submitted and accepted procedures.

7.27 Fire Protection, Fire Fighting and Training

The Contractor must maintain in force their fire protection, fire fighting and training procedures through the course of the Contract.

7.28 Loan of Equipment - Marine

The Contractor may apply for the loan of the Government special tools and test equipment particular to the subject vessel as identified in the Specifications. The provision of other equipment required for the execution of work in the Specifications is the sole responsibility of the Contractor.

Equipment loaned under this provision must be used only for work under this Contract and may be subject to demurrage charges if not returned on the date required by Canada. In addition, equipment loaned under the above provision must be returned in a like condition, subject to normal wear and tear.

A list of Government equipment that the Contractor intends to request must be submitted to the Contracting Authority within **three (3) days** of Contract Award to permit timely supply or for alternate arrangements to be made. The request must state the time frame for which the equipment is required.

Refer to Annex "I2" for Deliverables/Certifications.

7.29 Welding Certification

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 W47.1-09, Certification for Companies for Fusion Welding of Steel (Division Level 1 or 2);
and

(b) W47.2-11, Certification for Companies for Fusion Welding of Aluminum (Minimum Division Level 3).

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 Technical Authority, the Contractor must provide approved welding procedures and/or a list of welding personnel intended to be used in the completion 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.

7.30 Procedures for Design Change or Additional Work

SACC Manual Clause B5007C (2010-01-11) Procedures for Design Change or Additional Work

In addition, refer to Annex "F".

7.31 Vessel manned Refits

SACC Manual Clause A0032C (2011-05-16) Vessel Manned Refits.

1. The vessel will be manned during the work period and will be considered to be in commission. The vessel during that period will remain in the care or custody of Canada and under its control.
2. Fire fighting equipment must be readily accessible and made available by the Contractor should a fire emergency arise. The Contractor must take adequate precautions when burning or welding is carried out in compartments or other confined areas of the vessel.

7.32 Pre-Refit Meeting

A Pre-Refit meeting will be convened and chaired by the Contracting Authority at the Coast Guard base in Prescott at a time to be determined. At that meeting the contractor will introduce all its management personnel as per its organization chart, and Canada will introduce authorities. Details of ship's arrival and work commencement will be discussed.

7.33 Progress Meetings

Progress meetings, chaired by the Contracting Authority, will take place at the Coast Guard base in Prescott as and when required, generally once a month. Interim meetings may also be scheduled. Contractor attendees at these meetings will, as a minimum, be its Contract (Project) Manager, Production Manager (Superintendent) and Quality Assurance Manager. Progress meetings will generally incorporate Technical meetings to be chaired by the Technical Authority.

During each PRM the Contractor shall provide a status of the overall contracted project, including programmatic, production, test, Integrated Logistics Support, subcontract, risk issues, and progress as it relates to the Schedule, and the associated Work Breakdown Structure. For each PRM, the Contractor shall:

- (a) Ensure that Contractor data, personnel and facilities are available for each formal meeting in order that the meetings may be conducted in an efficient manner; and
- (b) Include the following agenda items for discussion and resolution:
 - i. Contractual Issues;
 - ii. Financial Issues
 - iii. Technical Issues;
 - iv. Environmental, Health and Safety Issues; and
 - v. Previous action items.

The PWGSC CA or authorized representative will chair the PRMs and will approve decisions prior to adjourning the PRM, with the resulting decisions reflected in the Meeting Minutes.

The Contractor shall record the minutes of all meetings, and include as a minimum discussion items, records of decisions, all action items, risk items, and a record of conclusions reached at the Progress Review and Technical Meetings.

The Contractor will distribute a draft of all minutes to the Contracting Authority, Inspection Authority and Technical Authority for review and comment from Canada, prior to issuing the final version.

Once final comments are incorporated to the satisfaction of Contracting Authority, the minutes shall be signed as accepted by the Contractor, Contracting Authority, and Technical Authority.

7.34.1 Weekly update meetings, chaired by the Contracting Authority, will take place by teleconference, generally once a week. Call-in co-ordinates and timings to be provided by Contract Authority at the Pre-Refit meeting. Contractor attendees at these meetings will, as a minimum, be its Contract (Project) Manager, and Project Planner. The following agenda Items will be for discussion and resolution

- i. Schedule Update
- ii. Technical Issues
- iii. Contractual Issues

7.34 Outstanding Work and Acceptance (is this clause modified for an alongside refit)

1. The Inspection Authority, in conjunction with the Contractor, will prepare a list of outstanding work items at the end of the work period. This list will form the annexes to the formal acceptance document for the vessel.

A contract completion meeting will be convened by the Technical Authority on the work completion date to review and sign off the form PWGSC-TPSGC1205, Acceptance. 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 that work is completed.

2. The Contractor must complete the above form in three (3) copies, which will be distributed by the Inspection Authority as follows:
 - (a) original to the Contracting Authority;
 - (b) one copy to the Technical Authority;
 - (c) one copy to the Contractor.

Refer to Annex "I" for details of Acceptance Procedures and Reports.

7.35 Scrap and Waste Material

Despite any other provision of the Contract, scrap and waste materials other than accountable material, derived from the Contract, will revert to the Contractor as part of the Contract Price.

7.36 Vessel Access by Canada

Canada reserves the right to have its personnel carry out work on equipment on board the vessel. This work will be carried out at times mutually acceptable to Canada and the Contractor.

7.37 Title to Property - Vessel (is this clause modified for an alongside refit)

If the Contractor is in default in carrying any of its obligations under the Contract, Canada, or its agents, will have the immediate right to enter the shipyard, without first obtaining a court order, to take possession of the vessel and all other property of Canada, including, but not limited to, work-in-process located on the premises, and to perform any further work required to enable the vessel and other such property to be removed from the shipyard.

Defence Contract - SACC Manual clause A9006C (2012-07-16)

The Contract is a defence contract within the meaning of the Defence Production Act, R.S.C. 1985, c. D-1, and must be governed accordingly.

Title to the Work or to any materials, parts, work-in-process or finished work must belong to Canada free and clear of all claims, liens, attachments, charges or encumbrances. Canada is entitled, at any time, to remove, sell or dispose of the Work or any part of the Work in accordance with section 20 of the Defence Production Act.

7.38 Workers Compensation

The Contractor must maintain its account in good standing with the applicable provincial or territorial Workers' Compensation Board for the duration of the Contract.

7.39 Dispute Resolution

The parties agree to follow the procedures below for the settlement of any disputes which may arise throughout the life of this Contract prior to seeking redress through court procedures:

- (a) Disputes arising from this Contract will in the first instance be resolved by the Contracting Authority and the Contractor's Contract Administrator within 15 working days or such additional time as may be agreed to by both parties.
- (b) Failing resolution under (a) above, the Manager of the Ship Refit Division (MD) of the Marine Systems Directorate at PWGSC and the Contractor's Representative Supervisor will attempt to resolve the dispute within an additional fifteen (15) working days.

- (c) Failing resolution under (a) or (b) above, the Senior Director of the Marine Systems Directorate at PWGSC, and the Contractor's Senior Management will attempt to resolve the dispute within an additional thirty (30) working days.
- (d) Notwithstanding the above procedure, either party may seek a decision through the courts at any time during the dispute.

7.40 Failure to Deliver

Time is of the essence of the Contract. Changes in the Completion date not caused by Canada are Contractor defaults, will prejudice Canada and are at the Contractor's expense. The Completion date will not be extended without consideration being provided by the Contractor acceptable to Canada in the form of adjustment to the price, warranty or services to be provided.

7.41 Care, Custody and Control

Refer to Supplemental General Conditions 1029 (2018-12-06) Ship Repairs Article 08 Where Vessel In Commission.

7.42 Permits, Licenses and Certificates

The Contractor must obtain and maintain all permits, licenses and certificates of approval required for the work to be performed under any applicable federal, provincial or municipal legislation. The Contractor is responsible for any charges imposed by such legislation or regulations. Upon request, the Contractor must provide a copy of any such permit, license or certificate to Canada.

7.43 Export Licenses

Where material is to be imported into Canada, the Contractor is responsible for obtaining all necessary export licenses from the country of origin in sufficient time to enable the export.

7.44 Equivalency of Equipment

- (a) The Contractor guarantees that the equipment to be delivered under the Contract is:
 - (i) equivalent in form, fit, function and quality to the existing equipment owned by Canada that was described in the bid solicitation that resulted in the Contract; and
 - (ii) fully compatible, interchangeable and interoperable with the existing equipment owned by Canada.
- (b) The Contractor also guarantees that any warranties with third parties concerning the existing equipment owned by Canada will not be adversely affected by Canada's use of the equipment delivered under the Contract (for example, by interconnecting the equipment) or by any other services provided by the Contractor under the Contract. If Canada determines in its sole discretion that any such warranty has been adversely affected, at Canada's sole option, the Contractor must:
 - (i) pay to Canada the amount that Canada must pay to the original supplier (or an authorized reseller of that supplier) to re-certify Canada's existing equipment for warranty purposes and any other amounts paid by Canada to a third party in order to restore the equipment to full warranty status;

- (ii) perform all warranty work on Canada's existing equipment in place of the original supplier; or
 - (iii) pay to Canada the amount that Canada must pay to the original supplier (or an authorized reseller of that supplier) to perform maintenance work on the equipment that otherwise would have been covered by the warranty.
- (c) The Contractor agrees that, during the Contract Period, if Canada determines that any of the equipment is not equivalent in form, fit, function and quality to the existing equipment owned by Canada or is not fully compatible, interchangeable and interoperable with the existing equipment owned by Canada, the Contractor must immediately and entirely at its own expense take all steps necessary to ensure that the equipment satisfies these requirements (for example, by implementing any additional software or firmware), failing which Canada will have the immediate right to terminate the Contract for default. The Contractor agrees that, if Canada terminates the Contract for this reason, the Contractor must pay to Canada the costs of reprocurring the equipment from a third party and the difference, if any, in price paid by Canada to the third party. The Contractor acknowledges that its failure to deliver equivalent equipment that satisfies the above requirements may result in the Contractor (as well as its affiliates and any other entities with whom the Contractor or its principals do not deal at arm's length) being unable to propose equivalent substitutes in response to future PWGSC bid solicitations.

7.45 Travel and Living Expenses - National Joint Council Travel Directive (fix numbering in spec)

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the National Joint Council Travel Directive and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of the Contracting Authority.

All payments are subject to government audit.

7.46 Government Supplied Material

Government Supplied Material (GSM) is the property of the Government of Canada. The Contractor is responsible for maintaining satisfactory records of the disposition of all GSM. The GSM described herein must be used in the manufacture of the item(s) contracted. Only the quantity of material stated herein will be supplied by Canada without charge. If GSM does not conform to requirements for incorporation into the Work, the Contractor shall make a request for replacement GSM in writing to Canada within 30 days after the receipt of GSM. At Canada's instruction, the Contractor shall replace or repair any GSM, at the prices and In Accordance with Contract provisions relating to Unscheduled Work. The Contractor shall replace or make good, at its own expense, any GSM which fail to conform to the Contract requirements as a result of faulty or inefficient cutting, manufacture or workmanship by the Contractor.

In the event of problems with the GSM supplied, the Contractor shall advise the Contracting Authority immediately, identifying the specific problem. Should the Contractor proceed without guidance from the Contracting Authority, any costs incurred, and loss of GSM shall be at the Contractor's expense.

Any GSM must be received by the Contractor and stored in a secure warehouse or storeroom having a controlled environment appropriate for the equipment as per manufacturer's instructions. The Contractor shall repair or replace at its own expense GSM that is damaged or lost while in the Contractor's care.

While a final GSM accounting is not automatically required for every Contract, Canada reserves the right to request a final accounting at any time within one year of the Contract completion date.

The following items will be supplied as Government Supplied Material (GSM) for the CCGS Griffon:

Annex A Reference Item

Specification number	GSM Item	Quantity
11.1.C.1.2.a	The new glass for each of the 27 windows listed in table 1	As specified in Table 1
11.1.C.1.2.b	600ml sausages of Sikaflex 296, black	40
11.1.C.1.2.c	250ml containers of Sikaflex 206 G+P primer, black	2
11.1.C.1.2.d	250ml container of Sikaflex Activator, clear	1
11.1.C.3.3	4' x 8' sheets of new Melamine Wilsonart D50-335-6013	13
11.2.C.2.5	Transit spool	1
11.2.C.3.1	Interprime 234	1 Gallon
11.2.C.3.1	Interlac 665 Deck Red Brown RAL 3011	1 Gallon
12.1.C.3.4.a	Steering pumps driving shaft	2
12.1.C.3.4.b	Steering pumps cylinder body	2
12.1.C.3.4.c	Steering pumps piston	16
12.1.C.3.4.d	Steering pumps gudgeon pin	16
12.1.C.3.4.e	Steering pumps slippers	32
12.1.C.3.5	Steering pumps bearings	4 of each
12.1.C.4.1.a & 12.2.C.7.2.a	Hydrex AW 100	As required
12.1.C.4.1.b & 12.2.C.7.2.b	Turboflow R&O 68	As required
12.2.B.1.4 & 12.2.C.4.4	Telemotor pumps Bosch-Rexroth Model PVC PSSF 09ERM-01	2
12.2.C.7.2.c	Hydrex AW 22	As required
16.2.C.3.4	Interprime marine primer	1 Gallon
16.2.C.3.4	International 665 Signal White	1 Gallon
17.1.C.2.5	Hydrex AW 32	As required
17.1.C.2.5	Traxon 80W90	15L
17.1.C.2.5	Enduratex EP 150	40L
17.1.C.3.1 & 17.2.C.4.1	Certified load test weights	As required
17.1.C.4.6	Turret door gasket	1
17.1.C.4.6	Column door gasket	1
17.1.C.5.4	Boom lift cylinder seal kits	2
17.2.C.3.1.h.iv	Replacement wire ropes	2
17.2.C.3.3	Hydraulic oil system filter	1
17.2.C.3.3	Desiccant filter breather	1

Solicitation No. - N° de l'invitation
F2599-195010/A
Client Ref. No. - N° de réf. du client
F2599-195010

Amd. No. - N° de la modif.
File No. - N° du dossier
039mdF2599-195010

Buyer ID - Id de l'acheteur
039md
CCC No./N° CCC - FMS No./N° VME

ANNEX A
CCGS Griffon Alongside Summer Refit 2019,
Specification Number 893.18
F2599-195010

(Attached as separate document)

ANNEX B - BASIS OF PAYMENT

Annex B will form the Basis of Payment for the resulting Contract and should not be filled in at the bid submission stage.

B1 Contract Firm Price

A)	Known Work For work as stated in PART 7 - article 7.1, specified in Annex A and detailed in the attached Annex H – Appendix 1 - Pricing Data Sheet for the FIRM PRICE of:	\$
B)	Applicable taxes of line A) only:	\$
C)	Cost of Financial Security	\$ N/A
D)	Total firm Price including Applicable Taxes [A+B]	\$

B2 Unscheduled Work

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

"Number of hours (to be negotiated) X \$ _____, being the Contractor's firm hourly charge-out labour rate which includes overhead, consumables, and profit, plus net laid-down cost of materials to which will be added a mark-up of 10%, plus applicable taxes, 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."

B2.1: 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 this section B2.2 below, will not be negotiated, but will be compensated for in accordance with B2.2.

B2.2: Allowance for Related Labour Costs such as: Management, all Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Certification Inspecting and Reporting, Estimating, and Preparing Unscheduled Work Submissions will be included as Overhead for the purposes of determining the Charge-out Labour Rate entered in line B2 above.

B2.3: 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.

Pro-rated Prices Unscheduled Work

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

B3 Overtime

The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Contracting Authority. There will be no overtime payment for Known Work. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the overtime performed pursuant to the written authorization. Payment for authorized overtime will be calculated as follows:

For unscheduled work, the Contractor will be paid the authorized overtime hours at the following charge-out labour rates:

a. Time and One Half**: \$_____ per hour

b. Double Time***: \$_____ per hour

This rate shall be a blended rate for all classes of labour, engineering and foreperson and shall include all overheads, supervision and profit.

These rates will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

* Regular time is defined as an 8 hour work day.

** Time and One Half is defined as time in excess of the Regular Time*.

*** Double Time is defined as Sundays and Statutory Holidays.

B4 Daily Services Fee

In the event of a delay in the performance of the Work that lengthens the Work period beyond the date specified in this Contract, and if such delay is recognized and agreed upon by the Contracting Authority as being

attributable to Canada, Canada agrees to pay the Contractor the daily services fee, described below, for each day of such delay. This fee shall be the sole liability of Canada to the Contractor for the delay.

The firm daily services fee is:

a. For a Working Day: \$_____

b. For a Non-Working Day: \$_____

The above fees shall include but not be limited to, all aspects of the following costs: Project Management Services, Administrative Support, Production Services, Quality Assurance, Material Support, Planned Maintenance and Ship Services, and all other resources and direct costs needed to maintain the Vessel at the Contractor's facility. These fees are firm and not subject to any additional charges for mark-up or profit.

B5 Vessel, Refit, Repair or Docking Cost

The following costs must be included in the price:

B5.1: Ship Services: include all costs for ship services such as water, steam, electricity, etc., required for vessel maintenance for the duration of the Contract.

B5.2: Docking and Undocking include:

- a. all costs resulting from dry docking, wharfage, security, shoring, shifting and/or moving of the vessel within the successful Bidder's facility;
- b. the cost of services to tie up the vessel alongside and to cast off.

Unless specified otherwise, the vessel will be delivered by Canada to the successful Bidder's facility alongside a mutually agreed safe transfer point, afloat and upright, and the successful Bidder will do the same when the Work is completed. The cost of services to tie up the vessel alongside and to cast

off must be included in the evaluation price.

B5.3: Field Service Representatives/Supervisory Services: include all costs for field service Representatives / supervisory services including manufacturers' representatives, engineers, etc. The Contractor is responsible for the performance of all subcontractors and FSRs.

These services must not be an extra charge except where unscheduled work requiring these services is added to the Contract.

B5.4: Removals: include all costs for removals necessary to carry out the Work and will be the responsibility of the successful Bidder whether or not they are identified in the specifications, except those removals not apparent when viewing the vessel or examining the drawings. The successful Bidder will also be responsible for safe storage of removed items and reinstalling them on completion of the Work. The successful Bidder will be responsible for renewal of components damaged during removal.

B5.5: Sheltering, Staging, Cranage and Transportation: include the cost of all sheltering, staging including handrails, cranage and transportation to carry out the Work as specified.

The Contractor will be responsible for the cost of any necessary modification of these facilities to meet applicable safety regulations.

B6 Pricing Data Sheets

Parameters from the Pricing Data Sheets will be used at Canada's sole discretion in the determination of unscheduled work price.

ANNEX C to PART 5 - BID SOLICITATION

FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit Employment and Social Development Canada (ESDC) – Labour's website
(http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page).

Date: _____(YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

- A1. The Bidder certifies having no work force in Canada.
- A2. The Bidder certifies being a public sector employer.
- A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.
- A4. The Bidder certifies having a combined work force in Canada of less than 100 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

- A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.
- OR
- A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- B1. The Bidder is not a Joint Venture.

OR

- B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)

ANNEX D - INSURANCE REQUIREMENTS

D1. Ship Repairers' Liability Insurance

1. The Contractor must obtain Ship Repairer's 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 \$10,000,000 per accident or occurrence and in the annual aggregate.
2. The Ship Repairer's Liability insurance 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 Environment Canada and Public Works and Government Services Canada for any and all loss of or damage to the vessel, however caused.
 - c. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of cancellation.
 - d. 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.
 - 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.

D2. 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 \$10,000,000 per accident or occurrence and in the annual aggregate.
2. The Commercial General Liability 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 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. 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.
 - 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. 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.
 - f. Employees and, if applicable, Volunteers must be included as Additional Insured.
 - g. Employers' Liability (or confirmation that all employees are covered by Worker's Compensation (WSIB) or a similar program)

- h. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority with thirty (30) days written notice of policy cancellation.
- i. If the policy is written on a claims-made basis, coverage must be in place for a period of at least twelve (12) months after the completion or termination of the Contract. Employees and, if applicable, Volunteers must be included as Additional Insured.
- j. Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.
- k. Sudden and Accidental Pollution Liability (minimum 120 hours): To protect the Contractor for liabilities arising from damages caused by accidental pollution incidents.

ANNEX E – WARRANTY

Warranty Procedures

E1. Scope

- a. The following are the procedures that suit the particular requirements for warranty considerations for a vessel on completion of a refit.

E2. Reporting Failures with Warranty Potential

- a. The initial purpose of a report of a failure is to facilitate the decision as to whether or not to involve warranty and to generate action to effect repairs. Therefore in addition to identification, location data, etc. the report must contain details of the defect. Warranty decisions as a general rule are to be made locally and the administrative process is to be in accordance with procedures as indicated.
- b. These procedures are necessary as invoking a warranty does not simply mean that the warrantor will automatically proceed with repairs at his expense. A review of the defect may well result in a disclaimer of responsibility, therefore, it is imperative that during such a review the Department is directly represented by competent technical authority qualified to agree or disagree with the warrantor's assertions. Since the TECHNICAL AUTHORITY has the closest and most active involvement of the contracted work completed this agency must assume this role.

E3. Procedures

- a. Immediately it becomes known to the Ship's Staff that an equipment/system is performing below accepted standards or has become defective, the procedures for the investigation and reporting are as follows:
 - i. The vessel advises the Technical Authority when a defect, which is considered to be directly associated the refit work, has occurred.
 - ii. On review of the Specification and the Acceptance Document, the Technical Authority in consort with Ship's Staff is to complete the Tombstone Data and section 1 of the Appendix 1 – Warranty Claim Form Annex D and forward the original to the Contractor for review with a copy to the PWGSC contracting Authority. If the PWGSC Contracting or TECHNICAL AUTHORITY is unable to support warranty action, the Defect Claim Form will be returned to the originator with a brief justification. (It is to be noted that in the latter instance PWGSC will inform the Contractor of its decision and no further action will be required of the Contractor.

Warranty defect claims may be forwarded in hard copy, by fax or by e-mail whichever format is the most convenient.

- iii. Assuming the Contractor accepts full responsibility for repair, the Contractor completes Section 2 and 3 of the Warranty Claim Form, returns it to the TECHNICAL AUTHORITY who confirms corrective action has been completed, and who then distributes the form to the Technical Authority and the PWGSC Contracting Authority.
- b. In the event that the Contractor disputes the claim as a warranty defect, or agrees to share, the Contractor is to complete Part 2 and 3 of the Warranty Claim Form with the appropriate information and forward it to the Contracting Authority who will distribute copies as necessary.
- c. When a warranty defect claim is disputed by the Contractor, the Technical Authority may arrange to correct the defect by in-house resources or by contracting the work out. All associated costs must be tracked and recorded as a possible charge against the contractor by PWGSC action. Material costs and manhours expended in correcting the defect are to be recorded and entered in Section 5 of the warranty defect claim by the Technical Authority who will forward the warranty defect claim to the PWGSC Contracting Authority for action. Defective parts of equipment are to be retained pending settlement of claim.
- d. Defective equipment associated with potential warranty should not normally be dismantled until the Contractor's representative has had the opportunity to observe the defect. The necessary work is to be undertaken through normal repair methods and costs must be segregated as a possible charge against a contractor by PWGSC action.

E4. Liability

- a. Agreement between the Contracting Authority, INSPECTION AUTHORITY, Technical Authority and the Contractor will result in one of the following conditions:
 - i. The Contractor accepts full responsibility for costs to repair or overhaul under the warranty provisions of the contract;
 - ii. The Technical Authority accepts full responsibility for repair and overhaul of item concerned; or
 - iii. The Contractor and the Technical Authority agree to share responsibility for the costs to repair or overhaul the unserviceable item, in such cases the PWGSC Contracting Authority will negotiate the best possible sharing arrangement.
- b. In the event of a disagreement as in paragraph 5c, PWGSC will take necessary action with the Contractor while the Technical Authority informs its Senior Management including pertinent data and recommendations.
- c. The total cost of processing warranty claims must include accommodation and travel costs of the Contractor's employees as well as equipment/system down time and operational constraints. Accordingly, the cost to remediate the defect, in manhours and material, will be discussed between the Contracting/Inspection Authorities and the Technical Authority to determine the best course of action.

E5. Alongside Period For Warranty Repairs and Checks

- a. If at all possible, an alongside period for the vessel is to be arranged just before the expiration of the 90 day warranty period. This alongside period is to provide time for warranty repair and check by the contractor.

- b. In respect to the underwater paint, should it become defective during the associated warranty period the contractor is only liable to repair to a value determined as follows:
"Original cost to Canada for painting and preservation of the underwater section of the hull, divided by 365 days and multiplied by the number of days remaining in the 365 days warranty period. The resultant would represent the 'Dollar Credit' due to Canada from the Contractor."
- c. The Underwater paint system, before expiration of the warranty, should be checked by divers. The Technical Authority is to arrange the inspection and ensure that a representative of the Contractor will attend. The Technical Authority will inform the Contracting Authority of any adverse results.

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ANNEX E – APPENDIX 1

		Travaux publics et Services gouvernementaux Canada	Public Works and Government Services Canada		
				APPENDIX 1 TO ANNEX E	
WARRANTY CLAIM FORM (Refit)					
FORMULAIRE DE RÉCLAMATION DE GARANTIE (Radoub)					
Vessel Name - Nom du navire		File No. - No. du dossier		Contract No. - No. du contrat	
Customer Department - Ministère client				Warranty Claim Serial No. No. de série de réclamation de garantie	
Defect's Impact on Vessel's Operations Conséquence du défaut sur les opérations du navire			The Defect Must Be Corrected; Le défaut doit être corrigé;		
Vessel out of service Navire hors d'usage	Vessel Limited Operation Opération réduite du navire	No immediate consequence Sans conséquence immédiate	Immediately Immédiatement	When directed by Canada Tel qu'avisé par le Canada	To be agreed between Canada and Contractor À être entendue entre le Canada et l'entrepreneur
1. Description of the Defect - Description du défaut					
Note: This section must be filled by Technical Authority (TA) in consort with the Ship's Staff (on site responsible). On a determination of a valid claim, the TA will forward the claim to the Contractor and CC the Contracting Authority (CA). - Cette section doit être complétée par l'Autorité Technique conjointement avec l'équipage (responsable sur place). Si la réclamation est jugée valable l'AT transmettra la réclamation à l'entrepreneur avec copie à l'Autorité Contractante (AC).					
Reference to Contract Article and/or Specification No. Référence à l'article du contrat et/ou devis no.					
Description					
Prepared by the on site responsible Préparé par le responsable sur place		Date	Approved by Technical Authority Approuvé par l'Autorité Technique		Date

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2. Contractor's Investigation and Position - Examen et position de l'entrepreneur

Note: The Contractor must investigate the claim, determine its position, complete this section 2 and return the claim to the TA and cc the CA. - L'entrepreneur doit faire l'examen de la réclamation, déterminer sa position, compléter la présente section 2 et retourner la réclamation l'AT avec copie à l'AC.

Contractor recognizes its total responsibility and will proceed with corrective action(s)
L'entrepreneur reconnaît son entière responsabilité et corrigera le défaut

Provide details on action(s) to take place with date and location.
Fournir les détails de(s) action(s) qui seront prise ainsi que la date et le lieu.

Contractor recognizes a partial responsibility.
L'entrepreneur reconnaît une responsabilité partielle.

Provide details supporting the above position with proposed sharing.
Fournir les détails justifiant la position ci-dessus ainsi que le partage proposé.

Contractor disclaims any responsibility.
L'entrepreneur refuse toute responsabilité.

Provide details supporting the above position.
Fournir les détails justifiant la position ci-dessus

Contractor's representative
Représentant de l'entrepreneur

Date

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3. PWGSC - CA's decision in case of Contractor partial responsibility or disclaim of responsibility - Décision de l'AC de TPSGC en cas de reponsabilité partagée ou de refus de responsabilité de la part de l'entrepreneur.

Reasons supporting PWGSC-CA's decision.
Raisons justifiant la décision de l'AC de TPSGC

4. Costs record if requested by PWGSC-CA - Annotation des coûts si requis par l'AC de TPSGC

When requested by the PWGSC-CA the customer department must record in this section the costs associated to the repair of the defect.
Lorsque demandé par l'AC de TPSGC le ministère client doit annoter dans cette section les coûts associés à la réparation du défaut.

Confirmed by the Technical Authority
Confirmé par l'Autorité Technique

Date

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5. Work Acceptance and Warranty Claim Closing - Acceptation des travaux et fermeture de la réclamation de garantie					
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Valid claim corrected by the Contractor and work accepted by Canada - Réclamation valable corrigée par l'entrepreneur et travaux acceptés par le Canada					
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Remarks Remarques					
Contractor's representative - Représentant de l'entrepreneur			Inspection Authority - Autorité d'inspection		
Date			Date		

Valid claim corrected by the Contractor and Canada and work accepted by Canada - Réclamation valable corrigée par l'entrepreneur et le Canada et travaux acceptés par le Canada					
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Remarks Remarques					
Contractor's representative - Représentant de l'entrepreneur			Inspection Authority - Autorité d'inspection		
Date			Date		
Technical Authority- Autorité technique			Contracting Authority - Autorité contractante		
Date			Date		

Valid claim corrected by Canada and work accepted by Canada - Réclamation valable corrigée par le Canada et travaux acceptés par le Canada					
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Remarks Remarques					
Inspection Authority - Autorité d'inspection			Technical Authority- Autorité technique		
Date			Date		
Contracting Authority - Autorité contractante					
Date					

Invalid claim - Réclamation non fondée					
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Remarks Remarques					
Technical Authority- Autorité technique			Contracting Authority - Autorité contractante		
Date			Date		

ANNEX F – PROCEDURE FOR UNSCHEDULED WORK

F1. Purpose

The unscheduled work Procedure has been instituted for the following purposes:

- a. To establish a uniform method of dealing with requests for unscheduled work;
- b. To obtain the necessary Technical Authority approval and Contracting Authority authorization before unscheduled work commences;
- c. To provide a means of maintaining a record of unscheduled work requirements including serial numbers, dates and accumulated cost. The Contractor shall have a cost accounting system that is capable of assigning job numbers for each unscheduled work requirement so that each requirement can be audited individually.

F2. Definitions

- a. An unscheduled work Procedure is a contractual procedure whereby changes to the scope of work under the Contract may be defined, priced and contractually agreed to. Such changes may arise from:
 - i. "Work Arising" from opening up of machinery and/or surveys of equipment and material,
OR
 - ii. "New Work" not initially specified but required on the Vessel.
- b. The procedure does not allow for the correction of deficiencies in the Contractor's Bid.
- c. No unscheduled work may be undertaken by the Contractor without written authorization by the Contracting Authority, except under emergency circumstances as described in sub paragraph 3(b) unscheduled work.
- d. Work undertaken without written Contracting Authority authorization will be considered the Contractor's responsibility and cost.
- e. The appropriate PWGSC form is the final summary of the definition of the unscheduled work requirement, and the costs negotiated and agreed to.

F3. Procedures

- a. The procedure involves the electronic form PWGSC 1379 for refit and repair and will be the only form for authorizing all unscheduled work.
- b. Emergency measures required to prevent loss or damage to the Vessel which would occur if this procedure were followed, shall be taken by the Contractor on its own authority. The responsibility for the cost of such measures shall be determined in accordance with the terms and conditions of the Contract.
- c. The Technical Authority will initiate a work estimate request by defining the unscheduled work requirement. It will attach drawings, sketches, additional specifications, other clarifying details as appropriate, and allocate their serial number for the request.
- d. Notwithstanding the foregoing, the Contractor may propose to the technical Authority in writing either by letter or some type of Defect Advice Form (A Contractor owned form) that certain unscheduled work should be carried out.
- e. The Technical Authority will either reject or accept such proposal and advise the Contractor and Contracting Authority. Acceptance of the proposal is not to be construed as authorization for the work

to proceed. If required, the Technical Authority will then define the unscheduled work requirement in accordance with sub paragraph 3(c).

- f. The Contractor will electronically submit its proposal to the Contracting Authority together with all price support and any qualifications, remarks or other information as requested. The price support shall demonstrate the relationship between the scope of work, the Contractor's estimated costs and its selling price. It is a breakdown of the Contractor's unit rates, estimates of person hours by trade, estimate of material cost per item for both the Contractor and all of its subcontractors including quotations, estimates and any related schedule impact and an evaluation of the Contractor's time required to perform the unscheduled work.
- g. The Contractor shall provide copies of purchase orders and paid invoices for subcontracts and/or material, including stocked items. The Contractor shall provide a minimum of two quotations for subcontracts or material. If other than the lowest or sole source is being recommended for quality and/or delivery considerations, this shall be noted. Upon request by the Contractor, the Contracting Authority shall be permitted to meet with any proposed subcontractor or material supplier for discussion of the price, and always with the Contractor's representative present.
- h. After discussion between the Contracting Authority and the Contractor and if no negotiation is required, the Contracting Authority will seek confirmation from the Technical Authority to proceed with the work by signing the form noted above in sub paragraph 3(d). The Contracting Authority will then sign and authorize the unscheduled work to proceed.
- i. In the event that the Technical Authority does not wish to proceed with the work, the Contracting Authority will cancel the proposed unscheduled work in writing.
- j. In the event the negotiation involves a credit, the appropriate PWGSC form will be noted accordingly.
- k. In the event that the Technical Authority requires unscheduled work of an urgent nature or an impasse has occurred in negotiations the commencement of unscheduled work should not be unduly delayed and should be processed as follows:
- The Contractor will complete PWGSC 1379 form indicating the estimated cost and provide it to the Contracting Authority.
 - If the Technical Authority wishes to proceed, both the Technical Authority and the Contracting Authority will sign the completed PWGSC form. It will be understood and accepted that this cost will be a ceiling price cost and therefore only subject to downward adjustment.
 - A serial number will be allocated and will include Suffix A.

The work will proceed with the understanding that following an audit of the Contractor's actual costs for completing the described work, the cost will be finalized at the ceiling price or lower, if justified by the audit. A new PWGSC form will then be completed with the finalized costs, signed and issued with the same Serial Number without the suffix "A", and bearing a notation that this form is replacing and canceling the form having the same Serial Number with the suffix "A".

NOTE: PWGSC forms bearing serial numbers with a suffix A shall not be included in any contract amendments and therefore no payment shall be made until final resolution of the prices and subsequent incorporation into the contract have been completed.

F4. Amendment to Contract or Formal Agreement

The contract will be amended from time to time in accordance with the contract terms in order to incorporate costs that have been authorized on the proper PWGSC form(s).

ANNEX G – QUALITY CONTROL / INSPECTION

G1 Quality Control Plan

The Contractor must implement and follow the Quality Control Plan (QCP), prepared in accordance with the latest issue (at contract date) of the ISO 10005 : 2005 Quality Management – Guidelines for quality plans, approved by both the Inspection and the Technical Authority. The QCP must describe how the Contractor will conform to the specified quality requirements of the Contract and specify how the required quality activities are to be carried out, including quality assurance of subcontractors. The Contractor must include a traceability matrix from the elements of the specified quality requirements to the corresponding paragraphs in the QCP. The QCP must be made available to both the Inspection and Technical Authority for review and approval within five (5) calendar days after contract award.

The documents referenced in the QCP must be made available within two (2) working days as and when requested by the Inspection Authority. The Contractor must make appropriate amendments to the QCP throughout the term of the Contract to reflect current and planned quality activities. Amendments to the QCP must be acceptable to the Inspection Authority and the Technical Authority.

G2 Inspection and Test Plan (ITP)

1. The Contractor must prepare an Inspection and Test Plan (ITP) comprising individual inspection and test plans for each specification item of this project in accordance with the Quality Standard and its Quality Control Plan (QCP). The ITP must be submitted to the Inspection Authority for review and amended by the Contractor to the satisfaction of the Inspection Authority.
 - a. Each ITP must contain all inspection points identified in the Specification highlighting any mandatory points that must be witnessed by the Inspection Authority and other “hold” points imposed by the Contractor to ensure the quality of the work.
 - b. Milestone delivery date for the ITP is given in the Contract however individual ITPs should be forwarded for review as developed.
2. Coding:
 - a. Each ITP is to be coded for identification clearly demonstrating a systematic approach similar to the following (Contractor’s system should be defined in its QCP):
 - i. Prefixes for Inspections, Tests and Trials:
 - prefix “1” is a contractor inspection – i.e.: 1H-10-01, 1H-10-02
 - prefix “2” is a contractor post repair test – i.e.: 2H-10-01; and
 - prefix “3” is a contractor post repair test – i.e.: 3H-10-01
 - b. Specification items followed by assigned sequence numbers for inspection processes within each Specification item; and
 - c. Cross reference to a verification document number.

G3 Inspection and Test Plan Criteria

Inspection criteria, procedures and requirements are stated in the specifications, drawings, technical orders and reference standards invoked by the Specification. Test and trial documentation may also be included or referenced in the Specification. An individual ITP is required for each specification item.

1. All ITPs must be prepared by the Contractor in accordance with the above criteria, its quality plan and must provide the following reference information:
 - a. the ship’s name;
 - b. the specification number item;

- c. equipment/system description and a statement defining the parameter which is being inspected;
- d. a list of applicable documents referenced or specified in the inspection procedure;
- e. the inspection, test or trial requirements specified in the specification;
- f. the tools and equipment required to accomplish the inspection;
- g. the environmental conditions under which the inspections are to be conducted and the tolerances on the inspection conditions;
- h. a detailed step by step procedure of how each inspection is to be performed, conformance parameters, accept/reject criteria and recording of results, deficiencies found and description of corrective action(s) required;
- i. name and signature of the person who prepared the plan, date prepared and amendment level; and
- j. names and signatures of the persons conducting and witnessing the inspection, test or trial.

2. Contractor Imposed Testing:

- a. Tests and trials in addition to those given in the specification must be approved by the Inspection Authority.
- b. Amendments: Amendment action for the ITPs must be ongoing throughout the refit and reflect the inspection requirements for unscheduled work. Amendments must be submitted as developed, but not less frequently than once every second week.

G4 Conduct of Inspection

1. Inspections must be conducted in accordance with the ITP and as detailed in G4.
2. The Contractor must provide its own staff or subcontracted staff to conduct inspections, test and trials; excepting that Technical Authority or Inspection Authority personnel may be designated in the specification in which case the Contractor must ensure that its own staff are provided in support of such inspection, test and/or trial.
3. The Contractor must ensure that the required conditions stated in the ITP prevail at the commencement of and for the duration of each inspection, test and/or trial.
4. The Contractor must ensure that personnel required for equipment operation and records taking during the inspection, test and/or trial are briefed and available at the start and throughout the duration of the inspection, test and/or trial. Tradesmen or FSRs who may be required to effect minor changes or adjustments in the installation must be available at short notice.
5. The Contractor is to coordinate the activities of all personnel taking part in each inspection, test and/or trial and ensure that safe conditions prevail throughout the inspection, test and/or trial.

G5 Inspection Records and Reports

1. 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 consistent with the Quality Standard and its Quality Plan for this project.
2. The Contractor's 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.
3. Unsatisfactory inspection, test and/or trial results for which corrective action cannot be completed during the normal course of the inspection, test and/or trial will require the Contractor to establish and record the cause of the unsatisfactory condition to the satisfaction of the Inspection Authority. Representatives to Canada may assist in identification where appropriate.

4. Corrective action to remove the cause of unsatisfactory inspections must be submitted to the Inspection Authority in writing by the Contractor for approval before affecting such repairs and rescheduling of the unsatisfactory inspection, test and/or trial. Such notices must be included in the final records passed to the Inspection Authority.
5. 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.
6. The Contractor must reschedule unsatisfactory inspections after any required repairs have been completed.
7. 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 Inspection Authority upon request.

G6 Inspection and Trials Process

1. Drawing 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 specification. Where discrepancies are noted the Inspection Authority will formally advise all concerned in writing, using the Discrepancy Notice. The resolution of any such discrepancy is a matter for consultation between the Contractor and other Crown Authorities.

NOTE: The Inspection Authority is NOT responsible for the resolution of discrepancies.

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/or trials as may be deemed necessary by the Inspection Authority to permit them 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 (NCR).
 - c. The Contract requires the implementation of a Quality Assurance/Quality Control (QA/QC) system so the Inspection Authority requires the Contractor to 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 the reports of these inspections must be submitted before the Work is inspected by the Inspection Authority.
 - d. Incorrect or false QA/QC documentation submitted to the Inspection Authority prior to inspection of the Work the Inspection Authority may issue an Inspection non-conformance report against the Work. In addition, a separate report may be issued against 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 rejections standards to be applied. Where more than one standard or requirement are applicable, the order of precedence in the Contract will identify the priority.

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 update the report with applicable signature and date.
- c. At completion 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.

4. Tests, trials and demonstrations

- a. To enable the Inspection Authority to certify that the Work has been performed satisfactorily and in accordance with the Contract and specification, the Contractor must schedule, co-ordinate, perform and record all specified tests, trials and demonstrations required.
- b. Where the specification contains a specific performance requirements for any component, equipment, sub-system or system the Contractor must test each 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 perform as per specification.
- 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-system demonstrations or testing, and that the sub-systems are proven before system demonstration or testing.
- d. Where the specification does not contain specific performance requirements of 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 submit its ITP as detailed in G2.
- f. The Contractor must co-ordinate each test, trial and demonstration with all interested parties including the Inspection Authority, Contracting and Technical Authorities, regulatory authorities, Classification Society, subcontractors etc. The Contractor must provide the Inspection Authority and other Crown Authorities with a minimum of five (5) working days notice of each scheduled test, trial or demonstration.
- g. The Contractor must keep written records of all tests, trials and demonstrations conducted as detailed in G5. The Contractor may utilize the PWGSC Standards Tests & Trials Record Sheets which can be customized by the Contractor to suit individual test or trial requirements. These record sheets are available from the Inspection Authority in digital format.
- h. The Contractor must in all respects be responsible for the conduct of all tests and trials in accordance with the requirements of the Contract.

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- i. The Inspection Authority and the Technical Authority reserve the right to defer commencement of or continuation with any sea trials for any reasonable cause, including but not limited to:
 - i. adverse weather;
 - ii. visibility
 - iii. equipment failure or degradation;
 - iv. lack of qualified personnel; and
 - v. inadequate or non-compliance with safety standards.

ANNEX H – FINANCIAL BID PRESENTATION SHEET

H1 Price for Evaluation

<p>A) Known Work</p> <p>For work as stated in Part 1 – GENERAL INFORMATION, article 1.2, specified in Annex A – Statement of Work – Specifications (CCGS Griffon) and detailed in the attached ANNEX H – Financial Bid Presentation Sheet – Appendix 1 - Pricing Data Sheet for a FIRM PRICE of:</p>	<p>\$ _____</p>
<p>B) Unscheduled Work – Contractor labour cost</p> <p>Estimated labour hours at a firm charge out labour rate including overhead and profit for evaluation purposes only:</p> <p>500 person hours x \$ _____ per hour for a PRICE of: See Annex H, article H2.1 and H2.2 below.</p> <p>Overtime premium for time and one half: Estimated hours for evaluation purposes only: 200 person hours x \$ _____ per hour for a PRICE of: See Annex H, article H3 below.</p> <p>Overtime premium for double time: Estimated hours for evaluation purposes only: 100 person hours x \$ _____ per hour for a PRICE of: See Annex H, article H3 below.</p>	<p>\$ _____</p> <p>\$ _____</p> <p>\$ _____</p>
<p>C) Daily Service Fees</p> <p>For evaluation purpose only as per Annex H, article H4:</p> <p>Ten (10) working days x \$ _____ firm daily service fee</p> <p>Four (4) non-working days x \$ _____ firm daily service fee</p>	<p>\$ _____</p> <p>\$ _____</p>
<p>D) Vessel Transfer Cost</p> <p>For evaluation purpose only as per Annex H, article H6: Proposed shipyard/ship repair facility _____</p>	<p>N/A</p>
<p>E) Cost to the Bidder of the Contract Financial Security</p> <p>For evaluation purposes only as per Annex H, article H7:</p>	<p>N/A</p>
<p>F) EVALUATION PRICE</p> <p>[A + B + C + D + E + F] for an EVALUATION PRICE (applicable taxes excluded) of:</p>	<p>\$ _____</p>

H2 Unscheduled Work

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

Number of hours (to be negotiated) x \$ _____ for the Contractor's firm hourly charge-out labour rate. This rate is to include consumables, overhead and profit. The net laid-down cost of materials which may include a mark-up of ten (10) percent plus applicable taxes. The firm hourly charge-out labour rate and the material mark-up will remain firm for the duration of the Contract including any subsequent amendments.

- H2.1: Notwithstanding definitions or usage elsewhere in the Contract 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.
- H2.2: Allowance for related labour costs such as management, all supervision, purchasing and material handling, quality assurance and reporting, first aid, gas free certification inspecting and reporting and estimating and preparing unscheduled work submissions will be included as overhead for the purposes of determining the charge-out labour rate as entered in section H2 above.
- H2.3: The ten (10) percent mark-up rate for material will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowable 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.

Pro-rated Prices Unscheduled Work

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

H3 Overtime

The Contractor must not perform any overtime under the Contract unless authorized in advance in writing by the Contracting Authority. There will be no overtime payment for Known Work. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the overtime performed pursuant to the written authorization. Overtime shall not be paid unless authorized in writing by the Contracting Authority. Payment for authorized overtime will be calculated as follows:

For unscheduled work, the Contractor will be paid the authorized overtime hours at the following charge-out labour rates:

- a. Time and One Half**: \$ _____ per hour;
- b. Double Time***: \$ _____ per hour

This rate shall be a blended rate for all classes of labor, engineering and foreperson and shall include all overheads, supervision and profit.

These rates will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

* Regular time is defined as an 8 hour work day

** Overtime Time and One-Half Rate is defined as time in excess of the regular time*,.

*** Overtime Double Time Rate is defined as Sundays and Statutory Holidays Pro-rated Prices

H4 Daily Services Fees

In the event of a delay in the performance of the Work and if such delay is recognized and agreed upon by the Contracting Authority as being attributable to Canada, Canada agrees to pay the Contractor the daily service fee described below for each day the Work is delayed. This fee shall be the sole liability of Canada to the Contractor for the delay.

The firm daily services fee is:

- a. For a working day: \$ _____
- b. For a non-working day: \$ _____

The above fees shall include but not be limited to all aspects of the following costs: project management services, administrative support, production services, quality assurance, material support, planned maintenance and ship services and all other resources and direct costs required to maintain the vessel at the Contractor's facility. These fees are firm and not subject to any additional charges for mark up or profit.

H5 Vessel, Refit, Repair or Docking Costs

The following costs must be included in the price:

1. Ship services: include all costs for ship services such as water, steam, electricity etc. that are required for vessel maintenance for the duration of the Contract.
2. Docking and undocking includes:
 - a. all costs resulting from dry docking, wharfage, security, shoring, shifting and/or moving of the vessel within the successful Bidder's facility;
 - b. the cost of services to tie up the vessel alongside and to cast off.

Unless specified otherwise, the vessel will be delivered by Canada to the successful Bidder's facility alongside a mutually agreed safe transfer point, afloat and upright, and the successful Bidder will do the same when the Work is completed. The cost of services to tie up the vessel alongside and to cast off must be included in the evaluation price.

3. Field services representatives/supervisory services: consist of the costs for field service representatives and/or supervisory services including manufacturers' representatives, engineers, etc.

These services must not be an extra charge except where unscheduled work requiring these services is added to the Contract.

4. Removals: include all costs for removals necessary to carry out the Work and will be the responsibility of the successful Bidder regardless if they are identified in the specification, except those removals not apparent when viewing the vessel or examining the drawings. The successful Bidder will also be responsible for safe storage of removed items and reinstallation of all items on completion of the Work. The successful Bidder will be responsible for renewal of components damaged while in their custody including during removal or reinstallation.
5. Sheltering, staging, cramage and transportation: include the cost of all sheltering, staging including handrails, carnage and transportation to carry out the Work as specified.

Solicitation No. - N° de l'invitation
F2599-195010/A
Client Ref. No. - N° de réf. du client
F2599-195010

Amd. No. - N° de la modif.
File No. - N° du dossier
039mdF2599-195010

Buyer ID - Id de l'acheteur
039md
CCC No./N° CCC - FMS No./N° VME

The successful Bidder will be responsible for the cost of any necessary modification of these facilities in order to meet applicable safety regulations.

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ANNEX H – Appendix 1 – PRICING DATA SHEET (CCGS Griffon)

TO BE PROVIDED

**ANNEX I
 DELIVERABLES/CERTIFICATIONS**

J1 Mandatory Tender Deliverables Check List

Notwithstanding deliverable requirements specified within the bid solicitation and its associated Technical Specification (Annex A), mandatory deliverables that must be submitted with the Bidder's tender to be deemed responsive are summarized below.

The Bidder must submit a completed Annex "J1" Deliverables/ Certifications.

The following are mandatory and the Bidder's submission will be evaluated against the requirements as defined herein. The Bidder must be determined to be compliant on each item to be considered responsive.

Item	Description	Completed and Attached
1	Invitation To Tender document part 1 page 1 completed and signed;	
2	Completed Annex "H" Financial Bid Presentation Sheet", clauses H1 through H6;	
3	Completed Pricing Data Sheets, per clause 3.1 Section II, Annex "H", Appendix 1;	
4	Completed Annex "I1" Deliverables/Certifications;	
5	Changes to Applicable Laws (if any), as per clause 2.4	
6	Integrity Provisions - Associated Information, section 5.1.1	
7	Federal Contractors Program for Employment Equity, Complete section 5.1.2	
8	Proof of good standing with Worker's Compensation Board, as per clause 6.3	
9	Proof of valid Labor Agreement or similar instrument covering the work period, as per clause 6.4	
10	Preliminary Work Schedule , per clause 6.5;	
11	Fueling and Disembarking Procedures, as per clause 6.6;	
12	If Registered its Valid ISO 9001-2008 Certification, as per clause 6.7	
13	Objective evidence of documented Health and Safety System, as per clause 6.8;	
14	Objective evidence of documented Fire Protection, Fire Fighting and Training Procedure, as per clause 6.10	
15	Insurance Requirements, as per clause 6.11	
16	Proof of welding certification, as per clause 6.12	
17	Project Management as per clause 6.13	
18	List of subcontractors, as per clause 6.14	
19	Example of its Quality Control Plan, as per clause 6.15	
20	Example of an Inspection and Test Plan as per clause 6.16	
21	Details of Environmental Emergency Response Plan, Details of Formal Environmental Training as per Clause 6.17	

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039mdF2599-195010

Buyer ID - Id de l'acheteur
039md
CCC No./N° CCC - FMS No./N° VME

I2 Deliverables after Contract Award

Item	Description	Reference	Due By
1	Insurance requirements as per Annex "D"	Clause 7.11 and Annex "D"	10 Working Days after contract award
2	Revised Work Schedule	Clause 7.15	5 working days after contract award
3	Contract Financial Security	Clause 7.13	N/A
4	The Contractor's Quality Control Plan	Clause 7.20	5 working days after contract award
5	The list of Government specialized loaned equipment that the Contractor intends to request.	Clause 7.27	3 working days after contract award

I3 Deliverables Prior to Contract Award (If Requested)

Item	Description	Reference	Due By
1	Financial Capability	Clause 6.1	5 Working Days prior to contract award if requested

**CCGS Griffon Alongside Summer Refit 2019,
Specification Number 893.18**

F2599-195010

DATES: July 03, 2019 TO August 02, 2019

Prepared by:
Marine Engineering Central and Arctic Region
520 Exmouth Street
Sarnia ON
N7T 8B1

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G 1.0 GENERAL NOTES

G 1.1 Vessel Particulars

G 1.1.1 Details

Name:	CCGS Griffon
Type:	Twin Screw, Medium Icebreaker / Navaid's Tender
Class:	Inland Waters Class I Fire Extinguishing and Lifesaving Appliances for a vessel of Class X.
Year Built:	1970
Principle Dimensions:	
Length:	234' – 0" (71.32m)
Breadth, molded:	49' – 0" (14.94m)
Loaded Draft:	15' 6 1/4" (4.731m)
Tonnage, displ:	Gross Tonnage 2212
Propulsion	Twin screw, fixed pitch, diesel electric, total power 2x2000 S.H.P

G 1.1.2 Equipment

Equipment	Make	Model	Serial#
Propulsion Diesel	Fairbanks	38D8-1/8"	#1, C481 #2, C480 #3, C482 #4, C483
Propulsion Generators	Westinghouse	1032 kW, 833 V, 1238 A, 750 RPM	#1, POG, SN 4-1S5108 #2, PIG, SN 3-1S5108 #3, SIG, SN 2-5S108 #4, SOG, SN 1-5S108
Propulsion Motors	Westinghouse	Westinghouse 2000/2500HP, 833/900 VDC, 1910/2220 Amps, Type Q, Frame EE626.6	Port, SN 1-1S1424 Starboard, SN 2-1S1424
Steering System	Hastie		
Bow Thruster	Rolls-Royce	TT 1100 KII CP	T8418
Ship Service Generators	Caterpillar	3406C	#1, 1SS01190 #2, 1SS01191 #3, 1SS01188
Emergency Generator	Caterpillar	3306	40601268
Buoy Crane	Arva Industries	AR16520M	1804-171535

Deck Crane	Hiab	200SC	Manufacture # 610
Fast Rescue Craft (FRC) Davit	Schat-Harding	MRT 3900, winch# BHY 5300	
Barge Davit	Schat-Harding	Ref# J3031A	Order # XLT89-00094- (015)/A

G 1.2 References

G 1.2.1 Regulations

G 1.2.1.1 The latest edition, at the time of contract signing, of all Acts, regulations, standards, publications, and procedures listed below are to be used as reference. The Contractor will ensure all work completed in the specification are done to all pertinent federal and territorial regulations and standards. CCG procedures are to be used as a guide if no other regulation takes precedence.

FSSM Procedures	Title	Included Yes/No
FSSM	Fleet Safety and Security Manual (Latest Edition)	Available on demand
Ship Specific	Vessel Specific - Asbestos Risk Assessment Report and Management Plan	Y
Ship Specific	Vessel Specific – Lead Paint Test Report	N
Publications		N
TP 127	Ships Electrical Standards	N
NFPA 306 2014	Standard for the Control of Gas Hazards on Vessels	N
TP 3669	Standards for Navigating Appliances and Equipment	N
TP 11469	Guide to Structural Fire Protection	N
TP 14231	Marine Occupational Health and Safety Program	N
TP 14612	Procedures for Approval of Life-saving Appliances and Fire Safety Systems, Equipment and Products	N
TP 4414 E	Guidelines Respecting Helicopter Facilities on Ships.	N
IEEE45	Institute of Electrical and Electronics Engineers, Recommended Practice for Electrical Installations on Shipboard	N
70-000-000-EU-JA-001	Specification for the Installation of Shipboard Electronic Equipment	N
IEC 60533	Electrical and Electronic installations in ships – Electromagnetic Compatibility	N
IEC 60945	Maritime Navigation and Radio communication equipment and systems – methods of testing and required test results.	N
Publications Con't	Title	Included Yes/No

EPS Report 1/RA/2	Environmental Code of Practice for the Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems - Environment Canada	N
NFPA 10	Standard for portable fire extinguishers	N
18-080-000-SG-003 (formerly DFO/5884 - TP 12445E)	PAINTS AND COATINGS STANDARD	Y
Standards	Title	Included Yes/No
CCG	CCG CAD using AutoCAD	Y
CCG	CCG Electronic Data standard	Y
CCG	Colour Coding Standard for Piping Systems 30-000-000-ES-TE-001	Y
CSA W47.1	Certification of Companies for Fusion Welding of Steel Structures Division 2 Certification	N
CSA W47.2	Certification of Companies for Fusion Welding of Aluminum	N
CSA W59	Welded Steel Construction – Metal Arc Welding	N
CSA W59.2	Welded Aluminum Construction	N
ISO 9712:2005	International Standards for NDT	N
CT-043-EQ-EG- 001-E	Welding Specification	Y
SSPC	The Society for Protective Coatings	N
ISO 8501-1:2007	Preparation of steel substrates before application of paints and related products	N
ISO 10816-1:1995	Mechanical vibration -- Evaluation of machine vibration by measurements on non-rotating parts -- Part 1: General guidelines	N
ASME Y14.100	American Society of Mechanical Engineers Y14.100 - 2017 Engineering Drawing Practices - Nov. 14, 2017	N
ISO 4406/2017	Hydraulic Fluid Power – Fluids – Method for coding the level of contamination by solid particles	N
Regulations	Title	Included Yes/No
MOHS	Maritime Occupational Health and Safety	N
CSA	Canada Shipping Act	N
Machinery Regs.	Marine Machinery Regulations (SOR/90-264)	N
Vessel Fire Safety Regs.	Vessel Fire Safety Regulations (SOR/2017-14)	N

Hull Regs.	Hull Inspection Regulations (C.R.C., C. 1432)	N
Canada Labour Code	Canada Labour Code (R.S.C., 1985, c. L-2)	N
Workers' Safety & Compensation Commission work-safe regulation of the province or territory where the work is performed	http://www.ccohs.ca/oshanswers/information/wcb_canada.html	N

G 1.2.2 Guidance Drawings

G 1.2.2.1 The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Name
664-AF-507	General Arrangement Profile & Superstructure Decks	G05111ga1.pdf & G05111ga2.pdf
CMG05-211-PL Sheet 3/4	Sprinkler Details and Bill of Materials	G05211pl3.pdf
G05SPR-1	Existing Sprinkler Tank	G05SPR-1 - Rev01.pdf
CMG05-246-MI	Fire Control Plan	G05246mi1.pdf & G05246mi2.pdf
664-1066-1 sht. 5 and 6	Ship Windows	G05237de5.pdf & G05237de6.pdf
664-120-12	Upper Deck Plating	664-120-12.pdf
732400 sh 1 and 2	Deck Coverings	732400_01.pdf & 732400_02.pdf
664-120-9	W.T. and N.W.T Bulkheads Aft and Floors	664-120-9.pdf
EP1506	AR16520M Rev B	EP1506.pdf
734400 sht 1& 2	Seats for Schat Hydro-Mechanical Davits	734400_01.pdf
783111	Barge Davit Block and Connection Diagram	734400_02.pdf
S710815A	Schematic Circuit Diagram	710815.pdf

G 1.2.2 Tanks

G 1.2.1.1 Listed are the tanks found on board, their Location by frame number and capacity (Where available). These are to be used as reference only and will not supersede any specification.

Description	Location	Particulars	Coating
Fore Peak	Frames 113-FE	Capacity: 60 tonnes Surface Area: 330 m2 Frame Spacing: 16"	VapCor Marine Coat 195W
After Peak	Frames EA-6	Capacity: 60 tonnes Surface Area: 175 m2 Frame Spacing: 16"	VapCor Marine Coat 195W
Upper Flume	Frames 67-71	Capacity: 91 tonnes Surface Area: 290 m2 Frame Spacing: 24"	VapCor Marine Coat 195W
Lower Flume	Frames 67-71	Capacity: 88 tonnes Surface Area: 280 m2 Frame Spacing: 24"	VapCor Marine Coat 195W
Pipe Tunnel	Frames 60-90		Interprime 198 Red Primer
After Void Space	Frames 6-16	Surface Area: 175 m2 Frame Spacing: 16"	
#1 D.B. Port	Frames 71-95, Port	Capacity: 38 tonnes Surface Area: 200 m2 Frame Spacing: 610 mm (24")	Portland cement wash
#1 D.B. Starboard	Frames 71-95, Starboard	Capacity: 38 tonnes Surface Area: 200 m2 Frame Spacing: 610 mm (24")	Portland cement wash
#3 D.B. Port	Frames 37-46, Port	Capacity: 23 tonnes Surface Area: 190 m2 Frame Spacing: 610 mm (24")	Portland cement wash
#3 D.B. Starboard	Frames 37-46, Starboard	Capacity: 23 tonnes Surface Area: 190 m2 Frame Spacing: 610 mm (24")	Portland cement wash
#4 D.B. Port	Frames 24-36, Port	Capacity: 17 tonnes Surface Area: 110 m2 Frame Spacing: 610 mm (24")	Portland cement wash

#4 D.B. Starboard	Frames 24-36, Starboard	Capacity: 17 tonnes Surface Area: 110 m2 Frame Spacing: 610 mm (24")	Portland cement wash
Fuel oil Deep Tank (Port)	Frames 95-113	Capacity: 62.6 LT	
Fuel oil Deep Tank (Stbd)	Frames 95-113	Capacity: 58.3 LT	
Fuel Oil Settling Tank Port	Frames 62-67	Capacity: 41.53 LT	
Fuel Oil Settling Tank Center	Frames 62-67	Capacity: 43.09 LT	
Fuel Oil Settling Tank Stbd	Frames 62-67	Capacity: 41.53 LT	
Fuel Oil Day Tank	Frames 53-54	Capacity: 3.51 LT	
#2 Double Bottom Tank Port	Frames 48-62	Capacity: 31.58 LT	
#2 Double Bottom Tank Stbd	Frames 48-62	Capacity: 31.58 LT	
Emergency Generator Fuel Tank	Nav Bridge Deck Frames 34 to 35	Capacity 900 gallons.	
Port Chain Locker	Frames 113-119	Capacity: 16 tonnes Surface Area: 650 ft2 (60 m2) Frame Spacing: 406.4mm (16")	Lower foot and bottom: Rust- Oleum 3600 System Multipurpose Epoxy - black Sides and top: 2 coats rust- inhibiting primer and 2 coast anti- corrosion alkyd paint - grey.
Starboard Chain Locker	Frames 113-119	Capacity: 16 tonnes Surface Area: 650 ft2 (60 m2) Frame Spacing: 406.4mm (16")	Same as Port Chain Locker

Cargo Hold Sludge Tank	Frame 73 lower Cargo Hold	Capacity: 9 500L Surface Area	
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G 1.2.3 Abbreviations

ACM: Asbestos Containing Material	MCA: Matériaux contenant de l'amiante
CA: Contracting Authority - Public Works and Government Services Canada	AC: Autorité Contractuelle - Travaux publics et Services gouvernementaux Canada
CFM: Contractor Furnished Material and/or Equipment	MFE: Matériaux ou équipements fournis par l'Entrepreneur
CLC: Canada Labour Code	CCT: Code canadien du travail
Class: Classification Society Approved by Transport Canada	Classe: Société de classification approuvée par Transports Canada
CSA: Canadian Standards Association	CSA: Association canadienne de normalisation - ACNOR
CWB: Canadian Welding Bureau	BCS: Bureau canadien du soudage
DISP: Delegated Statutory Inspection Program	PDIO : Programme de délégation des inspections obligatoires
DFO/CCG: Department of Fisheries and Oceans, Canadian Coast Guard	MPO/ GCC: Ministère des Pêches et des Océans, Garde côtière canadienne
FRC: Fast Rescue Craft	ERS : Embarcation rapide de sauvetage
FSR: Manufacturer's Field Service Representative	RSF: Représentant de service du fabricant
FSSM: Fleet Safety and Security Manual	MSSF: Fleet Safety and Security Manual
GSM: Government Supplied Material and/or Equipment	MFG: Matériel fourni par le Gouvernement
HC: Health Canada	SC: Santé Canada
IEEE: The Institute of Electrical & Electronic Engineers Inc.	IEEE: Institute of Electrical and Electronic Engineers
LT: Long Tonnes	LT: Tonnes anglaises
MSDS: Material Safety Data Sheet	FS: Fiche signalétique
NDT: Non Destructive Testing	END: Essais non destructifs
OEM: Original Equipment Manufacturer	FEO: Fabricant d'équipement d'origine
OHS: Occupational Health and Safety	SST: Santé et sécurité au travail
PWGSC: Public Works and Government Services Canada	TPSGC: Travaux publics et Services gouvernementaux Canada
RO: Recognized Organization as defined by Canada Shipping Act.	OR: organismes reconnus par la Loi sur la marine marchande du Canada
SSMS: Safety and Security Management System	SGSS: Système de gestion de la sécurité et de la sûreté
TBS: Treasury Board of Canada Secretariat	SCT: Secrétariat du Conseil du Trésor du Canada
TA: Technical Authority -CCG Superintendent, Marine Engineering Western Region, or her delegated Representative.	AT: Autorité technique – Représentant du propriétaire (GCC)
TCMS: Transport Canada Marine Safety	SMTC: Sécurité Maritime de Transports Canada

IA: Inspection Authority – CCG delegated.	AI: Autorité de l'Inspection – Inspecteur technique (GCC)
WCB: Workers' Compensation Board	CNESST: Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST)
WHMIS Workplace Hazardous Materials Information System	SIMDUT: Système d'information sur les matières dangereuses utilisées au travail

G 1.3 Conditions and Definitions

G 1.3.1 The following conditions and definitions are applicable to all work contained in the Specifications and are intended to outline the quality of workmanship and practice that is the minimum acceptable level:

a) Additional Work Procedures The words "Addition Work Procedures" means the procedures as defined in ANNEX G - PROCEDURE FOR PROCESSING UNSCHEDULED WORK and includes any additional work required on a system, sub-system or equipment which the original specification did not specify;

b) Calibrate The word "calibrate" means the adjustment of readings and measurements to a known standard;

c) Disconnect The word "disconnect" means the Contractor must mechanically and electrically disconnect the piece of equipment of all piping, wiring, seatings and other attachments permitting the removal of the unit as a whole;

d) Disassemble The word "disassemble" means that the Contractor must provide all labour to take apart, piece by piece, the equipment, machinery or system to be examined or repaired;

e) Examine The word "examine" means that the Contractor must provide labour for the process of systematically examining, checking and testing equipment, records or administrative procedures to detect actual or potential defects or errors;

f) Install The word "install" means that the Contractor must connect mechanically and electrically and provide the labour and materiel to complete the installation;

g) New The term "new" means manufactured recently (less than 3 years). The Contractor must provide the TA with proof of recent manufacture of the equipment or materials if requested. Canada will not accept equipment refurbished, reworked or rebuilt.

h) Or equivalent The term "or equivalent" means a substitute which has equal characteristics i.e. (size, materiel type, life, weight, input, and output) as approved

by the TA. A comparison of the general specifications must be provided to the TA for the equipment specified and the "or equivalent" (i.e. old compared to the new);

i) Overhaul The term "overhaul" as applied to any mechanical equipment, structure or system comprises: disassembly into component parts; cleaning examination of parts for defects; gauging of parts for wear; reporting of parts worn beyond specification limits or otherwise defective and reassembly followed by specification adjustments; tests; and functional trials;

j) Reassemble The word "reassemble" means that the Contractor must provide all labour and material to put together, piece by piece, the equipment, machinery or system on completion of examination or repair;

k) Reinstall The word "reinstall" means a piece of equipment that the Contractor has effected repairs on and is to be returned/installed in its original location and be mechanically and electrically connected. The Contractor must provide the labour and materiel to complete the reinstallation;

l) Remove The word "remove" means that the Contractor must provide all labour and materiel to remove the unit, equipment, materiel, or system in its entirety. Part of the removal process is to blank openings, restore insulation and paint;

m) Set-to-work The words "set-to-work" means the tuning, alignment and adjustment of equipment/systems required subsequent to satisfactory installation. Inspection to make the equipment/systems ready for technical acceptance trials;

n) Test The word "test" means that the Contractor must provide labour to conduct the operation of a unit in relation to a stated standard or procedure;

o) Trials The word "trials" is an element of QA that means an action(s) by which the Contractor proves by a visual or instrumental presentation that the equipment or system satisfies the requirements of the specified trials agenda; and the term "functional test" means operation of a piece of equipment in all its normal operating modes and throughout its operating range to establish that it will perform its designed function within normal operating parameters as indicated in the manufacturer's documentation.

G 1.4 Miscellaneous Provisions

G 1.4.1 Occupational Health and Safety

G 1.4.1.1 The Contractor and all sub-contractors must follow Occupational Health and Safety (OHS) procedures in accordance with applicable federal and provincial OHS

regulations ensuring that Contractor activities are carried out in a safe manner and do not endanger the safety of any personnel.

G 1.4.1.2 When the Contractor works on the vessel while in the Care and Custody of the Canadian Coast Guard, the Safety Management System of CCG must be followed:

a) Contractor and all its representatives must attend an orientation session on vessel safety before beginning any work to familiarize the Contractor's employees with the dangers specific to the vessel and with its permit systems for work protocols as well as with the procedures for safety, risk prevention, hazard response and pre-work safety assessments. The Contractor will have access to an uncontrolled copy of the Fleet Safety and Security Manual.

b) The Contractor must comply with the Fleet Safety and Security Manual, DFO/5737, as well as with the instructions for working on board the vessel, in addition to the relevant requirements of the Canada Labour Code during performance of the following types of work:

- i) Work at heights;
- ii) Entry into enclosed spaces;
- iii) Degassing before entering into confined spaces and for hot work;
- iv) Lockout and Tagout;
- v) Electrical work on energized circuits;
- vi) Hot Work;
- vii) Pre-work safety assessments.

c) For the purpose of the Lockout and identification procedure, the Contractor must provide the padlocks and locking devices for the Contractor's employees in addition to those provided by the Chief Engineer for the vessel's crew.

d) The Contractor must adhere to local facilities shore based safety instructions and safety procedures.

G 1.4.1.3 The Contractor must identify a specified person that is responsible for the safety management of the work site. The Safety Manager must insure that daily safety rounds are carried out and that safety issues are identified and safety precautions are maintained.

G 1.4.1.4 Areas that pose a hazard as a result of the specification work are to be secured and clearly identified by the Contractor with signage to advise and protect all personnel from the hazard in accordance with applicable regulations.

G 1.4.2 Lead Paint and Paint Coatings

G 1.4.2.1 The Contractor must not use lead based paints.

G 1.4.2.2 CCG ships have been painted with lead based paints in the past and as a result some of the Contractor's processes such as grinding, welding and burning may release this lead from the coatings. Canadian Coast Guard will provide copies of all available lead testing results.

G 1.4.3 Touch-up / Disturbed Paint

G 1.4.3.1 The Contractor, at a minimum, must repair coating systems disturbed as a result of the specified work. Coating systems must be in accordance with the coating system of the vessel, and be applied in accordance with the paint manufacturer's recommended procedures.

G 1.4.4 Asbestos Containing Materials (ACM)

G 1.4.4.1 The Contractor must use insulation that contains 0% ACM.

G 1.4.4.2 The Contractor will be supplied the most recent Asbestos Risk Assessment Report and Asbestos Management Plan by CCG.

G 1.4.4.3 Handling of any asbestos containing materials must be performed by trained personnel and/or a company certified in the removal of asbestos in accordance with Federal, Provincial/Territorial and Municipal regulations.

G 1.4.4.4 The Contractor must provide the TA with disposal certificates for all asbestos containing material removed from the vessel indicating that the disposal was in accordance with Federal, Provincial and Municipal regulations in effect.

G 1.4.4.5 The Contractor must provide an "Observation Report (OR)" with reference to any concerns or intentions in regards to asbestos containing materials not already specified. The Contractor is to identify any materials that are suspected to contain asbestos prior to any work being completed. Any approved work resulting from the OR will follow the Additional Work Procedures.

G 1.4.5 Confined Spaces

G 1.4.5.1 Entry into any confined space onboard the vessel during the contract period must be conducted in accordance with the safety management system as determined in

the Pre-Work Meeting. In addition to those requirements, the Contractor must also conduct the following:

- a) Have a qualified person issues a “Gas Free Certificate” for spaces that will be entered and post the certificate outside the entrance to the space. Certificates must specify, "Safe for persons" or "safe for hot work" as appropriate.
- b) Provide copies of all certificates generated to the TA in accordance with the Documentation section of the General Notes.

G 1.4.6 Hot Work

G 1.4.6.1 All hot work conducted during the contract must be in accordance with the Safety Management System. In addition to the requirements of the Safety Management System the Contractor must as a minimum also:

- a) Certify confined spaces affected by hot work as “safe for hot work” in accordance with the Confined Spaces section of the General Notes.
- b) Remove all portable combustible materials from the vicinity, to a safe distance not less than two meters away;
- c) Supply and install protective material to prevent the spread of sparks, protect electrical cables and other services;
- d) Supply and post fire sentries in each space and in the adjacent space where welding, grinding, or burning is being carried out on bulkheads, deckheads or decks;
- e) Supply and provide appropriate fire extinguisher(s) to the fire sentries and ensure each sentry is trained in the extinguisher’s use. The fire sentry must maintain a watch in his designated area for a minimum of thirty (30) minutes after any hot work has been completed. The Contractor must record the sentry attendance time on all hot work permits indicating when hot work stopped, and time sentry left post;
- f) Provide a copy of the site generated hot work permits to the TA in accordance with the Documentation section of the General Notes; Named in accordance with the specification item generating the required work.

G 1.4.7 Work Aloft

G 1.4.7.1 Any work aloft onboard the vessel during the maintenance/refit period must be conducted in accordance with the Safety Management System. Notices must be

placed to prevent operation of Radars while personnel are working aloft on the mast or on the wheelhouse top.

G 1.4.8 Electrical Equipment

G 1.4.8.1 When working on electrically operated equipment, the Contractor must lock-out equipment in accordance with the Safety Management System, and as a minimum conduct the following::

a) Isolate the main power source and any alternative power source to the equipment;

b) Install Electrical lock-outs and place electrical caution tags on the main power source and any alternate power sources for the switches/disconnects supplying the equipment under maintenance;

c) Verify at the terminals to ensure power is not present.

d) Ensure the lock-outs and electrical caution tags remain in place until completion of all work.

G 1.4.8.2 The TA must be notified of all such ongoing work.

G 1.4.8.3 All electrical installations and repairs must be done in accordance with the latest revisions of TP127 - Electrical Standards of Transport Canada Marine Safety and of standard 45- Recommended Practice for electrical installation on ships – of the IEEE. Standard TP127 takes precedence over the IEEE standard.

G 1.4.9 Workplace Hazardous Materials Information System (WHIMS)

G 1.4.9.1 The Contractor must provide the TA with Material Safety Data Sheets (MSDS) for all Contractor and sub-contractor supplied WHIMS controlled products. MSDS sheets are to be the formats requested in the Documentation section of the General Notes.

G 1.4.9.2 All MSDS sheets must be maintained in accordance with OHS procedures.

G 1.4.9.3 The TA will provide the Contractor with access to MSDS sheets for all controlled products on the ship for all specified work items on request.

G 1.4.10 Smoking in the Work Space

G 1.4.10.1 The Contractor must ensure compliance with the Non-Smokers' Health Act. The Contractor must ensure that there is absolutely no smoking onboard the vessel by their employees, sub-contractors, including the employees of any sub-contractor.

G 1.4.11 Contractor Furnished Materials (CFM) and Tools

- G 1.4.11.1 The Contractor must ensure replacement material such as jointing, packing, insulation, small hardware, oils, lubricants, cleaning solvents, preservatives, paints, coatings etc. are in accordance with the equipment manufacturer's drawings, manuals and/or instructions.
- G 1.4.11.2 Where no particular item is specified or where substitution must be made, the Contractor must submit an Observation Report indicating the substitution or item not specified to the TA. The Contractor must provide information about materials used, certificate of grade and quality of various materials to the TA prior to use.
- G 1.4.11.3 The Contractor must provide all equipment, devices, tools and machinery such as cranes, staging, scaffolding, hoarding, and rigging necessary for the completion of the work in this specification.
- G 1.4.11.4 The Contractor must deliver and store all new CFM equipment at their facility until the start of the work period. The Contractor must transport all new CFM equipment to the work location of the Contract for the beginning of the work period. The Contractor must store on site, in a temporary Contractor supplied storage facility located in the vicinity of the vessel, all new CFM equipment. The CFM must be stored in a secure, environmentally controlled space in accordance with the equipment storage section of this specification.
- G 1.4.11.5 All tools are Contractor supplied unless otherwise stated in the technical specifications.

G 1.4.12 Government Supplied Materials (GSM) & Tools

- G 1.4.12.1 Where tools are supplied by the TA they must be returned by the Contractor in the same condition as when they were borrowed. Borrowed tools must be inventoried and signed for by the Contractor on receipt and return to the TA.

G 1.4.13 Storage

- G 1.4.13.1 Equipment (i.e. covers, cowling and other items that may need to be removed and stored) must be stored in accordance with the equipment manufacturer's or equipment vendor's specific storage instructions. The Contractor must make these instructions available to the TA.
- G 1.4.13.2 All equipment and items must be stored in such a manner so as to be easily accessible for inspection. No items are to be stored directly on floors.

G 1.4.14 Regulatory Inspections and/or Class Surveys

- G 1.4.14.1 The Contractor must contact, coordinate, schedule, and be completely prepared for all regulatory inspections and surveys by the applicable authority: i.e. TCMS, HC, Environment Canada or others as indicated by individual specifications.
- G 1.4.14.2 Documentation generated by the above inspections and/or surveys indicating that the inspections and/or surveys were conducted (i.e. original signed and dated certificates) must be provided to the TA in accordance with the Documentation Section of these General Notes.
- G 1.4.14.3 The Contractor must not substitute inspection by the TA for the required regulatory inspections.
- G 1.4.14.4 The Contractor must provide timely advance notification (minimum of 2 working days) of scheduled regulatory inspections to the TA so they may witness the inspection.
- G 1.4.14.5 Fees associated with TCMS, HC, Environment Canada, or any other Inspection required by the specification will be invoiced directly to CCG unless otherwise indicated in a specific specification item.

G 1.4.15 Contractor Inspections

- G 1.4.15.1 The Contractor must afford the opportunity for the TA to conduct an inspection with the contractor on the condition and location of items to be removed prior to either carrying out the specified work or gaining access to a location to carry out the work.
- G 1.4.15.2 The Contractor must take a before picture of conditions prior to removing any items. These photographs are to be in accordance with the Documentation section of the General Notes, named according to the specification section that resulted in removing those items.
- G 1.4.15.3 Prior to the close out of any item under this specification, the Contractor must afford the TA the opportunity to verify the work has been completed in accordance with the specification. At that time the Contractor must have available all photographs, documents, reports, and trials in relation to the item being closed out as completed.

G 1.4.16 Recording of Work in Progress

- G 1.4.16.1 The TA may record any work in progress using various means including, but not limited to, photography and video, digital or film.

G 1.4.17 Access for Maintenance, Installation, and Removal.

G 1.4.17.1 The Contractor must determine best routes for installing and removing equipment. All lifting points currently fitted on the ship must be treated as uncertified, and must be certified before use by the Contractor.

G 1.4.17.2 After equipment installation and/or removal the Contractor must make good all equipment relocations, blemishes, and penetrations and must return the ship to the As-Delivered working condition.

G 1.4.18 Assembly of Components

G 1.4.18.1 The Contractor must ensure that during installation of specified equipment, that parts and assembled equipment are cleaned of smudges, spatter or excess solder, weld metal and metal chips or any other foreign material which might detract from the intended operation, function, or appearance of the equipment. (This would include any particles that could loosen or become dislodged during the normal expected life of the equipment). All corrosive material must be removed. This cleaning must take place before the parts are assembled into the equipment.

G 1.4.18.2 Covers, cowlings and components damaged by the Contractor must be replaced with a new CFM cover, cowling, or component.

G 1.4.18.3 Where torque specifications are not provided by the manufacturer, the applicable SAE, ANSI, or BS1083 nut and bolt standard torque must be used.

G 1.4.19 Protection of Equipment

G 1.4.19.1 The Contractor must take measures to ensure that surfaces and components of equipment installed on the vessel are protected against damage, soiling, and contamination as a result of contracted work.

G 1.4.19.2 All electrical and electronic equipment and components must be protected during the contract against physical damage, internal damage, and by the effects of adverse temperatures or other environmental conditions.

G 1.4.19.3 The Contractor must protect equipment that could be damaged as a result of movement of materials and equipment nearby. The Contractor must also protect equipment from nearby sources of contamination including but not limited to burning, welding, media (sand) blasting, grinding and painting.

G 1.4.19.4 Any damage to surfaces, equipment, furnishings or decor incurred prior to acceptance must be returned to As-Delivered condition by the Contractor.

G 1.4.19.5 All openings in machinery and/or systems prior to connections being made must be kept covered by fitted secure solid inserts or covers at all times.

G 1.4.19.6 The Contractor must obtain and follow instructions from its sub-Contractors for any special protection required for their equipment during the project work. Such instructions must be made available to the TA.

G 1.4.19.7 Physical protection including but not limited to plastic sheets, fireproof covers, heavy weight material covers, wood plugs, wood encasements and heaters must be used as required.

G 1.4.20 Halocarbon containing Systems

G 1.4.20.1 All work conducted on Halocarbon containing systems, must be in accordance with the Federal Halocarbon Regulations, 2003 (SOR/2003-289).

G 1.4.21 Welding

G 1.4.21.1 In addition to section 7.16 Welding Certification – Contract; All welding and weld inspection must be in accordance with the CCG Welding Specification CT-043-eg-eg-001. This document will be provided to the Contractor within 48 hours of written request to the TA.

G 1.4.21.2 The governing standards for welding of materials less than 3 mm in thickness must be in accordance with the requirements of the CCG Welding Specification CT-043-eg-eg-001. For materials greater than 3 mm in thickness, the Contractor must meet the following:

a) For structural steels greater than 3 mm in thickness, welding must meet the requirements of CSA Standards W47.1 and W59, except as modified by the CCG Welding Specification CT-043-eg-eg-001.

b) For structural aluminum greater than 3 mm in thickness, welding must meet the requirements of CSA Standards W47.2 and W59.2, except as modified by the CCG Welding Specification CT-043-eg-eg-001.

c) For structural stainless steels greater than 3mm in thickness, welding must meet the requirements of CSA Standard W47.1 and AWS D1.6, and of the CCG Welding Specification CT-043-eg-eg-001

G 1.5 Documentation

G 1.5.1 Text Documentation

G 1.5.1.1 All text deliverables must be accompanied by a PDF file that must contain the complete document. The Contractor must check the quality to verify that the content

reflects the same content/formatting as the Master Document file. In the case of changes, a second PDF file that contains only the changed sheets must be supplied.

G 1.5.2 Data Book

G 1.5.2.1 The Contractor must provide all documentation generated as a result of specified deliverables, in both electronic and paper formats. There must be 2 paper copies of each document, in two separate binders, as part of the contractors QA program. An electronic copy of all documentation must also be provided to the TA in accordance with the formats described in this specification section.

G 1.5.2.2 All copies of documents generated as a result of specified deliverables will be referred to as the “Data Book”.

G 1.5.2.3 The Contractor must provide to the TA all the files generated as part of the Data Book prior to the contract being considered complete. The files must be in hard format (CD-ROM, DVD-ROM, Flash Drive / Memory Stick). Each specification item is to have its own folder named according to the specification item. For example “G1.0 General Notes”.

G 1.5.2.4 Any documentation, media, and reports that are the result of Additional Work must be included as part of the Data Book.

G 1.5.3 File Naming

G 1.5.3.1 File naming must include the Contract number and the specification they are relevant to.

G 1.5.4 E-mails

G 1.5.4.1 Any files sent to the CA/TA by e-mail must be named as per the “File Naming” section of this specification. All files that are e-mailed must have the Contract number in the subject name

G 1.5.5 File Formatting

G 1.5.5.1 All documentation, reports, test results, certificates, or data obtained by the contractor in paper form must be scanned into unprotected, searchable, Adobe PDF formatted files and named according to the File Naming section of this specification.

G 1.5.5.2 All reports, test results, certificates, or raw data obtained by the contractor in electronic format must be converted to unprotected Adobe PDF formatted files and

named according to the “File Naming” section of this specification. Both the original and the converted copy must be provided as part of the Data Book.

G 1.5.6 Photographs

G 1.5.6.1 All photographs obtained by the contractor as requested in the specification must be provided in .JPG formatted files at a resolution of at least 640 x 480 and named according to the “File Naming” section of this specification.

G 1.5.7 Measurements, Calibrations, and Readings.

G 1.5.7.1 All measurements, calibrations and readings recorded, must be signed by the person taking the measurements, dated and scanned into electronic format as part of the Data Book.

G 1.5.7.2 Unless otherwise specified the Contractor must record dimensions to a precision of three significant digits in imperial along with the metric equivalent.

G 1.5.7.3 The Contractor must provide to the TA current and valid calibration certificates, and control values for all instrumentation used in the Test and Trials Plan, showing that the instruments have been calibrated in accordance with the manufacturer’s instructions. These copies are to be provided as part of the Data Book, under any specification where measurements are required.

G 1.5.8 Test/Inspection Records and Certificates

G 1.5.8.1 Test and/or Inspection Records and Certificates are identified as a deliverable in the individual specification item requesting them.

G 1.5.8.2 Test and/or Inspection Records and Certificates, must be included as a separate section in the Databook and indexed/arranged in numeric order by specification number.

G 1.5.8.3 The Contractor is responsible for maintaining a complete and accurate record of all tests and trials conducted on the vessel and on each piece of equipment. Prior to the commencement of a trial, all relevant documentation and associated test sheets, including shop test data, must be complete and attached to the trials agenda.

G 1.5.8.4 All tests and trials data must be legible both in hard copy and electronic format. If necessary, handwritten records may require transcription into electronic format in order to be acceptable. The original must be signed by the regulatory body, the TA, the Contractor and where necessary, by the sub-Contractors and/or FSR’s who witnessed the tests. All the data must be submitted to the TA in accordance with the Documentation section of these General Notes.

G 1.5.8.5 The Contractor must, in addition, provide originals of each certificate document to the TA in an envelope marked with the vessel's name and the works "Original Certificates"

G 1.6 Drawings

G 1.6.1 This section to be referred to as the Drawing Section of the General Notes, is intended to be used as reference for the minimum standards when specified deliverables are drawings.

G 1.6.2 The Contractor must use ASME Y14.100 for guidance for drawing deliverables.

G 1.6.3 The Contractor must have on staff or through a sub-contractor a person qualified and experienced in the use of Autocad who will create or modify drawings that result from the work.

G 1.6.4 The Contractor must comply with the Canadian Coast Guard National CAD Standards titled "CT-014-000-ES-TD-001Computer Aided Design (CAD) using AUTOCAD" provided. Also provided is a compressed file including the CAD templates required to meet the CCG standard.

G 1.6.5 Drawing disks must be clearly labeled with the Contract Number, file names and drawing numbers. If a complete listing exceeds the label size, a "readme.txt" file in ASCII format must be provided with each disk. A printed copy of the Readme file must accompany each disk. Disks must be labeled As-Fitted drawings for those drawings that have been approved and finalized.

G 1.6.6 Final As-Fitted prints/plots must not contain markings or corrections by hand (i.e. marker, pen, pencil, etc.). Drawings containing mark-ups must be revised and re-printed/plotted.

G 1.6.7 The Contractor must prepare all the working drawings necessary to complete specified work.

G 1.6.8 The Contractor must furnish all drawings required by sub-Contractors, trades and other consultants.

G 1.6.9 The Contractor must have in place a complete system of documenting and controlling all drawing revisions affected by the work. Drawing numbering system and titles must match the original drawings for clarity and include a revision number with date.

G 1.6.10 Guidance Drawings – Set Number

G 1.6.10.1 All technical guidance drawings are issued to the Contractor for guidance purposes only. The Contractor must develop working drawings and to ensure that all such drawings receive applicable regulatory approval. Not all technical guidance drawings supplied are As-Fitted drawings; therefore the Contractor must physically verify affected items.

G 1.6.10.2 The Contractor must communicate to the TA all departures from the provided guidance drawings and project specifications and obtain written acceptance from the TA before carrying out such alterations or departures.

G 1.6.11 As Fitted Drawings

G 1.6.11.1 The As-Fitted Drawings are identified as a deliverable in the specification item requesting them.

G 1.6.11.2 Upon completion of specified work, the Contractor must transfer the mark-ups from any working drawings where installation changes were made to drawings affected by the work; these drawings become the As-Fitted drawings.

G 1.6.11.3 The As-Fitted Drawings must be in accordance with the Canadian Coast Guard National CAD Standards titled "CT-014-000-ES-TD-001 Computer Aided Design (CAD) using AUTOCAD" provided.

G 1.6.11.4 The Contractor must provide As-Fitted Drawings to the TA prior to completion of the Contract. The drawings must be submitted in the following formats:

a) 2 Plotted Copies of the latest revision of each of the As-Fitted Drawings.

b) 1 Electronic Copy of the latest revision of each of the As-Fitted Drawings.

G 1.6.11.5 Plotted drawings must be on standard ANSI paper sizes.

G 1.6.11.6 "Marked up drawings are to be AutoCAD drawings where original AutoCAD drawings are provided. If no AutoCAD drawings were provided then scanned files (raster format) must be supplied to CCG in one of the following formats:

a) DXF format;

b) TIFF format.

G 1.7 Manuals

G 1.7.1 This section, to be referred to as the Manuals section of the General Notes, is intended to be used as reference for the minimum standards when specified deliverables are to be manuals.

G 1.7.2 The Contractor will be provided access to the vessel's manuals. If manual provided is the vessel's physical copy, the Contractor must make a copy for themselves and return to the TA.

G 1.7.3 General – Set Number

G 1.7.3.1 Instruction Manuals must be individually bound in a hard cover 3 ring book format with a page size of 8 1/2" x 11". Drawings of a larger size must be concertina folded to suit. The covers must have the following information printed thereon:

- a) "Vessel Name
- b) Equipment ID
- c) Equipment Manufacturer
- d) Date"

G 1.7.3.2 Plastic tabbed indices must be provided for all sections of the manuals. Major equipment components must be subdivided into separate sections of the manuals.

G 1.7.3.3 A master index must be provided at the beginning of each binder indicating all items included in each section.

G 1.7.3.4 A list of names, addresses and telephone numbers of contacts associated with the equipment manufacturers must be provided that can be used after the project completion for maintenance and information data purposes.

G 1.7.3.5 A copy of the final reviewed and approved As-Fitted drawing(s) must be provided within the maintenance manual.

G 1.7.3.6 One (1) electronic copy of each manual must be provided in accordance with the Data Book section of this specification.

G 1.7.3.7 Two (2) paper copies of manuals and data sheets must be supplied in English for all Contractor Furnished Equipment items.

G 1.7.4 Operation Manuals – As-Fitted

G 1.7.4.1 Operation manuals must include the following items:

- a) General description of equipment operating sequence;
- b) Step by step procedure to follow in commissioning the equipment;
- c) Schematic wiring diagram for the fitted equipment; and

d) All pertinent equipment performance criteria.

G 1.7.5 Maintenance Manuals – As-Fitted

G 1.7.5.1 Maintenance manuals must include:

a) Manufacturer's maintenance instructions for each item of the equipment requiring maintenance activity;

b) Instructions are to include installation instructions, part numbers, part lists, master drawings and exploded views with part identification for all mechanical, electrical and electronic parts, name of suppliers;

c) Summary list of each item of the equipment requiring lubrication, indicating the name of the equipment item, location of all points of lubrication, type of lubricant recommended, and frequency of lubrication; and

d) Troubleshooting sections must be included for all equipment in the maintenance manual under a separate heading.

G 1.8 Identification

G 1.8.1 Nameplates

G 1.8.1.1 Nameplates are identified as a deliverable in the individual specification item requesting them.

G 1.8.1.2 All nameplates must be in English, except where required in English and French by TCMS for reasons of emergency operation.

G 1.8.1.3 Lettering must be clear and concise with the minimum use of abbreviations. Primary information must be given in larger size lettering than secondary information.

G 1.8.1.4 The type of nameplates must suit the location in the vessel as specified below:

a) Plastic:

i) Laminated plastic nameplates, black with white core engraved through to the center core, must be provided for all devices located on the exterior surfaces of switchboards, MCC's, or local control panels. Nameplates must be secured to the equipment with machine screws.

ii) New nameplates to be fitted on the existing equipment must be consistent in size and lettering with those already fitted or those being replaced.

- iii) Nameplates indicating feeder circuits must identify each circuit by name and number and the fuse size or trip element rating.
- iv) The Following Labels must be of laminated plastic, red with white core engraved through to the center core:
 - v) Safe Working Loads,
 - vi) Warning/Caution labels,
 - vii) Circuit Breakers with shunt trips requiring completion of remote circuits prior to being operated,
 - viii) Equipment with multiple power sources,
 - ix) Circuit breaks having a potential power source connected to both sides
 - x) Indication of any other potentially hazardous condition.
- b) Engraved on Metal:
 - i) Must be used in machinery spaces and where exposed to the weather or susceptible to covering by paint, oil or grease. Nameplates exposed to weather must be stainless steel or brass. Engraved metal nameplates must be of stainless steel or brass with lettering accentuated by means of black wax unless otherwise noted, and secured with stainless steel or brass machine screws.
 - ii) A complete list of nameplates, detailing size of plate, size of lettering and inscription must be submitted to the TA for review prior to ordering and/or manufacturing.

G 1.8.2 Wire Labelling

- G 1.8.2.1 Wire Labelling is identified as a deliverable in the individual specification item requesting them.
- G 1.8.2.2 All permanently installed cables must be tagged with the circuit designation at all points of connection and on both sides of bulkheads, decks, etc. Tags must be of metal compatible with the armor or cable sheathing. Both ends of the tags must be strapped to the cable with compatible metal strap after all painting has been completed. Straps must pass through holes in the tags so that tags are positively secured. Strap ends must be permanently folded and crimped. Adhesives of any kind will not be acceptable.

- G 1.8.2.3 All wiring in panels specified to be labelled must be labeled with the Cable Number and their conductor # unless otherwise specified in equipment installation drawings.

S 1.0 SERVICES

S 1.1 GENERAL

S 1.1.1 The Contractor must supply the following services to the vessel for the entire work period and disconnect upon completion of the work period. The Contractor must re-establish all services if the vessel is moved during the work period.

S 1.1.2 All staging, cramage, screens, lighting, and any other support service, equipment, and material necessary to carry out the work identified in these specifications must be Contractor supplied.

S 1.1.3 The Contractor and Contractor's employees will not have access to the vessel's washrooms and crew mess facilities. The Contractor must provide the necessary amenities as required.

S 1.2 BERTHING – NOT USED

S 1.3 MOORING LINES – NOT USED

S 1.4 GANGWAYS – NOT USED

S 1.5 ELECTRICAL POWER– NOT USED

S 1.6 ACCOMMODATION/MACHINERY AREA DECK PROTECTION– NOT USED

S 1.7 HEATING– NOT USED

S 1.8 WORKSITE INSPECTIONS

S 1.8.1 Before the Contractor starts any work on the vessel the Contractor's Quality Assurance Representative and the TA must walk through each space and area where work is to take place, including access and removal routes and areas adjacent to those where the work is to be done as a result of this specification. The Walk-through must occur during vessel demobilization and the Contractor's Quality Assurance Representative must identify all items that are to be removed/secured.

S 1.8.2 The Contractor's Quality Assurance Representative must take digital pictures of each area showing the outfit therein. Each picture must be dated and named as to the location on the vessel and that it represents As-Delivered conditions. These photos must be in the format; as well as named, in accordance with the Documentation section of the General Notes. A Copy of these photos must be provided to the TA within 48 hours of the start of contract on a memory stick, CD, or DVD.

- S 1.8.3** During the work period, the Contractor must maintain work areas in the vessel, in a clean condition, free from debris and remove garbage daily. The Contractor is responsible for storage in a Contractor supplied container and disposal of all debris and garbage related to this contract.
- S 1.8.4** Upon completion of the contract, the Contractor must ensure that all waste generated from the work of this SOW is disposed of and must return the vessel to the As-Delivered state of cleanliness.
- S 1.8.5** Prior to the completion of the Acceptance Document, the Contractor's QA Representative and the TA must perform an inspection of the vessel to view all areas where work was performed by the Contractor. Any deficiencies or damage noted must be recorded and compared to the photos and if deemed to have been caused by the Contractor as a result of the work the damage must be repaired by the Contractor at no cost to the Coast Guard.
- S 1.8.6** Copies of all photos, documentation, and inspection sign off sheets must be provided in accordance with the Documentation section of the General Notes.
- S 1.9** **FIRE PROTECTION**
- S 1.9.1** The Contractor must ensure protection against fire 24 hours/day and 7 days/week throughout the contract period.
- S 1.9.2** The Contractor must ensure the isolation, removal, installation and reactivation of the shipboard fire detection and suppression systems or any components thereof, is performed by a qualified technician. When the shipboard fire detection or fire suppression system is deactivated or disabled by the Contractor during the contract period, the system must be recertified by a qualified technician prior to the end of the work period, as fully functional. A signed and dated original copy of the certificate must be delivered according to the Documentation section of the General Notes.
- S 1.9.3** The Contractor must note that failure to take the necessary precautions while performing work on the vessel's fire suppression system(s) could result in the accidental discharge of the fire suppression agent(s). The Contractor must recharge and certify at his cost, container(s) or systems that are discharged as a result of the contractor's or subcontractor's activities.
- S 1.9.4** The ships portable fire extinguishers are only to be used in the event of an emergency and not for any hot work tools. Any that are used must be refilled and recertified by an authorized fire equipment service company that has marine experience.

S 1.9.5 The vessel has fixed firefighting systems fitted to the listed spaces below. In the event that the Contractor wishes to isolate, deactivate, or temporarily remove any part of the system, the work must be performed by a qualified technician from an authorized fire equipment service company that has marine experience. Any system worked on must be reactivated by the qualified technician. A signed and dated original copy of the certificate must be delivered according to the Documentation section of the General Notes. All spaces must be fully operational prior to resumption of custody by CCG.

S 1.9.6 List of locations protected with a fixed fire system

System	Location	Type	Capacity
Battery Room	Bridge Deck	CO ²	1 x 25 lb
Upper Fan Room	Bridge Deck	CO ²	2 x 50 lb
Barge – Engine Room	Boat Deck	FM200	2 x 13 lb
Emergency Generator Room	Boat Deck	CO ²	2 x 50 lb
FRC Zodiac Engine Space	Boat Deck	FM200	2 x 13 lb
Helicopter Pad – Nitrogen	Boat Deck	Nitrogen	1 x 50 Cu. Ft
Helicopter Pad – Wheeled Unit	Boat Deck	Dry Chemical	1 x 300 lb
Lower Fan Room	Poop Deck	CO ²	1 x 75 lb
Kitchen	Upper deck	Kidde Fenwal System	1 x 2.5 Gallon
Steering Gear Compartment	Upper deck	CO ²	2 x 75 lb
Engine Room and Motor Room	Engine Room	CO ²	19 x 100 lb
Engine Room Workshop	Engine Room	CO ²	4 x 50 lb
Propulsion Generators	Engine Room	CO ²	2 x 75 lb
Bosun Stores	Forecastle	CO ²	1 x 75 lb
Buoy Workshop	Forecastle	CO ²	1 x 75 lb
Paint Locker Forward	Forecastle	CO ²	1 x 35 lb
Winch Room	Forecastle	CO ²	5 x 75 lb

S 1.9.7 The vessel is fitted with a Notifier Fire Detection System with detector heads throughout the vessel. In the event that any system component is disturbed by the Contractor to facilitate contract work, the Contractor must:

- b) Recertify the system using a technician certified to work on systems from this manufacturer.
- c) Provide a copy of the Technician's certificate in accordance with the Documentation section of the General Notes.

- d) Provide a copy of the system's recertification in accordance with the Documentation section of the General Notes.

S 1.10 PROJECT FACILITIES– NOT USED

10.0 Safety and Security

10.1 BILGE CLEANING

10.1.A Identification

- 10.1.A.1 Contractor must clean all of the bilge area of the vessel's main engine room, propulsion motor room, and shaft compartment at the beginning of the work period.
- 10.1.A.2 The Contractor must also clean the two bilge wells in the cargo hold as well as the cargo hold sludge tank.

10.1.B References

10.1.B.1 Equipment Data

10.1.B.1.1 Cargo Hold Sludge Tank Details:

- a) The cargo hold sludge tank is located at frame 73 in the lower section of the cargo hold. Access is through a bolted hatch located on the forward end of the tank.
- b) Dimensions:
- i) Length: 3.66 m
 - ii) Width: 1.22 m
 - iii) Height 2.13 m

10.1.B.2 Drawings

- 10.1.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Number
664-AF-507	General Arrangement Profile & Superstructure Decks	G05111ga1.pdf
664-AF-507	General Arrangement Profile & Superstructure Decks	G05111ga2.pdf

10.1.B.3 Regulations and Standards

- 10.1.B.3.1 The Contractor must ensure all work completed in this section meets all pertinent Federal/Territorial Regulation or Standard.

10.1.C Statement of Work

10.1.C.1 Initial Bilge Cleaning

10.1.C.1.1 The Contractor must supply all materials and labor necessary to clean bilge areas such that they can be certified safe for hot work in the following locations:

- a) Engine Room Bilge.
- b) Motor Room Bilge
- c) Shaft Compartment Bilge

10.1.C.1.2 This certification must be maintained for the duration of the work period. In order to maintain the hot work certification valid, the Contractor must perform localized cleaning as required.

10.1.C.1.3 All bilge cleaning must be completed before any hot work commences, or any equipment is opened and exposed in the following sections:

- a) Sprinkler Tank Survey

10.1.C.1.4 The Contractor must quote on removing and disposing of twenty cubic meters of oily waste from the bilges prior to the start of the cleaning operation.

10.1.C.1.5 The Contractor must maintain the cleanliness of all bilge areas throughout the duration of the work period.

10.1.C.1.6 As an option, the Contractor must provide a quote for a second bilge cleaning, including the removal and disposal of all bilges waste, at the end of the work period, should it be required only as a result of work performed by CCG employees or its representatives via additional contracts.

10.1.C.2 Cargo Hold Sludge Tank and Bilge Wells

10.1.C.2.1 Sludge Tank

- a) The Contractor must remove the tank hatch cover and dispose of the cover gasket. Upon completion of the tank inspection by the IA, the Contractor must re-install and secure the tank cover with a new Contractor supplied ¼” thick fiber re-enforced nitrile cover gasket.
- b) The Contractor must remove any remaining liquid and solid waste from the tank and must provide a marine chemist or other qualified person’s gas free certificate stating the tank is safe for entry and work. The Contractor must quote on removing and disposing

of one cubic meters of oily water waste and one half cubic meter of solid oily waste from the cargo hold sludge tank prior to the start of the cleaning operation.

- c) The Contractor must take steps to protect the tank sensor from damage during the cleaning process.
- d) Upon completion of the cleaning, the Contractor must perform a pressure test on the tank.

10.1.C.2.2 Bilge Wells

- a) The cargo hold bilge wells are located on either side of the cargo hold sludge tank.
- b) The Contractor must remove, and re-install upon completion of the work, the surface grates from the port and starboard cargo hold bilge wells without damaging the bilge well alarm float switches.
- c) The Contractor must remove any remaining liquid and solid waste from the bilge wells. The Contractor must bid on removing and disposing of two hundred litres of oily water and twenty litres of solid oily waste from the bilge wells prior to the cleaning operation.

10.1.C.2.3 The Contractor must supply all materials and labor necessary to clean all internal surfaces of the tank and bilge wells such that the internal structures and coatings can be inspected by the IA.

10.1.C.2.4 The Contractor must pressure wash the cargo hold sludge tank and bilge wells with a minimum of 3000 psi pressure washer to remove all rust, scale, loose coating and any other foreign deposits. All water and debris must be removed from the tank and wells and disposed of ashore by the Contractor.

10.1.C.3 Disposal of Liquid and Waste from the Bilges, Wells and Sludge tank

10.1.C.3.1 All oily waste removed from the vessel and all waste generated from the bilges, wells and the Cargo hold sludge tank cleaning must be tracked in accordance with all Federal, Provincial and Municipal regulations in effect. The Contractor must provide disposal documentation for all generated waste to the TA.

10.1.C.3.2 All material from the bilges, wells and the Cargo hold sludge tank must be removed and disposed of ashore in accordance with Federal, Provincial and Municipal regulations in effect at the time of the contract.

10.1.C.3.3 The Contractor must bid on the disposal of waste oil and solid oily waste as per sections 10.1.C.1 and 10.1.C.2 and provide a cost per cubic meter for disposal of oily water. The total cost of removing/disposing oily water and waste from the bilges,

cargo hold sludge tank and cargo hold bilges will be adjusted up or down using PWGSC 1379 form by prorating the quoted amount based on the volume of oily water and waste removed.

- 10.1.C.3.4 The Contractor must provide copies of waste oil manifests showing that the materials removed from the bilges, wells and cargo hold sludge tank were disposed of in accordance with Federal, Provincial and Municipal regulations in effect at the time.
- 10.1.C.3.5 Where water or any foreign materials are allowed to ingress into the bilge, wells and Cargo hold sludge tank, as a result of subsequent work performed by the Contractor; this material must be removed from the bilge areas prior to the close of the contract at the Contractor's expense.

10.1.D Proof of Performance

10.1.D.1 Inspection Points

- 10.1.D.1.1 Upon completion of the cleaning of the bilges, the Contractor must notify the IA such that he may be afforded the ability to inspect the work.
- 10.1.D.1.2 Upon completion of the cleaning and prior to the closing of the tank and re-installation of the bilge wells grates, the Contractor must notify the IA such that he may be afforded the ability to inspect the internals of the cargo hold sludge tank and bilge wells.
- 10.1.D.1.3 All cleaning in this specification item must be performed to the satisfaction of the IA.

10.1.D.2 Testing/Trials

- 10.1.D.2.1 Upon completion of the cargo sludge tank cleaning and inspection, the Contractor must hydrostatically pressure test the cargo hold sludge tank to a static head of 2.5 meters of water above the tank top. The tank will be held a minimum of 1 hour at this test pressure. This test must be witnessed by the IA.
- 10.1.D.2.2 The Contractor is responsible to provide all required material to isolate the tank from the system for the pressure testing and remove all blanks, plugs and other isolation devices and return the system to its full functionality upon completion of the pressure testing to the satisfaction of the AI. The cargo hold sludge tank is fitted with the following connections:
- a) Inlet – located on the top of the tank
 - b) Vent – located on the top of the tank

- c) Dewatering valve – located lower forward starboard corner
- d) Sounding pipe – 3 connections – aft side upper, mid, lower
- e) Discharge valve – Port side
- f) Discharge relief valve – aft side

10.1.D.2.3 The pressure gauge used for the pressure test, must have been calibrated within the twelve months prior to testing. Proof of valid and current calibration must be a deliverable for this specification item.

10.1.D.3 Certification – Not Used

10.1.D.4 Documentation

10.1.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5

10.1.D.4.2 The Contractor must provide the certification of qualification for the marine chemist or other qualified person prior to the cargo hold tank testing and entry.

10.1.D.4.3 The Contractor must provide the Technical Authority with all copies of waste oil manifests showing the disposal of the materials removed from the vessel's bilges and from the cargo hold sludge tank.

10.1.D.4.4 The Contractor must provide proof of calibration within the twelve months prior to testing for the pressure gauge used for the tank testing.

10.1.D.5 Training – Not Used

10.2 SPRINKLER TANK SURVEY

10.2.A Identification

10.2.A.1 The Contractor must isolate, open, clean, inspect, repair the internal tank coating and test the sprinkler tank fitted to the CCGS Griffon for a regulatory five year periodic survey credit from TCMS.

10.2.B References

10.2.B.1 Equipment Data

10.2.B.1.1 Sprinkler Tank Details:

- a) Location: Upper Motor Room Port
- b) Dimensions: 158” (4.013m) long, 42” (1.067m) diameter, 5/16” original shell thickness
- c) Working Pressure: 120 PSI

10.2.B.1.2 The working fresh water level of the sprinkler tank is half full, approximately 3.6 cubic meters. The sprinkler tank is pressurized to working pressure at all times.

10.2.B.2 Drawings

10.2.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Number
CMG05-211-PL Sheet 3/4	Sprinkler Details and Bill of Materials	G05211pl3.pdf
G05SPR-1	Existing Sprinkler Tank	G05SPR-1 - Rev01.pdf

10.2.B.3 Regulations and Standards

10.2.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No

Publications		
	Amercoat Amerlock 2 Data Sheets	No
	Amercoat Amerlock 400 Data Sheets	No
Standards		
SSPC_SP-11	Surface Preparation Standard No.11	No
Regulations		
	CSA, 2001 Marine Machinery Regulations SOR/90-264 – Unfired Pressure Vessels	No

10.2.C Statement of Work

10.2.C.1 General

- 10.2.C.1.1 The Contractor must provide the services of a Marine Fire Inspection Company (Fire) certified by one of the Transport Canada Recognized Organisation (RO) under the Delegated Statutory Inspection Program (DISP) for the commissioning and decommissioning the sprinkler tank.
- 10.2.C.1.2 The access door to the tank is oval shaped, approximately 15” (0.38m) long and 11-1/2” (0.29m) wide and is located inboard of the ship at mid length of the sprinkler tank. It is the Contractor’s responsibility to provide personnel capable of entering, cleaning, inspecting, and repairing the coatings as required inside the tank.
- 10.2.C.1.3 The Contractor must protect surrounding equipment from debris and water overspray, particularly the port propulsion motor, propulsion breaker cabinets and air compressors located inboard of the sprinkler system.

10.2.C.2 Cleaning and Condition Assessment

- 10.2.C.2.1 The Contractor must isolate the sprinkler tank from the fire detection system and isolate the sprinkler pump from the sprinkler system.
- 10.2.C.2.2 The Contractor must drain the air pressure from the tank and drain and dispose of the water from the tank.
- 10.2.C.2.3 The Contractor must ensure the sprinkler tank outlet pipe is sealed and that all debris or water wash created as a result of all work in the tank is controlled and not allowed to fall down the tank outlet pipe.
- 10.2.C.2.4 The Contractor must pressure wash the sprinkler tank with a minimum of 3000 psi pressure washer to remove all rust, scale, loose coating and any other foreign deposits. The Contractor must rinse with clean water and wipe clean all interior tank surfaces.

- 10.2.C.2.5 The Contractor is responsible for cleanup and disposal of the water and debris inside the tank and any that spilled into the motor room, including the motor room bilges. The Contractor must remove all waste generated for the tank cleaning from the vessel and dispose of it in accordance with all Federal, Provincial and Municipal regulations in effect. The Contractor must provide disposal documentation for all generated waste to the TA.
- 10.2.C.2.6 Upon completion of the cleaning, the Contractor must perform a condition assessment, complete with internal pictures, of the tank coating, the internal seams, mountings, seatings, and welded attachments and submit a report to the TCMS Inspector and the TA within 24 hours of the tank cleaning. The report must detail a graphical representation of the areas where the coating has failed and any structural areas of concern. The report must include a detailed plan for repairs.
- 10.2.C.2.7 The Contractor must remove and bench test and calibrate the sprinkler tank safety valve. The valve is set to open at 132psi.

10.2.C.3 Coating

- 10.2.C.3.1 The Contractor must prepare any damaged area to be recoated using wire wheels to SSPC SP-11 (immersion surface). The surrounding intact epoxy is to be feathered and roughened with abrasive to allow bonding of the new epoxy. All surfaces must be cleaned as per paint manufacturer's recommendation prior to any paint application.
- 10.2.C.3.2 The Contractor must provide a per square foot unit price and must quote on renewing 30 square feet of the internal coating of the tank. Any tank internal coating renewal in excess of 30 square feet must be approved by the TA prior to the work taking place. The final amount of internal tank coating will be adjusted up or down using PWGSC 1379 form.
- 10.2.C.3.3 The Contractor must supply and install two coats of PPG Industries Amerlock 2/400 epoxy to any damaged areas as per manufacturer's instructions. Alternative coatings may be considered so long as they receive Transport Canada approval from the onsite surveyor and the TA in advance and are compatible with the existing coatings. The Contractor must respect the dry and cure times and application conditions of the products being applied.
- 10.2.C.3.4 The Contractor must provide the services of NACE level 3 paint inspector certified for Marine Coating Technology or a PPG Industries, or approved equivalent product, FSR (inspector). The attending coating inspector must prepare and present a complete report on the coating applied to the sprinkler tank. Copies of the report must

be provided to the TA. The report, complete with pictures of the finished coating, must detail the surface preparation, amount of product applied, final film thickness of applied product and the environmental conditions at the time of product application, including but not limited to the following: Air temperature, dew point, metal temperature and relative humidity, type and size of equipment used for the coating application.

10.2.C.4 Return to working order

10.2.C.4.1 Upon completion of the pressure test to the satisfaction of the TCMS Inspector, the Contractor must remove all blanks, reconnect all piping, re-install the calibrated safety valve and return the sprinkler system to working order. All piping connections must have new CFM gaskets.

10.2.C.4.2 The Contractor must fill the tank with fresh water to working level, and set the air pressure to the working pressure. The Contractor must perform a leak detection test on the air side of the sprinkler tank. Any air or water leak must be repaired by the Contractor prior to the end of the work period at the Contractor's expenses.

10.2.C.4.3 The Marine Fire Inspector must reset the sprinkler dry valve to work, set the sprinkler system to work and provide a compliance certificate stating the system is operational and in good working order.

10.2.D Proof of Performance

10.2.D.1 Inspection Points

10.2.D.1.1 Upon completion of the paint application to the satisfaction of the paint inspector and prior to closing the tank, the Contractor must afford TCMS and the IA the opportunity to witness the finished coating application. Any deficiencies will be corrected at the Contractor's expenses before the end of the work period.

10.2.D.2 Testing/Trials

10.2.D.2.1 Upon completion of inspection of the coating application and after the paint has been deemed fully cured by the paint inspector, with the sprinkler tank isolated from the rest of the sprinkler system, the Contractor must perform a hydrostatic pressure test of 1.25 working pressure for 12 hours on the sprinkler tank. All air connection used to pressurise the tank must be removed once the test pressure is reached. The Contractor must record start and stop times and test pressure. The Contractor must afford the IA and TCMS Inspector the opportunity to witness the start and the end of test.

10.2.D.3 Certification – Not Used

10.2.D.4 Documentation

- 10.2.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5
- 10.2.D.4.2 The Contractor must provide the certificate of qualification for the Marine Fire Inspector as well as proof of the Fire Company's certification by a RO prior to the start of the decommissioning of the sprinkler system.
- 10.2.D.4.3 The Contractor must provide a condition assessment report, complete with pictures after the cleaning of the tanks, of the sprinkler tank to the TCMS Inspector and TA within 24 hours of the tank cleaning. The report must detail a graphical representation of the areas where the coating has failed and any structural areas of concern. The report must include a detailed plan for repairs.
- 10.2.D.4.4 The Contractor must provide the certificate of qualification for the paint coating inspector to the TA prior to any coating application.
- 10.2.D.4.5 The Contractor must provide the final report, complete with pictures, from the paint inspector prior to the pressure test with the details of the application and attesting that the paint has been applied as per the manufacturer's recommendation and that the paint is fully cured.
- 10.2.D.4.6 The Contractor must provide the TA with MSDS and data sheets for all materials used.
- 10.2.D.4.7 The Contractor must provide the TA with the original signed paper copy of the compliance report provided by the Marine Fire Inspector upon completion of the commissioning of the sprinkler system.

10.2.D.5 Training – Not Used

10.3 FIRE SYSTEM ANNUAL INSPECITON

10.3.A Identification

10.3.A.1 The Contractor must provide the services of a Marine Fire Inspection Company certified by one of the RO under the DISP for the inspection and certification of all of the fire detection and prevention equipment on board the vessel, including those of the small boats (two barges and one FRC).

10.3.A.2 As par of the annual fire detection and prevention equipment inspection, the Fire Inspector must perform an equipment survey for compliance with all applicable American Bureau of Shipping (ABS) fire system standards and provide a detailed report listing all items not compliant with the latest ABS standards and the required corrective actions.

10.3.B References

10.3.B.1 Equipment Data

10.3.B.1.1 Documentation:

- a) 2018 – Griffon Fire Systems Inspection Report
- b) 2017 – Griffon Fire System Inspection Report

10.3.B.2 Drawings

10.3.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Number
CMG05-246-MI Rev H Sh 1	Fire Control Plan	G05246mi1.pdf
CMG05-246-MI Rev H Sh 2	Fire Control Plan	G05246mi2.pdf

10.3.B.3 Regulations and Standards

10.3.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
Publications		
Standards		
Publication #141	ABS Guidance Notes for Fire Fighting Systems	No
Publication #2, Part 5C, Chapter 7	ABS Rules for Building and Classing Steel Vessels 2019, Part 5C Specific Vessel Types, Chapter 7 Vessels Intended to Carry Passengers	No
Publication #2, Part 7	ABS Rules for Survey After Construction 2019	No
Regulations		
SOR/2017-14	Vessel Fire Safety Regulations	No

10.3.C Statement of Work

10.3.C.1 General

- 10.3.C.1.1 The Contractor must provide the services of a Marine Fire Inspection Company certified by one of the RO under the DISP for the inspection and certification of all of the fire detection and prevention equipment on board the vessel, including those of the small boats (two barges and one FRC), as well as for the equipment survey for compliance with ABS's latest fire detection and protection standards.
- 10.3.C.1.2 The Contractor must ensure that all inspections and maintenance are performed by technicians who are certified to work on the firefighting systems and equipment mentioned below. The Contractor must provide the certificate of qualification for the Marine Fire Inspector as well as proof of the Fire Company's certification by a RO prior to the start of any work on the fire system
- 10.3.C.1.3 The Contractor must co-ordinate the annual inspection of the fire systems with work being done in sections 10.2 of this specification, so that all fire systems are serviced, tested and proven operational at the end of the work period and prior to sea trials. The Contractor must coordinate the inspections and maintenance with the TA and the IA once the work period has started.
- 10.3.C.1.4 The Contractor must give notice to the IA at least 24 hours in advance prior to working on the fire suppression system. The work must be completed in such manner as to ensure adequate protection of the ship in case of an emergency.
- 10.3.C.1.5 Upon completion of work, the Contractor must return all spaces affected by the work to their original functional state and cleanliness.

10.3.C.2 Fire Systems

- 10.3.C.2.1 The Contractor must provide the services of a certified Kidde and Notifier FSR and materials to perform the work in this section of the SOW.
- 10.3.C.2.2 The Contractor must inspect, test and certify the Notifier NFS-640 Fire Detection System.
- 10.3.C.2.3 The Contractor must inspect, test, and certify the work barges and Fast Rescue Craft FM-200 fire suppression systems (6 of).
- 10.3.C.2.4 The Contractor must inspect, test, and certify the CCGS Griffon's fixed CO₂ Suppression systems.
- 10.3.C.2.5 The Contractor must inspect, test, and certify all the CCGS Griffon's portable fire extinguishers.
- 10.3.C.2.6 The Contractor must have the following fire extinguishers hydrostatically tested:

Ext. #	Location	Size	Type
14	Fire Deck Locker	10 lbs	CO ₂
15	Fire Deck Locker	10 lbs	CO ₂
17	Upper Fan Room	5 lbs	CO ₂
18	Officer's Mess	5 lbs	CO ₂
39	Galley center	6 L	Wet Chemical K
52	Sewage Compartment	10 lbs	Dry Chemical
58	Engine Room Workshop	15 lbs	CO ₂
68	Battery Locker	5 lbs	CO ₂
69	Machinery Control Room	10 lbs	CO ₂
70	Engine Room Workshop Starboard	15 lbs	CO ₂
79	CO ₂ Room	10 lbs	CO ₂

- 10.3.C.2.7 The Contractor must carry out a 6 year inspection on the following extinguishers:

Ext. #	Location	Size	Type
10	Hallway Engineer Office	10 lbs	Dry Chemical
74	Fire Deck Locker	20 lbs	Dry Chemical

10.3.C.2.8 The Contractor must inspect, test, and certify the CCGS Griffon's fixed sprinkler system and all associated components. This work must be following the completion of the work described in section 10.2 of this specification.

10.3.C.2.9 The Contractor must inspect, test and certify the galley WHDR 260 Wet Chemical Fire Suppression system and all systems connected to it including:

- a) Fire Door Holdback System
- b) Gaylord Ventilator Range Hood System
- c) Fire Alarm System
- d) Remote Manual Pull
- e) Galley Equipment Panel NP-31

10.3.C.2.10 The Contractor must coordinate the work on the galley fire suppression system and the range hood with the IA in order to respect the operational needs of the galley.

10.3.C.3 ABS Compliance Survey

10.3.C.3.1 In concurrence with the annual fire systems inspection, the Fire Inspector must perform a condition assessment survey of all fitted fire detection and protection systems for compliance with the latest ABS fire detection and protection rules and standards. The condition assessment must be based on the requirement for all fire detection and protection fitted to the Griffon to comply with ABS rules by summer 2020.

10.3.C.3.2 The Fire Inspector must assess the equipment fitted to the Griffon with ABS requirements for:

- a) Mandatory maintenance and life cycle of equipment including but limited to:
 - i) Fixed and portable pressure cylinders and associated hardware;
 - ii) Fire and smoke detector heads;
 - iii) Fire Panels, alarms, shutters, hold backs.

- b) Signage, identification and labeling of the equipment;

10.3.C.3.3 The Contractor must provide a detailed report identifying all areas of non compliance with all applicable ABS fire system rules. Where the Fire Inspector identifies equipment requiring mandatory life cycle replacement under ABS rules, the report

must include details of the existing make, model, capacity, dimensions and any specific characteristics, where applicable, for each piece of equipment to be replaced.

10.3.D Proof of Performance

10.3.D.1 Inspection Points

10.3.D.1.1 The Contractor must demonstrate to the IA that all work has been completed as describe above and that all systems have been returned to operation.

10.3.D.1.2 All inspected fire extinguishers and systems must bare labels showing the name of the Company who conducted the inspection/maintenance, the date and the initials of the person who performed the inspection.

10.3.D.2 Testing/Trials – Not Used

10.3.D.3 Certification – Not Used

10.3.D.4 Documentation

10.3.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5

10.3.D.4.2 The Contractor must provide the certificate of qualification for the Marine Fire Inspector as well as proof of the Fire Company's certification by a RO prior to the start of any work on the fire system.

10.3.D.4.3 The Contractor must provide inspection certificates for all systems inspected onboard the CCGS Griffon. These must be provided to the IA prior to the end of the work period.

10.3.D.4.4 The Contractor must provide the IA and the TA with a written report detailing:

- a) The condition of each system or component based upon the inspections;
- b) The test results of each component or system based upon the testing;
- c) The next due date for testing for each component or system based on current regulations;
- d) Any defects found on any component or system;
- e) All repairs made to any component or system.

10.3.D.4.5 The report must be acceptable to the TCMS surveyor and demonstrate that all systems are in full working order as required for the CCGS Griffon's annual TCMS Safety Inspection.

10.3.D.4.6 The Contractor must provide the detailed report from the ABS compliance survey to the TA prior to the end of the Contract.

10.3.D.5 Training – Not Used

11.0 Hull and Related Structures

11.1 BRIDGE WINDOWS INSTALLATION

11.1.A Identification

- 11.1.A.1 The purpose of this section of the SOW is to replace the glass of 27 bridge windows and one Clearview screen onboard the CCGS Griffon. This work will consist of removing the existing glass from their frames, cleaning the frames, reinstalling new glass in the existing frames and completing a hose test on the windows to demonstrate their water tightness.

11.1.B References**11.1.B.1 Equipment Data****11.1.B.1.1 Windows Dimensions – Table 1**

Item #	Window Number	Frame Number	Side	Location	Existing Glass	Fixed / Sliding	DWG Letter	Approx. Clear Glass Height	Approx. Clear Glass Width	New Window Glass	Installation Type	Corner Radius	Set to be Delivered	Set to be Delivered Assembled
This information is for guidance only.														
1	47	58	PORT	AFT Inboard most window	1/2" ARMOUR PLATE	FIXED	A	33"	57" MIN	12mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
2	48	58	PORT	AFT	1/2" ARMOUR PLATE	Horizontal SLIDING	A	33"	57" MIN	12mm Clear Tempered glass	Bolted	4-5/16"	2 Glass **Seals not provided	No
3	49	58	PORT	AFT	1/2" ARMOUR PLATE	FIXED	B	33"	24" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
4	50	58-60	PORT	PORT SIDE	3/4" LAMINATED	FIXED	C	33"	36" MIN	19mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
5	51	60-64	PORT	PORT SIDE UPPER adjacent to Telegraphs	3/4" LAMINATED	Horizontal SLIDING Fore to Aft to access Telegraphs	D	33"	66" MIN	19mm Clear Tempered glass	Bolted	4-5/16"	3 Glass **Seals not provided	No
6	53	HOUSE FRONT	PORT	FRONT	3/4" LAMINATED	FIXED Clearview Screen	F	33"	66" MIN	12mm/6mm CLEAR TEMPERED LAMINATED GLASS WITH VERTICAL CENTER MULLION DIVIDER WITH CVS HOLE ON ONE SIDE TO SUIT A SPEICH CLEARVIEW SCREEN EX38S.H	Bolted	3-13/16"	1 Glass **Seal not provided 1 Speich EX38S.H Clearview Screen (380 mm, 120VAC with heater) with drive and control	No
7	54	HOUSE FRONT	PORT	FRONT	3/4" LAMINATED	FIXED	G	33"	66" MIN	19mm CLEAR TEMPERED GLASS WITH VERTICAL CENTER MULLION DIVIDER	Bolted	3-13/16"	1 Glass	No

Item #	Window Number	Frame Number	Side	Location	Existing Glass	Fixed / Sliding	DWG Letter	Approx. Clear Glass Height	Approx. Clear Glass Width	New Window Glass	Installation Type	Corner Radius	Set to be Delivered	Set to be Delivered Assembled
8	56	HOUSE FRONT	STBD	FRONT	3/4" LAMINATED	FIXED	G	33"	66" MIN	19mm CLEAR TEMPERED GLASS WITH VERTICAL CENTER MULLION DIVIDER	Bolted	3-13/16"	1 Glass	No
9	59	60-64	STBD	STBD SIDE UPPER adjacent to Telegraphs	3/4" LAMINATED	Horizontal SLIDING Fore to Aft to access Telegraphs	D	33"	66" MIN	19mm Clear Tempered glass	Bolted	4-5/16"	3 Glass **Seals not provided	No
10	60	58-60	STBD	STBD SIDE	3/4" LAMINATED	FIXED	C	33"	36" MIN	19mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
11	61	58	STBD	AFT	1/2" ARMOUR PLATE	FIXED	B	33"	24" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
12	62	58	STBD	AFT	1/2" ARMOUR PLATE	Horizontal SLIDING	A	33"	57" MIN	12 mm Clear Tempered glass	Bolted	4-5/16"	2 Glass **Seals not provided	No
13	63	58	STBD	AFT	1/2" ARMOUR PLATE	FIXED	A	33"	57" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
14	65	58	PORT	AFT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	27"	24" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
15	66	58	PORT	AFT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	27"	24" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
16	67	58-60	PORT	PORT SIDE BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	27"	36" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
17	68	60-62	PORT	PORT SIDE BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	27"	33" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No

Item #	Window Number	Frame Number	Side	Location	Existing Glass	Fixed / Sliding	DWG Letter	Approx. Clear Glass Height	Approx. Clear Glass Width	New Window Glass	Installation Type	Corner Radius	Set to be Delivered	Set to be Delivered Assembled
18	69	60-62	STBD	STBD SIDE BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	27"	33" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
19	70	58-60	STBD	STBD SIDE BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	27"	36" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
20	71	58	STBD	AFT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	27"	24" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
21	72	58	STBD	AFT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	27"	24" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
22	74	HOUSE FRONT	PORT	FRONT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	H	30"	30" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
23	75	HOUSE FRONT	PORT	FRONT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	H	30"	30" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
24	76	HOUSE FRONT	PORT	FRONT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	30"	31" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
25	79	HOUSE FRONT	STBD	FRONT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	A	30"	31" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
26	80	HOUSE FRONT	STBD	FRONT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	H	30"	30" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No
27	81	HOUSE FRONT	STBD	FRONT BOTTOM	DOUBLE GLAZED SEALED 1/2" ARMOUR PLATE	FIXED	H	30"	30" MIN	12 mm Clear Tempered glass	Bolted	3-13/16"	1 Glass	No

11.1.B.2 Drawings

11.1.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Number
	Existing Window Information	Bridge Window Info.pdf
CMG05-111-GA	General Arrangement	G05111gal.pdg
664-1066-1 sht. 5 and 6	Ship Windows	G05237de5.pdf & G05237de6.pdf

11.1.B.3 Regulations and Standards

11.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
Publications		
Standards		
BS 1088-1:2003	Marine plywood. Requirements	
Regulations		
	Hull Construction Regulations	

11.1.C Statement of Work

11.1.C.1 General

11.1.C.1.1 The Contractor must supply all materials, tools, equipment, scaffolding and crane services required to carry out the work in this section of the SOW. Unless stated otherwise, the Contractor must supply all sealants, gaskets and hardware required to carry out the work in this section of the SOW.

11.1.C.1.2 The CCG will provide the following equipment:

- a) The new glass for each of the 27 windows listed in table 1;

- b) Forty 600ml sausages of Sikaflex 296, black;
 - c) Two 250ml containers of Sikaflex 206 G+P primer, black;
 - d) One 250ml container of Sikaflex Activator, clear.
- 11.1.C.1.3 The windows will be provided to the Contractor in 3 wooden crates. The Contractor is responsible for manipulating the crates and safely getting the window panes to the bridge without damaging them. The wooden crates must be opened in the presence of the AI. Any window panes damaged by the Contractor must be replaced at the Contractor's expense. The approximate weights and dimensions of the wooden crates are:
- a) 68" x 10" x 44", 645 lbs
 - b) 52" x 23" x 43", 1035 lbs
 - c) 43" x 19" x 46", 700 lbs
- 11.1.C.1.4 The Contractor must install the window panes as per manufacturer's recommendations. The installation of the windows must be done under the supervision of a representative from the window OEM, Beclawat Manufacturing Inc. For bidding purposes, bidders must quote using an FSR allowance of \$10,000. The \$10 000 allowance will be adjusted (increased/decreased) using the PWGSC 1379 form upon receipt of the representative's final invoice, along with all supporting documentation attesting to actual costs.
- 11.1.C.1.5 The Contractor must take detailed photo records in the presence of the IA detailing all fixtures and fittings on the Bridge that will be affected by removal of the windows. A copy of the photo records must be submitted to the IA and the TA prior to commencing work.
- 11.1.C.1.6 The Contractor must cover and protect the entire Bridge carpet by laying down 1/8" sheet MDF or equivalent prior to commencing the work.
- 11.1.C.1.7 The Contractor must install protective coverings over all Bridge consoles and other electronic equipment.
- 11.1.C.1.8 The Contractor must protect the interior of the Bridge and Bridge equipment at all times from the ingress of moisture, dirt, wind, rain, etc. Measures must be put in place such that the Bridge must not be rendered open to weather at any time.

11.1.C.1.9 Upon completion of the work, the Contractor must remove and dispose of all protective coverings from the consoles and flooring. The Contractor must return the Wheelhouse to its original state of cleanliness and functionality.

11.1.C.2 Removal of Existing Windows

11.1.C.2.1 The Contractor must remove and store for reinstallation of the following:

- a) 13 window blinds complete with fixed and adjustable cleats;
- b) 12 aluminum air flow deflectors (above windows);
- c) All miscellaneous brackets, hooks, etc. in way of the work;
- d) 3 gyro repeaters complete with transits;
- e) 3 binocular boxes;
- f) 1 Telescope box;
- g) 3 ELAC Depth Sounder readouts;
- h) Young Wind Tracker;
- i) VHF-3 master radio unit;
- j) VHF-1 slave hand unit located on the port bridge wing.

11.1.C.2.2 The Contractor is responsible for identifying, removing and temporarily storing any other interference items in way of the work areas. Upon completion of the work, the Contractor must reinstall all of the above mentioned items and any other interference items in their original locations.

11.1.C.2.3 The Contractor must remove and discard all fasteners for the window retaining rings, mullions and sliding window handles. The Contractor must remove and retain for re-use the window retaining rings, mullions and sliding window handles; and remove the glass panes.

11.1.C.2.4 The Contractor must keep all existing window panes on-site until the end of the Contract.

11.1.C.2.5 The Contractor must remove and discard all existing gaskets and clean the inside of the window frame, retaining rings and mullions to bare metal. Any damage to the window frames, retaining rings or mullions must be repaired by the Contractor at the Contractor's expense before the end of the work period.

- 11.1.C.2.6 The Contractor must remove and return the existing Clearview Screen to the IA.
- 11.1.C.2.7 There are two life ring release pull wires at each aft corner of the Bridge that control the release of the life rings outside of the bridge. The Contractor must secure the life rings during the work period to prevent accidental release of the life rings.
- 11.1.C.2.8 The CO2 Pull Stations, Wing and Center Bridge Consoles must be covered, must not be disturbed and must be protected from damage.

11.1.C.3 Wood trim and melamine work

- 11.1.C.3.1 Where the melamine/wood trim on the Bridge which surrounds the windows requires removal for access to the mounting arrangements for each window, new melamine/wood trim must be installed once the new windows have been installed and tested.
- 11.1.C.3.2 All replacement plywood must be CFM and Marine Grade DFP meeting British Standard 1088 or equivalent.
- 11.1.C.3.3 CCG is responsible to provide thirteen 4' x 8' sheets of new Melamine Wilsonart D50-335-60.
- 11.1.C.3.4 For ease of installation, all new melamine face panels must be made removable with stainless steel wood screws and matching stainless steel finishing cup washers. By Contractor request, alternative decorative fastening systems may be considered, but must be approved by the IA prior to installation. All horizontal melamine work surfaces must remain flush and free of fasteners.
- 11.1.C.3.5 The Contractor must bid on replacing approximately 34 m2 of wood trim/melamine. And provide a unit price per additional square meter.

11.1.C.4 Installation of New Windows an Window Components

- 11.1.C.4.1 The Contractor must install all glass panes and window components in accordance with the manufacturer's recommendations and to the satisfaction of the FSR. Upon completion of installation, the Contractor must complete a final inspection with TCMS and the IA, to the satisfaction of the TCMS inspector.
- 11.1.C.4.2 The Contractor must provide new window seals for the sliding windows, including seals for the sliding window handles, and the Clearview as per Table 1. All seals must be manufactured of material suitable for extended use in all weather conditions identified in table 1.

- 11.1.C.4.3 The Contractor must replace all the window panes as specified in Table 1 using new GSM Sikaflex-296 caulking material.
- 11.1.C.4.4 The Contractor must re-install all windows retaining rings using new stainless steel fasteners.
- 11.1.C.4.5 Where fitted, the Contractor must re-install all mullions and sliding window handles using new gaskets and new stainless steel fasteners.
- 11.1.C.4.6 The Contractor must position and install the mullions to allow unhindered sliding of the window pane within the window frame to the same full extent as the original window.
- 11.1.C.4.7 The Contractor must install and connect the new Clearview Screen and all its components in window #53. The installation and connections must be in accordance with the manufacturer's specifications.
- 11.1.C.4.8 Upon resealing of all windows, the Contractor must perform a hose test on all windows and the Clearview Screen as detailed in Testing/Trials section below.
- 11.1.C.4.9 Upon successful testing of all new windows, the Contractor must dispose of all removed glass panes.

11.1.D Proof of Performance

11.1.D.1 Inspection Points

- 11.1.D.1.1 All work must be completed to the satisfaction of the IA and the attending TCMS inspector.
- 11.1.D.1.2 Upon completion of the installation, the Contractor must afford the IA the opportunity to test all sliding windows for unhindered operation. Any window which does not travel its full course or requires excessive force to operate must be repaired to the satisfaction of the IA at the Contractor's expense before the end of the work period.

11.1.D.2 Testing/Trials

- 11.1.D.2.1 Upon completion of installation the windows must be submitted to a hose test in the presence of the IA and TCMS. The Contractor must perform a hose test on all windows using a 12 mm diameter nozzle from 3 meters away with water pressure of 60 psi for 2 minutes on each window. Testing of the Clearview Screen must be done with the Clearview Screen in operation for 10 minutes prior to the test, during the test and 10 minutes after the application of water on the Clearview Screen has

stopped. Any leaks must be repaired at the Contractor's expense before the end of the work period.

11.1.D.3 Certification – Not Used

11.1.D.4 Documentation

11.1.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5

11.1.D.4.2 The Contractor must provide a copy of all photos taken prior to commencing work.

11.1.D.4.3 It is the Contractor's responsibility to obtain TCMS certification for the installation upon completion of the testing of new windows and components.

11.1.D.4.4 The Contractor must return the old Clearview to the IA.

11.1.D.5 Training – Not Used

11.2 UPPER DECK PENETRATION REPAIR

11.2.A Identification

11.2.A.1 The Contractor must replace a failed transit pipe between the buoy deck and the engine room workshop with a new GSM transit.

11.2.B References

11.2.B.1 Equipment Data

11.2.B.1.1 The existing transit is a flanged 4” black iron pipe welded to the deck via a doubler plate, located to the starboard of the main entrance between frames 66 and 67.

11.2.B.1.2 New GSM transit spool details:

- a) The doubler plate is made of plate steel with a thickness of 7/16”. The outside diameter is 8”. The spool piece is fabricated from 4” nominal sch. 80 black iron pipe. It extends 6” below the upper deck, and 8” above the upper deck. The upper end is fitted with a 4” 150# ANSI flange.

11.2.B.2 Drawings

11.2.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Number
664-120-12	Upper Deck Plating	664-120-12.pdf

11.2.B.3 Regulations and Standards

11.2.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
7.B.4	Hotwork	Yes
Publications		
Standards		

CAN/CGSB-48.9712	Non-destructive testing - qualification and certification of personnel	No
Regulations		
C.R.C., c. 1431	Hull Construction Regulations	No

11.2.C Statement of Work

11.2.C.1 General

- 11.2.C.1.1 The contractor must abide by the conditions for hot work and welding specified in General Notes section of this document. This includes, but is not limited to, welder certifications, hot work procedures, and fire watches.
- 11.2.C.1.2 The Contractor must provide the services of a certified technician to perform NDT magnetic particle inspection on the welded transit spool and doubler plate. The technician must possess, in hand, valid certification compliant to CAN/CGSB-48.9712-latest edition prior to commencing all testing. A copy of the technician certification must be provided to the TA prior to the weld inspection.

11.2.C.2 Transit spool

- 11.2.C.2.1 The upper deck original plate thickness is 7/16". The rough opening for the existing transit is approximately 4.75" diameter.
- 11.2.C.2.2 The contractor must grind and release the existing transit doubler plate and pipe spool from the deck.
- 11.2.C.2.3 The contractor must expand the rough opening of the hole sufficiently to allow for full penetration welding of the new transit spool pipe insert from below.
- 11.2.C.2.4 The Contractor must grind off any remaining weld and slag from the area of the deckplate to be welded. The area must be cleaned of any paint, rust and excess moisture in way of the transit and the edge of the opening must be beveled for the welding application. The prepared surface must be present to the IA prior to the transit spool installation.
- 11.2.C.2.5 The Contractor must trim the new transit spool doubler plate to fit around neighbouring pipes and fit the new GSM transit spool assembly in place. The Contractor must weld both sides to the upper deck using full penetration continuous fillet welding.

11.2.C.3 Paint

- 11.2.C.3.1 Upon completion of all inspection and testing, the Contractor must apply two coats each of GSM Interprime 234 and Interlac 665 Deck Red Brown RAL 3011.

11.2.D Proof of Performance**11.2.D.1 Inspection Points**

- 11.2.D.1.1 The Contractor must submit for inspection the completed welding of the transit spool to the IA and TCMS Inspector prior to applying coatings.
- 11.2.D.1.2 The Contractor must afford the TCMS Inspector and the IA the opportunity to witness the NDT testing.
- 11.2.D.1.3 All work must be completed to the satisfaction of the attending TCMS Inspector and IA. Any defects must be repaired at the Contractor's expense.

11.2.D.2 Testing/Trials

- 11.2.D.2.1 Upon completion of welding the new transit spool, the certified NDT technician must perform a magnetic particle test on the welds and provide a report of the testing for submission to the TCMS Inspector.
- 11.2.D.2.2 Upon completion of installation, the transit must be submitted to a hose test for a minimum of five minutes. The hose test must consist of using a 12 mm diameter nozzle within 2 meters of the transit with water pressure of 60 psi. The Contractor must perform the test in the presence of the IA and TCMS. Any leaks must be repaired at the Contractor's expense.

11.2.D.3 Certification

- 11.2.D.3.1 The Contractor must obtain a stamped certificate of approval for the installation of the transit spool from TCMS and provide an electronic copy to the TA.

11.2.D.4 Documentation

- 11.2.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5
- 11.2.D.4.2 The Contractor must provide the TA with a copy of the certificate of qualification for the NDT inspector prior to the NDT testing and a copy of the NDT report upon completion of the testing.

11.2.D.5 Training – Not Used

11.3 CABIN CARPETING REPLACEMENT

11.3.A Identification

- 11.3.A.1 CCGS Griffon has a requirement to have the carpeting replaced in three cabins and one office.
- 11.3.A.2 The Contractor must employ the services of a qualified flooring installation company to perform the work.
- 11.3.A.3 The scope of work must be removal and disposal of existing carpeting and carpet baseboard, prepare deck to accept new carpeting, install new carpeting and carpet baseboard. The vanities have recently been replaced. The carpeting must extend to the bulkhead underneath the vanity in each cabin.
- 11.3.A.4 Each cabin must have a matching carpet door mat supplied.

11.3.B References

11.3.B.1 Equipment Data

- 11.3.B.1.1 Existing Carpet Data:
 - a) KRAUS Congress Elite 28 oz. level loop carpet – color #2232/08 Grey Flannel; direct glued.
 - b) Matching carpet baseboard

11.3.B.1.2 Cabins to be carpeted

Item #	Cabin Identification	Approximate square feet
1	Cabin #1, Chief Engineer Day Room	192.5
2	Cabin #1, Chief Engineer Night Room	84.3
3	Cabin #4, Third Officer (marked 2 nd officer on drawings)	134.7
4	Cabin #18, Ship’s Office	98.7

11.3.B.2 Drawings

- 11.3.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Number
732400 sh 1 and 2	Deck Coverings	732400_01.pdf &

		732400 _02.pdf
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11.3.B.3 Regulations and Standards

11.3.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
Publications		
Standards		
Regulations		
	Vessel Fire Safety Regulations, SOR/2017-14	No

11.3.C Statement of Work

11.3.C.1 General

- 11.3.C.1.1 The Contractor must be responsible to inspect each cabin and verify dimensions prior to commencing the work.
- 11.3.C.1.2 The Contractor must note that some cabins must be occupied as the vessel must be staffed during work period. The Contractor must notify the Chief Engineer twenty four hours prior to commencing the work to allow personnel to make alternate arrangements while the work is being done.
- 11.3.C.1.3 The Contractor must supply and install materials that possess low flame-spread properties and are suitable for use on ships.
- 11.3.C.1.4 The Contractor must be responsible for all removals, surface preparations, clean-up, dust and debris containment, control, cleanup and disposal.
- 11.3.C.1.5 Upon completion of each cabin, the Contractor must clean it to an “as found” condition suitable for immediate occupancy.

11.3.C.2 Removals

- 11.3.C.2.1 The Contractor must be responsible for the removal of all interference items in order to perform the work unless otherwise stated.

- 11.3.C.2.2 The Ship's Office has extensive interference items, computers, cabling, etc. The Contractor must coordinate the clean up of the ship's office with the Chief Engineer. Ship's crew will be responsible for removing electronics and files. The Contractor is responsible for the furniture.
- 11.3.C.2.3 Interference items in cabins that will not be moved include; bunks, dressers, and wardrobes. The carpeting must be fitted tight to these items.
- 11.3.C.2.4 The Contractor must remove all carpeting and carpet baseboards in the listed cabins.
- 11.3.C.2.5 The subfloor must be scraped clean and prepared for new carpet. All old adhesives must be removed to provide a smooth surface for the new carpet.
- 11.3.C.2.6 The Contractor is responsible to dispose of all carpeting.

11.3.C.3 Installation

- 11.3.C.3.1 In the event the subfloor requires repair, the Contractor is responsible to repair the existing subfloor. This is considered extra work and must be approved by the TA through the PWGSC 1379 form prior to the repairs taking place.
- 11.3.C.3.2 The Contractor must direct-glue the new carpeting and cut, bind and install new carpet baseboard in each cabin. The carpet must be KRAUS Congress Elite 28 oz. level loop carpet – colour #2232/08 grey flannel or an approved equivalent, good quality commercial grade product. Equivalent product data sheet must be submitted to the TA for approval prior to installation.
- 11.3.C.3.3 The Contractor must provide five matching carpet floor mats. The floor mats must be hemmed. Four of the floor mats must measure 32" X 23" and one floor mat located at the foot of the couch in the Chief Engineer's cabin must measure 60" X 23".

11.3.D Proof of Performance

11.3.D.1 Inspection Points

- 11.3.D.1.1 The Contractor must submit the completed work to inspection by the IA. All work must be to the satisfaction of the IA and any defects must be repaired by the Contractor.

11.3.D.2 Testing/Trials – Not Used

11.3.D.3 Certification – Not Used

11.3.D.4 Documentation

11.3.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5

11.3.D.4.2 The Contractor must submit all material certificates and product specifications to the TA.

11.3.D.5 Training – Not Used

12.0 Propulsion and Maneuvering

12.1 MAIN STEERING GEAR PUMPS SURVEY

12.1.A Identification

- 12.1.A.1 The main steering gear pumps require a 5 year periodic inspection by TCMS. The Contractor must remove, disassemble, clean, inspect, reassemble and set to work the two Hastie steering gear pumps fitted to the CCGS Griffon's steering gear. All disassembled items must be presented to the attending TCMS Surveyor for a 5 year machinery inspection certificate.
- 12.1.A.2 The Contractor must co-ordinate the survey of the main steering pumps the survey of the steering telemotors system.

12.1.B References

12.1.B.1 Equipment Data

- 12.1.B.1.1 Pumps: Hastie HP 6 Heleshaw, Port Pump S/N 15918, Starboard Pump S/N 15917.

12.1.B.2 Drawings

- 12.1.B.2.1 All Drawings are listed in the General Notes.

12.1.B.3 Regulations and Standards

- 12.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
Publications		
	Hastie Steering Gear Manual Griffon.pdf	Yes
Standards		
ISO Standard 4406/2017	Hydraulic Fluid Power – Fluids – Method for coding the level of contamination by solid particles	No
Regulations		
	Canada Shipping Act, Marine Machinery Regulations	No

12.1.C Statement of Work

12.1.C.1 General

12.1.C.1.1 The Contractor is responsible for the disposal of all oil and oily waste generated from the survey of the main steering pumps. All oily waste removed from the vessel and all waste generated from the steering pumps survey must be tracked in accordance with all Federal, Provincial and Municipal regulations in effect. The Contractor must provide disposal documentation for all generated waste to the TA.

12.1.C.2 Field Service Representative

12.1.C.2.1 The Contractor must provide the services of MMH Marine Inc. to oversee the work contained in this section of the specification and to set to work the new telemotor pumps installed under section 12.2 of this document.

MMH Marine Inc.

2151 Margot Street

Oakville, Ontario

L6H 3M5

Phone: 905-301-0629

Email: mmhmarineinc@gmail.com

Contact: Martin Higgins

12.1.C.2.2 The Contractor must include a \$15 000 allowance in its bid to cover the cost of the services of a MMH Marine Inc field service representative for work in specification items 12.1 and 12.2, including living expenses (accommodations, meals and transportation) in accordance with Article 7.46 of the Contract. The allowance will be adjusted (increased/decreased) using the PWGSC 1379 form upon receipt of the representative’s final invoice, along with all supporting documentation attesting to actual costs.

12.1.C.3 Pump Survey

12.1.C.3.1 The Contractor must electrically isolate and lock out the steering system components for the duration of this work:

Electrical Panel	Panel Name	Panel Location
P-1	STEER GR FDR NO 1	Located in the MCR below the

		SSG#2 switch board
EP-1	STEER GR FDR NO 2	Located in the E-gen room below E-gen switch board

12.1.C.3.2 The Contractor must remove all required piping and control linkages from the pumps and remove the pumps to the deck. All open piping must be capped to prevent ingress of dirt and moisture into steering system, all linkages must be secured and protected from damage.

12.1.C.3.3 The Contractor must dismantle the two steering pumps and measure all components.

12.1.C.3.4 The Contractor must replace all worn internal parts with new GSM parts. The Government will supply the following parts:

- a) Driving shaft x 2
- b) Cylinder body x 2
- c) Pistons x 16
- d) Gudgeon Pins x 16
- e) Slippers x 32

12.1.C.3.5 The Contractor must replace all roller bearings in the pumps with new GSM bearings.

12.1.C.3.6 The Contractor must take measurements and record all clearances with the new parts installed.

12.1.C.3.7 The Contractor must re-assemble the pumps, install the pumps back in the steering gear, and reassemble all piping and control linkages. New CFM gaskets must be installed for the hydraulic lines.

12.1.C.3.8 The Contractor must verify the alignment of the pumps to the motors and record the alignment gear.

12.1.C.4 Commissioning

12.1.C.4.1 The Contractor must top up all fluids to working level prior to the start of the system. The oil must be new GSM and must be filtered into the systems via a Contractor supplied filtration system to ISO 16/14/11, as per ISO Standard 4406/2017.

- a) Steering system hydraulics - Hydrex AW 100
- b) Hastie pump motor bearings – Turboflow R&O 68

12.1.C.4.2 The Contractor must purge any air trapped within the hydraulic system that makes the steering system react erratically and repair any leaks from the main steering pumps.

12.1.C.4.3 The Contractor must demonstrate that the off line filtration system is functional.

12.1.D Proof of Performance

12.1.D.1 Inspection Points

12.1.D.1.1 The Contractor must present the dismantled pumps and measurements to the attending TCMS Inspector and the IA.

12.1.D.2 Testing/Trials

12.1.D.2.1 The Contractor must provide an Inspection and Test Plan including the main steering gear pumps and telemotors system (section 12.2 of this document) surveys to both the TCMS Inspector and TA for approval prior to the commencement of all steering gear testing. The inspection plan must include at a minimum the following measurements:

- a) Time from hard-over to hard- over each direction on port pump.
- b) Time from hard-over to hard-over each direction on starboard pump.
- c) Time from hard-over to hard over each direction on both pumps.
- d) Time for Port telemotor ram to move through its full range.
- e) Time for Starboard telemotor ram to move through its full range.

12.1.D.2.2 The Contractor is responsible for all labour and equipment required to perform the steering gear testing in the presence of the TCMS inspector and the TA. Any defects must be repaired by the Contractor at the Contractor's expenses.

12.1.D.2.3 The Contractor must record the results of each test and provide a report of the test results to the TCMS Inspector and TA.

12.1.D.3 Certification

12.1.D.3.1 The Contractor must obtain a Division III credit for the following items:

- a) Port Steering Gear Pump, 3H019
- b) Starboard Steering Gear Pump, 3H021

12.1.D.4 Documentation

- 12.1.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5
- 12.1.D.4.2 The Contractor must provide the TA with a detailed report, complete with pictures of the work performed on the steering pumps including clearances for new components installed.
- 12.1.D.4.3 The TCMS survey credit must be documented and the documentation must be provided to the TA.
- 12.1.D.4.4 The Contractor must provide the TA with all copies of waste oil manifests showing the disposal of the materials removed from the vessel's steering gear system.

12.1.D.5 Training – Not Used

12.2 TELEMOTOR SYSTEMS SURVEY

12.2.A Identification

- 12.2.A.1 The port and starboard telemotor systems require a 5 year periodic inspection by TCMS. The Contractor must remove, disassemble, clean, inspect, reassemble and set to work the two telemotor systems fitted to the CCGS Griffon's steering gear. All disassembled items must be presented to the attending TCMS Inspector for a 5 year machinery inspection certificate.
- 12.2.A.2 The Contractor must co-ordinate the survey of the main steering pumps the survey of the steering telemotor system.

12.2.B References

12.2.B.1 Equipment Data

12.2.B.1.1 The systems are Sperry hydraulic pump unit assemblies, part number 03956-1885255-1. They consist of a hydraulic tank, hydraulic pump and motor, pressure control valve, directional control valve, and hydraulic rams.

12.2.B.1.2 Equipment:

- a) Sperry Hydraulic Pump Unit Assemblies (Motor, pump, tank)
- b) P/N 03936 1885255-1

12.2.B.1.3 Existing Hydraulic Pumps Details:

- a) Racine Model PSQ PSSF 09CRM 20
- b) Port S/N 20097899 AWRC-2
- c) Stbd S/N 20097899 AWRC-1

12.2.B.1.4 Replacement Hydraulic Pumps Details:

- a) Bosch-Rexroth Model PVC PSSF 09ERM-01

12.2.B.1.5 Coupling: Lovejoy L-095 NBR

12.2.B.1.6 Electric Motors:

- a) Lincoln A.C. Motor
- b) Frame 1451

c) S/N 2445332

12.2.B.1.7 Directional Valve: Parker D3W8CNYC45

12.2.B.1.8 Pressure Control Valve

a) Sperry-Vickers 391649

b) Model RG 06 Y3 23

12.2.B.1.9 Hydraulic Rams:

a) Sperry 1888131-1

b) Wabco Fluid Power Division American-Standard PC P159251, Model MD52-HH, 3-1/4 x 15, LO53

c) Port #82

d) Starboard #81

12.2.B.2 Drawings

12.2.B.2.1 All Drawings are listed in the General Notes.

12.2.B.3 Regulations and Standards

12.2.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
Publications		
	Rexroth PVC PSSF 09ERM-01 Pump Technical Data	Yes
Standards		
ISO Standard 4406/2017	Hydraulic Fluid Power – Fluids – Method for coding the level of contamination by solid particles	No
Regulations		
	Canada Shipping Act, Marine Machinery Regulations	No

12.2.C Statement of Work

12.2.C.1 General

12.2.C.1.1 The Contractor is responsible for the disposal of all oil and oily waste generated from the telemotor systems survey. All oily waste removed from the vessel and all waste generated from the telemotor systems survey must be tracked in accordance with all Federal, Provincial and Municipal regulations in effect. The Contractor must provide disposal documentation for all generated waste to the TA.

12.2.C.1.2 The Contractor must electrically isolate and lock out the steering system components identified in 12.1.C.3.1 for the duration of this work.

12.2.C.1.3 The Contractor is responsible for all shipping of equipment between the vessel and the Contractor's or subcontractor's facility. This includes scheduling, handling, packaging and cost.

12.2.C.2 As fitted data measurements

12.2.C.2.1 Prior to any disassembly, the Contractor must test the function of the steering gear system. The Contractor must measure and record all lengths, alignments, and couplings on the telemotor system. The Contractor must provide the measurements to the TA within 24 hours of commencing work on the telemotor systems.

12.2.C.2.2 Measurements must include at a minimum:

- a) Time from hard-over to hard-over each direction on port pump.
- b) Time from hard-over to hard-over each direction on starboard pump.
- c) Time from hard-over to hard over each direction on both pumps.
- d) Time for Port telemotor ram to move through its full range.
- e) Time for Starboard telemotor ram to move through its full range.
- f) Motor / pump coupling parallel and angular alignment
- g) Rod length center to center from Port ram to port feedback unit
- h) Rod length center to center from Stbd ram to stbd feedback unit.
- i) Rod length between each telemotor ram and the floating lever.

12.2.C.3 Tank Cleaning

12.2.C.3.1 The Contractor must collect and dispose of the oil from both the port and starboard telemotor systems.

- 12.2.C.3.2 The Contractor must open and clean the interior of the two tanks using lint free cloths. The clean tanks must be presented to the IA for inspection and acceptance.
- 12.2.C.3.3 The Contractor must close up each of the two hydraulic tank using new CFM nitrile rubber (NBR) seals.
- 12.2.C.3.4 The Contractor must refill each hydraulic tank to working level prior to the start of the system. The oil must be new GSM Hydrex AW 22 and must be filtered into the systems via a Contractor supplied filtration system to ISO 16/14/11, as per ISO Standard 4406/2017.

12.2.C.4 Pump and Motor

- 12.2.C.4.1 Prior to releasing any fittings or connections, the Contractor must identify and mark all hydraulic and electrical connections related to this work. The Contractor must disconnect and release the hydraulic fittings and electrical wires of the telemotor system. The lines must be capped to prevent contamination. The lines must be set aside for reinstallation.
- 12.2.C.4.2 The Contractor must release and remove the existing port and starboard telemotor pumps. The Contractor must keep the existing telemotor pumps on-site until the end of the Contract.
- 12.2.C.4.3 The Contractor must release and remove the telemotor electric motors to a contractor's facility for overhaul. The overhaul must consist of opening, cleaning and inspection, bearing replacement and reassembly. The Contractor must degrease the electric winding using an electrical cleaning solvent suitable for Class B insulation machines. Repairs outside of this scope will be considered extra work and must be approved by the TA through the PWGSC 1379 form prior to the repairs taking place.
- 12.2.C.4.4 The Contractor must install the new GSM telemotor pumps and existing couplings using laser alignment. Two new CFM coupling inserts must used. The pump coupling alignments must be within the tolerances of the coupling manufacturer. The alignment tool must have been calibrated within the twelve months prior to this work. Proof of valid and current calibration must be provided to the TA prior to commencement of the work. The Contractor must afford the IA the opportunity to witness the alignment.
- 12.2.C.4.5 The Contractor must reinstall the hydraulic lines and fittings to the new pumps and all electrical connections.
- 12.2.C.4.6 The Contractor must retain the services of MMH Marine to set the new pump working pressures to 500 psi and adjust the flow rate of the new telemotor pumps so

that the function of the steering system (i.e. reaction time of the telemotor ram) is identical to the as fitted data measurements taken prior to the start of the work.

12.2.C.5 Rams

- 12.2.C.5.1 The Contractor must identify and mark the Port and Starboard telemotor ram's mounting position and all hydraulic and mechanical connections on the telemotor rams.
- 12.2.C.5.2 The Contractor must release the rams and remove them to a contractor's facility for overhaul.
- 12.2.C.5.3 The overhaul of the rams must include opening, inspecting the rods and chambers, cleaning of all components, re-chroming of the piston rods, renewal of all seals and reassembly. Repairs outside of this scope will be considered extra work and must be approved by the TA through the PWGSC 1379 form prior to the repairs taking place.
- 12.2.C.5.4 The Contractor must provide the TA with a detailed "as-found" condition report of the disassembled telemotor rams components within 24 hours of disassembly. The report must include labeled pictures of the disassembled components and identify all recommended repairs in the report.
- 12.2.C.5.5 The Contractor must re-chrome the piston rods. The piston rods nominal diameter is 1 3/8". The hard chrome thickness must be at minimum 20 microns and the finished diameter of the rods, including the 20 microns chromed thickness, must be within manufacturer's tolerances. Upon completion of the re-chroming, the Contractor must provide the TA with a copy of the re-chroming thickness and hardness measurements for each ram.
- 12.2.C.5.6 The Contractor must ensure all parts are protected from dirt and damage and that all parts are free of used hydraulic oil, dirt and burs, adhesive and shipping and/or machining protective coating prior to assembly. The Contractor must assemble and bench test the rams to full working pressure in both directions.
- 12.2.C.5.7 The Contractor must re-install the rams on the vessel, and re-connect them to the steering linkage. All disturbed cotter pins and lock-nuts must be replaced with new CFM materials.

12.2.C.6 Valve Blocks

- 12.2.C.6.1 The Contractor must release and remove the pressure control and directional control valves from the vessel to the Contractor's facility.

12.2.C.6.2 The Contractor must overhaul the valves according to manufacturer's recommendations.

12.2.C.6.3 The Contractor must bench test the valves to rated pressure and provide the TA with a report, complete with pictures, of the bench testing results for each valve. The report must include the certificate of calibration for the test gauges used for the test

12.2.C.6.4 The Contractor must reinstall and reconnect the valves on the vessel steering system.

12.2.C.7 Commissioning

12.2.C.7.1 The Contractor must demonstrate to the TA that the steering system has been assembled to the original as-found condition. The linkages between telemotor rams, feed back levers, and steering gear floating must be at the same position as before disassembly.

12.2.C.7.2 The Contractor must top up all fluids to working level prior to the start of the system. All oils must be new GSM and must be filtered into the systems via a Contractor supplied filtration system to ISO 16/14/11, as per ISO Standard 4406/2017. Replenishing oil are as follow:

- a) Steering system hydraulics - Hydrex AW 100
- b) Hastie pump motor bearings – Turboflow R&O 68
- c) Telemotor system – Hydrex AW 22

12.2.C.7.3 The Contractor must verify the correct functioning of the telemotor system and autopilot system.

12.2.C.7.4 The Contractor must purge any air trapped within the hydraulic system that makes the telemotor systems react erratically and repair all leaks from the telemotor systems.

12.2.D Proof of Performance

12.2.D.1 Inspection Points

12.2.D.1.1 Upon completion of the cleaning and prior to closing, both telemotor tanks must be presented to the IA for inspection and acceptance.

12.2.D.1.2 The Contractor must afford the IA the opportunity to witness the laser alignment of the new telemotor pumps.

12.2.D.2 Testing/Trials

12.2.D.2.1 The Contractor must provide an Inspection and Test Plan including the main steering gear pumps (section 12.1 of this document) and telemotors system surveys to both the TCMS Inspector and TA for approval prior to the commencement of all steering gear testing. The inspection plan must include at a minimum the following measurements:

- a) Time from hard-over to hard-over each direction on port pump.
- b) Time from hard-over to hard-over each direction on starboard pump.
- c) Time from hard-over to hard over each direction on both pumps.
- d) Time for Port telemotor ram to move through its full range.
- e) Time for Starboard telemotor ram to move through its full range.

12.2.D.2.2 The Contractor must be responsible for all labour and equipment required to perform the steering gear testing in the presence of the TCMS surveyor and the Technical Authority.

12.2.D.2.3 The Contractor must provide an Inspection and Test Plan to both the TCMS and Technical Authorities for approval prior to the commencement of all steering gear testing.

12.2.D.3 Certification

12.2.D.3.1 The Contractor must obtain a Division III credit for the following items:

- a) Port Telemotor Pump, 3H032
- b) Starboard Telemotor Pump, 3H033

12.2.D.4 Documentation

12.2.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5

12.2.D.4.2 The Contractor must provide the as fitted data measurements to the TA within 24 hours of commencing work on the telemotor systems.

12.2.D.4.3 The Contractor must provide the TA a copy of a valid calibration certificate for the alignment tool.

12.2.D.4.4 The Contractor must provide the TA with the detailed “as-found” condition report of the disassembled telemotor rams components within 24 hours of disassembly and

must provide the TA with a copy of the hard re-chroming thickness and hardness measurements for each ram.

12.2.D.4.5 The Contractor must provide the TA with the final report from the bench testing of the valves on the valve block assembly.

12.2.D.4.6 The telemotor pumps TCMS survey credit must be documented and the documentation must be provided to the TA.

12.2.D.4.7 The Contractor must provide the TA with all copies of waste oil manifests showing the disposal of the materials removed from the vessel's telemotor systems.

12.2.D.5 Training – Not Used

13.0 Power Generation Systems - NOT USED

14.0 Power Distribution Systems - NOT USED

15.0 Auxiliary Systems - NOT USED

16.0 Domestic Systems

16.1 ANNUAL REFRIGERATION AND HVAC MAINTENANCE

16.1.A Identification

16.1.A.1 As per the Federal Halocarbon Regulations (2003), the Contractor must perform the annual inspection and leak test of all refrigeration and HVAC systems fitted onboard the vessel by a certified refrigeration technician.

16.1.B References

16.1.B.1 Equipment Data

16.1.B.1.1 Main Refrigeration Plant (duplex system):

- a) Manufacturer: RefPlus
- b) Model: MCS-100-1L7-9,
- c) Serial Numbers: C 2003080221 and C 2003080220
- d) Refrigerant: 407A – 34 lbs

16.1.B.1.2 Bridge HVAC Unit:

- a) Manufacturer: Bronswerk
- b) Model: 4219-030-001
- c) Refrigerant: 407C – 11kg

16.1.B.1.3 MCR HVAC Unit:

- a) Manufacturer: EP HVAC
- b) Model: 5770-WCCU-001
- c) Refrigerant: 407C – 14 lbs

16.1.B.1.4 Upper HVAC Unit:

- a) Manufacturer: Carrier Transicold
- b) Model: Seahorse 90YNH6BSK9NH6C1R
- c) Serial Number: CK03313

- d) Refrigerant: 407C – 32 lbs

16.1.B.1.5 Lower HVAC Unit:

- a) Manufacturer: Carrier Transicold
- b) Model: Seahorse 90YNH6BSK9NH6C1R
- c) Serial Number: CK03314.
- d) Refrigerant: 407C – 32 lbs

16.1.B.2 Drawings

16.1.B.2.1 All Drawings are listed in the General Notes.

16.1.B.3 Regulations and Standards

16.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
7.E.8	Use of Halocarbon	Yes
Publications		
Standards		
	Environmental Code of Practice for the Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems.	No
Regulations		
	SOR/2003-289; Federal Halocarbon Regulations, 2003	No

16.1.C Statement of Work

16.1.C.1 General

- 16.1.C.1.1 All work must be completed by certified refrigeration technicians and a copy of their certification must be provided to the IA prior to commencing work.
- 16.1.C.1.2 The vessel will be manned during the work period and the refrigeration system will be in operation. The Contractor must coordinate with the IA to ensure minimum impact on the systems.

16.1.C.2 Annual Inspection

16.1.C.2.1 The work required to each of the above mentioned systems must include a minimum of:

- a) A refrigerant leak test of all piping and system components;
- b) Clean all evaporators and check their defrost systems (where fitted);
- c) Verify all system operating parameters and adjust as required, in accordance with the manufacturer's recommendations;
- d) A leak test notice for each system serviced.

16.1.C.2.2 Where a system is found low on refrigerant the Contractor must determine the source of the leak and repair it prior to charging the system. All repairs and all refrigerant required to return a system to its proper charge upon completion of the repairs must be Contractor supplied. All repairs must approved by the TA through the PWGSC 1379 form prior to the work taking place. The Contractor must provide a service logs for each repair.

16.1.D Proof of Performance**16.1.D.1 Inspection Points**

16.1.D.1.1 The Contractor must demonstrate to the IA that all systems have been returned to service and are correctly adjusted to the manufacturer's recommendations.

16.1.D.2 Testing/Trials – Not Used**16.1.D.3 Certification – Not Used****16.1.D.4 Documentation**

16.1.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5

16.1.D.4.2 The Contractor must provide the TA with a copy of the certification/Ozone Depletion Prevention Card for each technician that works on any of the above mentioned systems.

16.1.D.4.3 The Contractor must provide the Chief Engineer with the original signed paper copy and the TA with one electronic copy of each leak test notice and service log resulting from the work in this specification item and all associated repair work. The Contractor may use the CCG templates FOR-HAL-02 (Service Log) and FOR-HAL-

03 (Leak Test Notice) provided in the FSSM procedure 7.E.8. Where the Contractor elects to provide his own leak test notice and service log, they must contain at minimum:

- a) Name of the Vessel;
- b) Date the service took place;
- c) Company Name and Contact Information;
- d) Name of the service Technician and certification number;
- e) Identification of the system:
 - i) Make;
 - ii) Model;
 - iii) Location;
 - iv) Refrigerant Type and capacity;
- f) Type of service completed;
- g) Refrigerant recovered and charged, type and quantity;
- h) Signature of the service technician.

16.1.D.4.4 The Contractor must provide a detailed report describing all work carried out, the cause of any defects (if any), any corrective measures taken and any parts replaced, for all of the above mentioned systems. The Contractor must provide the TA with one paper copies of this report and one electronic copy prior to the end of the work period.

16.1.D.5 Training – Not Used

16.2 MACHINERY CONTROL ROOM HVAC SYSTEM REPAIR

16.2.A Identification

16.2.A.1 The Contractor must modify and repair the existing MCR HVAC compressor unit piping and bulkhead transit.

16.2.B References

16.2.B.1 Equipment Data

16.2.B.1.1 System Details:

- a) EP HVAC project 5770
- b) 14 lbs 407C

16.2.B.1.2 Compressor:

- a) Carlyle Model 06DM3160C13670
- b) 460 VAC, 60HZ.

16.2.B.1.3 Air Handling Unit

- a) Carrier Model FB4CNF048
- b) S/N 1816A82994
- c) 208/230 VAC

16.2.B.2 Drawings

16.2.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Number
664-120-9	W.T. and N.W.T Bulkheads Aft and Floors	664-120-9.pdf

16.2.B.3 Regulations and Standards

16.2.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards

and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
Publications		
Standards		
	Environmental Code of Practice for the Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems.	No
Regulations		
	SOR/2003-289; Federal Halocarbon Regulations, 2003	No

16.2.C Statement of Work

16.2.C.1 General

- 16.2.C.1.1 The Contractor must provide the services of a qualified refrigeration technician with at minimum 5 years experience in the design and commissioning of marine HVAC units.
- 16.2.C.1.2 The Contractor is responsible for identifying all interference items, temporarily removing them, temporarily storing them and re-installing them in their original locations upon completion of the work.
- 16.2.C.1.3 All CFM must be HVAC specific and suitable for this installation. Unless otherwise specified, all copper piping must be type ACR. The Contractor must provide heat numbers for all piping supplied. All fittings must be designed for permanent use in a marine HVAC system subject to heavy vibration. All copper joints must be brazed.

16.2.C.2 Decommissioning and Removals

- 16.2.C.2.1 The Contractor must pump down, contain, and dispose of all refrigerant from the MCR HVAC system.
- 16.2.C.2.2 The Contractor must isolate the MCR HVAC and MCR water fountain.
- a) MCR HVAC unit breaker 38-NP-2;
 - b) MCR condensing unit breaker 39-NP-2;
 - c) MCR fountain is a 120 volt outlet.

16.2.C.2.3 The Contractor must release and remove the compressor suction and discharge lines from the MCR HVAC in way of the bulkhead penetration. The Contractor must release the potable water supply piping to the MCR fountain, and immediately install temporary caps on both openings in the potable water system, in the Engine Room and at the water fountain.

16.2.C.2.4 The Contractor must crop, remove and ground flush the two refrigeration transit pipes welded to the bulkhead and the fountain water line transit. The Contractor must provide bulkhead inserts of the same grade and thickness (9/32") as the existing A-60 bulkhead and weld close the three bulkhead transit openings. The Contractor must use full penetration continuous fillet welding on both sides of the bulkhead.

16.2.C.3 Bulkhead Transit Installation

16.2.C.3.1 The bulkhead between the Engine Room and Motor Control Room is rated A-60. The Contractor must provide and install an A-60 Roxtec S 4x1 bulkhead transit system, complete with RO certificates. The installation must include the locating, cutting of the rough opening, full penetration welding of the S block insert, installation of the piping within the transit blocks and ultrasound testing of the completed installation of the Roxtec transit system.

16.2.C.3.2 The Contractor must renew and reconnect the MCR HVAC compressor 7/8" suction and 3/8" discharge lines, and the potable water piping through the new Roxtec transit. The Contractor must secure the three lines within the Roxtec transit system.

16.2.C.3.3 All potable water piping must be copper Class K suitable for potable water and must be solder using lead-free solder.

16.2.C.3.4 Upon completion of the inspection by the TCMS Inspector, the Contractor must apply two coats Interprime marine primer and two coats of International 665 Signal White, all paints are GSM.

16.2.C.4 System Modifications and Repairs

16.2.C.4.1 The Contractor must review the arrangement of the pressure gauges and suction lines on the HVAC compressor and provide an arrangement and work plan to meet the following requirements to the TA for review:

- a) The Contractor must replace the gauge lines using HVAC thermoplastic hoses. These hoses must be rated to 800 PSI working, 4000 PSI burst pressure, have hex style 1/4" SAE fittings with copper gaskets for sealing.
- b) The pressure switch must connect directly to the suction and discharge of the compressor without any isolation valves.

- c) The suction and discharge pressure gauges must connect to the compressor through HVAC isolation needle valves. The valves must be hard mounted to the base or frame.
- d) The lines must be run cleanly without any risk of chaffing. Any bends in the line must stay within the manufactures limit for radii bend.

16.2.C.4.2 Upon review by the TA of the proposed arrangement and work plan, the Contractor must provide all labour and materials to execute the plan.

16.2.C.4.3 The Contractor must remove the oil return line and isolation valve. A new CFM oil return line must be fitted directly from the oil separator to the compressor crankcase.

16.2.C.4.4 The Contractor must crop out the section of suction piping between the compressor suction valve and the frame. The Contractor must supply and install a flexible pipe to replace the cropped out section to isolate vibration.

16.2.C.4.5 The Contractor must replace the sight glass indicator located under the frame.

16.2.C.5 Commissioning

16.2.C.5.1 The Contractor must remove and renew the MCR HVAC oil and filter.

16.2.C.5.2 The Contractor must ensure all disturbed equipment is set to work.

16.2.C.5.3 The Contractor must perform a 500 micron vacuum test on the MCR HVAC system for 24 hours to demonstrate that it is leak free. Any leak must be repaired by the Contractor.

16.2.C.5.4 The Contractor must re-charge the MCR HVAC system to its working level using R407C.

16.2.D Proof of Performance

16.2.D.1 Inspection Points

16.2.D.1.1 The Contractor must present the new bulkhead Roxtec transit and bulkhead inserts welds to TCMS inspector for approvals. The Contractor must afford the IA the opportunity to witness the TCMS Inspection.

16.2.D.1.2 The Contractor must afford the IA the opportunity to inspect the new arrangement before closing the inspection panels.

16.2.D.2 Testing/Trials

- 16.2.D.2.1 The Contractor must provide the services of a qualified NDT inspector, certified in the use of CTRL UL 101 ultrasonic inspection system or a model of equivalent capabilities to test the new transit system and welded inserts for watertightness.
- 16.2.D.2.2 The NDT Inspector must inspect all welds on the new Roxtec transit and welded inserts. The inspection results must be to inspectors' satisfaction and indicate that the penetration and repair inserts are watertight. The Contractor must rectify any failure identified by the NDT inspector. The Contractor must afford the IA the opportunity to witness the NDT testing.
- 16.2.D.2.3 Upon completion of the transit system installation, the NDT Inspector must inspect the new Roxtec transit system, after all lines have been secured through the transit. The inspection results must be to the NDT inspectors' satisfaction and indicate that the transit system is watertight. If the transit fails testing, it must be reopened and reworked by the Contractor until it passes the NDT testing. The Contractor must afford the IA the opportunity to witness the NDT testing.
- 16.2.D.2.4 The Contractor must operate the system on load for 2 hours and monitor the unit for leaks and proper system operation. The Contractor must note and record the following:
- a) Suction and discharge pressures
 - b) Proper operation and cycling of the unloader valve.
 - c) Superheat
- 16.2.D.2.5 The Contractor must perform a leak test on the system after completion of the work.

16.2.D.3 Certification

- 16.2.D.3.1 The Contractor must provide the TA with the RO certification for the Roxtec transit system.

16.2.D.4 Documentation

- 16.2.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5
- 16.2.D.4.2 The Contractor must submit to the TA one copy of the ultrasonic test devices' current certification/calibration and one paper copy of the NDT inspectors report indicating the results of testing.
- 16.2.D.4.3 The Contractor must provide a report of the repairs completed. It must include, at a minimum:

- a) Weld certification certificates for all welders
- b) Information sheets for new parts supplied
- c) Heat numbers for new piping used
- d) Results of the vacuum test of the system
- e) Readings from the 2-hour operational test.

16.2.D.4.4 The Contractor must provide the Chief Engineer with the original signed paper copy and the TA with one electronic copy of the leak test notice and service log resulting from the work in this specification item. The Contractor may use the CCG templates FOR-HAL-02 (Service Log) and FOR-HAL-03 (Leak Test Notice) provided in the FSSM procedure 7.E.8. Where the Contractor elects to provide his own leak test notice and service log, they must contain at minimum:

- a) Name of the Vessel;
- b) Date the service took place;
- c) Company Name and Contact Information;
- d) Name of the service Technician and certification number;
- e) Identification of the system:
 - i) Make;
 - ii) Model;
 - iii) Location;
 - iv) Refrigerant Type and capacity;
- f) Type of service completed;
- g) Refrigerant recovered and charged, type and quantity;
- h) Signature of the service technician.

16.2.D.5 Training – Not Used

17.0 Deck equipment

17.1 ARVA BUOY CRANE 5 YEARS SURVEY

17.1.A Identification

- 17.1.A.1 The Contractor must perform the 5 year regulatory inspection and certification on the Arva buoy crane. The work must be in compliance with the Canada Shipping Act Cargo, Fumigation and Tackle Regulations.
- 17.1.A.2 The goal of this inspection is to receive a Form T2, Certificate of Test and Thorough Examination of Lifting Appliances signed by a “competent person” under the regulations. In this case a competent person is “a person engaged in the manufacture and repair of the gear” (paragraph 300 (2) of the regulations).

17.1.B References

17.1.B.1 Equipment Data

17.1.B.1.1 Buoy Crane

- a) Make: Arva;
- b) Model: AR16520M;
- c) Serial No.1804-171535;
- d) Main Hoist 30,000 lbs SWL @ 40 ft radius, 17,000 lbs. SWL @ 60 ft radius;
- e) 2 Aux. Hoists 10,000 lbs SWL each.

17.1.B.2 Drawings

- 17.1.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Electronic File Number
EP1506	AR16520M Rev B	EP1506.pdf

17.1.B.3 Regulations and Standards

- 17.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards

and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
Publications		
A172180	Arva Crane Operator's, Maintenance, Spare Parts & Service Pack Manual A172180 Rev. C	Yes
	Recommended NDT Test point from Arva pre-inspection report	Yes
Standards		
	TP 9396E Wear Standards for Cargo Gear, 2nd edition, May 2007	No
	CAN/CGSB-48.9712 – latest edition, Qualification and Certification of Non-Destructive Testing Personnel Level II	No
ISO Standard 4406/2017	Hydraulic Fluid Power – Fluids – Method for coding the level of contamination by solid particles	No
Regulations		
	Canada Shipping Act 2001	No
	Cargo, Fumigation and Tackle Regulations (SOR /2007-128)	No

17.1.C Statement of Work

17.1.C.1 Field service representative

17.1.C.1.1 The Contractor must provide the services of Arva Industries to oversee the work contained in this section of the specification and to issue the T2 certificate upon completion of the work and testing.

ARVA INDUSTRIES INC.

43 GAYLORD ROAD

ST. THOMAS, ONTARIO, CANADA

PHONE: 519-637-1855

EMAIL: SALES@ARVAINDUSTRIES.COM

Contact: Terry McQuillen

17.1.C.1.2 The Contractor must include a \$25 000 allowance in its bid to cover the cost of the services of an Arva Industries field service representative for work in this specification item, including living expenses (accommodations, meals and transportation) in accordance with Article 7.46 of the Contract. The allowance will be adjusted (increased/decreased) using the PWGSC 1379 form upon receipt of the representative's final invoice, along with all supporting documentation attesting to actual costs.

17.1.C.1.3 The FSR must be an employee of Arva Industries and must be accredited by Arva as being both an expert person, and a competent person to perform this work as defined in the Cargo, Fumigation, and Tackle Regulations, sections 300 (1) and 300 (2) (b) (ii).

17.1.C.2 General

17.1.C.2.1 The FSR must be on-site during the entire period while work is being performed on the crane or its parts. All work must be completed as per the OEM requirements and to the satisfaction of the Arva Industries FSR.

17.1.C.2.2 The Contractor must perform the Arva recommended 5 year inspection and testing procedure for this specific crane. The Contractor must inspect the crane as per this specification and section 304 (1) (b) of the Cargo, Fumigation, and Tackle Regulations. The Contractor must test the ARVA crane as per this specification and section 303 (1) (c) of the Cargo, Fumigation, and Tackle Regulations.

17.1.C.2.3 The Contractor must perform all work required for the following:

- a) Proof Load Testing of the crane.
- b) Inspections.
- c) Disassembly for inspection, and reassembly after inspection.
- d) Functional tests and adjustments after inspection
- e) Prepare and submit certificates and reports.

17.1.C.2.4 The Contractor must discuss the scope of work with the attending TCMS surveyor to identify any additional specific requirements TCMS may require for the re-certification of the crane and to ensure all parties are aware of and in agreement with the work to be completed. TCMS requirements in addition to the work detailed in this specification is considered extra work and must be negotiated with the TA through the PWGSC 1379 form prior to the work taking place.

- 17.1.C.2.5 The Contractor must be responsible for disposing and replenishing of all oils from all the cranes systems, hoses and equipment where required by the FSR. All oils must be GSM and must be filtered into the systems via a Contractor supplied filtration system to ISO 16/14/11, as per ISO Standard 4406/2017. Replenishing oils must be as follow:

Oil Type	System Capacity	Location
Hydrex AW 32	750 L	Hydraulic system
Traxon 80W90	6 L/each	Port and Stbd slew gearboxes (4)
Enduratex EP 150	22 L	Main Winch
Enduratex EP 150	7.5 L/each	Port and Stbd Winches (2)

- 17.1.C.2.6 The FSR must be responsible for sealing all opened hydraulics components, including hoses with plugs, seals and covers to prevent contamination of any part of the hydraulic system after disassembly.
- 17.1.C.2.7 The Contractor is responsible for the disposal of all oil and oily waste generated from the survey of the buoy crane. All oily waste removed from the vessel and all waste generated from the buoy crane survey must be tracked in accordance with all Federal, Provincial and Municipal regulations in effect. The Contractor must provide disposal documentation for all generated waste to the TA.
- 17.1.C.2.8 The Contractor is to note the crane pedestal in considered a Confined Space under the Marine Occupational Health and Safety regulations. All work inside the pedestal must require precautions taken regarding Confined Spaces as detailed in the General Notes.

17.1.C.3 Proof Load test

- 17.1.C.3.1 The CCG will supply certified load test weights and place the weights within reach of the crane. Calibration documents for the dynamometer used to weigh the test load will be provided by CCG. The Contractor must provide the TA with two business day advance notice prior to the load testing to arrange for the testing and delivery of the test weights.
- 17.1.C.3.2 With the exception of the test weights, the Contractor must provide all labour, equipment and materials to perform all testing in this specification.
- 17.1.C.3.3 The Contractor must co-ordinate the load test with the IA.
- 17.1.C.3.4 The Contractor must perform a 125% SWL proof load test on the main hoist and each auxiliary hoist. The load test must at a minimum meet the requirements of Schedule

4 - Testing of Lifting Appliances and Section 303 (4) (a) (c) (d) of the Cargo, Fumigation, and Tackle Regulations. The dead weight must be lifted and slewed for the full slewing range at two main boom angles. The boom angle must be 50 degrees with a test weight of 37,500 lbs. The boom angle must be 0 degrees with a test weight of 21,250 lbs.

17.1.C.3.5 Under the direction of the FSR the Contractor must test the function of the Slew Limit and Anti-Two Block switches and, load test the function of the Hoist and Slew brakes.

17.1.C.3.6 The Contractor must perform a functional brake test of the Main Hoist, Auxiliary Hoists, and Slewing Motors. The test must be according to manufacturer's recommendations. The Contractor must, at a minimum, test the winches to satisfy Section 303 (4) (a), (c) and (d) of the Cargo, Fumigation and Tackle Regulations.

17.1.C.4 Crane Pedestal Structure and Overall Condition

17.1.C.4.1 The Contractor must supply all qualified tradespeople as required to assist and work under the direction of the FSR. The Contractor must be responsible for the electrical, mechanical, and hydraulic disconnection and reconnection of all crane components.

17.1.C.4.2 The Contractor must supply a certified technician to perform NDT inspection of the critical welds as determined by the FSR and agreed upon by TCMS. The technician must possess, in hand, valid certification compliant to CAN/CGSB-48.9712-latest edition prior to commencing all testing.

17.1.C.4.3 The Contractor must prepare the structures and welds for examination. All removals and re-installations, including painted surfaces, lagging or insulation required for NDT examination are the responsibility of the Contractor.

17.1.C.4.4 All defects identified as a result of NDT testing must be repaired. This is considered extra work and must be negotiated with the TA through the PWGSC 1379 form prior to the repairs taking place.

17.1.C.4.5 The Contractor must bid on 200 linear feet of weld and must provide a per-foot costing of NDT weld inspection. The Contractor must perform Ultrasonic or Magnetic Particle testing of the welds identified.

17.1.C.4.6 The Contractor must replace the turret door and column door gaskets with GSM gaskets.

17.1.C.4.7 The Contractor must measure and record the clearance between the lower hydraulic elbow to the hydraulic swivel and the swivel support cross member in the turret. The minimum clearance recommended by the OEM is 1/8". The Contractor must submit

the clearance measurements to the FSR and IA for review and provide a copy to the TA with the final report.

17.1.C.5 Hydraulic System

17.1.C.5.1 The Contractor must inspect all hydraulic hoses for signs of deterioration. The Contractor must be responsible for all labor and equipment in order to replace any worn hoses on the crane, in the pedestal or on the HPU. All replacement hoses must be CFM and OEM. Replacement of the hoses is considered extra work and must be negotiated with the TA through the PWGSC 1379 form prior to the repairs taking place.

17.1.C.5.2 The Contractor must inspect all hydraulic fittings on the crane. All defective fittings must be replaced with CFM fittings. All replacement of defective fittings is considered extra work and must be negotiated with the TA through the PWGSC 1379 form prior to the repairs taking place.

17.1.C.5.3 The Contractor must test the operation of all hydraulic relief valves. Testing must be completed in the presence of the IA. Test measurements are to be included in the final report.

17.1.C.5.4 The Contractor must release, remove and reseal both boom lift cylinders. The Contractor must remove the corrosion roughness on the exposed surface of the rods prior to retracting the rods for removal. The Contractor must thoroughly clean the rod surface before installing the new seals. The Contractor must install new GSM OEM seals and re-install and reconnect the boom lift cylinders.

17.1.C.5.5 The Contractor must inspect the seals on the main control valve. Any defective seal must be replaced with new CFM seals. Repairs of defective seals is considered extra work and must be negotiated with the TA through the PWGSC 1379 form prior to the repairs taking place.

17.1.C.6 Boom Structure and Rigging

17.1.C.6.1 The boom lift cylinder pins and bushings must be measured for wear, and clearances recorded and included in the final report.

17.1.C.6.2 The clearances of the Main Boom Pivot Pin Bearings must be taken by feeler gauge and recorded and included in the final report. The Contractor is to note these were replaced in 2010. All grease ways are to be proven clear.

17.1.C.6.3 The Contractor must inspect the main hoist wire rope and the auxiliary hoist ropes for damage and wear. The wire ropes must be inspected according to TP 9396E Wear

Standards for Cargo Gear. The Contractor must ensure that all wires have been adequately greased prior to replacing of the wire on the drums.

- 17.1.C.6.4 The Contractor must dismantle and inspect the auxiliary hoist hooks and overhaul balls.
- 17.1.C.6.5 The Contractor must dismantle and inspect the main hoist block. All defective parts must be replaced by the Contractor. Repairs to the main hoist block is considered extra work and must negotiated with the TA through the PWGSC 1379 form prior to the repairs taking place. All repair parts for this work must be CFM.
- 17.1.C.6.6 The Contractor must remove, clean and inspect all boom sheaves. All wear components including pins, bushings, bearings, sleeves and sheaves are to be measured, clearances verified and data recorded and provided to the TA as a deliverable at the completion of work. All grease ways must be proven clear. All defects must be repaired by the Contractor. Repairs are considered extra work and must negotiated with the TA through the PWGSC 1379 form prior to the repairs taking place. All repair parts for this work must be CFM. Upon completion of inspection and remedial action, the sheaves are to be reinstalled in good order.

17.1.C.7 Winches and Slewing Drives

- 17.1.C.7.1 The Contractor must perform the Lantec brake test procedure on each winch and record the results.
- 17.1.C.7.2 The Contractor must remove and inspect drives and gearboxes of both hydraulic Slew motors. All defects must be repaired by the Contractor. Repairs are considered extra work and must negotiated with the TA through the PWGSC 1379 form prior to the repairs taking place. All repair parts for this work must be CFM. Upon successful inspection, the slew motor and drives are to be reassembled, reinstalled and torqued to manufacturer's recommended values. Slew drive backlash must be measure and recorded once the drives are secured in place.

17.1.D Proof of Performance

17.1.D.1 Inspection Points

- 17.1.D.1.1 The Contractor must ensure all testing is witnessed by TCMS.
- 17.1.D.1.2 The Contractor must develop a test and inspection plan in consultation with the Arva FSR and submit the plan to TCMS for approval prior to any inspections and tests.
- 17.1.D.1.3 The Contractor must verify that all hydraulic oil pressure circuits are oil tight prior to testing the operation of the crane.

17.1.D.2 Testing/Trials

17.1.D.2.1 After completion of the work in section 17.1.C, the Contractor must demonstrate the proper and full functionality of the crane to TCMS.

17.1.D.2.2 Testing must be conducted through a minimum of one hour and must include a varied range of lifting weights up to 100% S.W.L. through a range of lifting heights.

17.1.D.2.3 All safety functions and limits for crane operation are to be tested at this time. Testing must include hoisting of the main and auxiliary hoists in the maximum loaded and unloaded conditions.

17.1.D.2.4 At minimum, the Contractor must perform tests and adjust as required:

- a) 100% S.W.L. test of the main and auxiliary hoists.
- b) Functional tests of the main hoist brake, auxiliary hoist brakes, and slewing brakes at 0% and 100% S.W.L.
- c) Test operation of the crane overload circuits as following:
 - i) Load OK, Green indicator light, at less than 2050 psi.
 - ii) Load 85% Warning, Amber light, above 2050 psi.
 - iii) Load 100% S.W.L., Red & Amber lights, above 2400 psi.
 - iv) Overload, Red light flashing, above 2800 psi.
 - v) At Overload, no luffing capability.
 - vi) At Overload, no hoist capability, can only lower load.
- d) Test of the main and auxiliary hoist anti-two block function.
- e) Test of the boom position sensor luffing limit.
- f) Test of the slew limit functions as follows:
 - i) Swing Caution – lamp flashes twice then stays on.
 - ii) Swing stop – slew ramps down to stop.
 - iii) Test of all stop buttons.

17.1.D.3 Certification

17.1.D.3.1 As a competent person under the Cargo, Fumigation, and Tackle Regulations, (SOR/2007-128), the FSR must submit a completed and signed Form T2 to the CG after completion of the inspection and testing of the Arva crane.

17.1.D.3.2 The Contractor must obtain from the TCMS the T2 certificate required under section 312 of the Cargo, Fumigation, and Tackle Regulations before the completion of the contract and provide the original signed copy to the TA.

17.1.D.4 Documentation

17.1.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5

17.1.D.4.2 The Contractor must provide proof of NDT operator certification to the IA and TA prior to NDT testing.

17.1.D.4.3 The Contractor must provide certificates for all pressure gauges, calibration equipment, torque wrench or any other measuring equipment required by the Contractor for work on the crane.

17.1.D.4.4 The Contractor must supply a report of the work completed listing all test data, identifying all defect and repairs performed. The report must include a list of results and locations of the NDT completed. The report must include a detailed drawing of the location of each test location on the pedestal, turret and boom and attached structure. The locations must be reference and cross referenced with the list.

17.1.D.4.5 The report must include descriptions of the work performed, recorded readings, and photographs showing the condition of:

- a) Slew motors, drives and bearing
- b) Hydraulic pump and motor
- c) Hoist winches
- d) Ram cylinders, seals and piston rings
- e) All sheaves, pins, bushings, bearings, shims, blocks and side plates
- f) All crane controls, limits, overloads devices
- g) Pedestal, turret and boom critical welds, plate and coatings
- h) Hydraulic Swivel
- i) All hydraulic settings and calibrations

- j) Bill of materials for all new parts and seals installed
 - k) Completed Test and Inspection Plan
- 17.1.D.4.6 The Contractor must provide the TA with one original set of signed paper documents and reports meeting the requirements of TCMS for the certification under section 312 of the Cargo, Fumigation, and Tackle Regulations for inclusion in the ship's Tackle Register prior to the end of the contract.
- 17.1.D.4.7 The Contractor must provide the final invoice and supporting documents for the FSR.
- 17.1.D.4.8 The Contractor must provide the TA with waste disposal documents for all the waste oils and oily waste generated for this specification item.
- 17.1.D.5 Training – Not Used**

17.2 BARGE DAVIT SURVEY

17.2.A Identification

- 17.2.A.1 The purpose of this section is to complete an annual inspection of the vessel's Barge davit as well as carry out maintenance to the manual brake and the manually operated hydraulic directional control valve which controls the raising/lowering of the vessel's barge.
- 17.2.A.2 The control valve work includes removing the valve assembly, consisting two luff in/out valves and two hoist/lower valves, to the Contractor's facility for overhaul, complete disassembly and inspection all components of the valve assembly including relief valve, replacement of all seals with Contactor supplied OEM parts, reassembly, bench testing, reinstallation and testing of the Barge davit.
- 17.2.A.3 The annual inspection work includes replacement of the brake shaft, a complete inspection as per Palfinger recommendations, and a functional load test of the Davit upon completion of all work.
- 17.2.A.4 All work in this section must be completed under the supervision of an FSR from Palfinger Marine Canada Inc.

17.2.B References

17.2.B.1 Equipment Data

- 17.2.B.1.1 Manufacturer: Schat-Davit Company
- 17.2.B.1.2 Davit Type: Hydro/Mechanical Davit Type PHA
- 17.2.B.1.3 Winch #: 2291
- a) Winch Type: BHY 12500
 - b) Mark: XL
 - c) SWL: 12,500 kg
 - d) Static Test: 18,750 kg
 - e) Lower Load: 10,000 kg
 - f) Speed of Barrel: 43.9 M/MIN
 - g) Date 16-5-1990

- h) Directional Valve Data: VA35 AA080 MA8 MA8 Z090, manual lever operated, self-centering to neutral position,

17.2.B.1.4 Davit Arms (Fore and Aft similar)

- a) O/No: 18920
 b) STL: 12,540 kg
 c) SWL: 5,700 kg

17.2.B.1.5 No Cradle

17.2.B.1.6 Barge

- a) Metalcraft, Kingston
 b) Weight: 5.01 long tons (11,222 lbs, 5,101 kg)
 c) Max complement weight: 1.14 long tons (2,554 lbs, 1,160 kg)
 d) Total Max weight: 6.15 long tons (13,754 lbs, 6,252 kg)

17.2.B.2 Drawings

- 17.2.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes

Drawing Number	DRAWING TITLE	Electronic File Number
734400 sht 1& 2	Seats for Schat Hydro-Mechanical Davits	734400_01.pdf
783111	Barge Davit Block and Connection Diagram	734400_02.pdf
S710815A	Schematic Circuit Diagram	710815.pdf

17.2.B.3 Regulations and Standards

- 17.2.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSSM Procedures	Title	Included Yes/No
Publications		

	Schat Davit Instruction Manual	Yes
Standards		
ISO Standard 4406/2017	Hydraulic Fluid Power – Fluids – Method for coding the level of contamination by solid particles	No
Regulations		
	Cargo, Fumigation, and Tackle Regulations, (SOR/2007-128).	No

17.2.C Statement of Work

17.2.C.1 General

- 17.2.C.1.1 The Contractor must supply all labor, parts, materials and equipment required to carry out the work described below, unless indicated otherwise.
- 17.2.C.1.2 All work on the Barge davit must be carried out under the supervision of a Palfinger Marine Canada FSR. All work carried out on the davit must be in accordance with the manufacturer's recommendations and practices.
- 17.2.C.1.3 The Contractor must include a \$25 000 allowance in its bid to cover the cost of the services of a Palfinger representative, including living expenses (accommodations, meals and transportation) in accordance with Article 7.46 of the Contract. The allowance will be adjusted (increased/decreased) using a 1379 form upon receipt of the representative's final invoice, along with all supporting documentation attesting to actual costs.
- 17.2.C.1.4 The Contractor must use a proper lock out tag out system to electrically isolate the Barge Davit electrical power supply.
- 17.2.C.1.5 Prior to completing any work on the davit, the Contractor must ensure that the barge has been removed.
- 17.2.C.1.6 The Contractor is responsible for coordinating all TCMS inspections.
- 17.2.C.1.7 The Contractor is responsible for the removal, disposal and renewal of all Petro Tape on hose connections and hydraulic fittings to gain access for inspection and testing as required by the Palfinger FSR. The renewal of the Petro Tape must be installed after all inspections and tests have been completed to the satisfaction of the IA and TCMS Inspector.

17.2.C.2 Directional Control Valves

- 17.2.C.2.1 The Contractor must supply all labor, materials and equipment to drain the system and hoses of hydraulic oil, remove the valve, isolate and contain leakage, transport

the valve to/from the Contractor's facility, overhaul the valve with new CFM repair kit, reinstall the valve and testing of the davit.

- 17.2.C.2.2 The Contractor must drain the system and hoses of hydraulic oil, remove the valve, isolate and contain leakage. The Contractor is responsible for disposing of all oil in accordance with all provincial and federal regulations.
- 17.2.C.2.3 All hose connections are flanged SAE JIC fittings. All hoses are SAE 100R2AT. All hose ends removed from the valve must be deadheaded to prevent leakage using appropriately sized blanks. Hose and fitting details can be found on drawing 710815.
- 17.2.C.2.4 The Contractor must release and deadhead the twelve connections at the directional valve. The Contractor must release the valve from the control stand and transport it to the Contractor's facility for inspection and overhaul. The Contractor is responsible for the valve and must ensure that the valve is protected against all damage and contamination while in the Contractor's care.
- 17.2.C.2.5 Prior to disassembly of the valve assembly, the Contractor must bench test the directional control valves to determine the existing relief valve setting. This value must be recorded and detailed on the overhaul report.
- 17.2.C.2.6 The Contractor must disassemble, clean and inspect all components for wear. Any defective components other than seals must be brought to the immediate attention of the IA for corrective action.
- 17.2.C.2.7 The Contractor must install new CFM seal kit and reassemble the valve in good working order.
- 17.2.C.2.8 The Contractor must bench test the valve upon reassembly and set the relief valve pressure to manufacturer's recommended settings. The valve relief settings must be recorded and included in the final report.
- 17.2.C.2.9 The Contractor must reinstall the valve assembly in the control stand using new non-corrosive locking fasteners.
- 17.2.C.2.10 The Contractor must reinstall the hose connections to the valve assembly using new CFM flange O-ring seals and 316 stainless steel Allen head bolts.
- 17.2.C.2.11 Prior to testing the davit, the Contractor must fill the hydraulic system to its operational oil level. The oil must be GSM Hydrex AW 32 and must be filtered into the systems via a Contractor supplied filtration system to ISO 16/14/11, as per ISO Standard 4406/2017.

17.2.C.3 Davit Maintenance

17.2.C.3.1 The Contractor must complete an annual inspection of the davit as per Palfinger Marine recommendations and must include a minimum of:

- a) A general inspection of the davit and its components for damage and good working order, including, but not limited to:
 - i) Inspection steel work and barrel shaft keeper plate bolt behind the barrel for signs of substantial corrosion, no more than 10% material loss;
 - ii) Check winch foundation bolts for corrosion, no more than 10% material loss;
 - iii) Remove winch gearbox cover plate and inspect gear and accessible bearings for signs of abnormal wear or corrosion;
 - iv) Check davit arms for corrosion, no more than 10% material loss;
 - v) Check condition of hydraulic hoses;
 - vi) Check condition of all hydraulic fittings;
- b) Carry out a full functional test of the davit and its controls, including emergency stop and hydraulic relief valves;
- c) Disassembly and inspection of the manual and centrifugal brake sections;
- d) Brakes components must be cleaned, pads deglazed and components lubricated as necessary before reassembly;
- e) Inspection of the winch gearbox, including oil change;
- f) Cleaning and inspection of hydraulic oil reservoir, including oil and filter change;
- g) Inspection of all limit switches and their proper operation, adjusting as necessary;
- h) Inspection of all cable sheaves, pins and lower blocks, including:
 - i) Remove, measure and record davit arm pivot/heel pins;
 - ii) Remove all sheaves to measure and inspection condition of sheave pins and bushing;
 - iii) Check wire rope sheaves for wire rope wear/grooving into the sheave;
 - iv) Replace wire rope with new GSM wires.

17.2.C.3.2 The Contractor must drain the winch gear box and dispose of the oil. The Contractor must fill the gear box to its operational oil level (approximately 11 L). The oil must

be new CFM Enduratex EP-68 and must be filtered into the systems via a Contractor supplied filtration system to ISO 19/17/14, as per ISO Standard 4406/2017.

- 17.2.C.3.3 The Contractor must drain the hydraulic system and its tank. The Contractor must dispose of this oil. The tank must be cleaned and inspected. The Contractor must replace the hydraulic filter and the desiccant breather filter. These items will be GSM. The Contractor must fill the hydraulic system to its operational oil level (approximately 225 L). The oil must be GSM Hydrex AW 32 and must be filtered into the systems via a Contractor supplied filtration system to ISO 16/14/11, as per ISO Standard 4406/2017.
- 17.2.C.3.4 All components must be replaced according to the manufacturer's recommendations and procedures.
- 17.2.C.3.5 The Contractor must provide the services of a certified technician to perform NDT magnetic particle inspection on the welds to deck for davit arm and winch base. The Contractor must provide a per unit price and bid on 50 linear foot of welds to NDT. The technician must possess, in hand, valid certification compliant to CAN/CGSB-48.9712-latest edition prior to commencing all testing. A copy of the technician certification must be provided to the TA prior to the inspection.

17.2.C.4 Load Testing

- 17.2.C.4.1 The CCG will supply certified load test weights and locate them on the dock in the vicinity of the vessel. Calibration documents for the dynamometer used to weigh the test load will be provided by CCG. The Contractor must provide the TA with two business day advance notice prior to the load testing to arrange for the testing and delivery of the test weights.
- 17.2.C.4.2 Upon completing of work, the Contractor must carry out a 110% dynamic load test of the davit and demonstrate the proper operation of the brake. The load test must be carried out as per manufacturer's recommendations.

17.2.D Proof of Performance

17.2.D.1 Inspection Points

- 17.2.D.1.1 All work must be completed to the satisfaction of the TCMS inspector, the IA and the Palfinger FSR, any defect resulting from the work must be repaired at the Contractor's expense prior to the end of the work period.
- 17.2.D.1.2 The Contractor must afford the TCMS Inspector and the IA the opportunity to witness the NDT testing and the load testing of the davit.

17.2.D.2 Testing/Trials

- 17.2.D.2.1 The Contractor must put the system in operation and demonstrate the proper functioning of the davit while both lower and raising. The davit must be loaded as per manufacturer's recommendations to test the system.
- 17.2.D.2.2 The Contractor is responsible for all parts and labour to perform all testing on the davit. CCG will provide the certified test weights on the dock in the vicinity of the vessel and the ship's crew will be made available to operate the davit. The Contractor must co-ordinate with the Chief Engineer 24 hours prior to the test for ship's crew's availability.
- 17.2.D.2.3 The Contractor must verify the system is free of leaks and all pressures and temperatures are within the design parameters for the system.
- 17.2.D.2.4 The Contractor must demonstrate the proper functioning of the centrifugal and manual brakes as per manufacturer's specifications.

17.2.D.3 Certification – Not Used**17.2.D.4 Documentation**

- 17.2.D.4.1 Unless otherwise specified, all documentation must be provided to the TA in the format specified in the Documentation Section G 1.5
- 17.2.D.4.2 The Contractor must provide the TA with a copy of the certificate of qualification for the NDT inspector prior to the NDT testing and a copy of the NDT report upon completion of the testing.
- 17.2.D.4.3 The Contractor must provide a detailed report of all the work carried out on the davit, the brakes, and the control valve. This report must include all measurements taken, pressures recorded, relief valve settings, all deficiencies found, all corrective measures taken and any recommendations for future maintenance.
- 17.2.D.4.4 The Contractor must provide a certificate indicating that the davit is fit for service.
- 17.2.D.4.5 The Contractor must provide the TA with waste disposal documents for all the waste oils and oily waste generated for this specification item.

17.2.D.5 Training

18.0 Communications and Navigation- NOT USED

19.0 Control Systems - NOT USED