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RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des  
soumissions - TPSGC**

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**Place du Portage , Phase III**

**Core 0B2 / Noyau 0B2**

**Gatineau**

**Québec**

**K1A 0S5**

**Bid Fax: (819) 997-9776**

**REQUEST FOR PROPOSAL  
DEMANDE DE PROPOSITION**

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

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

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

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

**Comments - Commentaires**

**Vendor/Firm Name and Address**

**Raison sociale et adresse du**

**fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**

**Marine Machinery and Services / Machineries et services  
maritimes**

**11 Laurier St. / 11, rue Laurier**

**6C2, Place du Portage**

**Gatineau**

**Québec**

**K1A 0S5**

<b>Title - Sujet</b> KNUCKLE BOOM CRANE-CCGS CORNWALLIS		
<b>Solicitation No. - N° de l'invitation</b> F7049-150257/A		<b>Date</b> 2016-08-11
<b>Client Reference No. - N° de référence du client</b> F7049-150257		
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$ML-044-25942		
<b>File No. - N° de dossier</b> 044ml.F7049-150257	<b>CCC No./N° CCC - FMS No./N° VME</b>	
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2016-09-21</b>		<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT
<b>F.O.B. - F.A.B.</b> Specified Herein - Précisé dans les présentes <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input checked="" type="checkbox"/>		
<b>Address Enquiries to: - Adresser toutes questions à:</b> Aussant, Marc		<b>Buyer Id - Id de l'acheteur</b> 044ml
<b>Telephone No. - N° de téléphone</b> (819) 420-2906 ( )		<b>FAX No. - N° de FAX</b> (819) 956-0897
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b>  Specified Herein Précisé dans les présentes		

**Instructions: See Herein**

**Instructions: Voir aux présentes**

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

## Request for Proposal (RFP)

### For the procurement of an Electro Hydraulic Marine Knuckle Boom Crane (KB CRANE) with Associated Engineering Changes (EC), Integration and Installation Packages for the CANADIAN COAST GUARD SHIP (CCGS) EDWARD CORNWALLIS

## TABLE OF CONTENTS

<b>PART 1 - GENERAL INFORMATION .....</b>	<b>4</b>
1.1 INTRODUCTION.....	4
1.2 SUMMARY .....	4
1.3 DELIVERY SCHEDULE .....	4
1.4 DEBRIEFINGS .....	5
<b>PART 2 - BIDDER INSTRUCTIONS .....</b>	<b>6</b>
2.1 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS.....	6
2.2 SUBMISSION OF BIDS.....	6
2.3 FORMER PUBLIC SERVANTS – COMPETITIVE BID.....	6
2.4 ENQUIRIES - BID SOLICITATION.....	7
2.5 APPLICABLE LAWS.....	7
2.6 BIDDER'S CONFERENCE .....	8
2.7 MANDATORY SITE VISIT .....	8
<b>PART 3 - BID PREPARATION INSTRUCTIONS.....</b>	<b>9</b>
3.1 BID PREPARATION INSTRUCTIONS .....	9
3.2 CANADA REQUESTS THAT BIDDERS PROVIDE THEIR BID IN SEPARATELY BOUND VOLUMES AS FOLLOWS:	10
3.3 EXCHANGE RATE FLUCTUATION .....	11
<b>PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION .....</b>	<b>12</b>
4.1 EVALUATION PROCEDURES.....	12
4.1.1 TECHNICAL EVALUATION .....	12
4.1.1.1 MANDATORY TECHNICAL CRITERIA.....	12
4.1.2 FINANCIAL EVALUATION.....	12
4.1.2.1 MANDATORY FINANCIAL CRITERIA.....	12
4.2 BASIS OF SELECTION.....	12
<b>PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION .....</b>	<b>13</b>
5.1 CERTIFICATIONS REQUIRED WITH THE BID.....	13
5.1.1 INTEGRITY PROVISIONS - DECLARATION OF CONVICTED OFFENCES .....	13
5.2 CERTIFICATIONS PRECEDENT TO CONTRACT AWARD AND ADDITIONAL INFORMATION .....	13
<b>PART 6 – SECURITY, FINANCIAL AND OTHER REQUIREMENTS.....</b>	<b>15</b>
6.1 SECURITY REQUIREMENTS .....	15
6.2 INSURANCE REQUIREMENTS .....	15
<b>PART 7 - RESULTING CONTRACT CLAUSES .....</b>	<b>16</b>
1 STATEMENT OF WORK .....	16
1.1 CONDUCT OF THE WORK.....	16
1.2 DESIGN REVIEWS .....	17
1.3 PRODUCTION SCHEDULE.....	17
1.4 DRAWINGS DURING DESIGN, MANUFACTURING, INTEGRATION AND INSTALLATION PHASE .....	17

1.5	ADDITIONAL / UNSCHEDULED WORK INCLUDING DESIGN CHANGE .....	18
1.6	INSPECTION AND ACCEPTANCE OF THE WORK.....	18
1.7	TESTS AND DEMONSTRATIONS ACCEPTANCE .....	19
2	STANDARD CLAUSES AND CONDITIONS.....	20
2.1	GENERAL CONDITIONS.....	20
2.2	SUPPLEMENTAL GENERAL CONDITIONS .....	20
3	TERM OF CONTRACT .....	20
3.1	DELIVERY DATE .....	20
3.2	SHIPPING INSTRUCTIONS, DELIVERED DUTY PAID .....	21
4	AUTHORITIES .....	21
4.1	CONTRACTING AUTHORITY .....	21
4.2	TECHNICAL AUTHORITY.....	21
4.3	CONTRACTOR'S REPRESENTATIVE *TO BE INSERTED AT CONTRACT AWARD* .....	22
5	PROACTIVE DISCLOSURE OF CONTRACTS WITH FORMER PUBLIC SERVANTS .....	22
6	PAYMENT .....	23
6.1	BASIS OF PAYMENT – FIRM PRICES.....	23
6.2	BASIS OF PAYMENT – ADDITIONAL / UNSCHEDULED WORK .....	23
6.3	MILESTONE PAYMENTS .....	24
6.4	DISCRETIONARY AUDIT FOR UNSCHEDULED WORK ONLY.....	24
6.5	TIME VERIFICATION FOR UNSCHEDULED WORK ONLY.....	24
6.6	LIMITATION OF PRICE .....	24
7	INVOICING INSTRUCTIONS – PROGRESS PAYMENT CLAIM.....	24
8	CERTIFICATIONS AND ADDITIONAL INFORMATION.....	25
8.1	COMPLIANCE.....	25
8.2	FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY - DEFAULT BY THE CONTRACTOR .....	25
9	APPLICABLE LAWS.....	25
10	PRIORITY OF DOCUMENTS .....	25
11	FOREIGN NATIONALS (CANADIAN CONTRACTOR OR FOREIGN CONTRACTOR).....	26
12	QUALITY PLAN.....	26
13	INSURANCE REQUIREMENTS .....	26
14	LIMITATION OF CONTRACTOR'S LIABILITY FOR DAMAGES TO CANADA .....	27
15	DISPUTE RESOLUTION.....	28
16	FAILURE TO DELIVER.....	28
17	SACC MANUAL CLAUSES .....	29
<b>ANNEX “A” .....</b>		<b>30</b>
<b>STATEMENT OF WORK.....</b>		<b>30</b>
<b>ANNEX “B” .....</b>		<b>31</b>
<b>MILESTONE PAYMENT SCHEDULE.....</b>		<b>31</b>
<b>ANNEX “C” .....</b>		<b>32</b>
<b>DELIVERY SCHEDULE .....</b>		<b>32</b>
<b>ANNEX “D” .....</b>		<b>33</b>
<b>DETAILED PRICES BREAKDOWN.....</b>		<b>33</b>
<b>ANNEX “E” .....</b>		<b>36</b>
<b>PROCEDURE FOR PROCESSING ADDITIONAL / UNSCHEDULED WORK .....</b>		<b>36</b>
<b>ANNEX “F” .....</b>		<b>39</b>
<b>INSURANCE REQUIREMENTS .....</b>		<b>39</b>

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

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<b>ANNEX “G” .....</b>	<b>42</b>
<b>TO PART 5 - BID SOLICITATION .....</b>	<b>42</b>
<b>ANNEX “H” .....</b>	<b>43</b>
<b>FINANCIAL BID PRESENTATION SHEET .....</b>	<b>43</b>
<b>ANNEX “I” .....</b>	<b>45</b>
<b>MANDATORY TECHNICAL CRITERIA.....</b>	<b>45</b>

## **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;
- 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, and the basis of selection;
- Part 5 Certifications and Additional Information: includes the certifications and additional information to be provided;
- Part 6 Security, 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 Statement of Work, the Milestone Payment Schedule, the Delivery Schedule, the Detailed Prices Breakdown, the Procedure for Processing Additional/Unscheduled Work, the Insurance Requirements, the Federal Contractors Program for Employment Equity - Certification, the Financial Bid Presentation Sheet, the Mandatory Technical Criteria and any other annexes.

### **1.2 Summary**

The Canadian Coast Guard has a requirement to procure a new Class approved Electro Hydraulic Marine Knuckle Boom Crane (KB Crane), to replace the existing derrick type Speedcrane installed onboard the Canadian Coast Guard Ship (CCGS) Edward Cornwallis (the vessel), and to procure the required Engineering Changes (EC) to the new crane and to the vessel for the Integration and Installation of the new KB Crane on board.

The Federal Contractors Program (FCP) for employment equity applies to this procurement; see Part 5 – Certifications and Additional Information, Part 7 - Resulting Contract Clauses and the annex titled Federal Contractors Program for Employment Equity - Certification.

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

### **1.3 Delivery Schedule**

The Bidder must complete the Annex "C" Delivery Schedule and propose a delivery schedule that meets Canada's following delivery requirements.

Canada requires that the following deliverables be ready for acceptance, that is, complete in all respects and with all testing successfully completed, when applicable, this in accordance with the contract, no later than:

Item #	Description	Working Days (WD) after Contract Award (CA)
1	Kick-Off meeting and System Requirement Review (SRR)	CA + 20 WD
2	Preliminary Design Review	CA + 100 WD
3	Critical Design Review	CA + 120 WD
4	Delivery of the KB Crane EC Specifications and Drawings Packages	CA + 140 WD
5	Delivery of the Vessel's Integration EC Specifications and Drawings Packages	CA + 150 WD
6	Delivery of the KB Crane Installation Specifications and Drawings Packages	CA + 160 WD
7	Delivery of the KB Crane Factory STW Plan and Procedures	CA + 140 WD
8	Delivery of the KB Crane FAT Plan and Procedures	CA + 140 WD
9	Delivery of the KB Crane Vessel's STW Plan and Procedures	CA + 160 WD
10	Delivery of the Vessel's Inclining Test (VIT) Procedure	CA + 160 WD
11	Delivery of the KB Crane Dock Trial Plan Procedure	CA + 180 WD
12	Delivery of the KB Crane Sea Acceptance Trials Procedure	CA + 180 WD
13	Delivery of the KB Crane Cadre Training package	CA + 180 WD
14	Delivery of the KB Crane to CCG	CA + 365 WD
15	Delivery of Spare Parts and Special Purpose Tools	CA + 365 WD

1.3.1 For bidding purpose only, it is estimated that the duration of the bid evaluation will take about one (1) month following bid closing.

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

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## 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 (2016-04-04) 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 page 1 of the bid solicitation.

### 2.3 Former Public Servants – Competitive Bid

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

## Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the Financial Administration Act, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the Public Service Superannuation Act (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the Supplementary Retirement Benefits Act, R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the Canadian Forces Superannuation Act, R.S., 1985, c. C-17, the Defence Services Pension Continuation Act, 1970, c. D-3, the Royal Canadian Mounted Police Pension Continuation Act, 1970, c. R-10, and the Royal Canadian Mounted Police Superannuation Act, R.S., 1985, c. R-11, the Members of Parliament Retiring Allowances Act, R.S. 1985, c. M-5, and that portion of pension payable to the Canada Pension Plan Act, R.S., 1985, c. C-8.

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### Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes** ( ) **No** ( )

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

### Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes** ( ) **No** ( )

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks; and
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

### 2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

### 2.5 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.

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## **2.6 Bidder's Conference**

A bidders' conference will be held at the Canadian Coast Guard Building, 50 Discovery Drive, Dartmouth, Nova Scotia, on August 31, 2016. The conference will begin at 0900 ADST, in the Atrium Boardroom. The scope of the requirement outlined in the bid 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 a representative.

Bidders are requested to communicate with the Contracting Authority before the conference to confirm attendance. Bidders should provide, in writing, to the Contracting Authority, the names of the person(s) who will be attending and a list of issues they wish to table at least five (5) working days before the scheduled conference.

Any clarifications or changes to the bid solicitation resulting from the bidders' conference will be included as an amendment to the bid solicitation. Bidders who do not attend will not be precluded from submitting a bid.

## **2.7 Mandatory Site Visit**

It is mandatory that the Bidder or a representative of the Bidder visit the vessel. Arrangements have been made for the site visit to be held on August 29 to September 1, 2016 inclusively onboard CCGS Edward Cornwallis tied up alongside at the Bedford Institute of Oceanography, 1 Challenger Drive, Dartmouth, Nova Scotia.

Bidders must communicate with the Contracting Authority no later than five (5) working days before the scheduled visit to confirm attendance and provide the names of the person(s) who will attend. Bidders will be required to sign an attendance form.

Bidders who do not attend or send a representative will not be given an alternative appointment and their bids will be rejected as non-compliant.

Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation. It is the Bidder's responsibility to ensure that all questions and request for clarification are addressed in accordance with the RFP Part 2 clause 2.4 "Enquiries - Bid Solicitation" in order that they become contractual.

It is the Bidder's responsibility to ensure that all available, accessible or visible information has been seen, noted and validated. Canada will assume that Bidders are in possession of that information, that they validated it and will not consider any request for adjustment related to that information from the successful Contractor once in contract.

Canada will make non-compliant a proposal that will contain caveat(s) and/or assumption(s) that were not raised by the Bidders and accepted by Canada as being part of all Bidder's proposal.

## PART 3 - BID PREPARATION INSTRUCTIONS

### 3.1 Bid Preparation Instructions

- (a) **Prices must appear in the Financial bid only. No prices must be indicated in any other section of the bid.**
- (b) The hard copy which bears the serial number "1" will be treated as the master copy and will take precedence over all other copies should there be any discrepancy between copies.
- (c) If there is a discrepancy between the wording of the soft copy and the hard copy number #1, the wording of the hard copy #1 will have priority over the wording of the soft copies.
- (d) It is the sole responsibility of Bidder to provide sufficient information to adequately assess its Bid. Where the information is lacking in both versions, then Canada will NOT request or allow the subsequent submission of additional information.
- (e) Soft copies of the Bid shall be delivered in MS Word format.
- (f) Canada requests that bidders follow the format instructions described below in the preparation of their bid:
  - 1. use 8.5 x 11 inch (216 mm x 279 mm) paper; and
  - 2. use a numbering system that corresponds to the bid solicitation.

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

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.
- (g) Signature of the Bid:
  - 1. Canada requires that each Bid be signed by the Bidder or by an authorized representative of the Bidder. Bid should be properly signed when submitted at bid closing. However, where Canada determines that the Bidder has omitted to sign the Bid as required, Canada will provide the Bidder with 24 hours to submit a proper signature page;
  - 2. In this solicitation, the "Bidder" means the legal entity submitting the Bid in response to the solicitation and does not include the parent, subsidiaries or other affiliates of that legal entity, or its subcontractors; and
  - 3. Bidders can sign their Bids by copying the front page of this solicitation, signing it, and submitting it as part of their Bids or by including a signature page in a prominent location in their Bids.
- (h) Cross-referencing

Each section of the Bidder's Bid should be written to the greatest extent possible on a stand-alone basis so that its content may be evaluated with a minimum of cross-referencing to other sections of the Bid. Cross-referencing within a proposal Section is permitted where its use would conserve space without impairing clarity.

- (i) Except as specifically provided otherwise in this solicitation, Canada will evaluate the Bids on the documentation provided as part of that Bid. References in a proposal to additional information not submitted with the Bid, such as:

1. Web site addresses where additional information can be found;
  2. Technical manuals or brochures not submitted with the Bid;
- or
3. Existing standing offers, supply arrangements or contracts with the Government of Canada.
- will not be considered.

**3.2 Canada requests that Bidders provide their bid in separately bound volumes as follows:**

**Volume I:**

Section I: Technical Bid, three (3) hard copies and two (2) soft copies on USB drive in MS Word format.

**Volume II:**

Section II: Financial Bid, one (1) hard copy

Section III: Certifications, one (1) hard copy

**Volume I:**

**Section I: Technical Bid**

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

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that Bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, Bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

**The Technical Bid shall also include:**

- (a) Statement of compliance to the SOW in a requirements matrix format; and
- (b) Duly completed Annex "C" Delivery Schedule; and

- 
- (c) Duly completed Annex "I" Mandatory Technical Criteria. Bidders must demonstrate how they meet each Mandatory Technical Criteria of the RFP, including provision of design drawings, other drawings, calculations and materials specified there.

## **Volume II:**

### **Section II: Financial Bid**

Bidders must submit their financial bid in accordance with Annex "D" Detailed Prices Breakdown and Annex "H" Financial Bid Presentation Sheet. All prices must be in Canadian dollars, Delivered Duty Paid (DDP) Incoterms 2000 included or listed separately as one amount for deliveries, if applicable. The total amount of Applicable Taxes must be shown separately.

All prices quoted must be inclusive of all Travel and Living expenses, testing, acceptance and delivery to the destinations listed during the performance of this contract.

The Financial Bid shall also include:

- (a) The full legal name of the Bidder;
- (b) Complete contact information of the company representative responsible for the proposal;
- (c) Duly completed Annex "D" Detailed Prices Breakdown; and
- (d) Duly completed **and signed** Annex "H" Financial Bid Presentation Sheet.

### **3.3 Exchange Rate Fluctuation**

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

SACC Manual Clause C3011T (2013-11-06).

### **Section III: Certifications**

Bidders must submit the certifications and additional information required under Part 5.

## **PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

### **4.1 Evaluation Procedures**

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### **4.1.1 Technical Evaluation**

##### **4.1.1.1 Mandatory Technical Criteria**

The Mandatory Technical Evaluation Criteria are listed in the Annex "I".

#### **4.1.2 Financial Evaluation**

##### **4.1.2.1 Mandatory Financial Criteria**

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, Incoterms 2000 (Delivered Duty Paid - DDP), Canadian customs duties and excise taxes included.

### **4.2 Basis of Selection**

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

## **PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION**

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

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

### **5.1 Certifications Required with the Bid**

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

#### **5.1.1 Integrity Provisions - Declaration of Convicted Offences**

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

### **5.2 Certifications Precedent to Contract Award and Additional Information**

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

#### **5.2.1 Integrity Provisions – Required Documentation**

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

#### **5.2.2 Federal Contractors Program for Employment Equity - Bid Certification**

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website ([http://www.esdc.gc.ca/en/jobs/workplace/human\\_rights/employment\\_equity/federal\\_contractor\\_program.page?&\\_ga=1.229006812.1158694905.1413548969#afed](http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969#afed)).

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.

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

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The Bidder must provide the Contracting Authority with a completed Annex G 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 G Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
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044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

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## **PART 6 – SECURITY, FINANCIAL AND OTHER REQUIREMENTS**

### **6.1 Security Requirements**

There is no security requirements related to this contract

### **6.2 Insurance Requirements**

The Bidder must provide a letter from an insurance broker or an insurance company licensed to operate in Canada stating that the Bidder, if awarded a contract as a result of the bid solicitation, can be insured in accordance with the Insurance Requirements specified in Part 7, clause 13.

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

## PART 7 - RESULTING CONTRACT CLAUSES

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

### 1 Statement of Work

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

The Statement of Work Annex "A" provides the detailed requirements to be met in order to supply a new Class approved Electro Hydraulic Marine Knuckle Boom Crane (KB Crane) in replacement of the existing derrick type Speedcrane installed onboard the Canadian Coast Guard Ship (CCGS) Edward Cornwallis (the vessel), and also to provide the required Engineering Changes (EC) to the new crane and to the vessel for the Integration and Installation of the new KB Crane on board.

#### 1.1 Conduct of the Work

1. This section applies despite any other provision of the Contract and adds to the section of the general conditions entitled "Conduct of the Work".
2. The Contractor represents and warrants that it has the experience, qualifications, personnel, equipment, facilities and all other resources to perform the Work.
3. In the performance of the Work, the Contractor shall supply, other than Government Supplied Material (GSM), all the resources, facilities, labour, management, services, equipment, materials, drawings, tools technical data, technical assistance, engineering services and planning necessary to complete the Work.
4. The Contractor agrees to:
  - (a) commence and carry out the Work promptly and diligently and upon the terms and conditions and in the manner contemplated by this Contract;
  - (b) carry out the Work in accordance with good, modern shipbuilding practices;
  - (c) provide efficient and effective supervision and inspection of the carrying out of the Work; and
  - (d) provide material and workmanship of the highest quality commensurate with the nature of the work and take all such steps as are necessary to ensure that the Work is completed according to the Contract.
5. No material or parts shall be used or processed and no finished Work shall be submitted for acceptance or delivery unless approved by the Technical Authority. The Contractor shall complete the Work to the satisfaction of Technical Authority and fully in accordance with the Contract and deliver all of the Work as required by the Contract.
6. The Contractor shall submit for examination by the Technical Authority any designs, drawings, models, completed or under preparation by it or its behalf in connection with the Work at any time.
7. The Contractor shall provide such reports on the performance of the Work as are required by the Contract and such other reports as may be reasonably required by the Contracting Authority and the Technical Authority.

8. The Contractor shall provide the services required under the Contract. In case of failure by the Contractor to provide any of the described services in the Contract, Canada may suspend payment until such failure has been corrected to the satisfaction of Canada.

## **1.2 Design Reviews**

1. The Design Reviews, Preliminary and Critical, shall be completed and design packages deliverables submitted in accordance with the SOW.
2. The Contractor shall submit the design packages deliverables for each of the Design Reviews.
3. Where Canada alleges and the Contractor agrees that the design is defective or deficient, the Contractor shall correct the design.
4. Where the Contracting Authority and the Contractor's representative are unable to resolve the design defect or deficiency, they agree to follow the prescriptions of the Contract Dispute Resolution clause.

## **1.3 Production Schedule**

1. The Production Schedule shall be in accordance with the Annex "C "Delivery Schedule" of the Contract.
2. The Contractor is responsible for planning and scheduling the Work required herein. The Production Schedule shall be updated on a continuous basis.

## **1.4 Drawings during Design, Manufacturing, Integration and Installation Phase**

1. All drawings shall be submitted to the Technical Authority for examination.
2. The review of the Contractor's drawings by Canada shall not relieve him of its contractual responsibility and the same applies to the subcontracts issued by the Contractor to the subcontractor.

In particular, examination or approval of drawings shall not:

- (a) Relieve the Contractor of its obligation to ensure that all details are correct;
  - (b) Obligate Canada to accept an item that does not meet the Contract requirements;
  - (c) Confirm that an item complies with the Contract requirements; and
  - (d) Relieve the Contractor of the responsibility for any omissions and the consequences resulting thereof.
3. Any drawings which are supplied to the Contractor by or on behalf of Canada are for such purpose as the Contractor may wish to use them but are not evidence of any interpretation to be given to the Contract requirements. Any such use by the Contractor shall not relieve the Contractor of any responsibility under this Contract. The Contractor shall indemnify and save harmless Canada from any claims, actions, suits or proceedings based upon the use by the Contractor of such drawings.

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## **1.5 Additional / Unscheduled Work including Design Change**

1. The Contractor hereby acknowledges that Canada may require the Contractor to perform Additional / Unscheduled Work at any time and from time to time, during this Contract. The Additional / Unscheduled Work could include but not be limited to:
  - (a) Additions or variations to the Work including Design Changes; and
  - (b) Dispensing with or change to any portion of the Work.
2. Any Additional / Unscheduled Work will be process according to the Annex "E", Procedure for Processing Additional / Unscheduled Work.
3. The Contractor shall perform the Additional / Unscheduled Work under the same terms and conditions of the Contract. The Additional / Unscheduled Work will be negotiated using the Unscheduled Work labor rates and mark-ups provided by the Contract.
4. The Contractor may request a change to the Work for Canada's consideration by submission of a request for change proposal to the Contracting Authority.
5. Request for extensions in the delivery date as a result of the Additional / Unscheduled Work must be presented at the time of the proposal otherwise extensions to the delivery date will not be considered.
6. No cost, Additional / Unscheduled Work; Notwithstanding the foregoing, should Canada deem it advisable to make any reasonable change in the Work during the course of the Work, provided the change is ordered before that particular part of the Work to which Canada refers is commenced and involves no extra cost to the Contractor, such changes shall be made by the Contractor without extra cost to Canada.

## **1.6 Inspection and Acceptance of the Work**

1. This section applies despite any other provision of the Contract and adds to the section of the general conditions entitled " Inspection and Acceptance of the Work "
2. All reports, deliverables, documents, goods and all services rendered under this Contract shall be subject to inspection by the Technical Authority. Should any report, document, good or service not be in accordance with the requirements of the Contract, the Technical Authority shall have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment. Any communication with a Contractor regarding the quality of Work performed pursuant to this Contract shall be undertaken by official correspondence through the Contracting Authority.
3. The Contractor shall be responsible for properly setting up, preparing, providing access to and presenting Work for inspection and for giving adequate notice to the Technical Authority and the Regulatory Body that the Work is complete, and having been pre-tested or inspected, is ready for the inspection.
4. Inspection will be done by the Technical Authority at the most appropriate location:
  - (a) During the KB Crane Design, manufacturing and factory acceptance, at Contractor's facilities;
  - (b) During the KB Crane acceptance testing, at locations indicated in the SOW; and

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(c) For most of the Documentation, at Canada's facilities.

5. Inspection requirements shall be in accordance with the provisions of this Contract including 2030 (2015-07-03), General Conditions - Higher Complexity - Goods, and the following procedures:
- (a) Non-conformance Report (NCR): A NCR will be issued for each Non-conformance noted by the Technical Authority. Each report will be uniquely numbered for reference purposes, will be signed and dated by the Technical Authority, and will describe the Non-conformance.

When the Non-conformance has been corrected by the Contractor and has been re-inspected and accepted by the Technical Authority, the Technical Authority will complete the NCR by signing and dating the NCR.

When Delivery Acceptance trials have been completed and the Contractor has corrected/addressed items on the Non-conformance list, an Acceptance Inspection of the KB Crane, its Integration and Installation shall be carried out by the Technical Authority. Three (3) working days prior to the scheduled Completion Date, the content of all Non-conformance Reports which have not been signed-off by the Technical Authority will be transferred to the Delivery Document prior to the Technical Authority certification of such document. A final Deficiencies Database shall be prepared for signature if necessary.

The Contractor shall correct all outstanding deficiencies during the warranty period at a time and place agreed to by the Contractor, the Technical Authority and the Contractual Authority.

- (b) Notwithstanding the above including the Inspection by the Technical Authority, the discrepancy notices, the Non-conformance reports, or absences thereof, or corrections thereto, or acceptance thereof, do not relieve the Contractor of its obligations to satisfy the requirements of this Contract. As such, the Contractor shall correct any and all defects or deficiencies discovered at no additional cost to Canada.

## **1.7 Tests and Demonstrations Acceptance**

1. To enable the Technical Authority to certify that the Work has been performed satisfactorily, in accordance with the Contract, the Contractor shall schedule, coordinate, perform, and record all specified Tests and Demonstrations required by the Contract.
2. Where the Contract contains a specific performance requirement for any component, equipment, subsystem or system, the Contractor shall test such component, equipment, subsystem or system to the satisfaction of the Technical Authority, to prove that the specified performance has been achieved and that the component, equipment, subsystem or system performs as required by the Contract.
3. Tests and demonstrations shall be conducted in accordance with a logical, systematic schedule which shall ensure that all associated components and equipment are proven prior to subsystems demonstration or testing, and subsystems are proven prior to system demonstration or testing.
4. Where the Contract does not contain specific performance requirements for any component, equipment, subsystem or system, the Contractor shall demonstrate the performance of such component, equipment, subsystem or system to the satisfaction of the Technical Authority.

5. The Contractor shall keep written records of all tests and demonstrations conducted, including all rejections, comments, or recommendations made at such times. Records shall be in a format, and contain data, such that the Technical Authority can certify compliance of the component, equipment, subsystem, or system with the specified requirements.
6. The Contractor shall in all respects be responsible for the conduct of all tests in accordance with the requirements of this Contract.

Canada reserves the right to defer starting or, continuing with any tests for any reasonable cause including but not limited to equipment failure or degradation, lack of qualified personnel and inadequate safety standards.

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

### **2.1 General Conditions**

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

The article 2030 22 (2014-09-25) Warranty, is amended as follow;

At the end of the paragraph 1, add the following sentence;

"For the purpose of the Warranty **only**, the Acceptance of the Work will take place after the completion of the successful Sea Acceptance Trials (SAT) of the KB Crane."

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

### **2.2 Supplemental General Conditions**

4006 (2010-08-16) Contractor to Own Intellectual Property Rights in Foreground Information, apply to and form part of the Contract.

1029 (2010-08-16) Ship Repairs

## **3 Term of Contract**

### **3.1 Delivery Date**

All the deliverables must be received in accordance with Annex "C" Delivery Schedule.

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

### 3.2 Shipping Instructions, Delivered Duty Paid

Goods must be consigned and delivered to the destination specified in the contract:

Incoterms 2000 "Delivered Duty Paid" (DDP), Canadian customs duties and excise taxes included, to the destinations listed below.

CCGS Edward Cornwallis  
CCG Stores 05C Warehouse door 1  
13 Akerley Blvd.,  
DARTMOUTH, NS  
CANADA B3B 1J6

## 4 Authorities

### 4.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Marc Aussant  
Title: Supply Team Leader  
Public Works and Government Services Canada  
Acquisitions Branch, Marine Systems Directorate  
11, rue Laurier, Place du Portage, Phase III, 6C2, Gatineau, QC, K1A 0S5  
Telephone: 819-420-2906  
Facsimile: 819-956-0897  
E-mail address: Marc.Aussant@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.

### 4.2 Technical Authority

The Technical Authority for the Contract is: **\*To be inserted at contract award\***

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
Facsimile: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
E-mail address: \_\_\_\_\_

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority **however, the Technical Authority has no authority to authorize changes to the scope of the Work.** Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

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#### **4.3 Contractor's Representative \*To be inserted at contract award\***

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_-\_\_\_\_-\_\_\_\_  
Facsimile: \_\_\_\_-\_\_\_\_-\_\_\_\_  
E-mail address: \_\_\_\_\_

#### **5 Proactive Disclosure of Contracts with Former Public Servants**

By providing information on its status, with respect to being a former public servant in receipt of a Public Service Superannuation Act (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada.

## **6 Payment**

### **6.1 Basis of Payment – Firm Prices**

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid the firm prices, as specified in Annex "H" Financial Bid Presentation Sheet and in accordance with Annex "B" Milestone Payment Schedule, Canadian customs duties and excise taxes included and Applicable Taxes are extra.

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

All project management fees shall be included for each item listed in the Milestone Payment Schedule at Annex "B".

All firm prices are inclusive of all Travel and Living expenses. No Travel and Living expenses in the performance of the Work will be reimbursed to the Contractor.

### **6.2 Basis of Payment – Additional / Unscheduled Work**

1. The Additional / Unscheduled (A/U) Work Hourly Labour Rate for authorized A/U Work including Design Change, Engineering Change or change in the scope of work will be paid in accordance with:
  - (a) Annex "H" Financial Bid Presentation Sheet;
  - (b) Annex "E" Procedure for Processing A/U Work;
  - (c) Contract Cost Principles 1031-2 (2012-07-16) and inclusive of a profit in accordance with Chapter 10 - Cost and Profit of the Supply Manual, Public Works and Government Services Canada (PWGSC); and
  - (d) The firm A/U Work labour rate shall be a blended rate of all classes of labour, engineering, supervision and inclusive of all fringe benefits, overhead and profit.
2. The Overtime Rate (1½) shall be as specified in Annex "H" Financial Bid Presentation Sheet and shall not be paid unless authorized in writing by the Contracting Authority and for authorized A/U Work only and shall be calculated as follows:
  - (a) Time and one-half (1½) – The contractor shall be paid the firm A/U Work labour rate plus half of the A/U Work direct labour rate portion with fringe benefits, overhead and profit applicable to that portion only.
3. The Double Overtime Rate (2X) shall be as specified in Annex "H" Financial Bid Presentation Sheet and shall not be paid unless authorized in writing by the Contracting Authority and for authorized A/U Work only and shall be calculated as follows:
  - (a) Double Time (2) – The contractor shall be paid the firm A/U Work labour rate plus the A/U Work direct labour rate portion with fringe benefits, overhead and profit applicable to that portion only.

### 6.3 Milestone Payments

1. Canada will make milestone payments in accordance with Milestone Payment Schedule at Annex "B", detailed in the Contract and the payment provisions of the Contract, up to ninety (90) percent of the amount claimed and approved by Canada if:
  - (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111, 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 total amount for all milestone payments paid by Canada does not exceed ninety (90) percent of the total amount to be paid under the Contract;
  - (c) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives; and
  - (d) all work associated with the milestone and as applicable any deliverable required have been completed and accepted by Canada.
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.

### 6.4 Discretionary Audit for Unscheduled Work Only

SACC Manual clause C0100C (2010-01-11), Discretionary Audit - Commercial Goods and/or Services.

### 6.5 Time Verification for Unscheduled Work Only

SACC Manual clause C0711C (2008-05-12), Time Verification

### 6.6 Limitation of Price

SACC Manual clause C6000C (2011-05-16) Limitation of Price

## 7 Invoicing Instructions – Progress Payment Claim

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, 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; and
  - (c) the description and value of the milestone claimed as detailed in the Contract.
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 Technical Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

The Technical 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.

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

## **8 Certifications and Additional Information**

### **8.1 Compliance**

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing additional information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the additional information, or if 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.

### **8.2 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.

## **9 Applicable Laws**

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in \_\_\_\_\_. (The Contracting Authority will insert the name of the province or territory as specified by the Bidder in its bid, if applicable.)

## **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 4006 (2010-08-16), Contractor to Own Intellectual Property Rights in Foreground Information;
- (c) the supplemental general conditions 1029 (2010-08-16), Ship Repairs;
- (d) the general conditions 2030 (2015-07-03), General Conditions - Higher Complexity - Goods;
- (e) 1031-2 (2012-07-16), Contract Cost Principles;
- (f) Annex A, Statement of Work;
- (g) Annex B, Milestone Payment Schedule;
- (h) Annex C, Delivery Schedule;
- (i) Annex D, Detailed Prices Breakdown;

- (j) Annex E, Procedure for Processing Additional / Unscheduled Work;
- (k) Annex F, Insurance Requirements
- (l) Annex G, Federal Contractors Program for Employment Equity - Certification;
- (m) Annex H, Financial Bid Presentation Sheet; and
- (n) the Contractor's bid dated \_\_\_\_\_, *(insert date of bid)* *(If the bid was clarified or amended, insert at the time of contract award: ", as clarified on \_\_\_\_\_" or ", as amended on \_\_\_\_\_" and insert date(s) of clarification(s) or amendment(s)).*

## 11 Foreign Nationals (Canadian Contractor OR Foreign Contractor)

SACC Manual clause A2000C (2006-06-16) Foreign Nationals (Canadian Contractor)

### OR

SACC Manual clause A2001C (2006-06-16) Foreign Nationals (Foreign Contractor)

## 12 Quality plan

No later than **20 days** after the effective date of the Contract, the Contractor must submit for acceptance by the CCG/TA a Quality Plan prepared according to the latest issue (at contract date) of ISO 10005:2005 "Quality management systems - Guidelines for quality plans". The Quality Plan 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 Quality Plan.

The documents referenced in the Quality Plan must be made available when requested by Public Works and Government Services Canada or the CCG/TA.

If the Quality Plan was submitted as part of the bidding process, the Contractor must review and, where appropriate, revise the submitted plan to reflect any changes in requirements or planning which may have occurred as a result of pre-contract negotiations.

Upon acceptance of the Quality Plan by the CCG/TA, the Contractor must implement the Quality Plan. The Contractor must make appropriate amendments to the Quality Plan throughout the term of the contract to reflect current and planned quality activities. Amendments to the Quality Plan must be acceptable to the CCG/TA.

If the Contract includes the option for software design, development or maintenance of software, the Contractor must interpret the requirements of ISO 9001:2008 "Quality management systems - Requirements", according to the guidelines of the latest issue (at contract date) of ISO/IEC 90003:2004 "Software engineering - Guidelines for the application of ISO 9001:2000 to computer software".

## 13 Insurance Requirements

The Contractor must comply with the insurance requirements specified in Annex F Insurance Requirements. 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 15 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.

The Contractor must forward to the Contracting Authority within ten (10) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. For Canadian-based Contractors, coverage must be placed with an Insurer licensed to carry out business in Canada, however, for Foreign-based Contractors, coverage must be placed with an Insurer with an A.M. Best Rating no less than "A-". The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

#### **14 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 (including negligence), 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:
  - a) any infringement of intellectual property rights;
  - b) any breach of warranty obligations; or
  - c) any liability of Canada to a third party arising from any act or omission of the Contractor in performing the Contract.
- 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 (14.2), 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 14.2(a), (b), and (c) 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, but 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.
- 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 In the event of a termination under this Article, the Contract will automatically remain in force subject to all of the same terms and conditions until the date of termination and the Contractor agrees that it will be paid in accordance with the applicable provisions as set out in the Contract and that the Contractor's liability remains as specified in sub articles 1 through 4 above.
- 8 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.

## 15 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 Machinery and Logistic Support Division 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.

## 16 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.

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

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**17 SACC Manual Clauses**

D2000C (2007-11-30), Marking;  
D2001C (2007-11-30), Labelling;  
D2025C (2013-11-06), Wood Packaging Material;  
D3015C (2014-09-25), Dangerous Goods / Hazardous Products - Labelling and Packaging  
Compliance; and  
D9002C (2007-11-30), Incomplete Assemblies.

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

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**ANNEX "A"**  
**STATEMENT OF WORK**

# **ANNEX A**

## **STATEMENT OF WORK (SOW)**

### **FOR THE PROCUREMENT OF AN**

### **ELECTRO-HYDRAULIC MARINE KNUCKLE BOOM CRANE (KB CRANE) WITH ASSOCIATED ENGINEERING CHANGES (EC), INTEGRATION AND INSTALLATION PACKAGES**

### **FOR THE**

### **CANADIAN COAST GUARD SHIP (CCGS) EDWARD CORNWALLIS**

Prepared by Marine Engineering  
VLE-MLM  
50 Discovery Drive  
Dartmouth, NS

Page 1 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

## Table of Contents

<b>1</b>	<b>Scope</b>
1.1	Purpose
1.2	Background
1.3	Objectives of the KB Crane Procurement
1.4	Acronyms and Abbreviations
<b>2</b>	<b>Applicable Documents</b>
2.1	Government Documents
2.2	Non-Government Documents
2.3	Order of Precedence
<b>3.</b>	<b>Electro Hydraulic Marine Knuckle Boom Crane (KB Crane) Delivery</b>
3.1	General
3.1.1	Project Management Services
3.1.2	Design Engineering Services
3.2	Deliverables
3.3	KB Crane and Vessel's Integration EC Specifications and Drawings
3.4	KB Crane and Vessel's Installation Specifications and Drawings
3.5	KB Crane Factory STW Plan and Procedures
3.6	KB Crane FAT Plan and Procedures
3.7	KB Crane Vessel's STW Plan and Procedures
3.8	Vessel's Inclining Test (VIT) Plan and Procedures with the KB Crane installed
3.9	KB Crane Dock Trial Plan (DTP) and Procedures
3.10	KB Crane Sea Acceptance Trial (SAT) Plan and Procedures
3.11	KB Crane Cadre Training
3.12	System Requirements Document
3.13	Preliminary Design Documents
3.14	Critical design Documents
3.15	KB Crane Documentation
3.16	Physical Configuration Audit Package
<b>4.0</b>	<b>Project Management</b>
4.1	Organization
4.1.1	Project Manager
4.1.2	Contractor's Point of contact
4.2	Project Management Plan
4.2.1	Work Breakdown Structure (WBS)
4.2.2	Configuration Management Plan
4.2.3	Integrated Logistic Support (ILS) Plan
4.2.4	Quality Assurance (QA) Plan
4.2.5	FAT STW Plan
4.2.6	FAT Plan
4.2.7	Vessel's STW Plan
4.2.8	Vessel's VIT Plan
4.2.9	DTP and SAT Plans
4.3	Security Management
4.3.1	Access to Canada's Facilities
4.4	Project Meeting

- 4.4.1 Project Kick Off Meeting
- 4.4.2 Project Review Meetings
- 4.4.3 Work Acceptance Meeting (WAM)
- 4.4.4 Other Scheduled Meetings
- 4.4.5 Meeting Arrangements
- 4.4.6 Meeting Support
- 4.4.7 Meeting Minutes
- 4.4.8 Meeting Cancellations
- 4.5 Reporting and communications
- 4.5.1 Progress Reports
- 4.5.2 Problem Reporting
- 4.5.3 Data Reviews and Revisions
- 4.6 Action Item List (AIL)
- 5.0 Existing Speedcrane Description and Strip out**
- 5.1 General System description
- 5.2 Existing Speedcrane strip out
- 5.3 Winch Power Supplies
- 5.4 General Particulars of the Vessel
- 6 New KB Crane Requirement**
- 6.1 Engineering Reviews and Audits
- 6.2 Environmental
- 6.3 KB Crane General Design
- 6.4 KB Crane Mechanical Design
- 6.4.1 KB Crane General Mechanical Design
- 6.4.2 Stability
- 6.4.3 KB Crane Structure Design
- 6.4.4 KB Crane Operator's Cabin (OC) Requirements
- 6.4.5 Luffing and Hoisting Requirements
- 6.5 KB Crane Electrical and Hydraulic Design
- 6.6 KB Crane Performance Requirements
- 6.7 KB Crane Control System Requirements
- 7 Acceptance Testing**
- 7.1 KB Crane and Vessel's Integration and Installation packages Acceptance Testing
- 7.1.1 FAT and Vessel's Set to Work Procedures
- 7.1.2 KB Crane Factory Acceptance Test (FAT)
- 7.1.3 Vessel's Inclining Test (VIT) Acceptance (with the KB Crane installed)
- 7.1.4 KB Crane Dock Trial Acceptance
- 7.1.5 KB Crane Sea Acceptance Trials (SAT)
- 7.2 Test Management
- 7.2.1 KB Crane Factory STW Plan and Procedures
- 7.2.2 KB Crane Factory Acceptance Test (FAT) Plan and Procedures
- 7.2.3 KB Crane Vessel's STW Plan and Procedures
- 7.2.4 Vessel's Inclining Test (VIT) Plan and Procedures
- 7.2.5 KB Crane Dock Trial Plan and Procedures
- 7.2.6 KB Crane Sea Acceptance Trials (SAT) Plan and Procedures
- 7.2.7 KB Crane Factory STW Reports
- 7.2.8 KB Crane Factory Acceptance Test (FAT) Reports

- 7.2.9 KB Crane Vessel's STW Reports
- 7.2.10 Vessel's Inclining Test (VIT) Reports
- 7.2.11 KB Crane Dock Trial Reports
- 7.2.12 KB Crane Sea Acceptance Trials (SAT) Reports
- 7.3 Certification
- 7.3.1 Certifications by Classification Society and / or TCMS
- 7.3.2 Work Acceptance
- 7.3.3 New KB Crane Commissioning

## **8 Integrated Logistics Support (ILS)**

- 8.1 General
- 8.2 Maintenance of the KB Crane
  - 8.2.1 Maintenance Concept
  - 8.2.2 Spare Parts
  - 8.2.3 Special Purpose Tools (SPT)
- 8.3 Cadre Training
  - 8.3.1 Number of Cadre Training Sessions and Students
  - 8.3.2 Training Material and Content
  - 8.3.3 Training Location and Training Equipment
  - 8.3.4 Language
- 8.4 Documentation
  - 8.4.1 Document Formats
  - 8.4.2 Electronic Protection
  - 8.4.3 Electronic Labelling
  - 8.4.4 Drawing Formats
- 8.5 Technical Documentation
  - 8.5.1 Engineering Data Access
  - 8.5.2 Technical Publications
  - 8.5.3 Original Equipment Manufacturer (OEM)
- 8.6 Packaging, Handling, Storage & Storage Ability
  - 8.6.1 General
  - 8.6.2 Packaging Methods and Levels
  - 8.6.2 Marking of Packages
  - 8.6.3 Shelf Life Items

## **9 Engineering Change Specifications**

- 9.1 General
- 9.2 Engineering Changes Designs

## **10 Acronyms and Abbreviations**

## **11 Contract Deliverable Requirements List (CDRL) and Data Item Description (DID)**

- 11.1 General
  - 11.1.1 Document Changes/Updates
  - 11.1.2 Deliverable Format and Number of Copies:
  - 11.1.3 Abbreviations:
- 11.2 CDRLs
  - 11.2.1 Project Management CDRL Summary
  - 11.2.2 Engineering CDRL Summary

- 11.2.3 Acceptance Testing CDRL Summary
- 11.2.4 Integrated Logistics Support CDRL Summary
- 11.2.5 Project Management CDRL Details
- 11.2.6 Engineering CDRL Details
- 11.2.7 Acceptance Testing CDRL Details
- 11.2.8 Integrated Logistics Support CDRL Details

#### **Data Item Descriptions**

- 11.2.9 Project Management DIDs
- 11.2.10 Engineering DIDs
- 11.2.11 Acceptance Testing DIDs
- 11.2.12 Integrated Logistics Support DIDs

#### **List of Tables**

- Table 1: List of Government Documents**
- Table 2: List of Non-Government Documents**
- Table 3: List KB Crane components per Vessel Set**
- Table 4: Special Purpose Tools**
- Table 5: Spare Parts**
- Table 6: Certification**
- Table 7: Documentation Set**
- Table 8: Environmental Requirements**

# **1 Scope**

## **1.1 Purpose**

This Statement of Work (SOW) defines the technical and performance requirements for a new Class approved Electro Hydraulic Marine Knuckle Boom Crane (KB Crane), to be procured to replace the existing derrick type Speedcrane installed onboard the Canadian Coast Guard Ship (CCGS) Edward Cornwallis (the vessel), and for the required Engineering Changes (EC) to the new crane and to the vessel for the Integration and Installation on board.

The removal of the existing Speedcrane and all related equipment as well as the Integration and Installation of the new KB Crane will be achieved under the Vessel Life Extension (VLE) contract in 2018 by a shipyard to be selected. The Contractor of the KB Crane will be identified as the KB Crane OEM Contractor under the VLE contract.

The Crane replacement must be accomplished by the customization of Commercial Off The Shelf (COTS) components and/or by design, integration, design qualification tests, training, Integrated Logistics Support (ILS) and documentation.

The new KB Crane with its Integration and Installation packages will be purchased under the actual contract. The Design and Manufacturing of the KB Crane, its related equipment and components, the vessel's integration, the vessel's modifications and the complete installations, Set to Work, Tests and Trials must be in accordance with applicable rules and regulations of a Canada's recognized Classification Society (CS) and Transport Canada Marine Safety. Therefore, all necessary surveys, inspections, assessments, calculations, designs, drawings, certification, approval and associated SOW required to develop the KB Crane Engineering Change (EC) for the vessel's integration and installation specifications and drawings must be done by a certified Naval Architect and /or Engineer employed or subcontracted by the Contractor.

The Contractor must retain the Total System Responsibility for the new KB Crane system design and manufacturing with its related equipment and components. The contractor must also retain the Total System Responsibility for the new KB Crane with its related equipment and components, the integration to the vessel's structure and various vessel's components and systems, the vessel's modifications and the installation of the new KB Crane with all of its related equipment and components onboard the vessel.

Following the strip out of the existing Speedcrane, components and equipment, the Contractor must provide a Field Service Representative (FSR) in order to ascertain that the dismantling and the strip out was done in order to allow the Integration and Installation packages. During the Installation, Set to Work (STW), Testing, Commissioning and Trials, the Contractor must provide, as applicable, the services of an FSR and/or a Naval Architect.

Page 6 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

## **1.2 Background**

The High Endurance, Multi Tasked Vessel (HEMTV) Canadian Coast Guard Ship (CCGS) Edward Cornwallis is operated by the Canadian Coast Guard year round performing Search and Rescue, Buoy Tending and Ice Breaking operations.

The current derrick type Speedcrane allows the vessel to conduct cargo and buoy tending operations. The Crane is original equipment installed on the ship when it was built in 1986, and is no longer supported.

## **1.3 Objectives of the KB Crane Procurement**

The fundamental objectives of the KB Crane procurement are to:

1. Maintain the vessel's lifting capability, this for a period of at least fifteen (15) years;
2. Sustain the existing functions of the Speedcrane by replacing the Speedcrane with modern, fully supportable technology within the same space envelope currently used by the Speedcrane;
3. Supply a new Class approved Marine Electro Hydraulic KB Crane that will eventually replace the existing Speedcrane. All of its components must be new and of modern design;
4. Supply a new KB Crane that will be approved and certified by one (1) of the recognized Classification Society (CS) in Canada for its intended purpose onboard the CCGS Edward Cornwallis;
5. Supply the new KB Crane EC and installation package that will be developed in accordance with the CS rules and regulations and approved by the CS and TCMS;
6. Use the vessel existing electrical power supplies;
7. Use to the greatest extent the vessel existing mechanical components and available structure;
8. Fit inside the existing space envelope currently used by the existing Speedcrane; and
9. Not exceed the weight of the existing derrick type Speedcrane.

## **1.4 Acronyms and Abbreviations**

For acronyms and abbreviations, refer to section 10.

## 2 Applicable Documents

The prescribed versions of the following documents are to form a part of this specification to the extent specified herein.

### 2.1 Government Documents

**Table 1: List of Government Documents**

Item	Document Number	Title
1.	VNDB2 000-201-766	Control Cab Wiring Diagram
2.	VNDB2 112-01	Shell Expansion
3.	VNDB2 112-01	Shell Expansion & Fwd End Framing (3 of 4)
4.	VNDB2 112-03	Tank Top & Double Bottom (2 of 5)
5.	VNDB2 112-03	Tank Top & Double Bottom Fr 54 – 70 (3 of 5)
6.	VNDB2 112-05	Web Frames 130 134 138 142 & 48 & Main Deck Deep Beam 158 167 & 171 3 of 3
7.	VNDB2 112-06	Transverse Bulkheads Fr 30, 54, 70, 106, 126, 152, 163
8.	VNDB2 112-14	Details of Tanks Between Fr 152 & 613
9.	VNDB2 112-18	Main Deck Fr 90 to 175
10.	VNDB2 112-22	Forecastle Deck Plating & Minor Bhds Under
11.	VNDB2 112-50	Welding Standards
12.	VNDB2 218-11	Seatings in Fwd Winch Comp't
13.	VNDB2 218-13	Seating for Derrick Winch (2 of 2)
14.	VNDB2 224-01	28 Ton Derrick Boom Trunnion Seat Slew Post & Stowage Arrang & Details 1 of 1
15.	VNDB2 224-03	Foremast
16.	VNDB2 224-07	Rigging Diagram & Block List As Fitted 1 of 1
17.	VNDB2 237-01	Painting Schedule 1 of 3
18.	VNDB2 351-07	Wireways Deck Plan Main Deck Frame 110 & Fwd
19.	VNDB2 351-09	Wireways Deck Plan Eng Rm Flat Frame 106 & Fwd
20.	VNDB2 352-02	Electrical One Line Diagram (2 pages)
21.	VNDB2 900-400-306	Control Cab
22.	VNDB2 900-400-335	Topping Winch Main Assembly
23.	VNDB2 977-11	Fwd End Framing Sections
24.	VNDB2 977-16	Cross Curves of Stability
25.	VNDB2 977-83	Composite Fwd Elevation Lkg to Port Side
26.	VNDB2 977-83	Composite Fwd Elevation Lkg to Stbd Side
27.	VNDB2 977-83	Composite Fwd List of Penetrations
28.	VNDB2 977-83	Composite Fwd Plan View at Tank Top (2 of 21)
29.	VNDB2 977-83	Composite Fwd Plan View at Main Deck (3 of 21)
30.	VNDB2 977-83	Composite Fwd Section at Fr 158 Lkg Fwd (8 of 21)

<b>Item</b>	<b>Document Number</b>	<b>Title</b>
31.	VNDB2 978-01	General Arrangement
32.	VNDB2 1477-30101-01	A Frame Mast & Outfit (2 sheets)
33.	VNDB2 6000-18	General Arrangement of 20T Speedcrane Derrick
34.	VNDB2 AS1096	G A Of Trunnion 110 Tons Thrust
35.	VNDB2 AS1115-1	A Frame Scantlings
36.	VNDB2 AS1217	G A Of 28 Tonne SWL Derrick
37.	MECTS-#2860606-v1	CCG National CAD Standard
38.	EKME#3049715v3A	CCG Welding Specification
39.	18-080-000-SG-003	CCG Paints and Coatings Standard
40.	70-000-000-EU-JA-001	CCG Specification for the Installation of Shipboard Electronic Equipment
41.	No number	CCGS Edward Cornwallis Trim and Stability Booklet
42.	No number	CCGS Edward Cornwallis Speedcrane Instruction Manual information

## 2.2 Non-Government Documents

Where Standards are referenced in this document, the whole standard must not apply unless specifically directed. The reference will indicate what tailoring is required by the Technical Authority. If no tailoring is specified, then the Contractor must specify the extent of his compliance to the referenced standard in his proposal. If any referenced standard or regulation of Table 2 has been superseded by a new revision or it has become obsolete and it has been replaced by a new standard or it has not been replaced, then the Contractor must use the latest revision or replaced standard or an equivalent standard respectively.

**Table 2: List of Non-Government Documents**

Item	Standard or Regulation	Title
1.	CSA W47.1 1983	Canadian Welding Bureau Standards for the fusion welding of steel
2.	CSA W47.2-M1987(R1998)	Canadian Welding Bureau Standard for the fusion welding of aluminum and aluminum alloys
3.	IEEE 45	Recommended Practice for Electric Installations on Shipboard
4.	IEC 60092-504	Electrical Installations in Ships – Part 504: Special Features – Control and Instrumentation
5.	CSA C22.1	98 Canadian Electrical Code Standard Part I Safety Standard for Electrical Installations
6.	CSA C22.2 No. 0-10	General Requirements – Canadian Electrical Code Part II
7.	ULC –S102.4-1987(R1998)	Underwriters Laboratory of Canada Standard for Test for Fire and Smoke Characteristics of Electrical Wiring and Cable
8.	IEC 60533	Electrical and Electronic Installations in Ships – Electromagnetic compatibility
9.	ISO 2412:1982	Shipbuilding – Colours of indicator lights
10.	ISO 9001:2008	Quality Management Systems – Requirements
11.	ISO 12944	Corrosion Protection of steel structures by protective paint systems
12.	MOSH	Maritime Occupational Health and Safety Regulations (MOSH)
13.	SOLAS	International Convention for the Safety of Life at Sea (SOLAS), and the Canadian Supplement to the SOLAS Convention

Item	Standard or Regulation	Title
14.	Classification Society Rules	Rules of a recognized Classification Society as identified under the Delegated Statutory Inspection Program (DSIP) e.g. Lloyd's Register Part 5 (Main and Auxiliary Machinery), Lloyd's Register Part 6 (Control and Electrical); Lloyd's Register's Code for Lifting Appliances in a Marine Environment; Lloyd's Register's Rules for the Manufacture, Testing and Certification of Materials
15	Canada Shipping Act 2001	Canada Shipping Act 2001 and subsequent regulations pertaining to a ship having general particulars as specified under Section 5.4 of this specification
16.	Transport Canada TP 127E	Transport Canada TP 127E Ships Electrical Standards
17.	MIL-STD-1521B	Technical Reviews and Audits for Systems / Equipment
18.	PMBOK Guide – 5th Edition	Work Breakdown Structure
19.	ANSI-649B: 2011	Configuration Management Plan
20.	IEC 60300-3-12:2011	Dependability Management – Application Guide – Integrated Logistic Support
21.	IACS Recommendation 71	Guide for the Development of Shipboard Technical Manuals
22.	IACS Unified Procedure 31	Inclining Test Unified Procedure
23.	Canada OHS Regulations	Part XIV – Materials Handling
24.	ASTM F1321-14	Standard Guide for Conducting a Stability Test

### 2.3 Order of Precedence

In the event of a conflict between the contents of this document and the applicable portions of the referenced technical documents, the contractor must inform the Technical Authority (TA) of the differences and request for a resolution.

### **3. Electro Hydraulic Marine Knuckle Boom Crane (KB Crane) Delivery**

#### **3.1 General**

In order to satisfy the requirements of this SOW, the Contractor must;

- Procure/design, customize, manufacture, integrate, test, deliver a factory Acceptance Test and deliver a CS and TCMS certified and approved KB Crane c/w its detailed Set to Work, Commissioning, Test and Trial Plan;
- Develop and deliver CS/TCMS certified and approved KB Crane and vessel Engineering Change (EC) Integration Packages;
- Develop and deliver CS/TCMS certified and approved KB Crane Installation Packages; and
- Ensure all Crane components are preserved, packaged and protected for shipment and storage prior to installation.

#### **3.1.1 Project Management Services**

The Contractor must provide Project Management Services as detailed in section 4.

#### **3.1.2 Design Engineering Services**

The design engineering must be IAW with this SOW.

#### **3.2 Deliverables**

The Contractor must produce and deliver the one (1) KB Crane set IAW Table 3, one (1) set of KB Crane EC specifications and installation specifications IAW sections 3.3 and 3.4, one (1) set of Special Purpose Tools (SPT) IAW Table 4, one (1) set of Spare parts IAW Table 5, one (1) set of Certification IAW Table 6 and one (1) set of Documentation IAW Table 7.

**Table 3: List KB Crane components per Vessel Set**

<b>Item</b>	<b>Component</b>	<b>Qty</b>	<b>Locations and or Comments</b>
1	KB Crane with its associated components including cables and all the necessary hardware, equipment and vessel's connection base/pedestal	1	IAW section 6
2	Cadre Training	1	IAW sections 3.11, 8.3 and CDRL Item CDRL-LOG-01 and DID-LOG-01.

**Table 4: Special Purpose Tools**

Item	Installation Support	Qty	Comments
1	Special Purpose Tools (SPT)	1	For the maintenance of the KB Crane and its related equipment and components, if not readily available, the TA must approve before the contractor starts the design and/or manufacturing, IAW section 8.2.3.

**Table 5: Spare Parts**

Item	Title	Qty	Comments
1	Spare Parts	1	IAW section 8.2.2, Spares Component types and quantities set for the KB Crane must be proposed by the Contractor and approved by Technical Authority (TA). The quantities must be able to meet the first five (5) years of the OEM maintenance schedule and as a minimum it must include the components listed in the SOW section 6.3.6.

**Table 6: Certification**

Item	Title	Qty	Comments
1	Certification by a Classification Society that is recognized by Canada and by TCMS		<p>1- For the new KB Crane and associated equipment:</p> <ul style="list-style-type: none"> <li>- Design at CDR;</li> <li>- Manufacture at the OEM Factory;</li> <li>- At the Factory Acceptance Test (FAT);</li> <li>- At the Sea Acceptance Trials (SAT).</li> </ul> <p>2- For the new KB Crane Vessel's Integration EC and installation:</p> <ul style="list-style-type: none"> <li>- Design at CDR</li> <li>- At the Sea Acceptance Trials (SAT)</li> </ul>

**Table 7: Documentation Set**

Item	Title	Qty	Comments
1	Documentation	1	As per Section 11 - Contract Deliverable Requirements List (CDRL) and Data Item Description (DID).

**NOTE:**

1-The Contractor will have to provide a Field Service Representative (FSR) and Class surveyor during the integration and installation of the KB Crane at the shipyard in order to ascertain that they are done in accordance with the Vessel's Integration EC Specifications and drawings and in accordance with the Installation Specifications and associated drawings. This service will be part of a future contract to be awarded by the selected shipyard to the Contractor.

**3.3 KB Crane and Vessel's Integration EC Specifications and Drawings**

The Contractor must provide baseline Engineering Change (EC) specifications and Drawings for the KB Crane and the Vessel Integration IAW CDRL Item CDRL-EN-04, DID-EN-04, CDRL-EN-05 and DID-EN-05. The baseline specifications must then be particularized to address any variations following the integration.

**3.4 KB Crane and Vessel's Installation Specifications and Drawings**

The Contractor must develop and deliver for approval a KB Crane and Vessel's Installation Specifications and Drawings IAW CDRL item CDRL-EN-06 and DID-EN-06.

**3.5 KB Crane Factory STW Plan and Procedures**

The Contractor must develop and deliver for approval a KB Crane Factory STW Plan and Procedures IAW CDRL item CDRL-AT-01 and DID-AT-01.

**3.6 KB Crane FAT Plan and Procedures**

The Contractor must develop and deliver for approval a KB Crane FAT Plan and Procedures IAW CDRL item CDRL-AT-02 and DID-AT-02.

**3.7 KB Crane Vessel's STW Plan and Procedures**

The Contractor must develop and deliver for approval a KB Crane Vessel's STW Plan and Procedures IAW CDRL item CDRL-AT-03 and DID-AT-03.

**3.8 Vessel's Inclining Test (VIT) Plan and Procedures with the KB Crane installed**

The Contractor must develop and deliver for approval a Vessel's Inclining Test Plan and Procedures IAW CDRL item CDRL-AT-04 and DID-AT-04.

**3.9 KB Crane Dock Trial Plan (DTP) and Procedures**

The Contractor must develop and deliver for approval a KB Crane Dock Trial Plan and Procedures IAW CDRL item CDRL-AT-05 and DID-AT-05.

### **3.10 KB Crane Sea Acceptance Trial (SAT) Plan and Procedures**

The Contractor must develop and deliver for approval a KB Crane Sea Acceptance Trial Plan and Procedures IAW CDRL item CDRL-AT-06 and DID-AT-06.

### **3.11 KB Crane Cadre Training**

The Contractor must develop and deliver for approval a KB Crane Cadre Training Agenda and Plan IAW CDRL item CDRL-LOG-01 and DID-LOG-01

### **3.12 System Requirements Document**

The Contractor must prepare the systems requirements document IAW CDRL item CDRL-EN-01 and DID-EN-01.

### **3.13 Preliminary Design Documents**

The Contractor must prepare the preliminary design documentation packages IAW CDRL item CDRL-EN-02 and DID-EN-02.

### **3.14 Critical design Documents**

The Contractor must prepare the critical design documentation package IAW CDRL Item CDRL-EN-03 and DID-EN-03.

### **3.15 KB Crane Documentation**

The contractor must deliver the KB Crane documentation IAW section 8.4 and 8.5.

### **3.16 Physical Configuration Audit Package**

The contractor must deliver the Physical Configuration Audit Package IAW CDRL item CDRL-EN-07 and DID-EN-07.

## **4.0 Project Management**

### **4.1 Organization**

The Contractor must have a named Project Manager responsible to carry out the work required for the KB Crane production program.

#### **4.1.1 Project Manager**

The Contractor's Project Manager must have the authority to plan, direct, control and make decisions for the Contract.

#### **4.1.2 Contractor's Point of contact**

The Contractor's Project Manager must be the main point of contact with Canada.

### **4.2 Project Management Plan**

The Contractor must prepare and deliver a Project Management Plan (PMP) IAW CDRL Item CDRL-PM-01 and DID-PM-01 to identify how the Contractor intends to fulfill the project management requirements of this SOW.

#### **4.2.1 Work Breakdown Structure (WBS)**

In order to identify the various tasks imposed by the project, define and highlight their respective relationships, the contractor must develop and implement a WBS based on the PMBOK Guide 5<sup>th</sup> Edition.

#### **4.2.2 Configuration Management Plan**

In order to ensure the consistency of the KB Crane performance, functional and physical attributes with its requirements, design, and operational information, the contractor must develop and implement a Configuration Management Plan based on ANSI-649B: 2011.

#### **4.2.3 Integrated Logistic Support (ILS) Plan**

In order to ensure that the KB Crane and associated equipment will be developed with the optimization of their supportability and functional support, the contractor must develop and implement an ILS Plan based on IEC 60300-3-12:2011 (Dependability Management – Application Guide – Integrated Logistic Support).

#### **4.2.4 Quality Assurance (QA) Plan**

The Contractor must structure the Quality Assurance Plan IAW with the contract.

#### **4.2.5 FAT STW Plan**

The Contractor must develop and implement a Factory STW Plan in accordance with section 3.5. The plan will provide detailed information on how the contractor intends to prepare and activate at the factory the KB Crane with its associated equipment in preparation to the FAT.

#### **4.2.6 FAT Plan**

The contractor must develop a FAT Plan in accordance with section 3.6 and submit it to the CCG TA acceptance prior to its implementation. The FAT Plan will provide the contractor's

Page 16 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

methodologies to test and demonstrate at the factory that KB Crane with its associated equipment are meeting the requirements of this SOW which can be demonstrated at the factory prior to its delivery.

#### **4.2.7 Vessel's STW Plan**

The Contractor must develop and implement a Vessel's STW Plan in accordance with section 3.7. The plan will provide detailed information on how the contractor intends to prepare and activate the KB Crane with its associated equipment in preparation to the dock and sea trials.

#### **4.2.8 Vessel's Inclining Test (VIT) Plan**

The Contractor must develop and implement a Vessel's Inclining Test Plan in accordance with section 3.8. The VIT Plan will provide detailed information on how the contractor intends to prepare for and perform the VIT with the KB Crane installed.

#### **4.2.9 DTP and SAT Plans**

The Contractor must develop and implement Dock and Sea Acceptance Trial Plans in accordance with section 3.9 and 3.10. The plans will provide detailed information on how the contractor intends to demonstrate the performance of the KB Crane and its associated equipment and how they meet the requirement of this SOW.

### **4.3 Security Management**

#### **4.3.1 Access to Canada's Facilities**

The Contractor may be provided access to Canada's Facilities, on an as required basis and non-interference basis, to allow the Contractor to view systems and obtain relevant data. Site visits may also be used to interview the CCG TA to determine or confirm equipment functionality and operational parameters.

### **4.4 Project Meeting**

#### **4.4.1 Project Kick Off Meeting**

Within one (1) month of Contract Award, the contractor must conduct a project Kick Off Meeting, IAW CDRL item CDRL-PM-05 and item CDRL-EN-01, at the contractor's facility, via video or teleconference or elsewhere as agreed to by Canada. The agenda of items to be reviewed at the meeting must include without being limited to;

1. The Project Management Plan IAW CDRL Item CDRL-PM-01 and DID-PM-01;
2. Technical Specification;
3. Critical path activities;
4. Plans for activities during the following period;
5. Integration to the VLE program;
6. Any other contractual or programmatic issues associated with the project as mutually agreed between the TA, CA and the Contractor.

#### **4.4.2 Project Review Meetings**

The Contractor must conduct and coordinate Progress Review Meetings (PRMs) at least once each month or as mutually agreed between Canada and the Contractor.

Page 17 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

The Contractor must hold the first PRM within one month following the Kick-Off Meeting. PRMs must encompass total project status as of the review date.

#### **4.4.3 Work Acceptance Meeting (WAM)**

At the end of the project a Work Acceptance Meeting will take place to provide a complete review of the deliverables.

The Contractor must hold the WAM at a time to be determined by Canada but this meeting must take place no later than thirty (30) calendar days following the KB Crane commissioning.

#### **4.4.4 Other Scheduled Meetings**

The Contractor may identify through other requirements stipulated in this SOW, and the submission of his various plans the necessity to schedule other meetings. The Contractor must identify these meetings in the Project Schedule (PS). Canada's approval of the PS will confirm Canada's intention to attend such meetings.

#### **4.4.5 Meeting Arrangements**

When the Contractor is tasked to arrange and coordinate a meeting, it must be done IAW this section.

The Contractor must prepare and submit supporting documents required (in source format and not in Portable Document Format (PDF) or equivalent format) for a meeting at least five (5) working days in advance of each review or meeting.

The Contractor must prepare and submit an agenda IAW CDRL Item CDRL-PM-02 and DID-PM-02 at least five (5) working days in advance of each review or meeting except in the case of unscheduled meetings in which case the Contractor must submit an agenda 24 hours prior to the meeting.

Canada and the Contractor must mutually agree to the contents of the agenda.

#### **4.4.6 Meeting Support**

The Contractor must host and attend project reviews and meetings as required by this SOW, at the Contractor's facility, via teleconference or elsewhere as agreed to by Canada.

For all reviews and meetings hosted by the Contractor, the Contractor must:

1. Arrange the venue, including parking as appropriate;
2. Co-ordinate with Canada as appropriate;
3. Provide all administrative facilities and presentation equipment;
4. Ensure that qualified Contractor and subcontractor personnel attend the reviews or meetings;
5. Ensure and report that action items and decisions under the control of the Contractor as a result of the various meetings and reviews are implemented where applicable;  
and
6. Maintain and provide to CCG files, records, documents of all reviews and meetings.

#### **4.4.7 Meeting Minutes**

The Contractor must record, produce, deliver and revise, as required, minutes for all meetings. The Contractor must prepare and distribute within five (5) working days an electronic copy of the minutes to Canada's attendees IAW CDRL Item CDRL-PM-03 and DID-PM-03. Meeting minutes are accepted once signed by the CA. Canada will advise the Contractor of any issues within two working days of receiving the minutes.

#### **4.4.8 Meeting Cancellations**

The TA and CA may cancel PRMs or any other review meetings at their discretion with a minimum of five (5) working days' notice. Rescheduling of meetings by the Contractor must be done only with the explicit agreement of Canada.

### **4.5 Reporting and communications**

#### **4.5.1 Progress Reports**

The Contractor must monitor progress and deliver monthly Project Status Reports (PSRs) IAW CDRL Item CDRL-PM-04 and DID-PM-04.

#### **4.5.2 Problem Reporting**

The Contractor must advise Canada by fax/email within three (3) working days of the date the Contractor determines that there is a schedule alteration or contractual issue.

Upon such notification Canada will advise whether an unscheduled meeting or other action is required.

#### **4.5.3 Data Reviews and Revisions**

The contractor must submit all deliverable data in draft form for Canada's review IAW the applicable CDRL.

The Contractor must ensure that the draft document consists of a complete document compliant with the requirements of the SOW and the applicable CDRL and DID.

Unless otherwise noted, Canada's review process will take no more than ten (10) working days from receipt of the data.

The provision of comments by Canada on draft deliverables must not be construed as approval of the data deliverable.

Unless otherwise noted, the Contractor must address Canada's comments and resubmit the document showing a new revision number, within ten (10) working days of reaching agreement on the comments.

The Contractor must ensure that final documents consist of the draft document modified to include changes as authorized by Canada.

When revisions and amendments have been made to data deliverables required under this SOW, the Contractor must submit the revisions/amendments to Canada.

Page 19 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

#### **4.6 Action Item List (AIL)**

The Contractor must maintain a historical, chronological and up-to-date list of Action Items resulting from reviews, meetings, or correspondence between the TA and the Contractor in a format acceptable to the TA for the duration of the project.

In the list the Contractor must record, as a minimum: identification number; title or description, date opened, action required, priority, organization responsible for taking action, brief statement of results in sufficient detail to clearly identify and track the action taken, date closed, and, status (open/closed).

The Contractor must ensure that, once entered, no entry is deleted.

The Contractor must include a subset of the list containing all open action items as an attachment to the monthly status reports.

The Contractor must make a copy or reproduction of the most current AIL or any portion thereof available to Canada upon request at any time.

## **5.0 Existing Speedcrane Description and Strip out**

The existing Speedcrane is the primary cargo crane aboard the CCGS Edward Cornwallis, and is used for the at sea placement and removal of navigational buoys, as well as general cargo use.

This section provides a general overview of the existing Speedcrane functionality and its performance capabilities. For more details refer to references in section 2.1, Table 1.

### **5.1 General System description**

In summary the Speedcrane is fitted with the following options:

1. Enclosed operators cabins fitted on the port and starboard sides of the foscle deck, complete with crane controls, heaters and windshield wipers;
2. Five winches with motors and gearboxes;
3. Twenty (20) metric Tonne (Tm) Safe Working Load (SWL) main hoist, at 18.8m; and
4. Two (2) auxiliary whip hoists, one (1) rated for eight (8) Tm SWL and one (1) rated for five (5) Tm SWL at twenty (20) degrees above horizontal.

The Speedcrane is mounted on the centerline of the vessel and is capable of lifting from either side of the vessel. It is presently mounted at approximately Frames 158-161. It is the responsibility of the contractor to validate the exact position of the existing Speedcrane and its associated equipment.

The Speedcrane is arranged with the Main Hoist and Topping winches in the Winch Compartment, the 5Tm Hoist winch on the Main Deck. The 8Tm Hoist winch and the Slewing Winch are in the Upper Winch Room.

### **5.2 Existing Speedcrane strip out**

The existing Speedcrane and its associated equipment will be removed at the shipyard under the VLE contract. The extent of the strip out will be defined in the Contractor's Integration Package of the actual contract. As a minimum, the removal will consist of:

1. The Speedcrane which include the derrick and trunnion support, winches, the goal post mast, two control cabins and the Upper Winch Room;
2. Pulleys, wires and attachments;
3. Wiring from the Forward MCC breakers to Speedcrane electrical components, , winch speed control cabinets, transformers, etc.;
4. Equipment seating.

### **5.3 Winch Power Supplies**

The existing winch power supplies are to be reused if practicable, and are:

1. Main hoist – 70kW motor, Breaker 500A Frame;
2. Topping hoist – 60kW motor, Breaker 160A Frame;

Page 21 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

3. Aux. hoist #2 – 37kW motor, Breaker 160A Frame;
4. Slewing hoist – 38kW motor, Breaker 100A Frame; and
5. Aux. hoist #1 – 37kW motor, Breaker 63A Frame.

#### 5.4 General Particulars of the Vessel

Type: High Endurance Multi-tasked Vessel  
Ice Class: Lloyd's Register ✱100A1 Ice Class 1A Super, ✱ LMC Arctic Class 2  
Year Built: 1986  
Voyage Class: Unlimited, beyond 200nm  
Builder: Marine Industries Limited, Tracy, Quebec

##### Principal Dimensions:

Length: 83.0 meters  
Breadth, molded: 16.2 meters  
Loaded Draft: 5.8 meters  
Tonnage: 3727.2 GRT, 1503 NT

The CCGS Edward Cornwallis is a three engine twin screw vessel that performs multiple tasks for the Government of Canada, including Search and Rescue, Buoy Tending, Aids to Navigation support and Ice Breaking operations. These operations include the use of the present Speedcrane for various tasks, including general cargo transfer, lifting small boats at sea, and tending floating navigational aids (buoys) in varying weather condition.

## 6 New KB Crane Requirement

### 6.1 Engineering Reviews and Audits

The engineering reviews and audits must be prepared and conducted based on MIL-STD-1521B and must cover as a minimum:

1. System Requirements Review (SRR);
2. Preliminary Design Review (PDR);
3. Critical Design Review (CDR); and
4. Physical Configuration Audit (PCA).

The intent of this section is for the Contractor to track and update the documentation in order to incorporate all changes during the design, manufacturing and testing of the KB Crane, its equipment and components.

*All references to Government requirements and standards in the MIL STD specifications must be understood as Canadian Government / Organisations, in place of US Government.*

### 6.2 Environmental

The new KB Crane must meet the following environmental requirements. If any of the proposed COTS equipment does not fully comply with any of the following specifications, then the Contractor must customize the equipment to meet the requirements.

**Table 8: Environmental Requirements**

Item	Environmental Condition	Requirements	Standard (reference) or Comments
1	Storage Temperature	All components -40°C to +35°C	CCG Requirement
2	Beaufort Sea State - Storage	All components Capable of withstanding a wind in fore and aft or transverse directions of 63m/s, acceleration normal to deck of +/-1.0g, acceleration parallel to deck in fore and aft or transverse directions of +/- 0.5g and static heel of 30° in the stowed position without damage	CCG Requirement in accordance with Class rules
3	Operating Temperatures	All components -30°C to + 35°C at 100% humidity	CCG Requirement, to be used to determine Class requirements

Item	Environmental Condition	Requirements	Standard (reference) or Comments
4	Beaufort Sea State Operation	All components Beaufort sea state four (4)	CCG Requirement, to be used to determine Class requirements
5	Operation on a ship in the maximum significant wave of:	1.6m.	Maximum significant Wave Height of $H/3 = 1.6\text{m}$ .
5	Equipment Protection	<p><b>Ice:</b> The KB Crane with its cabin and all of its components and equipment exposed to the elements must be protected from ice buildup and snow and ice loads</p> <p><b>Coating:</b> The KB Crane components coating system must be in accordance with ISO 12944-5 for a Class C5M environment with high durability. If the manufacture does not comply with ISO 12944, they must demonstrate the coating system is equivalent to the standard. The KB Crane topcoat colour must be Buff (RAL design 070-7040).</p> <p><b>Salt:</b> All Crane components must be corrosion resistant to ensure protection in a salt water marine environment.</p>	ISO 12944 CCG Requirements, to be used to determine Class requirements
6	Salt Fog for the Electric and Electronic equipment	IEC 60068-2-52 Test Kb	IACS Electrical Installations: Test Specification for Type Approval (Test #12)

Item	Environmental Condition	Requirements	Standard (reference) or Comments
7	Water ingress (Watertight) for the Electric and Electronic equipment	All Electronic Enclosures must be IP44 Enclosures or greater	CCG Requirement
8	Electromagnetic Interference, Radiated and Conducted Emission	IEC 61000-4, CISPR 16-2	IACS Electrical Installations: Test Specification for Type Approval (Test #13-20)
9	Vibration for the Electric and Electronic equipment	IEC 60068-2-6 Test Fc	IACS Electrical Installations: Test Specification for Type Approval (Test #7)
10	Vessel heel and trim	The KB Crane with all of its components and equipment must be capable of operation in the following condition: Maximum Heel 10° each side. Maximum Trim forward or aft 5°.	CCG Requirement
11	Off and side lead operations	The KB Crane must be capable of operating with a maximum off lead of five (5) degree and maximum side lead of three (3) degree.	CCG Requirement

### 6.3 KB Crane General Design

The KB Crane design must meet the following design requirements:

1. The KB Crane must be an electro-hydraulic Marine Knuckle Boom design. The design, construction and installation must be approved by one (1) of the Classification Society recognized by Canada and/or TCMS. The KB Crane must meet the rules for Lifting Appliances with regards to fitted safety systems for Offshore Cranes, in the Specified Service category due to the crane's operation on a ship when not sheltered from the action of sea waves, and the heel and trim requirements being in excess of the Standard Service Category;
2. The KB Crane must be designed with the following safety features:
  - a) Load Moment Indication system for the main and auxiliary hoists;
  - b) Automatic Overload Protection Systems and Manual Overload Protection Systems in accordance with Class rules;
  - c) Constant Tension system for all winches;
  - d) Emergency load lowering system (rope release);
  - e) Anti-two (2) block control on all winches;
  - f) Fail safe brakes for the winches and slewing motors;
  - g) Load holding valves for the luffing cylinders, winch motors, and slewing motors to prevent crane movement in the case of hose rupture or other failure causing a pressure drop in the system;
  - h) Slewing sensors in order to set maximum turn limits if required by the final mounting location and height of the crane in relation to obstructions on the ship such as the superstructure and a small foremast on the foscle deck; and
  - i) Outputs for the ship's alarm and monitoring of the following parameters:
    1. Crane main motor run indication;
    2. Hydraulic tank low and low, low level alarms;
    3. Oil temperature indication for tank and system oil return line; and
    4. System main oil pressure and pilot pressure indications.
3. The Contractor must make maximum use of the different locations where the existing equipment is installed. If some of the new equipment needs to be relocated for the KB Crane operation and/or storage it must be approved by the TA at PDR and CDR;

4. Particulars of the work specified herein are given to the Contractor for guidance only; it must not be interpreted as a directive. The contractor will remain responsible for securing all information, details and dimensions from the vessel. It is the Contractor's responsibility to verify that all details of devices, wiring, and dimensions are correct;
5. The Contractor must ensure that the KB Crane with all of its equipment and components do not include parts, including spare parts, that have become obsolete, or are expected to become obsolete within fifteen (15) years after the KB Crane have been delivered and accepted by Canada;
6. Spare part Component and Tools types and quantities for the KB Crane must be proposed by the Contractor and approved by Technical Authority (TA). The quantities must be able to meet the first five (5) years of maintenance and as a minimum it must include without being limited to the following components:
  - a) 5 x High pressure filter elements;
  - b) 5 x Return filter elements;
  - c) 1 x High Pressure gauge with hose and fittings;
  - d) 1 x Set of hydraulic cylinder seals;
  - e) 1 x Set of seals for hydraulic pumps and motors;
  - f) Spare electronic components that would be critical to the operation of the crane, including:
    - i. 2 x LED bulbs of each type used in the Crane;
    - ii. 1 x programmable controller and its programming software, license, special connecting cable to a lap top, spare for PLC, if applicable);
    - iii. 1 x complete set of thermometers, manometers, probes and sensors; and
    - iv. 1 x Complete set of solenoid valves.
  - g) All other components not listed above that are listed in the List of critical spare parts identified at the CDR and must include:
    - i. 1 x Electric motor bearings for each motor;
    - ii. 1 x Marine grade, waterproof LED light fixture; and
    - iii. 1 x Spare Hoisting Cables for Main and Auxiliary hoist.
  - h) All specialty tools that may be required for maintenance of the crane.
7. The Contractor must ensure that packaging of all spare parts will provide adequate protection for a minimum of five (5) years, consistent with good economy, against damage, deterioration and loss of identification during storage, handling and shipment.

## **6.4 KB Crane Mechanical Design**

### **6.4.1 KB Crane General Mechanical Design**

The KB Crane design must meet the following design requirements:

1. The KB Crane must have a main hoist with a Safe Working Load (SWL) of 20 metric Tonnes (Tm) at all radius of operation. The main hoist must be at a minimum of 18.0m radius, located at the extreme end of the extended boom. The exact length must be determined by the contractor so as not to interfere with the existing superstructure, and with the crane pedestal located between frames 153 and 161. A crane of greater radius will be considered if the system is fitted with an anti-collision system;
2. The KB Crane must have two (2) auxiliary hoists, one with a SWL of eight (8) Tm at all radius of operation and one hoist with a SWL of five (5) Tm at all radius of operation, to be located on the crane such that there is no interference between main or auxiliary hoists in any mode of operation;
3. The Crane must have a minimum working radius of 16.0m for the auxiliary hoists when the crane is at full extension, horizontally;
4. The Crane must have a working radius of less than 5.0m for the main hoist and less than 3.5m for the auxiliary hoists when the crane is at full elevation;
5. The size and height of the boom above deck level must be such that with the boom in the stowed position, the opening of the ship's cargo hatch will not be impeded.
6. The KB Crane is NOT required to conduct Personnel Lifting.

### **6.4.2 Stability**

The KB Crane weight and dimensions of the proposed components must be equal or less than the existing Speedcrane Weight and dimensions. Any increases in weight if any must be submitted to TA for approval.

The KB Crane design must meet the following design requirements with regards to vessel stability:

1. The Crane design package must include an estimate of the weights to come off the vessel with the old crane components including the boom, winches, control cabins, goal post mast, Upper Winch compartment, and all electrical control cabinets. The Crane design package shall include an estimate of the weights of the proposed crane components to be installed on the vessel.
2. The Contractor must provide an analysis of the impact that the new crane installation will have on the existing vessel weights, centres and stability (both intact and damaged). This analysis shall compare the original baseline values with the resulting values if the proposed crane arrangement were to be implemented. To

Page 28 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

provide guidance to the supplier, refer to the original CCGS Edward Cornwallis Trim and Stability Booklet. It should be noted that the original Type 1100 specification required that during buoy handling conditions, (i.e. no cargo and 50% of fuel oil, fresh water and consumable stores) one buoy of 15 tons was to be included on deck and one buoy on the boom. The new analysis shall include the largest load capable of this crane as identified in section 6.4. The Loading Condition No 25 “Buoy Handling Condition 50% Consumables” is found within the original stability booklet and is to be used as the basis.

3. The Contractor must demonstrate that all lifting conditions be assessed against the USCG requirement identified under Code of Federal Regulations Title 46 Part 173, Subpart B-Lifting. This information is to be presented separately as an Addendum to the stability analysis identified above.

#### **6.4.3 KB Crane Structure Design**

The KB Crane design must meet the following design requirements:

1. The KB Crane structure must be an all welded modern construction and the material must be of a grade capable of supporting the loads and operating conditions required of this SOW while conforming to the Classification Society’s requirements;
2. The Crane must have a maximum height in the stowed position of 8.5m above the main deck to prevent obstructing the view from the ship's wheelhouse. The contractor must provide any pedestal/adaptor that may be required to be fitted to the ship to ensure proper height of the crane to allow the cargo hatch to be opened without moving the stowed crane. The pedestal/adaptor will have to be designed and manufactured in accordance with applicable regulatory bodies’ rules and regulations and in concurrence with any required ship’s structural modifications imposed by the installation of the new KB Crane and its pedestal/adaptor. The pedestal/adaptor will have to be delivered ready for installation with all required additional material, and applicable instructions, specifications, drawings, all IAW section 3.3 “KB Crane and Vessel’s Integration EC Specifications and Drawings” and section 3.4 “ KB Crane and Vessel’s Installation Specifications and Drawings”;
3. The Crane design package must identify and determine all ship’s structural alterations (removals, relocations and additions) required to be done to the existing ship's structure IOT reinforce the main deck and the tank areas below the proposed KB Crane pedestal/adaptor location all IAW the regulatory bodies rules and regulations. That information must be delivered IAW section 3.3 “KB Crane and Vessel’s Integration EC Specifications and Drawings” and section 3.4 “ KB Crane and Vessel’s Installation Specifications and Drawings” in such a way that CCG will be able to use it in its VLE specifications for direct implementation by a shipyard to be identified;
4. The Crane must have an arrangement to secure its stowed position to prevent movement when the vessel encounters heavy seas. If a support crutch is required, it

is to be fitted on deck in a location so as not to interfere with normal deck operations and allow the cargo hatch to be opened without moving the crane;

5. The slewing gear must be totally enclosed within the crane structure to protect against sea water and icing issues;
6. The support column must be fitted with a watertight door, and the column interior must contain adequate explosion proof lighting fixtures to permit service and inspection. The support column must be fitted with explosion proof heaters;
7. The KB Crane must be fitted with a minimum of four (4) marine grade, waterproof LED light fixtures providing a minimum of 20,000 lumen, with two (2) on the boom and two (2) below the KB Crane cabin. The boom lights must be fitted on swivels to ensure the lights are facing downwards at all angles of crane operation. Each pair of lights must be able to be operated separately from the crane operator cabins.
8. The KB Crane must be fitted with centralized grease points to reduce the need to physically access the entire crane structure, complete with stainless steel tubing and grease fittings;
9. The KB Crane must be fitted with a fall arrest system if there are areas of the crane structure that will require access by personnel for inspections, maintenance or repairs; and
10. The Crane's sub-components mounted in hard to access areas such as the crane pedestal must be arranged so that the components are easily accessed and visible for maintenance or adjustment.

#### **6.4.4 KB Crane Operator's Cabin (OC) Requirements**

The OC design must meet the following design requirements:

- 1 The Contractor must provide a design for:

Two (2) new OC's, mounted on the Foscle Deck in the same location as the existing control cabins with sufficient windows to maximize an unobstructed view at all times of the load and working deck areas. The OC's must be watertight, of steel construction and be capable of withstanding the impact of water and spray when the vessel is in heavy seas.
2. The OC must be designed and manufactured IOT meet the design, environmental and operational requirements of this SOW. Amongst other the OC must:
  - 2.1 Have a lockable waterproof cab door that is able to exert pressure on the door seal;
  - 2.2 Be fitted with an internal lighting system;
  - 2.3 Have at least one (1) 120 volt, 60HZ, 15 amps outlet;

Page 30 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

- 2.4 Have a telephone for connection with the ship's Internal Communication System, a loudspeaker/talkback system for communication with the working deck and provision for mounting a permanent VHF radio;
- 2.5 Have a thermal and sound insulation that will meet the environmental requirements and will damper the noise level inside the OC IOT not exceed 75 dB while the crane is in operation with all windows and doors closed. All interior surfaces are to be capable of withstanding oils and solvents common to ships and are to be easy to clean;
- 2.6 Be fitted with mechanical ventilation and a thermostatically controlled heater to maintain an minimum of 18 degree Celsius temperature inside the OC under all environmental weather conditions imposed by the Environmental Requirements of Table 8;
- 2.7 Have the fixed windows in front of the operator's position be tinted safety glass that complies with the requirements of the Canada OHS Regulations and must be fitted with motorized windshield wipers, electric defrost, window shades;
- 2.8 Have safety bars mounted on the exterior of the fixed windows in front of the operator's position that complies with the requirements of the Canada OHS Regulations;
- 2.9 Have ergonomic operator controls for all crane movements, with the crane operator being seated in an adjustable operator's chair with suspension capable of supporting a 130 kg operator. The KB Crane controls must be step-less controls from zero to maximum speed;
- 2.10 Controls must also include the remote start and stopping of the hydraulic power packs, signal horn and emergency release control. The Crane operator cabin must have the ability to select either or both power packs for operation and, if so designed, remotely cross over hydraulic connections;
- 2.11 Be fitted with instrumentation to provide the operator with operational information from the KB Crane safety systems (load and radius indications), system pressure and temperature indications, an hour meter and alarms for abnormal conditions as noted in section 6.3.2 i).

#### **6.4.5 Luffing and Hoisting Requirements**

The KB Crane's luffing and hoisting design must meet the following requirements:

1. The luffing cylinders must be designed for marine use, and all pins and bushings must be of corrosion resistant material. The luffing cylinder rods must be stainless steel and chrome plated. With the KB Crane in the stowed position, a minimal area of the hydraulic rams must be exposed to the elements;
2. All winches must consist of a grooved rope drum with integrated planetary gear, hydraulic motor and fail safe brakes;

Page 31 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

3. The winch drum capacity must be such that at least three dead turns are guaranteed under any designed operating conditions. The main and auxiliary hoist hooks must have a travel of at least thirty (30) meters;
4. All wire ropes must be galvanized non-rotating, right regular lay, IWRC construction with a minimum breaking force of 1960 N/mm<sup>2</sup>; and
5. All sheaves must be guarded to prevent the wire rope from slipping off at maximum lead angles and all operational conditions.

## 6.5 KB Crane Electrical and Hydraulic Design

The KB Crane design must meet the following design requirements:

1. When selecting components for the Crane design, preference must be given to Commercial Off The Shelf (COTS) industrial grade components. In the absence of suitable COTS industrial grade components, COTS commercial components must be selected and customized if required to meet the environmental requirements in section 6.2 Environmental.
2. The KB Crane must use, as far as practicable, the existing electrical power supplies that is of 600V, 3 phase, 60HZ, at the Forward MCC as noted below, which was determined suitable and acceptable by the contractor at the bidding stage:
  - a. Main hoist – 70kW motor, Breaker 500A Frame;
  - b. Topping hoist – 60kW motor, Breaker 160A Frame;
  - c. Aux. hoist #2 – 37kW motor, Breaker 160A Frame;
  - d. Slewing hoist – 38kW motor, Breaker 100A Frame;
  - e. Aux. hoist #1 – 37kW motor, Breaker 63A Frame.
3. The Crane must be designed with two electro-hydraulic power packs. For shore power or reduced shipboards loading, one power pack must be capable of being used. The power packs must have the following minimum performance characteristics:
  - a) Full lifting capacity (SWL) must be maintained with the use of either one or both of the power packs;
  - b) The rated speeds listed in section 6.6 must be met with both power packs operating;
  - c) The speeds with one power pack operating must meet the following minimum performance requirements for the motions listed in 6.6.:
    - i. At least 90% of the rated speed for each individual motion;
    - ii. At least 80% of the rated speeds for any two simultaneous motions;
    - iii. At least 70% of the rated speeds for any three simultaneous motions; and
    - iv. At least 50% of the rated speeds for four simultaneous motions.
4. The existing power arrangements may offer alternatives to the two (2) power pack arrangement. Options to section 3 above may be considered if they meet all the following criteria:
  - a) Use of all pumps results in the full lifting and speed performance noted in section 3 above;

Page 32 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

- b) Use of a reduced number of pumps to allow use on shore power or on the ship service generator allows full lifting capacity with the speeds noted in section 3 above and if multiple pump sets are used, the motor starting must be sequential; and
  - c) Sufficient means is provided to provide redundancy and allow the performance noted in b) above in the case of failure of any pump set.
- 5. The electric motors must be marine three (3) phase squirrel cage type, with insulation class “F”, enclosure IP 54 Class protection or higher, IC411 cooling, capable of operating in ambient temperature of 40°C, fitted with automatically controlled anti-condensation heaters and soft start controls;
- 6. The power packs must conform to the Design Specifications required of Hydraulic Power Oil Systems in the Marine Machinery Regulations, current edition;
- 7. The power packs must be supplied complete, with all components required to provide a fully functional crane system, including motors, pumps, filters, strainers, relief valves, control valves, reservoir, oil coolers, piping and hoses. The hydraulic fluid will be radiator cooled and must be fitted with automatic controls for temperature regulation. Location of the radiators and additional Winch Compartment ventilation must be added as required;
- 8. The power packs must be skid mounted and must not exceed the footprint of the existing winches located in the Forward Winch Compartment. The electrical components must not exceed the footprint of the existing Speedcrane Winch Starter Seating in the Forward Winch Compartment;
- 9. The power packs must be equipped with local indications and alarms for the following parameters as a minimum:
  - a) Crane main motor run indication;
  - b) Hydraulic tank low level alarm;
  - c) Hydraulic tank low, low level crane shut down switch;
  - d) Oil temperature indication for tank and system oil return line, high temperature alarm;
  - e) System main oil pressure indication, low pressure alarm; and
  - f) Hour meters for each power pack.
- 10. The Crane control system must be comprised of current production electronic components and utilize a standard Programmable Logic Controller (PLC) to be mounted in the interior of the Foscle.
- 11. The Crane must have the capability of supplying the vessel’s Alarm and Monitoring System with the alarm signals indicated in section 6.5.9 above; and
- 12. The Crane must be capable of being operated from the OC, or by a remote control belly pack. The OC and remote control unit must be fitted with a method of taking

control so only one controller has control of the Crane system at a time. If a radio remote control is proposed, it must meet Class rules and the environmental conditions listed in Table 8: Environmental Conditions.

## **6.6 KB Crane Performance Requirements**

The KB Crane must meet the following performance requirements:

1. Main hoist speed must be a minimum of 0-20 m/min with full load and 0-50 m/min with no load on the hoist;
2. Auxiliary hoist speed must be a minimum of 0-30 m/min with full load and 0-70 m/min with no load on the hoist;
3. Luffing speed must be a maximum of 60 seconds from maximum radius to minimum radius with full load;
4. Slewing speed must be a maximum of 1.0 rpm with full load;
5. The KB Crane must be capable of simultaneous four motion operation with full lifting capacity and with reduced speed for the following motion combinations:
  - a) Luffing, slewing, main hoist and one auxiliary hoist;  
or
  - b) Luffing, slewing and two auxiliary hoists.

## **6.7 KB Crane Control System Requirements**

The KB Crane control system must meet the following design requirements:

1. The system must be designed for use in a marine environment with the environmental requirements noted in Table 8 and approved by the Classification Society;
2. The software operating system shall be based on an up to date, open industry standard;
3. The control system must provide a data logging system, with a capacity to meet the data storage requirement stated below:
  - a) Long-term data storage of, as a minimum, 3 months of data and include all alarms, warnings, errors and diagnostics results;
  - b) Capability to allow the operators to view graphically the time stamped historical data;
  - c) Ability to transfer the logged data by the ship's crew to allow for offline fault diagnosis and failure tracking.

4. All control system components must be capable of being exchanged with minimal adjustments following a “plug and play” philosophy;
5. A signal interface list must be supplied, including the following data as a minimum:
  - a) Equipment name to which a signal is connected;
  - b) Signal name or ID;
  - c) Connector name or ID and PIN information;
  - d) Electrical signal characteristics, e.g. voltage, current, frequency, digital input/output, and analog input/output and coefficient;
  - e) Field device number; and
  - f) Sensor or field device data.
6. The control system must be capable of performing diagnostics to detect, identify, locate and indicate to the operator/maintainer any fault that has occurred in the control system, including control hardware and sensors. Diagnostic messages/indications must be graphically presented on the user interface display screen in clear language with suitable colour coding for rapid identification of faulty components.
7. The control system Human-Machine Interface (HMI) must have at a minimum but not limited to the following design elements:
  - a) Colour monitor with automatic contrast adjustment (sunlight visible), with touch screen or function buttons to allow the operator to quickly change display pages;
  - b) Designation of console in control, and transfer of console in control;
  - c) Self- diagnostic capability including maintenance software;
  - d) Graphical display pages grouped according to function such as:
    - i. Operational overview page – loads, trim, list, wind, status of safety systems, etc.;
    - ii. System status page(s) – pressures, temperature readings;
    - iii. Maintenance information page (hour meters, etc.);
    - iv. Configuration of set points, alarms and, if fitted, anti-collision settings;
    - v. Alarms, faults and warning listing page.

## **7 Acceptance Testing**

### **7.1 KB Crane and Vessel's Integration and Installation packages Acceptance Testing**

The purpose of the various acceptance tests is to demonstrate that the performance and functional requirements of the KB Crane with its integration and installation packages have been satisfactorily met.

#### **7.1.1 FAT and Vessel's Set to Work Procedures**

In preparation for the FAT and the KB Crane Dock Trial, the KB Crane must be Set-to-Work. The Contractor must provide the TA with a Set to Work procedures that will be in line with the related STW Plans sections 3.5 and 3.7. These procedures must be in line with the methodologies applicable to the various KB Crane systems and be submitted for review and comment to the TA prior to beginning the work.

#### **7.1.2 KB Crane Factory Acceptance Test (FAT)**

At the Contractor's facility, the Contractor must conduct a FAT on the KB Crane and all of its associated equipment and systems. The FAT must be conducted IAW the approved FAT Plan and Procedures and be witnessed and accepted by the attending Class surveyor and the TA or its delegated representative.

#### **7.1.3 Vessel's Inclining Test (VIT) Acceptance (with the KB Crane installed)**

Following the removal of the existing Speedcrane, the installation of the new KB Crane, the confirmation of the vessel's new stabilities, the successful refloating of the vessel, the contractor inspection and acceptance of the Vessel's modifications with the installation of the KB Crane and all of its associated equipment, the Contractor's Certified Naval Architect must conduct the VIT IAW the approved VIT Plan and Procedures and be witnessed and accepted by the attending Class Surveyor and the TA or its delegated representative.

#### **7.1.4 KB Crane Dock Trial Acceptance**

Following the VIT Acceptance, the contractor must conduct a KB Crane Dock Trial. The KB Crane Dock Trial will be carried out with the vessel alongside and will be done to accept the performance of the KB Crane, its associated equipment and systems, its installation onboard the vessel, the vessel's modifications and all KB Crane related vessel's connections and supplies, inputs and outputs. The KB Crane Dock Trial Acceptance must be IAW the approved KB Crane Dock Trial Plan and Procedures and be conducted by the contractor in presence of its Certified Naval Architect and witnessed and accepted by the attending Class Surveyor and the TA or its delegated representative.

#### **7.1.5 KB Crane Sea Acceptance Trials (SAT)**

Following the KB Crane Dock Trial Acceptance, the contractor will proceed with the Sea Acceptance Trials for the performance's acceptance of the KB Crane, its associated equipment, their installation and the vessel's modifications under real operating conditions at sea. While the vessel will be operated by the CCG for the VLE shipyard, the Sea Acceptance Trials will be conducted by Contractor in presence of its certified Naval Architect and

Page 36 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

witnessed and accepted by the attending Class surveyor and the TA or its delegated representative.

## **7.2 Test Management**

### **7.2.1 KB Crane Factory STW Plan and Procedures**

In accordance with the section 3.5, the Contractor must produce and deliver a STW Plan and Procedures that provides an overall outline of the entire spectrum of STW activities of the KB Crane. The STW Plan and Procedures must contain all conditions, precautions, adjustments, starting procedures, tolerances, and test equipment required in preparation of the KB Crane including all of its equipment and systems in order to perform the FAT. The STW Plan and Procedures delivery must be IAW CDRL item CDRL-AT-01 and DID-AT-01.

### **7.2.2 KB Crane Factory Acceptance Test (FAT) Plan and Procedures**

In accordance with the section 3.6, the Contractor must produce and deliver a FAT Plan and Procedures that provides an overall outline of the entire spectrum of test activities of the KB Crane to be carried out at the factory. The FAT Plan and Procedures must contain all conditions, precautions, adjustments, expected test results, tolerances, and test equipment required to verify the correct operation of the KB Crane with all of its associated equipment and systems, and must be accepted by the attending Class surveyor and the TA or its delegated representative. The FAT Plan delivery must be IAW CDRL item CDRL-AT-02 and DID-AT-02.

### **7.2.3 KB Crane Vessel's STW Plan and Procedures**

In accordance with the section 3.7, the Contractor must produce and deliver a Vessel's STW Plan and Procedures that provides an overall outline of the entire spectrum of STW activities of the KB Crane onboard. The Vessel's STW Plan and Procedures must contain all conditions, precautions, adjustments, starting procedures, tolerances, and test equipment required in preparation of the KB Crane including all of its equipment, systems and ship board integration, in order to perform the Dock Trial. The Vessel's STW Plan and Procedures delivery must be IAW CDRL item CDRL-AT-03 and DID-AT-03.

### **7.2.4 Vessel's Inclining Test (VIT) Plan and Procedures**

In accordance with the section 3.8, the Contractor must produce and deliver a VIT Plan that provides an overall outline of the entire spectrum of VIT activities. The VIT Plan and Procedures must contain all pre-inspections, vessel's conditions, precautions, installations, expected test results, and test equipment required to carry the inclining tests and confirm the vessel's theoretical stabilities IAW the ASTM F1321-14 Standard Guide for Conducting a Stability Test. The VIT must be conducted by the contractor's certified naval Architect and must be accepted by the attending Class surveyor and the TA or its delegated representative. The VIT Plan delivery must be IAW CDRL item CDRL-AT-04 and DID-AT-04.

### **7.2.5 KB Crane Dock Trial Plan and Procedures**

In accordance with the section 3.9 the Contractor must produce and deliver a Dock Trial Plan and Procedures that provides an overall outline of the entire spectrum of the KB Crane Dock Trials activities. The Dock Trial Plan and Procedures must contain all conditions, precautions,

Page 37 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

adjustments, expected test results, tolerances, and test equipment required to verify the correct operation of the KB Crane, its associated equipment and systems, its installation onboard the vessel, the vessel's modifications and all KB Crane related vessel's connections and supplies, inputs and outputs. The KB Crane Dock trial must be conducted by the contractor and must be witnessed and accepted by the attending Class surveyor and the TA or its delegated representative. The Dock Trial Plan and Procedures delivery must be IAW CDRL item CDRL-AT-05 and DID-AT-05.

#### **7.2.6 KB Crane Sea Acceptance Trials (SAT) Plan and Procedures**

In accordance with the section 3.10, the Contractor must produce and deliver a Sea Acceptance Trials Plan and Procedures that provides an overall outline of the entire spectrum of test activities of the KB Crane SAT activities. The SAT Plan and Procedures must contain all conditions, precautions, adjustments, expected test results, tolerances, and test equipment required to verify the correct operation of the KB Crane, its associated equipment and systems, its installation onboard the vessel, the vessel's modifications and all KB Crane related vessel's connections and supplies, inputs and outputs under real operating conditions at sea. The SAT must be conducted by the contractor with a vessel being operated and under the care and custody of the CCG for the VLE contractor and must be witnessed and accepted by the attending Class surveyor and the TA or its delegated representative. The SAT Plan and procedures delivery must be IAW CDRL item CDRL-AT-06 and DID-AT-06.

#### **7.2.7 KB Crane Factory STW Reports**

The Contractor must prepare the KB Crane Factory STW reports and submit them IAW CDRL Item CDRL-AT-07 and DID-AT-07.

#### **7.2.8 KB Crane Factory Acceptance Test (FAT) Reports**

The Contractor must prepare the KB Crane FAT reports and submit them IAW CDRL Item CDRL-AT-07 and DID-AT-07.

#### **7.2.9 KB Crane Vessel's STW Reports**

The Contractor must prepare the KB Crane Vessel's STW reports and submit them IAW CDRL Item CDRL-AT-07 and DID-AT-07.

#### **7.2.10 Vessel's Inclining Test (VIT) Reports**

The Contractor must prepare the VIT reports and submit them IAW CDRL Item CDRL-AT-07 and DID-AT-07.

#### **7.2.11 KB Crane Dock Trial Reports**

The Contractor must prepare the Dock Trials reports and submit them IAW CDRL Item CDRL-AT-07 and DID-AT-07.

#### **7.2.12 KB Crane Sea Acceptance Trials (SAT) Reports**

The Contractor must prepare the KB Crane SAT reports and submit them IAW CDRL Item CDRL-AT-07 and DID-AT-07.

### **7.3 Certification**

#### **7.3.1 Certifications by Classification Society and / or TCMS**

The Contractor must obtain from one (1) of the Classification Society (CS) recognized by Canada and from TCMS all appropriate and applicable Certifications and Approvals applicable to the:

- KB Crane manufacturing;
- Vessel's modifications;
- KB Crane and associated equipment installation; and
- KB Crane and associated equipment STW, Test and Trials Operations and Commissioning.

The contractor must ensure that required CS and TCMS Certifications and Approvals are identified and agreed through the PDR and CDR.

#### **7.3.2 Work Acceptance**

Upon the successful review of the deliverables requested by this SOW the Work Acceptance will take place in accordance with the contract Terms and Conditions.

#### **7.3.3 New KB Crane Commissioning**

Upon the Work Acceptance Canada will declare the new KB Crane commissioned.

## **8 Integrated Logistics Support (ILS)**

### **8.1 General**

The Contractor must establish, implement and control an Integrated Logistics Support (ILS) Program for the KB Crane and its related systems. The Contractor ILS activities must form an integral part of all KB Crane planning, development, design, production, design qualification test, installation, set to work efforts associated with this SOW.

### **8.2 Maintenance of the KB Crane**

#### **8.2.1 Maintenance Concept**

The contractor must prepare and deliver, for approval by the TA, the Maintenance Concept IAW CDRL item CDRL-LOG-02 and DID-LOG-02 and current industrial best practices.

#### **8.2.2 Spare Parts**

The contractor must propose to the Technical Authority (TA) for its approval, a list of Spares Component types and quantities set for the KB Crane IAW Table 5. The quantities must be able to meet the first five (5) years of maintenance.

#### **8.2.3 Special Purpose Tools (SPT)**

The contractor must design and develop the SPT, if they are not readily available, for the maintenance of the KB Crane and its related equipment and components to be carried out by the CCG personnel, this IAW Table 4.

### **8.3 Cadre Training**

The Contractor must deliver a KB Crane Training IAW this section, the section 3.11, the Table 3 Item 2, CDRL item CDRL-LOG-01 and DID LOG-01 and the current industrial best practice.

#### **8.3.1 Number of Cadre Training Sessions and Students**

The contractor must provide One (1) cadre training sessions on the KB Crane. The training must be provided to the CCG operational and maintenance staff. The Cadre training session must include without being limited to, the KB Crane capabilities, features, and component with a complete set of simulated realistic training scenarios.

#### **8.3.2 Training Material and Content**

The Cadre Training Package (CTP) must meet both the system operation and system maintenance requirements to a level suitable for operators, on board maintenance performed by the ship's crew and shore based maintenance that may require the presence of FSR's. The Contractor must prepare and produce a CTP for the course IAW best current industrial practices. The CTP must be delivered IAW CDRL item CDRL-LOG-01 and DID-LOG-01. The training material and content must be reviewed and approved by TA.

### **8.3.3 Training Location and Training Equipment**

#### **8.3.3.1 Training Location**

The Contractor must deliver the Cadre training session on the CCGS Edward Cornwallis.

#### **8.3.3.2 Training System**

The Contractor must use the KB Crane and the SPT as a training system for the duration of training session.

#### **8.3.4 Language**

All Contractor supplied training and the training material must be provided in English.

### **8.4 Documentation**

#### **8.4.1 Document Formats**

- 8.4.1.1 The Contractor must prepare and deliver all documentation in English and in Contractor's own format unless the format is otherwise noted in this SOW.
- 8.4.1.2 Delivery of documentation must be via email or FTP unless otherwise noted in this SOW.
- 8.4.1.3 All soft copies of documentation must be in the original editable source file format, e.g. Microsoft Word.
- 8.4.1.4 All soft copies of documentation in Adobe PDF format must have a table of contents and have folders or bookmarks to facilitate navigation of the documents.
- 8.4.1.5 The Contractor must produce and provide three (3) paper copies and two (2) electronic copies on CD ROM or USB format of the following documentation over the course of the contract, in English:
  - a) The Contractor's Proposal in Adobe PDF format;
  - b) All system equipment and system manuals as noted in the CDR section 3.14;
  - c) A Bill of Materials of all system components (including all fields noted in part (d) below);
  - d) A list of all system spare parts with the following fields, in Excel format:
    - NATO Stock Number (if assigned);
    - Short Description (Part Name);
    - Long Description (Part details, characteristics, dimensions, power ratings, weight, etc.);
    - Supplier;
    - Supplier Part Number;
    - Manufacturer;
    - Manufacturer's Part Number;
    - Cost (Canadian dollars);
    - Fitted quantity (number installed in the asset);
    - Unit of Issue (each, box of 100, etc.);
    - Parent Equipment;

e) All training materials for both operators and maintenance personnel.

8.4.1.6 The Contractor must provide an electronic copy of the following documentation over the course of the contract, in English:

- The Shipyard Installation Specification. These must be in the original editable source file format (Word, Excel, etc.);
- The Class Certification and Approval documentation for the Crane, and test certificates for all materials, lifting gear and machinery must be in Adobe PDF format;
- Factory Acceptance Test documentation must be in Adobe PDF format;
- Signal interface list between the Crane and the vessel's Alarm and Monitoring system in the original editable source file format, including data on the electrical signal characteristics such as voltage, current, frequency, digital input/output, and analog input/output, sensor or field device data, signal and connector identification, etc.; and
- Material Safety Data Sheets (MSDS) for any required material must be in Adobe PDF format.

8.4.1.7 The Contractor must provide two (2) electronic copies on CD ROM or USB format of the final system specific software required for all diagnostics, support and complete system operation of the Crane.

#### **8.4.2 Electronic Protection**

Drawings and documents must not be electronically protected so as to be Read Only files.

#### **8.4.3 Electronic Labelling**

All electronic media must be clearly labelled with the CCG project 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.

#### **8.4.4 Drawing Formats**

8.4.4.1 The successful Contractor must provide two (2) paper copies and one (1) electronic copy on CD ROM or USB format of the following drawings over the course of the contract:

- a) Each of the Crane design drawings and these must include:
  - i. General Arrangement drawings;
  - ii. Construction drawings of all individual components;
  - iii. Piping and Instrumentation diagram;
  - iv. Internal wiring electrical schematics;
  - v. Electronic circuit card schematics; and
  - vi. Crane Load diagram.
- b) The Shipyard Installation Drawings from section 3.4; and

Page 42 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

- c) The system line drawings, system interconnection drawings and integration drawings with all non-OEM components.
- 8.4.4.2 All drawings must be standard ANSI paper size and must be in AutoCAD DWG format (latest release).
- 8.4.4.3 CCG National CAD Standard must be applied.

#### **8.4.4.4 Documentation subsequent to the SAT**

During the project the Contractor must prepare and deliver the documentation as identified in the SOW. For the SAT or following its successful acceptance, the Contractor must prepare and deliver, for TA acceptance, an as built version, if different than what has already been deliver, of the documentation listed below IAW IACS Recommendation 71- Guide for the Development of Shipboard Technical Manuals:

1. **Users manuals;** and
2. **Maintenance manuals** without being limited to the following:
  - (a) Mechanical and Electrical equipment including all wiring;
  - (b) System troubleshooting documentation;
  - (c) Repair instructions;
  - (d) All the mechanical and electrical schematics / drawings; and
  - (e) Illustrated Parts Breakdowns (IPB).

### **8.5 Technical Documentation**

#### **8.5.1 Engineering Data Access**

The Contractor must provide access to all engineering data during the contract.

#### **8.5.2 Technical Publications**

The Contractor must prepare and deliver the Technical Publications in English.

#### **8.5.3 Original Equipment Manufacturer (OEM)**

The Contractor must make maximum use of existing OEM technical publications. The Contractor must if required modify with the OEM's authorization the technical publications to reflect Canadian specific equipment, nomenclature, part numbers, modifications, and maintenance procedures IAW current industrial best practices.

### **8.6 Packaging, Handling, Storage & Storage Ability**

#### **8.6.1 General**

The Contractor must conduct Packaging, Handling, Storage and Transportability IAW current industrial best practices.

#### **8.6.2 Packaging Methods and Levels**

The Contractor must ensure that packaging of provisioned items will provide adequate protection for a minimum of five (5) years, consistent with good economy, against damage, deterioration and loss of identification during storage, handling and shipment.

Page 43 of 76	Electro-hydraulic Marine Knuckle Boom Crane	SOW	Revision	Date
			2.0	11 August 2016

### **8.6.3 Marking of Packages**

The Contractor must mark all packages, shipping containers and consolidation containers IAW current shipping best practices, as applicable.

### **8.6.4 Shelf Life Items**

The Contractor must mark the individual package for each shelf life item IAW current industrial best practices with:

1. Date of manufacture;
2. Shelf life expiry date; and
3. Storage environment restrictions (for example no freezing, no sunlight).

## **9 Engineering Change Specifications**

### **9.1 General**

The Engineering Change (EC) must be detailed specification for changes to the original COTS KB Crane (if applicable) and to the CCGS Edward Cornwallis IOT support the installation and operation of the KB Crane and all of its related equipment and components as developed by the contractor IAW this SOW and CS and TCMS applicable rules and regulations . The EC specifications must be in a format that will provide all necessary detailed vessel's structural, electrical and mechanical interfaces and component modifications. The EC Specifications must be reviewed and approved for implementation by the TA. The EC work packages must then be implemented at a shipyard under a separate contract.

During the Shipyard implementation phase any change or variation to, the approved original EC specifications must be addressed by the contractor through an EC Particularization Process and submitted to the CS/TCMS and TA approval for documentation updating and implementation.

### **9.2 Engineering Changes Designs**

The contractor must:

1. Prepare the EC specifications for the KB Crane (if applicable);
2. Prepare the EC specifications for the vessel's structure and all applicable systems connected to the new KB Crane and its related systems, equipment and components;
3. Prepare the EC drawings for items 1 and 2 above; and
4. Prepare the EC package using metric units for the KB Crane deliverables, unless the source of the original documentation is non-metric, and no changes to that original documentation is being made.

The initial EC Specification, including the preliminary and final versions, as well as all particularized EC specifications will be reviewed and approved by the TA.

## 10 Acronyms and Abbreviations

AIL	Action Item List
CA	Contracting Authority
CCG	Canadian Coast Guard
CDR	Critical Design Review
CDRL	Contract Deliverable Requirement List
CEIL	Contract End Items List
CMP	Configuration Management Plan
COTS	Commercial Off The Shelf
CS	Classification Society
CTP	Cadre Training Package
DID	Data Item Description
DTP	Dock Trial Plan
DWG	Drawing
EC	Engineering Change
EIP	Equipment Identification Plate
FAT	Factory Acceptance Test
FPM	Final Project Meeting
FSR	Field Service Representative
FTP	File Transfer Protocol
GRT	Gross Registered Tonnage
HEMTV	High Endurance Multi Tasked Vessel
IAW	In Accordance With
ILS	Integrated Logistics Support
IOT	In Order To
ISO	International Organization for Standardization
IWO	In Way Of
IWRC	Independent Wire Rope Core
KB	Knuckle Boom
kW	Kilowatt
LED	Light Emitting Diode
MCC	Motor Control Center
MSDS	Material Safety Data Sheet
NT	Net Tonnage
OC	Operator's Cabin
OEM	Original Equipment manufacturer
PCA	Physical Configuration Audit

PDF	Portable Document Format
PDR	Preliminary Design Review
PLC	Programmable Logic Controller
PM	Project Manager
PMP	Project Management Plan
PRM	Project Review Meeting
PS	Project Schedule
PWGSC	Public Works Government Services Canada
QA	Quality Assurance
RFP	Request for Proposal
SAT	Sea Acceptance Trials
SOW	Statement Of Work
SPT	Special Purpose Tools
SRR	System Requirement Review
STW	Set To Work
SWL	Safe Working Load
TA	Technical Authority
TCMS	Transport Canada Marine Safety
TDP	Technical Data Package
Tm	Metric Tonne
VAC	Voltage Alternative Current
VIT	Vessel Inclining Test
VLE	Vessel Life Extension
WAM	Work Acceptance Meeting
WBS	Work Breakdown Structure

## **11 Contract Deliverable Requirements List (CDRL) and Data Item Description (DID)**

### **11.1 General**

#### **11.1.1 Document Changes/Updates**

All the approved documents must be prepared and updated as required by the CDRL. All changes to updated versions of documents must be identified as follows:

1. On a change page indicating page numbers, paragraph numbers, date of change and reason for change;
2. Within the hard copy, by use of change bars in the side margins of the printed document; and
3. Within the soft copy, using a method appropriate to the authoring tools that clearly differentiates old content from new or revised content.

Proposed amendments and the list of effective pages must be forwarded to the TA for approval as described in the CDRL.

#### **11.1.2 Deliverable Format and Number of Copies:**

The number of documentation copies required for each CDRL is defined within each CDRL.

**NOTE: All soft copies of documentation must be in the original editable source file format, e.g. Microsoft Word.**

#### **11.1.3 Abbreviations:**

The following abbreviations are used in the CDRLs and DIDs.

A	Approval	PCA	Physical Configuration Audit
AT	Acceptance Test	PDR	Preliminary Design Review
CA	Contract Award	R	Review
CDR	Critical Design Review	SRR	System Requirements Review
I	Information only	STW	Set To Work
Month	Calendar month	wd	Working day

## 11.2 CDRLs

### 11.2.1 Project Management CDRL Summary

Project Management CDRL					
CDRL #	DID #	Deliverable	Review Level	Due	Section in SOW
CDRL-PM-01	DID-PM-01	Project Management Plan	A	CA +20 wd	4.2 and 4.4.1
CDRL-PM-02	DID-PM-02	Meeting Agendas	A	Meeting date - 5 wd	4.4.5
CDRL-PM-03	DID-PM-03	Meeting Minutes	A	Meeting date + 5 wd	4.4.7
CDRL-PM-04	DID-PM-04	Project Status Reports	R	5 <sup>th</sup> wd of each month	4.5.1
CDRL-PM-05	N/A	Project Kick Off Meeting and System Requirements Review as per CDRL-EN-01.	R	CA +20 wd	4.4.1

### 11.2.2 Engineering CDRL Summary

Engineering CDRL					
CDRL #	DID #	Deliverable	Review Level	Due	Section in SOW
CDRL-EN-01	DID-EN-01	System Requirements Review Data Package	R	SRR-10 wd	3.12
CDRL-EN-02	DID-EN-02	Preliminary Design Review Data Package	R	CA+ 100 wd	3.13
CDRL-EN-03	DID-EN-03	Critical Design Review Data Package	R	CA + 120 wd	3.14
CDRL-EN-04	DID-EN-04	KB Crane EC Specifications and Drawings Packages	A	CA + 140 wd	3.3
CDRL-EN-05	DID-EN-05	Vessel's Integration EC Specifications and Drawings Packages	A	CA + 150 wd	3.3
CDRL-EN-06	DID-EN-06	KB Crane Installation Specifications and Drawings Packages	A	CA + 160 wd	3.4
CDRL-EN-07	DID-EN-07	Physical Configuration Audit Package	A	Delivery-10 wd	3.16

### 11.2.3 Acceptance Testing CDRL Summary

Acceptance Testing CDRL					
CDRL #	DID #	Deliverable	Review Level	Due	Section in SOW
CDRL-AT-01	DID-AT-01	KB Crane Factory STW Plan and Procedures	A	STW-10 wd	3.5
CDRL-AT-02	DID-AT-02	KB Crane FAT Plan and Procedures	A	FAT-10 wd	3.6
CDRL-AT-03	DID-AT-03	KB Crane Vessel's STW Plan and Procedures	R	CA +160wd	3.7
CDRL-AT-04	DID-AT-04	Vessel's Inclining Test (VIT) and Procedures	A	CA +160wd	3.8
CDRL-AT-05	DID-AT-05	KB Crane Dock Trial Plan and	A	CA +180wd	3.9

		Procedures			
CDRL-AT-06	DID-AT-06	KB Crane Sea Acceptance Trials and Procedures	R	CA +180wd	3.10
CDRL-AT-07	DID-AT-07	Various STW and Acceptance Test Reports	R	Acceptance Test + 10 wd	3.5 to 3.10 inclusively and 7.2.7 to 7.2.12 inclusively

#### 11.2.4 Integrated Logistics Support CDRL Summary

Integrated Logistics Support CDRL					
CDRL #	DID #	Deliverable	Review Level	Due	Section in SOW
CDRL-LOG-01	DID-LOG-01	Cadre Training Package	A	CA + 180wd	3.11 and 8.3
CDRL-LOG-02	DID-LOG-02	Maintenance Concept	A	PDR - 20 wd	8.2.1

#### 11.2.5 Project Management CDRL Details

##### 11.2.5.1 CDRL-PM-01

1	Sequence Number:	PM-01
2	Title or Description of Data:	Project Management Plan
3	Data Item Description Number:	DID-PM-01
4	Reference:	SOW 4.2 and 4.4.1
5	First Submission:	CA+ 20 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	10 wd
9	Subsequent Submission:	As required, if changes needed. Deliver soft copy of the change pages only
10	Remarks:	Deliver via email or FTP

##### 11.2.5.2 CDRL-PM-02

1	Sequence Number:	PM-02
2	Title or Description of Data:	Meeting Agendas
3	Data Item Description Number:	DID-PM-02
4	Reference:	SOW 4.4.5
5	First Submission:	Meeting Date -5 days
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.5.3 CDRL-PM-03

1	Sequence Number:	PM-03
2	Title or Description of Data:	Meeting Minutes
3	Data Item Description Number:	DID-PM-03
4	Reference:	SOW 4.4.7
5	First Submission:	Meeting date + 5 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.5.4 CDRL-PM-04

1	Sequence Number:	PM-04
2	Title or Description of Data:	Project Status Reports
3	Data Item Description Number:	DID-PM-04
4	Reference:	SOW 4.5.1
5	First Submission:	5 <sup>th</sup> wd of each month
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	No
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.5.5 CDRL-PM-05

1	Sequence Number:	PM-05
2	Title or Description of Data:	Project Kick Off Meeting
3	Data Item Description Number:	N/A
4	Reference:	SOW 4.4.1
5	First Submission:	CA + 20 wd
6	Number of Copies:	N/A
7	TA Approval Required:	No
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

## 11.2.6 Engineering CDRL Details

### 11.2.6.1 CDRL-EN-01

1	Sequence Number:	EN-01
2	Title or Description of Data:	System Requirements Review Data Package
3	Data Item Description Number:	DID-EN-01
4	Reference:	SOW 3.12
5	First Submission:	SRR-10 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	No
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

### 11.2.6.2 CDRL-EN-02

1	Sequence Number:	EN-02
2	Title or Description of Data:	Preliminary Design Review Data Package
3	Data Item Description Number:	DID-EN-02
4	Reference:	SOW 3.13
5	First Submission:	CA + 100 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	No
8	Approval Lead Time:	N/A
9	Remarks:	Deliver via email or FTP

### 11.2.6.3 CDRL-EN-03

1	Sequence Number:	EN-03
2	Title or Description of Data:	Critical Design Review Data Package
3	Data Item Description Number:	DID-EN-03
4	Reference:	SOW 3.14
5	First Submission:	CA + 120 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	No
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.6.4 CDRL-EN-04

1	Sequence Number:	EN-04
2	Title or Description of Data:	KB Crane EC Specifications and Drawings Packages
3	Data Item Description Number:	DID-EN-04
4	Reference:	SOW 3.3
5	First Submission:	CA + 140 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.6.5 CDRL-EN-05

1	Sequence Number:	EN-05
2	Title or Description of Data:	Vessel's Integration EC Specifications and Drawings Packages
3	Data Item Description Number:	N/A
4	Reference:	SOW 3.3
5	First Submission:	CA + 150 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.6.6 CDRL-EN-06

1	Sequence Number:	EN-06
2	Title or Description of Data:	KB Crane Installation Specifications and Drawings Packages
3	Data Item Description Number:	N/A
4	Reference:	SOW 3.4
5	First Submission:	CA + 160 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.6.7 CDRL-EN-07

1	<b>Sequence Number:</b>	EN-07
2	<b>Title or Description of Data:</b>	Physical Configuration Audit Package
3	<b>Data Item Description Number:</b>	N/A
4	<b>Reference:</b>	SOW 3.16
5	<b>First Submission:</b>	Delivery – 10 wd
6	<b>Number of Copies:</b>	1 soft copy in source format
7	<b>TA Approval Required:</b>	Yes
8	<b>Approval Lead Time:</b>	N/A
9	<b>Subsequent Submission:</b>	N/A
10	<b>Remarks:</b>	Deliver via email or FTP

## 11.2.7 Acceptance Testing CDRL Details

### 11.2.7.1 CDRL-AT-01

1	Sequence Number:	AT-01
2	Title or Description of Data:	KB Crane Factory STW Plan and Procedures
3	Data Item Description Number:	DID-AT-01
4	Reference:	SOW 3.5
5	First Submission:	STW-10 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	10 wd
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

### 11.2.7.2 CDRL-AT-02

1	Sequence Number:	AT-02
2	Title or Description of Data:	KB Crane FAT Plan and Procedures
3	Data Item Description Number:	DID-AT-02
4	Reference:	SOW3.6
5	First Submission:	FAT -10 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	As required, if changes
10	Remarks:	Deliver via email or FTP

### 11.2.7.3 CDRL-AT-03

1	Sequence Number:	AT-03
2	Title or Description of Data:	KB Crane Vessel's STW Plan and Procedures
3	Data Item Description Number:	DID - AT-03
4	Reference:	SOW 3.7
5	First Submission:	Vessel's STW - 10 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	No
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.7.4 CDRL-AT-04

1	Sequence Number:	AT-04
2	Title or Description of Data:	Vessel's Inclining Test and procedures
3	Data Item Description Number:	DID-AT-04
4	Reference:	SOW
5	First Submission:	VIT – 20 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	10 wd
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.7.5 CDRL-AT-05

1	Sequence Number:	AT-05
2	Title or Description of Data:	KB Crane Dock Trial Plan and Procedures
3	Data Item Description Number:	DID-AT-05
4	Reference:	SOW
5	First Submission:	DTP -20 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	As required, if changes
10	Remarks:	Deliver via email or FTP

#### 11.2.7.6 CDRL-AT-06

1	Sequence Number:	AT-06
2	Title or Description of Data:	KB Crane Sea Acceptance Trials and Procedures
3	Data Item Description Number:	DID-AT-06
4	Reference:	SOW 3.10
5	First Submission:	SAT – 20 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	No
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

#### 11.2.7.7 CDRL-AT-07

1	Sequence Number:	AT-07
2	Title or Description of Data:	Various STW and Acceptance Test Reports
3	Data Item Description Number:	DID-AT-07
4	Reference:	SOW 3.5 to 3.10 inclusively and 7.2.7 to 7.2.12 inclusively
5	First Submission:	Acceptance Test +10 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	No
8	Approval Lead Time:	N/A

9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

## 11.2.8 Integrated Logistics Support CDRL Details

### 11.2.8.1 CDRL-LOG-01

1	Sequence Number:	LOG-01
2	Title or Description of Data:	Cadre Training Package
3	Data Item Description Number:	DID- LOG-01
4	Reference:	SOW 3.11 and 8.3
5	First Submission:	Cadre training – 20 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

### 11.2.8.2 CDRL-LOG-02

1	Sequence Number:	LOG-02
2	Title or Description of Data:	Maintenance Concept
3	Data Item Description Number:	DID-LOG-02
4	Reference:	SOW 8.2.1
5	First Submission:	PDR – 20 wd
6	Number of Copies:	1 soft copy in source format
7	TA Approval Required:	Yes
8	Approval Lead Time:	N/A
9	Subsequent Submission:	N/A
10	Remarks:	Deliver via email or FTP

## Data Item Descriptions

### 11.2.9 Project Management DIDs

#### 11.2.9.1 DID-PM-01

1. TITLE		2. IDENTIFICATION NUMBER	
Project Management Plan		DID-PM-01	
3. DESCRIPTION / PURPOSE			
The contractor must develop, implement and maintain a KB Crane Project Management Plan (PMP) in order to fulfill the project management requirements of this SOW.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP			
CDRL - PM-01 SOW Ref: 4.2, 4.4.1			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1	The Project Management Plan (PMP) must be prepared in Contractor's format		
10.2	Structure - The PMP must contain, as a minimum, the following sections: <ol style="list-style-type: none"> <li>1. Introduction;</li> <li>2. Management Organization and Responsibilities;</li> <li>3. Work Breakdown Structure (WBS);</li> <li>4. Master Schedule with Milestones;</li> <li>5. Mechanical / Hydraulic / Electrical / Electronic /Software Development Plan;</li> <li>6. Configuration Management Plan;</li> <li>7. QA Plan IAW the contract;</li> <li>8. Inspections and Tests Plans including all applicable STW to cover as a minimum the FAT, VIT, DTP and SAT; and</li> <li>9. ILS Plan.</li> </ol>		

#### 11.2.9.2 DID-PM-02

1. TITLE		2. IDENTIFICATION NUMBER	
Meeting Agendas		DID-PM-02	
3. DESCRIPTION / PURPOSE			
The purpose of the Meeting / Teleconference / Conference Supporting Documentation and Agenda is to provide the proposed subject items for review and discussion.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP			
CDRL - PM-02 SOW Ref: 4.4.5			
8. ORIGINATOR		9. APPLICABLE FORMS	

<b>10. PREPARATION INSTRUCTIONS</b>	
10.1	Supporting documentation and agenda must be prepared in the Contractor's format.
10.2	The Agenda must include the following: <ul style="list-style-type: none"> <li>1. Purpose of the meeting;</li> <li>2. List of expected attendees;</li> <li>3. Time, date, location and expected duration of the meeting;</li> <li>4. Facilities and equipment to be provided for attending personnel;</li> <li>5. List of data items and documents to be reviewed or provided to support the meeting. Adequate copies of all such data and documentation must be provided; and</li> <li>6. Adequate copies of the current AIL where appropriate.</li> </ul>

### 11.2.9.3 DID-PM-03

1. TITLE		2. IDENTIFICATION NUMBER	
Meeting Minutes		DID-PM-03	
3. DESCRIPTION / PURPOSE			
The purpose of Meeting / Teleconference / Conference Minutes is to document discussions, agreements and action items identified (with the responsible parties and closure dates) reached during subject meetings.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6.SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP			
CDRL-PM-03 SOW Ref: 4.4.7			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS - INSTRUCTIONS SUR LA PRESENTATION DES DONNEES			
10.1 Meeting / Teleconference / Conference Minutes must be prepared in the Contractor's format and must include the following information: <ul style="list-style-type: none"> <li>1. Date and location of meeting;</li> <li>2. Name, organization, phone number, e-mail address and title of each person that attended the meeting;</li> <li>3. Statement relating to the purpose and/or objective of the meeting; and</li> <li>4. The original agenda and any revisions to the agenda - this may be accomplished by reference to attachments or enclosures.</li> </ul>			
10.2 Minutes should include a record of each item discussed or reviewed during the meeting, including: <ul style="list-style-type: none"> <li>1. A brief statement identifying the item or problem and their status;</li> <li>2. A summary of pertinent information associated with the item;</li> <li>3. A recommendation;</li> <li>4. An action item - identifying the person or organization responsible for taking and/or co-ordinating required action with key dates; and</li> <li>5. An updated Action Item List (AIL) with all open and closed items.</li> </ul>			
10.3 Meeting minutes should be distributed, where possible, at the end of the meeting and signed by the responsible parties before leaving. Otherwise the meeting minutes must be delivered as directed in CDRL.			

#### 11.2.9.4 DID-PM-04

1. TITLE Project Status Reports (PSR)		2. IDENTIFICATION NUMBER DID-PM-04	
3. DESCRIPTION / PURPOSE  Project Status Reports provide the project status of work in progress, management and mitigation of risk, and schedule. The report must be used to evaluate progress and to identify project management, technical, and schedule issues.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)  Technical Authority, CCG TA		6. SPARE
7. APPLICATION / INTERRELATIONSHIP  CDRL-PM-04 SOW Ref: 4.5.1			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1 The Project Status Reports must be prepared in the Contractor's format and contain necessary amendments to the PMP as appropriate.			
10.2 The Project Status Reports must include at least the following information: <ul style="list-style-type: none"> <li>1. A narrative report providing sufficient detail to enable the Contracting and the Technical Authorities to evaluate the progress of the work to date;</li> <li>2. Risk management activities. Significant problems or concerns encountered together with recommended course of action;</li> <li>3. Schedules status, schedule changes and planned activities for the next reporting period;</li> <li>4. A summary of any issues for meeting requirements / specifications;</li> <li>5. Running summary of hardware, software and system observations and problems that have been opened, are in progress or have been resolved; and</li> <li>6. Subset of Action Item List containing all open action items.</li> </ul>			

### 11.2.10 Engineering DIDs

#### 11.2.10.1 DID-EN-01

1. TITLE		2. IDENTIFICATION NUMBER	
System Requirements Review Data Package		DID-EN-01	
3. DESCRIPTION / PURPOSE			
The System Requirements Review Data Package must provide all of the review materials required for the System Requirements Review meeting.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP - APPLICATION / INTERDEPENDANCE			
CDRL-EN-01 SOW Ref: 3.12			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1 The following document must be provided for the System Requirements Review meeting:			
1. System Requirements Specification including structural, mechanical, hydraulic and electrical / electronic components.			

### 11.2.10.2 DID-EN-02

1. TITLE		2. IDENTIFICATION NUMBER	
Preliminary Design Review Data Package		DID-EN-02	
3. DESCRIPTION / PURPOSE			
The Preliminary Design Review Data Package must provide all of the review materials required for the Preliminary Design Review meeting.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP			
CDRL-EN-02 SOW Ref:3.13, 7.3.1			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
<p>10.1 The following preliminary documents must be provided for the Preliminary Design Review meeting:</p> <ol style="list-style-type: none"> <li>1. Preliminary Electrical schematics / design for the KB Crane and the vessel;</li> <li>2. Preliminary Electrical hardware for the KB Crane and the vessel;</li> <li>3. Preliminary Software Architecture / Design;</li> <li>4. Preliminary Structural drawings / design for the KB Crane and the vessel structure;</li> <li>5. Preliminary Mechanical drawings / design for the KB Crane and the vessel;</li> <li>6. Preliminary Mechanical hardware for the KB Crane and the vessel;</li> <li>7. Preliminary Hydraulic drawings / design for the KB Crane and the vessel;</li> <li>8. Preliminary Hydraulic hardware for the KB Crane and vessel;</li> <li>9. Preliminary Control System Descriptions, including all Safety Systems;</li> <li>10. Preliminary Details of a Failure Modes and Effect Analysis (FMEA) for the Crane;</li> <li>11. Preliminary KB Crane Load Diagram;</li> <li>12. Preliminary Ship Stability Calculations with the new KB Crane;</li> <li>13. Preliminary Ship Stability Calculation at Lifting operations with the KB Crane;</li> <li>14. Preliminary Operator Cabin Layout;</li> <li>15. Preliminary Installation and Integration Specifications and Drawings;</li> <li>16. Preliminary Inspection Test Plan (ITP) to cover as a minimum the FAT, VIT, DTP and SAT; and</li> <li>17. Preliminary listing of the Classification Society and/or TCMS appropriate and applicable Certifications and Approvals required.</li> </ol>			

### 11.2.10.3 DID-EN-03

1. TITLE		2. IDENTIFICATION NUMBER	
Critical Design Review Data Package		DID-EN-03	
3. DESCRIPTION / PURPOSE			
The Critical Design Review Data Package must provide all of the review materials required for the Critical Design Review meeting.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP - APPLICATION / INTERDEPENDANCE			
CDRL-EN-03 SOW Ref: 3.14, 7.3.1			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1 The following detailed documents must be provided for the Critical Design Review meeting: <ul style="list-style-type: none"> <li>1. Final Electrical Schematics / Design for the KB Crane and the vessel;</li> <li>2. Final Electrical Hardware for the KB Crane and the vessel;</li> <li>3. Final Software Architecture / Design;</li> <li>4. Final Structural Drawings / Design for the KB Crane and the vessel structure;</li> <li>5. Final Mechanical Drawings / Design for the KB Crane and the vessel;</li> <li>6. Final Mechanical Hardware for the KB Crane and the vessel;</li> <li>7. Final Hydraulic Drawings / Design for the KB Crane and the vessel;</li> <li>8. Final Hydraulic Hardware for the KB Crane and vessel;</li> <li>9. Final Control System Descriptions, including all Safety Systems;</li> <li>10. Final Details of a Failure Modes and Effect Analysis (FMEA) for the Crane;</li> <li>11. Final KB Crane Load Diagram;</li> <li>12. Final Ship Stability Calculations with the new KB Crane;</li> <li>13. Final Ship Stability Calculation at Lifting operations with the KB Crane;</li> <li>14. Final Operator's Cabin Layout;</li> <li>15. Final Installation and Integration Specifications and Drawings;</li> <li>16. Final Inspection Test Plan (ITP) to cover as a minimum the FAT, VIT, DTP and SAT;</li> <li>17. Preliminary Integrated Logistics Support (ILS) documentation; and</li> <li>18. Final listing of the Classification Society and/or TCMS appropriate and applicable Certifications and</li> </ul>			

#### 11.2.10.4 DID-EN-04

1. TITLE - TITRE KB Crane Engineering Change Specification and Drawing Package		2. IDENTIFICATION NUMBER DID-EN-04	
3. DESCRIPTION / PURPOSE  The KB Crane Engineering Change (EC) Specifications and Drawing package must be detailed specifications and drawings of the Base line and Particularized KB Crane. The Particularized KB Crane EC specification and Drawing package will provide all the changes brought to the base line KB Crane and its associated equipment and components in order to have it ready to be installed and operated in accordance with the requirements of this SOW onboard the CCGS Edward Cornwallis. The KB Crane EC Specification and Drawing package must provide all the necessary modifications and additions to the KB Crane and any of its equipment and components, either structural, electrical or mechanical.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, CCG TA		6. SPARE
7. APPLICATION / INTERRELATIONSHIP INTERDEPENDANCE  CDRL-EN-04 SOW Ref: 3.3 and 9			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1	Be IAW best industrial practices for the “Development of Engineering Change Installation Package”.		
10.2	Prepare the EC Specification package using metric units unless the source of the original documentation is non-metric, and no changes to that original documentation are being made.		
10.3	The EC Specification Package including both the preliminary and final versions must be reviewed by the TA for compliance to the SOW.		
10.4	Shall include a Base Line package and an EC package for the KB Crane and any of its equipment and components either structural, electrical or mechanical.		

### 11.2.10.5 DID-EN-05

1. TITLE - TITRE Vessel's Integration EC Specification and Drawing Packages.		2. IDENTIFICATION NUMBER DID-EN-05	
3. DESCRIPTION / PURPOSE  The Vessel's Integration EC Specification and Drawing Package must be detailed specifications and drawings of the Base Line and Particularized Vessel's configurations. The Particularized Vessel's Specification and Drawing Package will provide all the changes to be brought to the CCGS Edward Cornwallis IOT enable the onboard installation of the KB Crane with all of its associated equipment and components required IOT meet the operational and performance requirements of this SOW. The EC Specification and Drawing Package must provide the detailed strip out of the existing Speedcrane with all of its related components and equipment and the necessary modifications and additions to the CCGS Edward Cornwallis interfaces either structural, electrical or mechanical IOT install the new KB Crane with all of its related components and equipment.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, CCG TA		6. SPARE
7. APPLICATION / INTERRELATIONSHIP INTERDEPENDANCE  CDRL-EN-05 SOW Ref: 3.3 and 9			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1 Be IAW best industrial practices for the "Development of Engineering Change Installation Package".  10.2 Prepare the EC Specification package using metric units for the vessel integration deliverables, unless the source of the original documentation is non-metric, and no changes to that original documentation is being made.  10.3 The EC Specification Package including both the preliminary and final versions must be reviewed by the TA for compliance to the SOW.  10.4 Shall include the KB Crane Vessel's Integration Baseline EC Specification and Drawing package that will address to the minimum the following: a) Vessel's static stability prior to Speedcrane strip out; b) Vessel's dynamic stability prior to Speedcrane strip out; c) Vessel's structure and seating in way of existing Speedcrane and associated equipment; d) Vessel's power supply for the existing Speedcrane and associated equipment; and e) Vessel's General Arrangement and layout drawings in way of. the existing Speedcrane and associated equipment  10.5 KB Crane Vessel's Integration Particularized EC Specification and Drawing package that will address each of the following: a) Existing Speedcrane and related equipment and components strip out specification; b) Vessel's new static stability with the new KB Crane and associated equipment installed in running state in the worst environmental conditions; c) Vessel's new dynamic stability with the new KB Crane and associated equipment installed in in running state with simulation of operation in its maximum reach/capacity and worst environmental conditions; d) Vessel's structural changes in way of the new KB Crane and associated equipment; e) New KB Crane pedestal adaptor; f) Vessel's power supply for the new KB Crane and associated equipment; g) Vessel's Integrated Communication System (ICS); h) Vessel's Alarm and Monitoring System (AMS); i) Vessel's General Arrangement and layout drawings IWO the new KB Crane and associated equipment; j) The Bill of Material (BOM) needed to proceed with all ship's alterations (removals, relocations and additions) IOT meet the requirement of this SOW for the ship's modifications and KB Crane installation.			

### 11.2.10.6 DID-EN-06

1. TITLE - TITRE KB Crane Installation Specifications and associated drawings.		2. IDENTIFICATION NUMBER DID-EN-06	
3. DESCRIPTION / PURPOSE  The Contractor must deliver a complete KB Crane installation specification and drawing package IAW with section 10 below.  The KB Crane installation specification and drawing package will be integrated into a future VLE specification and drawing package to be directly implemented by a shipyard to be identified.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, CCG TA	6. SPARE	
7. APPLICATION / INTERRELATIONSHIP INTERDEPENDANCE  CDRL-EN-06 SOW Ref: 3.4			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
<p>10.1 The KB Crane Installation Packages and drawings may be prepared in the Contractor's format and must address the following:</p> <ul style="list-style-type: none"> <li>a) Utilize a mutually acceptable numbering format and subject headers as this specification will be tendered as part of a larger specification package;</li> <li>b) Provide sufficient detail to be suitable for use in an invitation to tender for shipyard use including a bill of materials for shipyard implementation;</li> <li>c) Provide sufficient detail of installation of all equipment and cabling (including connection verification plans and welding schedules) such that a shipyard can provide firm price quotations for labour and materials;</li> <li>d) Provide details of modifications to the existing hull structure to permit the integration of the new Crane pedestal and other required support structures;</li> <li>e) Validation of the strip out prior to the beginning of the new KB Crane integration and installation work;</li> <li>f) The electrical distribution and connections from the to the KC Crane and associated equipment to be done by the selected shipyard;</li> <li>g) The connection of the KB Crane and associated equipment with the ICS and AMS;</li> <li>h) The vessel's structural modification in preparation of the installation of the KB Crane and associated equipment to be done by the selected shipyard;</li> <li>i) If applicable, the new hydraulic oil storage, supply and draining system;</li> <li>j) The surface preparation and coating system for: <ul style="list-style-type: none"> <li>i. the KB Crane;</li> <li>ii. the KB Crane associated equipment; and</li> <li>iii. the vessel's new and disturbed areas.</li> </ul> </li> <li>k) The installation of the KB Crane and associated equipment on their respective pedestal adaptor, bases and/or seating to be done by the selected shipyard.</li> </ul>			

**11.2.10.7 DID-EN-07**

1. TITLE		2. IDENTIFICATION NUMBER	
Physical Configuration Audit Package		DID-EN-07	
3. DESCRIPTION / PURPOSE			
<p>The purpose of the As Built List is to provide a set of drawings that define the configuration of the system.</p> <p>Equipment drawings and specifications, Equipment manuals, "As Configured" list/audit Required Test record forms, and/or computer test results, format samples, previous test results.</p>			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP			
<p>CDRL-EN-07</p> <p>SOW Ref: 3.1.6</p>			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
<p>10.1 The as built List may be prepared in the Contractor's format. Exact version and revision numbers must be verified for the equipment.</p> <p>10.2 The as built list must include as a minimum the following drawings:</p> <ul style="list-style-type: none"> <li>1. Parts list;</li> <li>2. Drawings, Mechanical, Electrical, etc.; and</li> <li>3. ILS documents and Other documents in accordance with the requirements stated in the SOW.</li> </ul>			

## 11.2.11 Acceptance Testing DIDs

### 11.2.11.1 DID-AT-01

1. TITLE		2. IDENTIFICATION NUMBER	
KB Crane Factory STW Plan and Procedures		DID-AT-01	
3. DESCRIPTION / PURPOSE			
Describe the plan and procedures to prepare the testing at the factory of the Mechanical, Hydraulic and Electrical components of the KB Crane.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP			
CDRL-AT-01 SOW Ref: 3.5			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1 May be prepared in the Contractor's format.			
10.2 The Contractor must develop and deliver for approval a KB Crane Factory STW Plan that will address as a minimum the following:			
<ul style="list-style-type: none"> <li>a) The list of prerequisite mandatory inspection reports required to proceed with the KB Crane Factory STW;</li> <li>b) The detailed list of supplies and systems required without being limited to: <ul style="list-style-type: none"> <li>i. electrical power supply;</li> <li>ii. hydraulic oil supply;</li> <li>iii. communication systems required;</li> <li>iv. alarm systems required; and</li> <li>v. certified weights required.</li> </ul> </li> <li>c) The sequential order of equipment starting and activation with prestart verification points and first run verification points;</li> <li>d) The sequential order of the KB Crane movements with its limits verifications and adjustments;</li> <li>e) The sequential order of the KB Crane movements and lifts with increase in weights and related inspection points; and</li> <li>f) The list of prerequisite mandatory inspection reports required to proceed with the KB Crane Factory Acceptance Tests (FAT).</li> </ul>			

### 11.2.11.2 DID-AT-02

1. TITLE		2. IDENTIFICATION NUMBER	
KB Crane FAT Plan and Procedures		DID-AT-02	
3. DESCRIPTION / PURPOSE - DESCRIPTION / OBJET			
Describe the plan and procedures to prepare the testing at the factory of the KB Crane with all of its Mechanical, Hydraulic and Electrical equipment and components.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP			
CDRL-AT-02 SOW Ref: 3.6			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1	May be prepared in the Contractor's format.		
10.2	<p>The Contractor must develop and deliver a Class approved KB Crane FAT Plan and Procedures that will address as a minimum the following:</p> <ul style="list-style-type: none"> <li>a) The list of prerequisite mandatory inspection reports required in order to proceed with the KB Crane FAT;</li> <li>b) The detailed list of supplies and systems required without being limited to: <ul style="list-style-type: none"> <li>i. electrical power supply;</li> <li>ii. hydraulic oil supply;</li> <li>iii. communication systems required;</li> <li>iv. alarm systems required; and</li> <li>v. certified weights required;</li> </ul> </li> <li>c) The list of the personnel required for: <ul style="list-style-type: none"> <li>i. The weights handling;</li> <li>ii. The KB Crane operation; and</li> <li>iii. The readings and data collection.</li> </ul> </li> <li>d) The list of the mandatory attendance without being limited to: <ul style="list-style-type: none"> <li>i. CCG; and</li> <li>ii. Regulatory Bodies.</li> </ul> </li> <li>e) The safety requirements at the factory;</li> <li>f) The list of approved test and data sheets to be filled during the trial; and</li> <li>g) The sequential order and type of trials to be conducted on the equipment and on the KB Crane and their respective performances to be obtained.</li> </ul>		

### 11.2.11.3 DID-AT-03

1. TITLE KB Crane Vessel's Set To Work Plan and Procedures		2. IDENTIFICATION NUMBER DID-AT-03	
3. DESCRIPTION / PURPOSE Describe the plan and procedures to prepare the onboard Set To Work of the KB Crane and its equipment and components.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, CCG TA		6. SPARE
7. APPLICATION / INTERRELATIONSHIP CDRL-AT-03 SOW Ref: 3.7			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
<p>10.1 May be prepared in the Contractor's format.</p> <p>10.2 The KB Crane Vessel's Set To Work Plan and Procedures must include the following as a minimum:</p> <ul style="list-style-type: none"> <li>a) The list of prerequisite mandatory inspection reports required to begin the KB Crane vessel's STW;</li> <li>b) The detailed list of supplies and systems required without being limited to: <ul style="list-style-type: none"> <li>i. electrical power supply;</li> <li>ii. hydraulic oil supply;</li> <li>iii. communication systems required; and</li> <li>iv. alarm systems required;</li> <li>v. certified weights required.</li> </ul> </li> <li>c) The security, safety and coordination requirements if the vessel is alongside or in the dry-dock, which will address to the minimum the following aspects: <ul style="list-style-type: none"> <li>i. Security and safety aspects of the workers onboard and ashore while carrying the STW and tests;</li> <li>ii. Safety, security and stability aspects of the vessel and VLE contractor equipment while carrying the STW and tests; and</li> <li>iii. Coordination with the VLE contractor concurrent activities.</li> </ul> </li> <li>d) The sequential order of equipment starting and activation with prestart verification points and first run verification points;</li> <li>e) The sequential order of the KB Crane movements with its limits verifications and adjustments;</li> <li>f) The sequential order of the KB Crane movements and lifts with increase in weights and related inspection points;</li> <li>g) The list of prerequisite mandatory inspection reports required to proceed with the KB Crane Dock Trial.</li> </ul> <p>10.3 Based on the Vessel's STW Plan and Procedures, the Contractor must develop and deliver a KB Crane Vessel's STW schedule that will be integrated into the planning of the future VLE's Contract.</p> <p>The schedule must provide an estimated duration in days of each of the main activities described into the Vessel's STW Plan and Procedures. The schedule will be developed in MS Project format and delivered one (1) hard and one (1) soft copy.</p>			

#### 11.2.11.4 DID-AT-04

1. TITLE  Vessel's Inclining Test (VIT) Plan and Procedures, KB Crane Installed		2. IDENTIFICATION NUMBER  DID-AT-04	
3. DESCRIPTION / PURPOSE  The Contractor's certified Naval Architect must develop and deliver for approval a VIT Plan and Procedures. The VIT Plan and Procedures will be develop to be carried out once the theoretical stabilities calculations demonstrated that the vessel can be safely floated after having stripped out the existing Speedcrane and installed the new KB Crane, that the vessel safely floated with these modifications and following the acceptance of the new KB Crane and its related equipment installation and the confirmation of their operational status. The VIT main intents will be to confirm the theoretical vessel's new stabilities and that the vessel's new stabilities allow proceeding with the KB Crane Dock and Sea Trials.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)  Technical Authority, CCG TA		6. SPARE
7. APPLICATION / INTERRELATIONSHIP  CDRL-AT-04 SOW Ref: 3.8			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1 May be prepared in the Contractor's format.			
10.2 Must be IAW the ASTM F1321-14 Standard Guide for Conducting a Stability Test.			
10.3 The Vessel's Inclining Test (VIT) Plan and Procedures must include the following as a minimum:			
<ul style="list-style-type: none"> <li>a) Define the objectives of the tests and the related deliverables subject to the Regulatory Bodies approval;</li> <li>b) Define the procedure and have it approved by the Regulatory Bodies;</li> <li>c) Coordinate the preparation and the conduct of the VIT with the VLE shipyard; and</li> <li>d) Coordinate and ensure the attendance of the CCG TA and all required Regulatory Bodies.</li> </ul>			

### 11.2.11.5 DID-AT-05

1. TITLE KB Crane Dock Trial Plan and Procedures		2. IDENTIFICATION NUMBER DID-AT-05	
3. DESCRIPTION / PURPOSE Describe the plan and procedures to prepare the Dock Trial of the KB Crane and its equipment and components.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, CCG TA		6. SPARE
7. APPLICATION / INTERRELATIONSHIP CDRL-AT-05 SOW Ref: 3.9			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
<p>10.1 May be prepared in the Contractor's format.</p> <p>10.2 The Vessel's Dock Trial Plan and Procedures must include the following as a minimum:</p> <ul style="list-style-type: none"> <li>a) The list of prerequisite mandatory inspection reports required in order to proceed with the Dock Trial;</li> <li>b) The detailed list of supplies and systems required without being limited to; <ul style="list-style-type: none"> <li>i. electrical power supply;</li> <li>ii. hydraulic oil supply;</li> <li>iii. communication systems required;</li> <li>iv. alarm systems required;</li> <li>v. certified weights required;</li> </ul> </li> <li>c) The list of the personnel required for; <ul style="list-style-type: none"> <li>i. The weights handling;</li> <li>ii. The KB Crane operation;</li> <li>iii. The readings and data collection; and</li> <li>iv. The vessel's lines handling.</li> </ul> </li> <li>d) The list of the mandatory attendance without being limited to; <ul style="list-style-type: none"> <li>i. CCG;</li> <li>ii. Regulatory Bodies.</li> </ul> </li> <li>e) The safety requirements onboard and on the pier;</li> <li>f) The list of approved test and data sheets to be filled during the trial;</li> <li>g) The sequential order and type of trials to be conducted on the equipment and on the KB Crane and their respective performances to be obtained.</li> </ul> <p>10.3 Based on the Vessel's Dock Trial Plan and Procedures, the Contractor must develop and deliver a KB Crane Dock Trial schedule that will be integrated into the planning of the future VLE's Contract. The schedule must provide an estimated duration in days of each of the main activities described into the Dock Trial Plan and Procedures. The schedule will be developed in MS Project format and delivered one (1) hard and one (1) soft copy.</p>			

### 11.2.11.6 DID-AT-06

1. TITLE		2. IDENTIFICATION NUMBER	
KB Crane Sea Acceptance Trial Plan (SAT) and Procedures		DID-AT-06	
3. DESCRIPTION / PURPOSE			
Describe the plan and procedures to prepare the SAT of the KB Crane and its equipment and components.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)		6. SPARE
	Technical Authority, CCG TA		
7. APPLICATION / INTERRELATIONSHIP			
CDRL-AT-06 SOW Ref: 3.10			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1	May be prepared in the Contractor's format.		
10.2	<p>The Vessel's SAT Plan and Procedures must include the following as a minimum:</p> <ul style="list-style-type: none"> <li>a) The list of prerequisite mandatory inspection reports required in order to proceed with the SAT;</li> <li>b) The detailed list of supplies and systems required without being limited to: <ul style="list-style-type: none"> <li>i. electrical power supply;</li> <li>ii. hydraulic oil supply;</li> <li>iii. communication systems required;</li> <li>iv. alarm systems required; and</li> <li>v. certified weights required;</li> </ul> </li> <li>c) The list of the personnel required for: <ul style="list-style-type: none"> <li>i. The weights handling;</li> <li>ii. The KB Crane operation;</li> <li>iii. The readings and data collection; and</li> <li>iv. The vessel's operations.</li> </ul> </li> <li>d) The coordination with CCG for the vessel's availability and weather conditions;</li> <li>e) The list of the mandatory attendance without being limited to: <ul style="list-style-type: none"> <li>i. CCG; and</li> <li>ii. Regulatory Bodies.</li> </ul> </li> <li>f) The security and safety requirements onboard;</li> <li>g) The list of approved test and data sheets to be filled during the trial;</li> <li>h) The sequential order and type of trials to be conducted on the equipment and on the KB Crane and their respective performances to be obtained; and</li> <li>i) Confirmation of KB Crane and associated equipment and components commissioning.</li> </ul>		
10.3	Based on the Vessel's SAT Plan and Procedures, the Contractor must develop and deliver a KB Crane Sea Trial schedule that will be integrated into the planning of the future VLE's Contract. The schedule must provide an estimated duration in days of each of the main activities described into the SAT Plan and Procedures. The schedule will be developed in MS Project format and delivered one (1) hard and one (1) soft copy.		

### 11.2.11.7 DID-AT-07

1. TITLE Various STW and Acceptance Test Reports		2. IDENTIFICATION NUMBER DID-AT-07	
3. DESCRIPTION / PURPOSE To report on the KB Crane various STW and Tests Trials.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, DMEPM(SM) 4-3		6. SPARE
7. APPLICATION / INTERRELATIONSHIP  CDRL-AT-07 SOW Ref 3.5 to 3.10 inclusively and 7.2.7 to 7.2.12 inclusively.			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1 May be prepared in the Contractor's format.			
10.2 The various Set-To-Work and Trial Reports must include the following as a minimum: <ul style="list-style-type: none"> <li>1. Description of the system and the test set up environment.</li> <li>2. Copies of the STW and Trials Plans, the STW and Trials Procedures and the Trials Acceptance Procedure.</li> <li>3. Copies of all the test reports.</li> <li>4. A summary of the status of the equipment, any changes / modifications that were made during the set up and details of any failures experienced, and the remedial action that was taken to restore the equipment to its specified operating conditions.</li> <li>5. A section detailing faulty devices or equipment "set-to-work", which must include as a minimum: <ul style="list-style-type: none"> <li>a. Test / measurement plan of the equipment with expected results;</li> <li>b. Faulty Test / measurement records;</li> <li>c. Remedy actions;</li> <li>d. Test Records after remedy; and</li> <li>e. Confirmation of acceptance of the faulty device or equipment.</li> </ul> </li> </ul>			
10.3 Summary of any recommendations.			

## 11.2.12 Integrated Logistics Support DIDs

### 11.2.12.1 DID-LOG-01

1. TITLE KB Crane Cadre Training Package		2. IDENTIFICATION NUMBER DID-LOG-01	
3. DESCRIPTION / PURPOSE  The KB Crane Cadre Training agenda and plan will be for one (1) cadre training session on board the CCGS Edward Cornwallis. The Contractor must assume that the cadre training will not be delivered immediately after a successful Sea Trial and that a second visit to the vessel will be required.			
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, CCG TA		6. SPARE
7. APPLICATION / INTERRELATIONSHIP  CDRL –LOG-01 SOW Ref: 3.10			
8. ORIGINATOR		9. APPLICABLE FORMS	
10. PREPARATION INSTRUCTIONS			
10.1 The contractor will provide the required didactic material for 10 attendees and the KB Crane cadre training will include, as a minimum: <ul style="list-style-type: none"> <li>a) The instruction for the Coast Guard maintenance and operating personnel on Crane components and functions;</li> <li>b) Various operating modes;</li> <li>c) Instrumentations;</li> <li>d) Limits of operation, alarms, safety and shut downs;</li> <li>e) Alarms;</li> <li>f) System troubleshooting and hands-on operation. training;</li> <li>g) The KB Crane and its various equipment start-up;</li> <li>h) The KB Crane and its various equipment routine inspections, maintenances and adjustments; and</li> <li>i) The KB Crane and its various equipment shut down and long term stowage protections.</li> </ul>			

### 11.2.12.2 DID-LOG-02

1. TITLE  KB Crane Maintenance Concept		2. IDENTIFICATION NUMBER  DID-LOG-02									
3. DESCRIPTION / PURPOSE  The KB Crane Maintenance Concept must provide a complete set of maintenance plans that identify the required maintenance tasks and identify the logistics support resources needed to perform the tasks.											
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)  Technical Authority, CCG TA	6. SPARE									
7. APPLICATION / INTERRELATIONSHIP  CDRL –LOG-02 SOW Ref: 8.2.1											
8. ORIGINATOR		9. APPLICABLE FORMS									
10. PREPARATION INSTRUCTIONS											
<p>10.1 Must be prepared in contractor's format, and summarized in Excel format.</p> <p>10.2 The submission must identify the required preventive maintenance for each system/component including overhaul requirements. The data shall be consolidated into one document.</p> <p>10.4 The data shall be grouped into tables listing routine, calendar based and operating hour based tasks. An example breakout is shown below. Each interval within a category will be a column in its respective table.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 50%;">Scheduled Task</th> <th style="width: 50%;">Interval</th> </tr> </thead> <tbody> <tr> <td>Routine Crew Tasks</td> <td>Daily or Weekly</td> </tr> <tr> <td>Monthly Preventive Maintenance Tasks</td> <td>e.g. 1, 3, 4, 6, 12, 18, 24, 36, 48 or 60 months</td> </tr> <tr> <td>Usage-Based Preventive Maintenance Tasks</td> <td>e.g. 100, 200, 250, 400, 500, 800, 1000, 2000, 3000, 4000, 5000 or 6000 hours</td> </tr> </tbody> </table>				Scheduled Task	Interval	Routine Crew Tasks	Daily or Weekly	Monthly Preventive Maintenance Tasks	e.g. 1, 3, 4, 6, 12, 18, 24, 36, 48 or 60 months	Usage-Based Preventive Maintenance Tasks	e.g. 100, 200, 250, 400, 500, 800, 1000, 2000, 3000, 4000, 5000 or 6000 hours
Scheduled Task	Interval										
Routine Crew Tasks	Daily or Weekly										
Monthly Preventive Maintenance Tasks	e.g. 1, 3, 4, 6, 12, 18, 24, 36, 48 or 60 months										
Usage-Based Preventive Maintenance Tasks	e.g. 100, 200, 250, 400, 500, 800, 1000, 2000, 3000, 4000, 5000 or 6000 hours										
<p>10.5 The KB Crane Maintenance Concept shall include a section presenting maintenance task data sheets that contain the following information for each maintenance task::</p> <ul style="list-style-type: none"> <li>a) Maintenance identification number;</li> <li>b) Asset (equipment);</li> <li>c) Description (brief, of maintenance item);</li> <li>d) Steps/Process (including safety considerations, special tools required);</li> <li>e) Frequency (number, i.e. 1, 500);</li> <li>f) Frequency units (i.e. Hours, Months, Year);</li> <li>g) Parts Required;</li> <li>h) Estimated LOE (Length of Effort).</li> </ul>											

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

## ANNEX "B"

### MILESTONE PAYMENT SCHEDULE

#	Milestone	Firm Amount (\$)	Holdback (\$)	Payment (\$)
1	Acceptance of Preliminary Design Review, as per Annex "D", Section 2			
2	Acceptance of Critical Design Review, as per Annex "D", Section 2			
3	Factory Acceptance Testing (FAT) of the KB Crane, as per Annex "D", Section 4			
4	Vessel Inclining Test acceptance following the installation of the KB Crane onboard the vessel, as per Annex "D", Section 5			
5	KB Crane Dock Trial acceptance, Annex "D", as per Section 6			
6	KB Crane Sea Acceptance Trial (SAT), as per Annex "D", Section 7			
7	Certification of the KB Crane by a recognized Classification Society, as per Annex "D", Section 10			
8	Delivery and Acceptance of the KB Crane following the successful SAT, as per Annex "D", Section 1			
9	Acceptance of Spare parts, as per Annex "D", Section 9			
10	Acceptance of the Special Purpose Tools (SPT), Annex "D", Section 3			
11	Acceptance of the Documentation Packages, as per Annex "D", Section 8			
12	Cadre Training, as per Annex "D", Section 11			
<b>TOTAL PRICE FOR THE PROJECT</b>				<b>\$</b>

**Note:** The Holdback shall be of 10 % for each Milestone.

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**ANNEX "C"**

**DELIVERY SCHEDULE**

<b>Item #</b>	<b>Description</b>	<b>Working Days (WD) after Contract Award (CA)</b>
1	Kick-Off meeting and System Requirement Review (SRR)	
2	Preliminary Design Review	
3	Critical Design Review	
4	Delivery of the KB Crane EC Specifications and Drawings Packages	
5	Delivery of the Vessel's Integration EC Specifications and Drawings Packages	
6	Delivery of the KB Crane Installation Specifications and Drawings Packages	
7	Delivery of the KB Crane Factory STW Plan and Procedures	
8	Delivery of the KB Crane FAT Plan and Procedures	
9	Delivery of the KB Crane Vessel's STW Plan and Procedures	
10	Delivery of the Vessel's Inclining Test (VIT) Procedure	
11	Delivery of the KB Crane Dock Trial Plan Procedure	
12	Delivery of the KB Crane Sea Acceptance Trial Procedure	
13	Delivery of the KB Crane Cadre Training package	
14	Delivery of the KB Crane to CCG	
15	Delivery of Spare Parts and Special Purpose Tools	



Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

Section # 4 Factory Acceptance Test (FAT) of the KB Crane	Total Price
<b>Total Price</b>	<b>\$</b>

Section # 5 Vessel Inclining Test Procedure	Unit price	QTY	Total Price
<b>Total Price</b>			<b>\$</b>

Section # 6 Dock Trial Procedure	Unit price	QTY	Total Price
<b>Total Price</b>			<b>\$</b>

Section # 7 Sea Acceptance Trial (SAT) Procedure	Unit price	QTY	Total Price
<b>Total Price</b>			<b>\$</b>

Section # 8 Documentation Packages	Unit price	QTY	Total Price
As per SOW 8.4			
<b>Total Price</b>			<b>\$</b>

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

Section # 9 Breakdown of the KB Crane Spare Parts for five (5) years				
Part Number	Description	Unit price	QTY	Total Price
Total Price				\$

Section # 10 Certification by a Recognized Society				
Part Number	Description	Unit price	QTY	Total Price
Total Price				\$

Section # 11 Cadre Trainings and Training Documentation	Unit price	QTY	Total Price
Total Price			\$

TOTAL PRICE OF THE PROJECT	\$
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Note: All provided prices shall be before GST or HST as applicable.

No changes shall be made to this list unless specifically requested by Canada, in which case the Design Change procedure will apply.

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**ANNEX "E"**

**PROCEDURE FOR PROCESSING ADDITIONAL / UNSCHEDULED WORK**

**1. 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; and
- 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.

**2. Definitions and Particulars**

- 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 Proposal.
- C) No unscheduled work may be undertaken by the Contractor without written authorization of the Contracting Authority except under emergency circumstances 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.

**3. Procedures**

- A) The procedure involves the electronic form PWGSC-TPSGC 1379 (10/2011) 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 (this is the Contractor's own 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, any qualifications, remarks or other information 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, estimates of any related 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 materials, including stocked items, in either case. The Contractor shall provide a minimum of two quotations for Subcontracts or materials. If other than the lowest, or sole source is being recommended for quality and/or delivery considerations, this shall be noted. On request to 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 Technical Authority confirmation to proceed by signing the form. The Contracting Authority will then sign and authorize the Unscheduled Work to proceed.
- I) In the event the Technical Authority does not wish to proceed with the work, it will cancel the proposed Unscheduled Work through the Contracting Authority in writing.
- J) In the event the negotiation involves a Credit, the appropriate PWGSC form will be noted as "credit" 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 the Unscheduled Work should not be unduly delayed and should be processed as follows, in either case. The Contractor will complete the appropriate PWGSC 1379 form indicating the offered cost and pass it to the Contracting Authority. If the Technical Authority wishes to proceed, the Technical Authority and the Contracting Authority will sign the completed PWGSC form with the notation, "CEILING PRICE SUBJECT TO DOWNWARD ADJUSTMENT", and allocate a Serial Number having the 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 cancelling the form having the same Serial Number with the suffix "A".

NOTE: PWGSC forms bearing Serial Numbers with a suffix "A" shall not to be included in any contract amendments, and therefore no payment shall be made until final resolution of the price and incorporation into the contract.

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

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#### 4. Amendment to Contract or Formal Agreement

The Contract will be amended from time to time in accordance with the Contract terms to incorporate the costs authorized on the appropriate PWGSC forms.

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**ANNEX "F"**

**INSURANCE REQUIREMENTS**

**1 Ship Repairers' Liability Insurance**

- 1.1 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 not less than \$20,000,000 in the annual aggregate.
- 1.2 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.

**2 Commercial General Liability Insurance**

- 2.1 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 not less than \$20,000,000 in the annual aggregate.
- 2.2 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. Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.

- 
- d Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
  - e Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
  - f Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
  - g Employees and, if applicable, Volunteers must be included as Additional Insured.
  - h Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program).
  - i Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
  - j Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
  - k If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
  - l Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.
  - m Non-Owned Automobile Liability - Coverage for suits against the Contractor resulting from the use of hired or non-owned vehicles.
  - n Advertising Injury: While not limited to, the endorsement must include coverage piracy or misappropriation of ideas, or infringement of copyright, trademark, title or slogan.
  - o All Risks Tenants Legal Liability - to protect the Contractor for liabilities arising out of its occupancy of leased premises.
  - p Amendment to the Watercraft Exclusion to extend to incidental repair operations on board watercraft.
  - q Sudden and Accidental Pollution Liability (minimum 120 hours): To protect the Contractor for liabilities arising from damages caused by accidental pollution incidents.
  - r 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.

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

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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.

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**ANNEX "G"**

**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.

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).

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

## ANNEX "H"

### FINANCIAL BID PRESENTATION SHEET

Item #	Price Breakdown	Total Price (\$)
1	Acceptance of Preliminary Design Review, as per Annex "D", Section 2	
2	Acceptance of Critical Design Review, as per Annex "D", Section 2	
3	Factory Acceptance Testing (FAT) of the KB Crane, as per Annex "D", Section 4	
4	Vessel Inclining Test acceptance following the installation of the KB Crane onboard the vessel, as per Annex "D", Section 5	
5	KB Crane Dock Trial acceptance, Annex "D", as per Section 6	
6	KB Crane Sea Acceptance Trial (SAT), as per Annex "D", Section 7	
7	Certification of the KB Crane by a recognized Classification Society, as per Annex "D", Section 10	
8	Delivery and Acceptance of the KB Crane following the successful SAT, as per Annex "D", Section 1	
9	Acceptance of Spare parts, as per Annex "D", Section 9	
10	Acceptance of the Special Purpose Tools (SPT), Annex "D", Section 3	
11	Acceptance of the Documentation Packages, as per Annex "D", Section 8	
12	Cadre Training, as per Annex "D", Section 11	
<b>TOTAL PRICE OF THE PROJECT</b>		<b>\$</b>

Solicitation No. - N° de l'invitation  
F7049-15-0257/A  
Client Ref. No. - N° de réf. du client  
F7049-15-0257

Amd. No. - N° de la modif.  
File No. - N° du dossier  
044ml.F7049-15-0257

Buyer ID - Id de l'acheteur  
044ml  
CCC No./N° CCC - FMS No./N° VME

**Bidder must provide the following Hourly rates as requested in Part 7, Clause 6.2 "Basis of Payment" of the RFP:**

Clause	Descriptions	Rates
6.2.1	Labor Rate for Additional / Unscheduled Work Work including Design Change, Engineering Change or change in the scope of work.	
6.2.2	Overtime for Additional / Unscheduled Work: Time and One-Half if different than 6.2.1	
6.2.3	Overtime for Additional / Unscheduled Work: Double Time if different than 6.2.1 and 6.2.2	

Note: All provided prices / rates shall be before GST or HST as applicable.

**Signed:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## ANNEX "I"

### MANDATORY TECHNICAL CRITERIA

Item #	Criteria	Compliant		Reference to applicable page and paragraph of Proposal
		Yes	No	
1	Bidder must demonstrate that he has designed, manufactured and commissioned five (5 ) Knuckle Boom Cranes, in the last three (3) years, of similar complexity and of no less than 75% of the lifting capacity required in the SOW.			
2	The Bidder must demonstrate that he has a minimum of 10 years' experience in the designing, manufacturing and commissioning of electro-hydraulic crane systems.			
3	Bidder must provide the name of the Classification Society that will provide the design assessment and approval according to the Class Rules and Regulations applicable to the Marine Crane as per the SOW. The Classification Society must be approved by Transport Canada as listed in the Marine Machinery Regulations Section 2 (1) of the Canada Shipping Act, 2001.			
4	Bidder must provide a preliminary Project Management Plan with a work break down structure (WBS) to level 3, which will clearly articulate how the bidder proposes to achieve a scheduled timeline of the Engineering Change Package no later than one hundred and forty (140) working days after contract award with the KB Crane ready for installation, no later than three hundred and sixty five (365) working days after contract award.			
5	Bidder must demonstrate that the proposed KB Crane meets the environmental requirements IAW Annex A, section 6.2.			
6	Bidder must demonstrate that the proposed KB Crane meets the KB Crane mechanical, electrical, and structural design requirements IAW Annex A, section 6.			
7	Bidder must demonstrate that the proposed KB Crane meets the minimum performance requirements listed in Annex A, sections 6.5 and 6.6. This shall be done through calculations which will demonstrate that the different components used in their proposed system are able to meet the minimum performance			

	requirements of the SOW in single motion and the defined simultaneous motions.			
8	Bidder must demonstrate that he has developed one (1) Class approved vessel integration package for a KB Crane of similar complexity and capacity in the last three (3) years. The vessel integration shall at a minimum cover the following: Specifications for ship modifications and crane installation, including related drawings.			
9	Bidder must demonstrate that he has developed one (1) Operation and Troubleshooting manual, in English, in the last three (3) years.			
10	<p>Bidder must demonstrate that they have in place a Quality Management System developed in accordance with ISO 10005:2005 "Quality management systems - Guidelines for quality plans, this as per the following:</p> <p>(a) its valid ISO 9001 certification if registered, and:</p> <p>(b) an example of its Quality Control Plan (QCP) as applied on a previous projects for designing, manufacturing and commissioning of a knuckle boom type crane on a vessel, and;</p> <p>(c) a sample of an Inspection and Test Plan (ITP) developed in accordance with the QCP in (b) above.</p>			