

**OPPORTUNITY FOR QUALIFICATION, ADDITION AND UPDATE
REQUEST FOR SUPPLY ARRANGEMENT (RFSA)
TECHNICAL INVESTIGATION AND ENGINEERING SUPPORT (TIES)
FOR THE INTEGRATED TECHNICAL SERVICES DIRECTORATE OF THE
DEPARTMENT OF FISHERIES AND OCEANS, CANADIAN COAST GUARD (CCG)**

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PART 1 - GENERAL INFORMATION

1. Introduction

The Request for Supply Arrangements (RFSA) is divided into six parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Supplier Instructions: provides the instructions applicable to the clauses and conditions of the RFSA;
- Part 3 Arrangement Preparation Instructions: provides suppliers with instructions on how to prepare the arrangement to address the evaluation criteria specified;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria which must be addressed in the arrangement, the security requirement, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided; and
- Part 6 6A, Supply Arrangement, 6B, Bid Solicitation, and 6C, Resulting Contract Clauses:
 - 6A, includes the Supply Arrangement (SA) with the applicable clauses and conditions;
 - 6B, includes the instructions for the bid solicitation process within the scope of the SA;
 - 6C, includes general information for the conditions which will apply to any contract entered into pursuant to the SA.

The Annexes include the Statement of Work, the Maximum Per Diem Rates List, the Technical Evaluation Plan, the Financial Evaluation Plan, the Monthly Usage Report and any other annexes.

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

The services are solely limited to Canadian services.

2. Summary

OPPORTUNITY FOR QUALIFICATION, ADDITION AND UPDATE

This document provides new suppliers with an opportunity to qualify for a supply arrangement, and for existing suppliers to add areas of expertise and update their list of personnel and subcontractors.

The Supplier will provide Technical Investigation and Engineering Support (TIES) for the Integrated Technical Services Directorate of the Department of Fisheries and Oceans, Canadian Coast Guard (CCG) located within the following regions: National Capital Region, Pacific, Central & Arctic, Quebec, Maritimes and Newfoundland & Labrador, excluding locations within Comprehensive Land Claims Settlement Areas.

The period for awarding contracts under the Supply Arrangement is from the date of the supply arrangement to 31 March 2014 with an option to extend for an additional period from 1 April 2014 to 31 March 2016.

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3. Canadian Content

The services covered by the Supply Arrangement are solely limited to Canadian services as defined in clause A3050T.

SACC Manual clause A3050T (2010-01-11) Canadian Content Definition

4. Debriefings

After issuance of a supply arrangement, suppliers may request a debriefing on the results of the request for supply arrangements process. Suppliers should make the request to the Supply Arrangement Authority within 15 working days of receipt of the results of the request for supply arrangements process. The debriefing may be in writing, by telephone or in person.

PART 2 - SUPPLIER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the Request for Supply Arrangements (RFSA) 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>) Manual issued by Public Works and Government Services Canada.

Suppliers who submit an arrangement agree to be bound by the instructions, clauses and conditions of the RFSA and accept the clauses and conditions of the Supply Arrangement and resulting contract(s).

The 2008 (2012-07-11) Standard Instructions - Request for Supply Arrangements - Goods or Services, are incorporated by reference into and form part of the RFSA.

Subsection 5.4 of 2008, Standard Instructions - Request for Supply Arrangements - Goods or Services, is amended as follows:

Delete: sixty (60) days

Insert: one hundred and twenty (120) days

2. Submission of Arrangements

Arrangements 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 Request for Supply Arrangements.

Due to the nature of the Request for Supply Arrangements, transmission of arrangements by facsimile to PWGSC will not be accepted.

2.1 List of Proposed Subcontractors

If the arrangement includes the use of subcontractors, the Offeror agrees, upon request from the Supply Arrangement Authority, to provide a list of all subcontractors including a description of the things to be purchased, a description of the work to be performed and the location of the performance of that work. The list should not include the purchase of off-the-shelf items, software and such standard articles and materials as are ordinarily produced by manufacturers in the normal course of business, or the provision of such incidental services as might ordinarily be subcontracted in performing the Work.

2.2 New Supplier Instruction

The following is provided to assist potential new suppliers in preparing their bid documents as a result of lessons learned from the first release of this RFSA.

It was suggested that Bidders would find it easier to prepare their bid by first organizing the mandatory requirements of personnel in the areas of expertise; secondarily, provide the minimum scores in the fields of specialty; and then thirdly, provide the types of work in the areas of expertise.

3. Enquiries - Request for Supply Arrangements

All enquiries must be submitted in writing to the Supply Arrangement Authority no later than five (5) calendar days before the Request for Supply Arrangements (RFSA) closing date. Enquiries received after that time may not be answered.

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

4. Applicable Laws

The Supply Arrangement (SA) and any contract awarded under the SA must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Suppliers may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of the arrangement, 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 suppliers.

PART 3 - ARRANGEMENT PREPARATION INSTRUCTIONS

1. Arrangement Preparation Instructions

Canada requests that suppliers provide the arrangement in separately bound sections as follows:

Section I: Technical Arrangement 3 hard copies and 3 soft copies on CD-ROM

Section II: Financial Arrangement 1 hard copy and 1 soft copy on CD-ROM

Section III: Certifications 1 hard copy

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

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

Canada requests that suppliers follow the format instructions described below in the preparation of the arrangement.

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to that of the Request for Supply Arrangements.

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, suppliers are encouraged to:

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

Section I: Technical Arrangement

In the technical arrangement, suppliers should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work in accordance with the Annex "A", Statement of Work and the Annex "C", Technical Evaluation Plan.

Section II: Financial Arrangement

Suppliers must submit the financial arrangement in accordance with the Annex "D", Financial Evaluation Plan. The total amount of Goods and Services Tax or Harmonized Sales Tax must be shown separately, if applicable.

Section III: Certifications

Suppliers must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

- (a) Arrangements will be assessed in accordance with the entire requirement of the Request for Supply Arrangements including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the arrangements.

1.1. Technical Evaluation

1.1.1 Mandatory Technical Criteria

The Mandatory Technical Criteria are listed in Annex "A", Statement of Work and Annex "C", Technical Evaluation Plan.

1.1.2 Point Rated Technical Criteria

The Point Rated Technical Criteria are listed in Annex "C", Technical Evaluation Plan.

1.2 Financial Evaluation

1.2.1 The Financial Criteria are listed in Annex "D", Financial Evaluation Plan.

2. Basis of Selection

2.1 Basis of Selection, Best Value

2.1.1 To be declared responsive, an arrangement must:

- (a) comply with all the requirements of the Request for Supply Arrangements;
- (b) meet all mandatory criteria; and
- (c) obtain the required minimum scores for the rated criteria in at least two (2) of the twelve (12) areas of expertise.

2.1.2 Arrangements not meeting (a), (b) or (c) above will be declared Non-responsive. The suppliers achieving all mandatory criteria and the minimum technical scores of 50% in at least two (2) of the following twelve (12) areas of expertise will be considered to obtain a supply arrangement.

- A. Naval Architecture
- B. Marine Engineering
- C. Hovercraft Systems
- D. Marine Communication and Navigation Systems : Vessel Based
- E. Marine Communication and Navigation Systems : Shored Based
- F. Marine Informatics Technology
- G. Infrastructure
- H. Mechanical, Electrical & Power Systems : Shored Based
- I. Aids to Navigation
- J. Environmental Services : Vessel and Shore Based

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K. Health and Safety Services

L. Integrated Logistics Support

2.2 Rates - Services

Suppliers must submit their maximum per diem rates at Annex "D", Financial Evaluation Plan in each year of each of the eight (8) occupational levels. Suppliers must be declared financially compliant as per Annex "D", Financial Evaluation Plan in each year of each occupational level to receive a supply arrangement.

PART 5 - CERTIFICATIONS

Suppliers must provide the required certifications to be issued a supply arrangement (SA). Canada will declare an arrangement non-responsive if the required certifications are not completed and submitted as requested.

Compliance with the certifications suppliers provide to Canada is subject to verification by Canada during the arrangement evaluation period (before issuance of a SA) and after issuance of a SA. The Supply Arrangement Authority will have the right to ask for additional information to verify suppliers' compliance with the certifications before issuance of a SA. The arrangement will be declared non-responsive if any certification made by the Supplier is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications or to comply with the request of the Supply Arrangement Authority for additional information will also render the arrangement non-responsive.

1. Code of Conduct Certifications - Consent to a Criminal Record Verification

1.1 Suppliers must submit with their arrangement, by Request for Supply Arrangements closing date:

- (a) a complete list of names of all individuals who are currently directors of the Supplier;
- (b) a properly completed and signed form Consent to a Criminal Record Verification (PWGSC-TPSGC 229), for each individual named in the list.

2. Certifications Precedent to Issuance of a Supply Arrangement

The certifications listed below should be completed and submitted with the arrangement, but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Supply Arrangement Authority will so inform the Supplier and provide the Supplier with a time frame within which to meet the requirement. Failure to comply with the request of the Supply Arrangement Authority and meet the requirements within that time period will render the arrangement non-responsive.

2.1 Federal Contractors Program - Certification Federal Contractors Program - \$200,000 or more

1. The Federal Contractors Program (FCP) requires that some suppliers, including a supplier who is a member of a joint venture, bidding for federal government contracts, valued at \$200,000 or more (including all applicable taxes), make a formal commitment to implement employment equity. This is a condition precedent to the issuance of a supply arrangement. If the Supplier, or, if the Supplier is a joint venture and if any member of the joint venture, is subject to the FCP, evidence of its commitment must be provided before the issuance of a supply arrangement.

Suppliers who have been declared ineligible contractors by Human Resources and Skills Development Canada (HRSDC) are no longer eligible to receive government contracts over the threshold for solicitation of bids as set out in the Government Contracts Regulations. Suppliers may be declared ineligible contractors either as a result of a finding of non-compliance by HRSDC, or following their voluntary withdrawal from the FCP for a reason other than the reduction of their workforce to less than 100 employees. Any arrangements from ineligible contractors, including an arrangement from a joint venture that has a member who is an ineligible contractor, will be declared non-responsive.

2. If the Supplier does not fall within the exceptions enumerated in 3.(a) or (b) below, or does not have a valid certificate number confirming its adherence to the FCP, the Supplier must fax (819-953-8768) a copy of the signed form LAB 1168, Certificate of Commitment to Implement Employment Equity, to the Labour Branch of HRSDC.

3. The Supplier, or, if the Supplier is a joint venture the member of the joint venture, certifies its status with the FCP, as follows:

The Supplier or the member of the joint venture

- (a) () is not subject to the FCP, having a workforce of less than 100 full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada;
- (b) () is not subject to the FCP, being a regulated employer under the Employment Equity Act, S.C. 1995, c. 44;
- (c) () is subject to the requirements of the FCP, having a workforce of 100 or more full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada, but has not previously obtained a certificate number from HRSDC (having not bid on requirements of \$200,000 or more), in which case a duly signed certificate of commitment is attached;
- (d) () is subject to the FCP, and has a valid certificate number as follows: _____ (e.g. has not been declared an ineligible contractor by HRSDC).

Further information on the FCP is available on the HRSDC Web site.

2.2 Former Public Servant Certification

Contracts with 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 with FPS, suppliers must provide the information required below.

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, in the context of the fee abatement formula, 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

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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.

Former Public Servant in Receipt of a Pension

Is the Supplier a FPS in receipt of a pension as defined above? **YES () NO ()**

If so, the Supplier must provide the following information:

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

Work Force Reduction Program

Is the Supplier a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? **YES () NO ()**

If so, the Supplier 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;
- (g) number and amount (professional fees) of other contracts subject to the restrictions of a work force reduction 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 the Goods and Services Tax or Harmonized Sales Tax.

Certification

By submitting the arrangement, the Supplier certifies that the information submitted by the Supplier in response to the above requirements is accurate and complete.

2.3 Canadian Content Certification

This procurement is limited to Canadian services.

The Bidder certifies that:

() the service offered is a Canadian service as defined in paragraph 2 of clause A3050T.

2.4 Canadian Content Definition

SACC Manual clause A3050T (2010-01-11) Canadian Content Definition

2.5 Status and Availability of Resources

SACC Manual clause S3005T (2008-12-12) Status and Availability of Resources.

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2.6 Education and Experience

SACC Manual clause S1010T (2008-12-12) Education and Experience

PART 6 - SUPPLY ARRANGEMENT AND RESULTING CONTRACT CLAUSES

A. SUPPLY ARRANGEMENT

1. Arrangement

The Supply Arrangement covers the Work described in the Statement of Work at Annex A.

The Supplier will provide Technical Investigation and Engineering Support (TIES) for the Integrated Technical Services Directorate of the Department of Fisheries and Oceans, Canadian Coast Guard (CCG) located within the following regions: National Capital Region, Pacific, Central & Arctic, Quebec, Maritimes and Newfoundland & Labrador, excluding locations within Comprehensive Land Claims Settlement Areas.

2. Standard Clauses and Conditions

All clauses and conditions identified in the Supply Arrangement and resulting contract(s) 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>) Manual issued by Public Works and Government Services Canada.

2.1 General Conditions

2020 (2012-07-16) General Conditions - Supply Arrangement - Goods or Services, apply to and form part of the Supply Arrangement.

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

2.2 Supply Arrangement Reporting Periodic Usage Reports - Supply Arrangement

The Supplier must compile and maintain records on its provision of goods, services or both to the federal government under contracts resulting from the Supply Arrangement. This data must include all purchases paid for by a Government of Canada Acquisition Card.

The Supplier must provide this data in accordance with the reporting requirements detailed in Annex "E", Monthly Usage Report. If some data is not available, the reason must be indicated. If no goods or services are provided during a given period, the Supplier must still provide a "NIL" report.

The data must be submitted on a monthly basis to the Supply Arrangement Authority.

The data must be submitted to the Supply Arrangement Authority no later than 15 calendar days after the end of the reporting period.

3. Term of Supply Arrangement

3.1 Period of the Supply Arrangement

The period for awarding contracts under the Supply Arrangement is from the date of the supply arrangement to 31 March 2014.

3.2 Extension of Supply Arrangement

If the Supply Arrangement is authorized for use beyond the initial period, the Supplier offers to extend its arrangement for an additional period, from 1 April 2014 to 31 March 2016 under the same conditions and at the rates or prices specified in the Supply Arrangement.

The Supply Arrangement Authority will advise 30 days before the expiry date of the Supply Arrangement of any decision to extend the period of the Supply Arrangement. A revision to the Supply Arrangement will be issued by the Supply Arrangement Authority.

4. Authorities

4.1 Supply Arrangement Authority

The Supply Arrangement Authority is:

Mrs. Angela Hicks
Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
Marine Systems Directorate
11 Laurier Street
Gatineau, QC
K1A 0S5

Telephone: 819 956-8259
Facsimile: 819 956-0897
E-mail address: Angela.Hicks@tpsgc-pwgsc.gc.ca

The Supply Arrangement Authority is responsible for the issuance of the Supply Arrangement, its administration and its revision, if applicable.

4.2 Supplier's Representative

Name:
Telephone:
Facsimile:
E-mail address:

5. Identified Users

The Identified User is:

Only the identified user above is authorized to issue contracts under the Supply Arrangement.

6. On-going Opportunity for Qualification

A Notice will be posted once a year on the Government Electronic Tendering Service (GETS) to allow new suppliers to become qualified. Existing qualified suppliers, who have been issued a supply arrangement, will not be required to submit a new arrangement.

7. 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 the Supply Arrangement;
- (b) the general conditions 2020 (2012-07-16), General Conditions - Supply Arrangement - Goods or Services;
- (c) the general conditions 1031-2 (2012-07-16) Contract Cost Principles;
- (d) Annex "A", Statement of Work;
- (e) Annex "B", Maximum Per Diem Rates List;
- (f) Annex "E", Monthly Usage Report;
- (g) the Supplier's arrangement dated _____, as amended on _____.

8. Certifications

8.1 Compliance

Compliance with the certifications provided by the Supplier in the arrangement is a condition of the Supply Arrangement (SA) and subject to verification by Canada during the term of the SA and of any resulting contract that would continue beyond the period of the SA. If the Supplier does not comply with any certification or it is determined that any certification made by the Supplier in the arrangement is untrue, whether made knowingly or unknowingly, Canada has the right to terminate any resulting contract for default and suspend or cancel the SA.

8.2 Canadian Content Certification

SACC Manual Clause M3060C (2008-05-12) Canadian Content Certification

9. Applicable Laws

The Supply Arrangement (SA) and any contract resulting from the SA must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____.

10. Basis of Payment

The Contractor will be paid firm per diem rates which are equal or lower to their respective maximum per diem rates in the Annex "B", Maximum Per Diem Rates Schedule, for Work performed in accordance with any contract awarded under the Supply Arrangement. Customs duties are included and Goods and Services Tax or Harmonized Sales Tax (GST/HST) is extra, if applicable.

Travel and Living Expenses

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

All travel must have the prior authorization of the Technical Authority. All payments are subject to government audit.

Other Direct Expenses

The Contractor will be reimbursed for the direct expenses reasonably and properly incurred in the performance of the Work. These expenses will be paid at actual cost without mark-up, upon submission of an itemized statement supported by receipt vouchers.

Definition of a Day/Proration

A day is defined as eight (8) hours exclusive of meal breaks. Payment shall be made for days actually worked with no provision for annual leave, statutory holidays and sick leave. Time worked which is more or less than a day shall be prorated to reflect actual time worked in accordance with the following formula:

$$\text{Payment} = \frac{\text{Hours worked} \times \text{per diem rate}}{8.0 \text{ hours}}$$

Option to Extend the Supply Arrangement

During the extended period of the supply arrangement, the Contractor will be paid firm per diem rates which are equal or lower to their respective maximum per diem rates in the Annex "B", Maximum Per Diem Rates Schedule, in accordance with any contract awarded under the Supply Arrangement to perform the Work in relation to the supply arrangement extension.

11. SACC Manual Clauses

C0305C (2008-05-12) Cost Submission
 C0711C (2008-05-12) Time Verification
 H4500C (2010-01-11) Lien - Section 427 of the Bank Act

12. Limitation of Contractor's Liability for Damages to Canada

1. This section applies despite any other provision of the Contract and replaces the section of the general conditions entitled "Liability". Any reference in this section to damages caused by the Contractor also includes damages caused by its employees, as well as its subcontractors, agents, and representatives, and any of their employees.

2. Whether the claim is based in contract, tort, or another cause of action, the Contractor's liability for all damages suffered by Canada caused by the Contractor's performance of or failure to perform the Contract is limited to **Contract value**. This limitation of the Contractor's liability does not apply to:

- (a) any infringement of intellectual property rights; or
- (b) any breach of warranty obligations.

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.

13. Commercial General Liability Insurance

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$2,000,000 per accident or occurrence and in the annual aggregate.

2. The Commercial General Liability policy must include the following:

(a) Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.

(b) Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.

(c) Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.

(d) Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.

(e) Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.

(f) Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.

(g) Employees and, if applicable, Volunteers must be included as Additional Insured.

(h) Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)

(i) Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.

(j) Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.

(k) If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.

14. Marine Liability Insurance, per applicable task

1. The Contractor must obtain Protection & Indemnity (P&I) insurance that must include excess collision liability and pollution liability. The insurance must be placed with a member of the International Group of Protection & Indemnity Associations or with a fixed market in an amount of not less than the limits determined by the Marine Liability Act, S.C. 2001, c. 6. Coverage must include crew liability, if it is not covered by Worker's Compensation as detailed in paragraph (2.) below.

2. The Contractor must obtain Worker's Compensation insurance covering all employees engaged in the Work in accordance with the statutory requirements of the Territory or Province or state of nationality, domicile, employment, having jurisdiction over such employees. If the Contractor is assessed any additional levy, extra assessment or super-assessment by a Worker's Compensation Board, as a result of

an accident causing injury or death to an employee of the Contractor or subcontractor, or due to unsafe working conditions, then such levy or assessment must be paid by the Contractor at its sole cost.

3. The Protection and Indemnity insurance policy must include the following:

(a) Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada as additional insured should read as follows: Canada, represented by Public Works and Government Services Canada.

(b) Waiver of Subrogation Rights: Contractor's Insurer to waive all rights of subrogation against Canada as represented by Department of Fisheries and Oceans and Public Works and Government Services Canada for any and all loss of or damage to the watercraft however caused.

(c) Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of cancellation.

(d) Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.

15. Services Rendered Outside a CLCSA

The resulting contracts under the Supply Arrangement are not to be used for services rendered within a Comprehensive Land Claims Settlement Area (CLCSA). All requirements for services within a Comprehensive Land Claims Settlement Area (CLCSA) are to be submitted to the Department of Public Works and Government Services for individual processing.

B. BID SOLICITATION

1. Bid Solicitation Documents

Canada will use the bid solicitation templates 2T-LDV1 for low dollar value requirements; 2T-MED1 for medium complexity requirements, available in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) Manual based on the estimated dollar value and complexity of the requirement.

The bid solicitation will contain as a minimum the following:

- (a) a complete description of the Work to be performed;
- (b) 2003, Standard Instructions - Goods or Services - Competitive Requirements; OR 2004, Standard Instructions - Goods or Services - Non-competitive Requirements;
- (c) bid preparation instructions;
- (d) instructions for the submission of bids (address for submission of bids, bid closing date and time);
- (e) evaluation procedures and basis of selection;
- (f) certifications; (*Certifications obtained under the Request for Supply Arrangement must not be included in the bid solicitation with the exception of the following certifications: Code of Conduct*)

Certifications - Consent to a Criminal Record Verification, SACC Manual A3005T, A3010T for service requirements when specific individuals will be proposed for the work.)

(g) conditions of the resulting contract.

2. Bid Solicitation Process

2.1 Bids will be solicited for specific requirements within the scope of the Supply Arrangement (SA) from suppliers who have been issued a SA.

2.2 The bid solicitation will be sent directly to suppliers by the Identified User. The Identified User will be responsible for the bid solicitation process and the award of contracts. The Identified User will specify its Bid Receiving Unit in the bid solicitation.

2.3 The following forms must be used for the first page of the bid solicitation document and the first page of the resulting contract document. These forms are available on the Electronic Forms Catalogue (http://publiservice-app.tpsgc-pwgsc.gc.ca/forms/text/search_for_forms-e.html) Web site.

PWGSC-TPSGC 9400-3, Bid Solicitation;
PWGSC-TPSGC 9400-4, Contract.

2.4 The following thresholds apply to the Supply Arrangement (SA):

a) Bids should be solicited for specific work requirements, valued below \$25,000 (including all applicable taxes), from at least three (3) pre-qualified suppliers who were issued a SA under the area of expertise when it is cost effective to do so. The Identified User will select the list of pre-qualified suppliers based on the personnel capabilities, the expertise and the location for each specific requirement. Only one (1) pre-qualified supplier may be solicited with a sole source rationale contained in the section 6 (b) (ii) of the Government Contract Regulations for the same description of services, where only one (1) supplier meets the selection criteria.

b) Bids will be solicited for specific requirements, valued at over \$25,000 and below the Agreement on Internal Trade (AIT) threshold of \$100,000 (including all applicable taxes), from at least three (3) pre-qualified suppliers who were issued a SA under the area of expertise. The Identified User will select the list of pre-qualified suppliers based on the personnel capabilities, the expertise (field of specialty and type of work) and the location for each specific requirement. All pre-qualified suppliers who were issued a SA under the area of expertise should be invited when the specific requirement of the Identified User does not justify a selection of pre-qualified suppliers, without publication of a Notice of Proposed Procurement.

c) Bids will be solicited for specific requirements, valued at over the AIT threshold of \$100,000 and below \$400,000 (including all applicable taxes), from all pre-qualified suppliers who were issued a SA under the area of expertise, without publication of a Notice of Proposed Procurement.

d) All specific requirements valued at over \$400,000 (including all applicable taxes) are outside the scope of this SA and are to be submitted to the Department of Public Works and Government Services for individual processing.

C. RESULTING CONTRACT CLAUSES

1. General

Solicitation No. - N° de l'invitation

F7048-090005/D

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

040ml

Client Ref. No. - N° de réf. du client

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CCC No./N° CCC - FMS No/ N° VME

The conditions of any contract awarded under the Supply Arrangement will be in accordance with the resulting contract clauses of the template used for the bid solicitation.

For any contract to be awarded using:

- (a) 2T-LDV1 (for low dollar value requirements), general conditions 2029 will apply to the resulting contract;
- (b) 2T-MED1 (for medium complexity requirements), general conditions 2010B.

The above templates are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) Manual issued by Public Works and Government Services Canada.

2. Replacement of Specific Individuals

SACC Manual Clause A7017C (2008-05-12) Replacement of Specific Individuals

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Annex "A"
Statement of Work

The Annex "A", Statement of Work is attached hereto.

Annex "B"
Maximum Per Diem Rates Schedule

Occupational Levels	Maximum Per Diem Rates				
	Year 1	Year 2 Date of SA to 2013-03-31	Year 3 2013-04-01 to 2014-03-31	Option, Year 1 2014-04-01 to 2015-03-31	Option, Year 2 2015-04-01 to 2016-03-31
1. Senior Engineer	N/A	\$	\$	\$	\$
2. Intermediate Engineer	N/A	\$	\$	\$	\$
3. Senior Technical Specialist	N/A	\$	\$	\$	\$
4. Intermediate Technical Specialist	N/A	\$	\$	\$	\$
5. Senior Technologist	N/A	\$	\$	\$	\$
6. Intermediate Technologist	N/A	\$	\$	\$	\$
7. Senior Project Officer	N/A	\$	\$	\$	\$
8. Intermediate Project Officer	N/A	\$	\$	\$	\$

(The supply arrangement authority will insert the maximum per diem rates as specified by the supplier in the arrangement, if applicable)

Areas of expertise:

- A. Naval Architecture
- B. Marine Engineering
- C. Hovercraft Systems
- D. Marine Communication and Navigation Systems : Vessel Based
- E. Marine Communication and Navigation Systems : Shored Based
- F. Marine Informatics Technology
- G. Infrastructure
- H. Mechanical, Electrical & Power Systems : Shored Based
- I. Aids to Navigation
- J. Environmental Services : Vessel and Shore Based
- K. Health and Safety Services
- L. Integrated Logistics Support

(The supply arrangement authority will complete the area of expertise as specified by the supplier in the arrangement, if applicable)

Regions:

Region	Supported
National Capital Region	YES () NO ()
Pacific	YES () NO ()
Central & Arctic	YES () NO ()
Quebec	YES () NO ()
Maritimes	YES () NO ()
Newfoundland & Labrador	YES () NO ()

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Annex "C"
Technical Evaluation Plan

The Annex "C", Technical Evaluation Plan is attached hereto.

Annex "D"
Financial Evaluation Plan

1. Suppliers shall complete the following table and indicate their maximum per diem rates in the initial period, years 2 and 3 and the option period, years 1 and 2.

Occupational Levels	Maximum Per Diem Rates				
	Year 1	Year 2 Date of SA to 2013-03-31	Year 3 2013-04-01 to 2014-03-31	Option, Year 1 2014-04-01 to 2015-03-31	Option, Year 2 2015-04-01 to 2016-03-31
1. Senior Engineer	N/A	\$	\$	\$	\$
2. Intermediate Engineer	N/A	\$	\$	\$	\$
3. Senior Technical Specialist	N/A	\$	\$	\$	\$
4. Intermediate Technical Specialist	N/A	\$	\$	\$	\$
5. Senior Technologist	N/A	\$	\$	\$	\$
6. Intermediate Technologist	N/A	\$	\$	\$	\$
7. Senior Project Officer	N/A	\$	\$	\$	\$
8. Intermediate Project Officer	N/A	\$	\$	\$	\$

2. The threshold for a year of an occupational level will be the average of all technically compliant maximum per diem rates submitted by suppliers for that year in that occupational level, excluding the lowest 10% technically compliant maximum per diem rates submitted, plus 10% added to the that average.

3. Should the threshold of any occupational level in any year be such that more than 10% of the technically compliant maximum per diem rates are financially non-compliant, Canada will increase the threshold until no more than 10% of these technically compliant maximum per diem rates are declared financially non-compliant.

4. Suppliers must be declared financially compliant in each year of each mandatory occupational level for the area of expertise selected to receive a supply arrangement.

5. Suppliers shall complete the following table and indicate which of the following regions they can support outside Comprehensive Land Claims Settlement Area (CLCSA).

Region	Supported
National Capital Region	YES () NO ()
Pacific	YES () NO ()
Central & Arctic	YES () NO ()
Quebec	YES () NO ()
Maritimes	YES () NO ()
Newfoundland & Labrador	YES () NO ()

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Annex "E"
Monthly Usage Report

The Monthly Usage Report for this Request for Supply Arrangement (RFSA) will contain:

1. The list of each contract issued under this SA with number, title, issue date and issue value.
2. The list of each contract completed with end date and final value.
3. The total value of all contracts issued.
4. The total value of all contracts completed.

Example:

Usage Report of the Month of December 2013
Contracts completed and on-going

No.	Title	Issue Date	Issue Value	End Date	Final Value
1	Project A	2013-10-01	\$20,000	2013-11-01	\$20,000
2	Project B	2013-11-05	\$10,000	2013-12-05	\$10,000
3	Project C	2013-12-12	\$30,000	On-going	
	Total		\$60,000		\$30,000

Canadian Coast Guard

Technical Investigation and Engineering Support (TIES)

STATEMENT OF WORK

1.0 Purpose

This Statement of Work outlines the capability and nature of work required to assist the Integrated Technical Services Directorate in the development, upgrade, and maintenance of Canadian Coast Guard (CCG) assets.

The Supply Arrangement (SA) will be used for contracting Minor assignments and project tasks, which would be more expeditiously handled through the TIES. Major assignments and projects will continue to be handled through traditional individual contracts.

2.0 Scope

Each Qualified Supplier shall, either directly or through subcontractor or associates, provide all necessary practical expertise to carry out the tasks. The Supplier is to assign the necessary types and numbers of personnel at agreed upon *Occupational Levels*, with experience and ability to understand the task quickly, in order to formulate and carry through an effective program, while utilizing the best available data and technology. All tasks assigned will be in accordance with the priorities established by the Integrated Technical Services Directorate.

This Statement of Work (SOW) details the *Areas of Expertise* (Section 4.0), the *Types of Work* (Section 5.0), and the *Occupational Levels* (Section 6.0) required to assist CCG Integrated Technical Services (ITS) Directorate with Technical Investigation and Engineering Support (TIES) for the range of assets managed by the CCG.

3.0 Background

3.1 General

The CCG is a special operating agency within the Department of Fisheries and Oceans (DFO). The Canadian Coast Guard (CCG), Integrated Technical Services (ITS) Directorate, maintains and operates many assets including a large fleet of vessels, thousands of fixed and floating marine aids to navigation and large numbers of electronic equipment installed throughout Canada at various CCG/DFO shore bases, remote sites, and onboard CCG vessels.

The CCG is divided into six (6) regions (National Capital Region, Pacific, Central & Arctic, Quebec, Maritimes, Newfoundland & Labrador). A given task could take place in any one, many, or all regions, as such, travel may be required.

CCG assets demand regular maintenance and occasional improvements to ensure their capabilities meet the program requirements. From this perspective, the assets have ongoing operational needs that involve extensive marine engineering, electrical and electronic engineering, naval architecture work, civil engineering, mechanical engineering, integrated logistic support (ILS), health and safety, and environment respect to all activities during the four phases of the assets' life cycle: Conception, Acquisition, In-Service and Disposal.

In support of the many technical, environmental, health and safety, and ILS tasks undertaken within CCG, the above efforts do require expert services from external suppliers in any one or a combination of

RFSA - DAMA. F7048-090005/D Annex A, TIES SOW File – Dossier 040ml.F7048-090005 engineering, life cycle management and/or ILS. While the majority of capabilities exist within the CCG, the flexibility of utilizing additional expert services from outside sources is of great advantage in delivering the program effectively and efficiently.

3.2 CCG Asset Overview

The vessels in the CCG/DFO fleet are of widely different sizes, ages, and capabilities ranging from large arctic icebreakers to small Search and Rescue craft. The primary specialized roles for vessels include icebreaking vessel escorts, search and rescue (SAR), fisheries patrol, scientific and fisheries research, and aids to navigation tending. The aging fleet is continuously in need of new technology upgrades, refit, and life extension to support the ever changing multi tasked program requirements.

The electronic and informatics equipment fulfills several functions such as marine traffic communication and control, radar systems, electronic aids, and more. The equipment may be located at any of the CCG sites such as: CCG vessels, Marine Communications and Traffic Services stations, remote radio peripheral stations, lighthouses, helicopters, hovercrafts, and numerous fixed and floating aids to navigation sites. This electronic equipment is in various stages of their life cycle and the Directorate is constantly performing engineering assessments, reviews, investigations, redesigns and replacement of the subject equipment.

The civil, electrical and mechanical infrastructure for marine aids to navigation, comprise the backbone of the navigation system and are in various states of their lifecycle. The assets requirements in this group range from minor maintenance and repairs, to refurbishment, through to assessments, emerging technology investigations, redesign and replacement.

4.0 Areas of Expertise

The *Areas of Expertise* required by the CCG under TIES include the following twelve(12) lettered areas.

- A. Naval Architecture
- B. Marine Engineering
- C. Hovercraft Systems
- D. Marine Communication and Navigation Systems: Vessel Based
- E. Marine Communication and Navigation Systems: Shore Based
- F. Marine Informatics Technology
- G. Infrastructure
- H. Mechanical, Electrical & Power Systems: Shore Based
- I. Aids to Navigation
- J. Environmental Services: Vessel and Shore Based
- K. Health and Safety Services
- L. Integrated Logistic Support

Each area is further described by a list of *Fields of Specialty* below. The lists provided are not exhaustive.

4.1 Naval Architecture

1. Ship hull structure, structural arrangement and strength, vibration and passive fire protection;
2. Ship design, construction, modernization and repair;
3. Propulsion, rudders, propellers and steering system design;
4. Vessel stability, open water and ice;
5. Hull systems including areas such as accommodation outfit, launch and recovery systems, doors and closures, closing appliances, corrosion control, etc.;
6. Materials and materials maintenance as applied to the construction of ships hull and outfit systems, paint coatings;
7. Ship condition surveys and advice;

8. Canadian acts, regulations, international conventions, codes and Classification society rules pertaining to the design, construction and operation of ships in all Voyage Classes and ASPPR types and classes;
9. Design standards and classification rules as they may apply to the Coast Guard Fleet;
10. Ship structure, design and analysis, advanced structure analysis techniques;
11. Manoeuvring; Open water and ice;
12. Sea keeping and towing;
13. Cargo gear/ lifting systems;
14. Anchor and mooring gear.

4.2 Marine Engineering

1. Diesel Prime mover;
2. Electrical generation and distribution (propulsion and ship service);
3. Manoeuvring (thrusters, azimuthing drives, bubblets etc);
4. Propulsion controls and instrumentation, alarm and monitoring;
5. Propeller pitch control, shafting, reduction gear and pod propulsion;
6. Steering gear;
7. Fire protection systems;
8. Auxiliary and Domestic Systems (refrigeration, hydraulic, compressor, purifier, potable, waste water, HVAC, dynamic positioning, etc);
9. Pumps, Valves and piping system;
10. Deck machinery and cargo equipment, including fishing gear, towing equipment;
11. Vibration and stress analysis, including ice-prop milling;
12. Waterborne Noise Management (ICES and others).

4.3 Hovercraft Systems

1. Mission profile determination and design tradeoff analysis;
2. Canadian acts, regulations, international conventions, codes and Classification society rules pertaining to the design, construction and operation;
3. Deck and skirt systems – Structural analysis;
4. Propulsion systems and controls and speed;
5. Lift forces and systems;
6. Structures and components;
7. Auxiliary systems requirements & cargo handling;
8. Stability and maneuverability;
9. Fuel ballast management system (Trim and heel);
10. Propeller design.

4.4 Marine Communication and Navigation Systems: Vessel Based

1. Radio Communications and Direction Finder Systems: VHF/HF/MF Communication (AM/FM Transmitters, Receivers, Transceivers), Secure Radios, Digital Selective Calling (DSC) systems, Satellite communications systems;
2. Situational Awareness and Position Reporting Systems: Automatic Identification (AIS), Long Range Identification and Tracking (LRIT), GPS/DGPS Systems, Radar, Electronic Chart Systems;
3. Antennae and filtering (tuning);
4. Marine Communications: Telecommunication systems, Cellular Phones, Integrated Communication Systems;
5. Digital techniques including voice digitization, compression, multiplexing and switching;
6. Meteorological Systems: Navtex (Meteorological info in text form), Fax (weather), Ice imagery;
7. Instrumentation and Monitoring Systems;
8. Uninterruptible Power Supplies (UPS);

9. Ergonomics;

Below are the vessel specific *Fields of Specialty* which form the basis for this area:

10. Integrated Navigation Systems;

11. Gyrocompass;

12. Safety of Life at Sea (SOLAS) requirements: Emergency Position Indicating Radio Beacons (EPIRBs), Global Maritime Distress and Safety Systems (GMDSS);

13. Autopilot systems.

4.5 Marine Communication and Navigation Systems: Shore Based

Expertise in the area of *Marine Communication and Navigation Systems* for *Shore Based* systems include the general list of *Fields of Specialty* numbered one (1) through nine (9) from section 4.4 above, as well as the following shore specific *Fields of Specialty*:

10. Vessel Traffic Marine Information Systems;

11. Radar beacons (Racons);

12. Radio beacons;

13. Radio Frequency (RF) Multiplexers;

14. Programmable Logic Controllers (PLC).

4.6 Marine Informatics Technology

1. Voice, data, and universal communications networks;

2. Computer systems (hardware, software and related technologies);

3. Emerging telecommunications and information technologies and their application;

4. Telecommunication services and their respective regulatory environment and standards;

5. WAN / Satellite / Carrier service procurement;

6. Information Systems Standards;

7. Networks (wired and wireless), hardware, software, power, cooling, monitoring, security and management;

8. Remote patch management over unreliable connectivity;

9. Network design best practices;

10. Communications Control Systems (CCS);

11. Remote monitoring and maintenance;

12. Technical database administration;

13. Custom programs and applications;

14. IT security;

15. Cryptographic technologies and their application;

16. Disaster Recovery and Business Continuity.

4.7 Infrastructure

1. Varying Tower Structures (guyed, freestanding; steel, aluminum; foundations; obstruction lighting; fall arrest, anti-climb; grounding; etc.);

2. Communications buildings/trailers (turnkey services incl. electrical, HVAC, grounding, etc);

3. Site grounding systems;

4. Other structures including: Helicopter pads (timber, concrete); Ice shields; Fencing;

5. Land surveying/Geomatics; Erosion;

6. Marine structures, such as: Docks/wharves, offshore piers, weirs, break water, dolphins;

7. Foundations and foundations stabilization;

8. Regulations and codes as applicable e.g. national building, electrical, fire, CSA S-37, etc.

4.8 Mechanical, Electrical & Power Systems: Shore Based

1. Electrical distribution: small (building) and large (site – overhead/buried/submarine power supply cables);
2. Battery technology;
3. Power generation and control systems, such as: Diesel generator sets, Small wind power generation; Solar power systems, alternative technologies (e.g. fuel cells);
4. Combined technology power systems integration;
5. Fuel storage infrastructure (fuel tanks and piping, pressure vessels, etc);
6. Alarm sensors and equipment monitoring systems;
7. Heavy equipment (e.g. cranes, winches, etc);
8. Regulations and codes as applicable (e.g. CSA, Building electrical code, Environment Canada fuel storage regulations, etc).

4.9 Aids to Navigation

Expertise in the area of *Aids to Navigation (ATON)* relates to CCG visual and audible marine navigation services.

1. Night-time visual ATON: range lights, sector lights, and beacons (LED, incandescent, other);
2. Audible ATON (Fog detectors and fog horns);
3. Floating ATON: buoy and buoy mooring systems (Design, maintenance and performance; metallic, synthetic);
4. Material sciences for ATON: corrosion, welding, failure and repair;
5. Visual ATON recognition science, considering: environmental factors; colour chromaticity, size and shape recognition;
6. Painting and coatings technology in a marine environment for shore (towers) and marine (buoys, anti-fouling) applications.

4.10 Environmental Services: Vessel and Shore Based

1. Applicable National and International Environmental Laws and Regulations (Canadian Environmental Protection Act, Canadian Standards Association, International Maritime Organization etc.);
2. Contaminant detection and remediation (e.g. potable water, chemical, petro, mold, soil, air, coatings);
3. Coating application, inspection, and certification;
4. Environmental Management Framework (Carbon footprint, environmental loading assessment);
5. Emissions and Fuels (e.g. low sulphur, bio-fuels);
6. Environmental sensors (e.g. anemometers, humidity);
7. Hazardous materials and substances (e.g. heavy metals, asbestos);
8. Compliance audit experience.

4.11 Health and Safety Services

1. Marine Occupational Health and Safety expertise;
2. Occupational Health and Safety expertise;
3. Human factors, ergonomics, biomechanics;
4. Compliance audit experience;
5. Industrial hygiene assessments or services.

4.12 Integrated Logistic Support

1. The management of Life Cycle Management activities in one of the life cycle management phase (conception, acquisition, in-service and disposal) for assets.

2. Technical Data Management (TDM); including: planning, cataloguing, indexing, disposition plans, etc.
3. Configuration Management (CM); including: CM planning, configuration identification activities, requirements management and traceability, audit planning and reporting, CM of software.
4. Supply Chain Management; including: materiel acquisition and planning; spares optimization analysis and planning; facilities assessment and planning; packaging; handling, storage and transport
5. Maintenance Management; including: maintenance requirements analysis and planning using accepted methodologies such as SAE JA1011 compliant Reliability Centered Maintenance (RCMII); predictive maintenance programs; implementation activities with Maximo, MAINTelligence and/or oracle databases.
6. Technical Training Management: Expertise in the following areas of course development:
Asynchronous and synchronous communication (E-Learning); task analysis; terminal and enabling objectives; criterion tests; development and design of review tests; identifying training requirements and course schedules; development and design for evaluation of technical training.

5.0 Types of Work

The following section describes but does not limit the types of work that need to be performed to assist the CCG in technical investigations and engineering tasks. Examples of tasks are included in each section. The lists provided are not exhaustive.

5.1 Policies and Standards Development

1. Developing and implementing inter- and intra-departmental policies and standards in support of technical and program needs;
2. Review and maintenance of directorate policies and standards and other technical documentation (e.g. specifications, procedures, work instructions);
3. Assessment and auditing/certification based on recognized quality management standards applicable to CCG business.

5.2 Engineering and Technical Services

1. Detailed architecture, engineering and design;
2. Field/laboratory testing: Test plan development; scale and/or full size trials, instrumentation, data collection, measurement, and observation; destructive and non destructive testing techniques, diagnostics, trouble shooting, etc.;
3. Technical analyses: Stress analysis (structural, fatigue, vibration); failure investigation services; physical and mathematical modeling;
4. Create/revise engineering/production drawings, sketches and presentation materials;
5. Design verification and validation;
6. Risk Assessments;
7. Develop customized technical software tools, databases;
8. Requirements management.

5.3 Research and Development

1. Reviewing technology trends, technology assessments;
2. Evaluating new technologies and systems;
3. Simulation/modeling;
4. Testing;
5. Prototyping and assembly.

5.4 Technical Project Management and Planning

1. Schedule development and plan initialization;

2. Detailed implementation schedule for a project identifying all tasks, linkages and resources;
3. Execute, monitor and update the project schedule and project reports;
4. Project risk management;
5. Project close out.

5.5 Project Initiation and Approval

1. National project initiation: Reviewing and assessing regional, operational, and program branch documentation, and co-ordinating requirements with program, operational, and regional groups;
2. Conduct project definition phase needs analyses, develop business cases and justification using cost/benefit analyses, economic analyses, life cycle cost or a similar technique;
3. Provide options analysis. Research and assess other systems in use and develop and define options to address the functional requirements of a system. Develop and define the set of evaluation criteria against which each option will be evaluated;
4. Preparing Project Approval Documentation (PAD), Treasury Board Submissions, for planning, developing and obtaining funding approvals for these national project requirements;
5. Requirements definition (Statement of Requirements);
6. Risk management.

5.6 Acquisition and Acceptance

1. Create procurement documents, such as: Request for proposal, statement of work, technical specifications, bid-evaluation criteria;
2. Conducting design reviews;
3. Conducting equipment reliability, maintainability and supportability analyses and studies;
4. Evaluation of proof of performance and quality requirements;
5. Develop support requirements related to CCG operational readiness objectives;
6. Ensure the required support elements are developed, acquired and delivered.

5.7 Implementation

1. Developing integration and commissioning plans: Analyze pros and cons of various implementation and management plans and recommend options to meet the needs of CCG;
2. Developing technical and installation, system integration, and acceptance test specifications, and reports;
3. Performing factory and site acceptance tests;
4. Developing maintenance documentation, manuals, safety instructions.

5.8 In Service Support

1. System operation, modification, maintenance, repair, refurbishment or upgrades;
2. Materiel requirements analysis and planning in support of maintenance requirements;
3. Updating/creating maintenance plans/documentation/technical data requirements;
4. Performing technical inspections/surveys and/or user surveys to provide advice and recommendations;
5. Equipment reliability, maintainability, optimization, and/or supportability analyses;
6. Long term planning, evaluating and assessing current and future systems requirements;
7. Risk assessments and recommendations/Risk management.

5.9 Asset and Configuration Management

1. Spares analysis, planning and documentation (supply chain);
2. Development and maintenance of configuration management program and technical data management programs and the IT systems by which they are supported;
3. Carry out investigations related to maintenance management, technical training and supply chain;
4. Functional and physical configuration audits.

5.10 Disposal

1. Disposal plan development;
2. Decommissioning;
3. Impact studies.

6.0 Occupational Levels

The CCG requires access to technical professionals and functional experts in various *Disciplines* to assist in meeting its mandate for a broad range of engineering, technology, science, marine and logistic support projects.

An *Occupational Level* is defined by a *Discipline* at a given level or years of demonstrated experience in that *Discipline*.

Discipline \ Levels	Senior	Intermediate
Engineer		
Technical Specialist		
Technologist		
Project Officer		

6.1 Engineer

6.1.1 Required Services

The Engineer is required, but not limited to providing their engineering expertise using life cycle material management methodology principles for: design or technologies development; design analysis considering risk, costing, etc; requirements and specifications definitions; test planning; product/documentation validation including acceptance verifications; asset inspections/surveys; fabrication, production and maintenance engineering support; technical training material development; etc. The required services also extend to project management of the above technical activities.

6.1.2 Mandatory Requirements

- a) An *Engineer* must have a university degree in engineering:
 - i. from a Canadian Council of Professional Engineers (CCPE) accredited engineering program,
 - OR**
 - ii. from an educational institution listed in the Engineers Canada List of foreign Engineering Educational Institutions and Professional Qualifications,
 - OR**
 - iii. from an engineering program accredited by an engineering body that has signed a mutual recognition agreement with Engineers Canada,
 - OR**
 - iv. Alternatively, should a candidate's degree be from a non-CCPE accredited engineering program, their engineering education credentials in the appropriate field must be deemed 'substantially equivalent' to the CCPE via an application to the Engineering International - Education Assessment Program, (EI-EAP).
- b) The engineer must have, or be deemed eligible for registration as a Professional Engineer by a recognized provincial licensing organization.
- c)
 - i. A *Senior Engineer* must have a minimum of ten (10) years of relevant experience.
 - ii. An *Intermediate Engineer* must have a minimum of five (5) years of relevant experience.

6.2 Technical Specialist

6.2.1 Required Services

The Technical Specialist is a subject matter expert having significant and meaningful experience in the area of expertise. Significant and meaningful experience is defined as the in depth study and tangible and/or practical experience in the given area of expertise. The Technical Specialist is required, but not limited to providing their subject matter expertise using life cycle management methodology principles for: design or technologies development; design analysis of systems and components considering risk, costs, etc; requirements and specifications definitions; test planning; product/documentation validation including acceptance verifications; asset inspections/surveys; fabrication, production and maintenance technical support; technical training material development; integrated logistic support, etc. The required services also extend to project management of the above technical or functional activities.

6.2.2 Mandatory Requirements

- a) i. A *Technical Specialist* must have a degree from an university program,

OR

- ii. A college diploma with an additional 10 years of experience over and above that stated in d).
- b) Be a subject matter expert in the *Area of Expertise*.
- c) In addition, for the Marine *Areas of Expertise* 4.2 and 4.3 the *Marine Technical Specialist* must have been certified as a “First-class Engineer, Motor Ship or Steamship” by Transport Canada under Section 147 of the Marine Personel Regulations. Any other source of certification requires proof of validation by Transport Canada for equivalence.
- d) i. A *Senior Technical Specialist* must have a minimum of ten (10) years of relevant experience.
ii. An *Intermediate Technical Specialist* must have a minimum of five (5) years of relevant experience.

Note: A combination of technological training and extensive practical experience may be considered as being equivalent.

6.3 Technologist

6.3.1 Required Services

The Technologist is required, but not limited to providing support using life cycle material management methodology principles for: design or technologies development; design analysis of systems and components; requirements and specifications definitions; testing planning; product/documentation validation including acceptance verifications; asset inspection as applicable; fabrication, production and maintenance technical support; technical training material development; etc. The required services also extend to project management of the above technical activities.

6.3.2 Mandatory Requirements

- a) i. A *Technologist* must have a college degree or diploma in an appropriate *Area of Expertise* from a community or technical college,

OR

- ii. Alternatively, the candidate must have a combination of technical training in an appropriate *Area of Expertise* and three (3) years of relevant experience over and above that stated in d).
- b) Accreditation to a chartered provincial association (or eligibility) is desired.
- c) In addition, for the Marine *Areas of Expertise* 4.2 and 4.3 the *Marine Technologist* must have been certified as a “Second-class Engineer, Motor Ship or Steamship” by Transport Canada

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under Section 145 of the Marine Personnel Regulations. Any other source of certification requires
proof of validation by Transport Canada for equivalence.

- d) i. A *Senior Technologist* must have a minimum of ten (10) years of relevant experience.
- ii. An *Intermediate Technologist* must have a minimum of five (5) years of relevant experience.

6.4 Project Officer

6.4.1 Required Services

The Project Officer is required, but not limited to providing project and task based support for various projects in a given *Area of Expertise*. They generally monitor and maintain progress on projects in a wide range of support activities to achieve efficient project delivery within allocated resources.

6.4.2 Mandatory Requirements

- a) A *Project Officer* must, as a minimum, have a Secondary School diploma.
- b) i. A *Senior Project Officer* must have a minimum of ten (10) years of relevant experience.
- ii. An *Intermediate Project Officer* must have a minimum of five (5) years of relevant experience.

Canadian Coast Guard Technical Investigations and Engineering Support (TIES)

TECHNICAL EVALUATION PLAN

1.0 Purpose

The technical evaluation plan provides bidder instructions with respect to the format and information each bidder must provide in their submission in order to be compliant. Details on how each bid will be evaluated, including comprehensive mandatory and rated scoring grids are also included.

2.0 Scope

Qualified suppliers, as determined by the evaluation process, will be part of a CCG Supply Arrangement (SA) and be called upon to perform specific tasks and/or projects.

3.0 Mandatory Criteria

3.1 *Bid Identification: Areas of Expertise (M.1)*

The Bidder can bid in as many *Areas of Expertise* as listed. Using the grid provided, the Bidder must select and qualify for **at least TWO (2)** of the *Areas of Expertise* listed to be part of this Supply Arrangement. CCG definitions of the different *Areas of Expertise* are listed in SOW Section 4.0.

Bidder Instruction:	1. In the Grid below, make your selection by marking an X in line with the <i>Area of Expertise</i> .
----------------------------	--

Table 3.1.1 Area of Expertise Selection Grid

Areas of Expertise	SOW Reference Section	Selection
A. Naval Architecture	4.1	
B. Marine Engineering	4.2	
C. Hovercraft Systems	4.3	
D. Marine Communication and Navigation Systems: Vessel Based	4.4	
E. Marine Communication and Navigation Systems: Shore Based	4.5	
F. Marine Informatics Technology	4.6	
G. Infrastructure	4.7	
H. Mechanical, Electrical & Power Systems: Shore Based	4.8	
I. Aids to Navigation	4.9	
J. Environmental Services: Vessel and Shore Based	4.10	
K. Health and Safety Services	4.11	
L. Integrated Logistics Support	4.12	

3.2 Occupational Level Resource References (M.2)

The Bidder must propose **one (1)** resource for each of the eight (8) Occupational Levels described in Table 4.2 and defined by the Statement of Work. The same resource can be proposed for up to two (2) disciplines. A qualified senior level resource may assume the intermediate level position at the appropriate rate for Annex D - Financial Evaluation Plan. A junior level or entry level may be offered.

An identified resource must either be an employee or an associate/sub of the bidding company. In the case of an associate/sub, a cooperation agreement is to be included in the bid package, and must be valid for a minimum duration of one (1) year.

The Bidder must provide evidence that the proposed resources here and other sections of this document have the appropriate combination of education, certifications, and experience.

Bidder Instruction:	<ol style="list-style-type: none"> 1. Complete the Occupational Level Resource Grid provided. 2. Attach a numbered resource package for each resource including a <u>Resume/CV*</u>, and a copy of <u>Appropriate Documentation</u> (i.e. degree, diploma, certificate, eligibility)
----------------------------	---

***All Resume/CV documents must be provided with numbered paragraphs for easy referencing within the Bid package to facilitate the evaluation process for the rated criterion in Section 4.0.**

Table 3.2.1 Occupational Level Resource Grid

Discipline \ Levels	Senior		Intermediate	
	Name	Bid Reference Page	Name	Bid Reference Page
Engineer				
Technical Specialist				
Technologist				
Project Officer				

4.0 Rated Criteria

4.1 Company Profile Evaluation (R.1)

Provide a **brief** company profile for each *Area of Expertise* selected, by Type of Work, using the **Profile Grids** provided below. The company profile should include **what, how much, and when** the experience was gained with respect to each of the ten (10) *Type of Work* identified in the SOW. They are:

1. Policies and Standards Development [NT]
2. Engineering and Technical Services [NT]
3. Research and Development [NT]
4. Technical Project Management and Planning [T]
5. Project Initiation and Approval [T]
6. Acquisition and Acceptance [T]
7. Implementation [T]
8. In-Service Support [NT]
9. Asset and Configuration Management [NT]
10. Disposal [T]

Five (5) of these are marked as *Transferable (T)*, and five (5) are marked as *Non-Transferable (NT)*. Transferable means the corporate expertise only needs to be described **once** (**Table 4.1.1**) and applies to all *Areas of Expertise*. Non-Transferable means the corporate expertise needs to be described **for each** *Area of Expertise* selected in M.1 (**Table 4.1.2**).

Note that all of the corporate knowledge discussed in the company profile must be currently available. Bidders are asked to demonstrate this by referencing proposed resource resumes where appropriate within the profile grids.

<p>Bidder Instruction:</p>	<ol style="list-style-type: none"> 1. Provide company profile information for all Transferable Types of Work using Table 4.1.1 Profile Grid: Transferable Items. Insert references to the employee resumes provided as appropriate. 2. Provide company profile information for all Non-Transferable Types of Work using one Table 4.1.2 Profile Grid: Non-Transferable Items for each Area of Expertise selected in M.1 (Section 3.1). Identify the <i>Area of Expertise</i> selection by marking an X in the header column. Insert references to the employee resumes provided as appropriate. 3. Include the page and paragraph number for reference verification.
-----------------------------------	--

The **pass/fail criteria** for Rated Criteria R.1 for a given *Area of Expertise* are:

1. The company must have demonstrated experience in three (3) out of five (5) **Transferable** Types of Work (i.e. a non-zero score).
2. The company must have demonstrated experience in three (3) out of five (5) **Non-Transferable** Types of Work (i.e. a non-zero score).
3. The company must accumulate a minimum of 50% (15 out of 30 points) based on all types of work.

Points will be awarded as follows, using **Table 4.1.3 Summary Scoring Grid:**

1. Two (2) points will be awarded for significant, meaningful demonstrated experience in a Type of Work within the past five (5) years.
2. One (1) point will be awarded for significant, meaningful demonstrated experience in a Type of Work occurring between five (5) and ten (10) years or more.
3. The maximum of three (3) points will be awarded for significant, meaningful demonstrated experience in a Type of Work in both periods mentioned above.
4. Zero (0) points will be awarded if significant, meaningful experience is not clearly demonstrated.

Definition: Significant and meaningful experience is defined as a responsibility to deliver complete sections of a project and not to deliver minor or limited punctual elements of a project.

Table 4.1.1 Profile Grid: Transferable Items

Transferable Types of Work	SOW Reference	Profile and Reference Information
Technical Project Management and Planning	5.4	...
Project Initiation and Approval	5.5	...
Acquisition and Acceptance	5.6	...
Implementation	5.7	...
Disposal	5.10	...

Table 4.1.2 Profile Grid: Non-Transferable Items

Areas of Expertise	SOW Reference	A	B	C	D	E	F	G	H	I	J	K	L
		Profile and Reference Information											
Types of Work													

Policies and Standards Development	5.1	...
Engineering and Technical Services	5.2	...
Research and Development	5.3	...
In Service Support	5.8	...
Asset and Configuration Management	5.9	...

The bidder is asked to complete a self evaluation for all Areas of Expertise identified using **Table 4.1.3 Summary Scoring Grid** and the scoring methodology previously defined above in this section (4.1).

Bidder Instruction:	1. Identify the <i>Area of Expertise</i> selection by marking an X in appropriate header column.
	2. Insert a self-score of 0 to 3 for each row for each <i>Area of Expertise</i> identified. Transferable <i>Types of Work</i> only need to be scored once.
	3. Use the last three (3) rows to summarize as follows:
	<ul style="list-style-type: none"> a. Identify if the minimum demonstrated experience was reached; b. Sum the <i>Total Points</i> for each <i>Area of Expertise</i>; c. Convert the sum to a <i>Percentage of the Maximum</i> possible score of 30 points.

Table 4.1.3 Summary Scoring Grid

Areas of Expertise		SOW Reference	A	B	C	D	E	F	G	H	I	J	K	L
			Types of Work											
1. Policies and Standards Development	NT	5.1												
2. Engineering and Technical Services	NT	5.2												
3. Research and Development	NT	5.3												
4. Technical Project Management and Planning	T	5.4												
5. Project Initiation and Approval	T	5.5												
6. Acquisition and Acceptance	T	5.6												
7. Implementation	T	5.7												
8. In Service Support	NT	5.8												

9. Asset and Configuration Management	NT	5.9													
10. Disposal	T	5.10													
Demonstrated experience achieved [Y / N] (i.e. 3/5 Transferable and 3/5 Non-Transferable)															
Total Points															
Percent of Maximum															

4.2 Personnel Evaluation (R.2)

For this Rated Criteria R.2, only one *Occupational Level* is identified as imperative (**I**) in **Table 4.2** for each *Area of Expertise*. The proposed resource(s) will be rated with respect to their experience in the *Fields of Specialty* used to define each *Area of Expertise* as seen in **Table 4.2.1** through **Table 4.2.12**. Within these tables, each *Field of Specialty* listed is tagged with an **I** for Imperative, **A** for Asset, or an **O** for Optional.

The experience can be demonstrated by more than one resource at level to achieve the passing score while the remainder of the imperatives (I) can be fulfilled by resources at the other *Occupational Level*. At least one candidate per selected area of expertise must be provided and depending of the area of expertise the candidate must be Senior Engineer and/or Senior Technical Specialist.

Table 4.2 Mandatory Occupational Level Identification

Discipline	Engineer		Technical Specialist		Technologist		Project Officer	
	Senior	Intermediate	Senior	Intermediate	Senior	Intermediate	Senior	Intermediate
Level								
Area of Expertise								
A. Naval Architecture	I							
B. Marine Engineering	I*		I*					
C. Hovercraft Systems	I*		I*					
D. Marine Communication and Navigation Systems: Vessel Based			I					
E. Marine Communication and Navigation Systems: Shore Based			I					
F. Marine Informatics Technology			I					
G. Infrastructure	I							
H. Mechanical, Electrical & Power Systems: Shore Based	I							
I. Aids to Navigation			I					

J. Environmental Services: Vessel and Shore Based			<u>I</u>					
K. Health and Safety Services			<u>I</u>					
L. Integrated Logistic Support			<u>I</u>					

* **Only one (1) of the identified imperative disciplines at level is needed for 4.2 and 4.3.**

In order to be compliant all “I” *Fields of Specialty* must have a non-zero score. The A *Fields of Specialty* may be zero. The points gained in these Asset fields **will** be counted toward the company total score. The O *Fields of Specialty* may be zero but will be tabulated for future reference. The Optional fields are listed since they are of interest to CCG with respect to future task specific invitations to bid. However, the points gained in these Optional fields **will not** be counted at this qualification stage.

Bidder Instruction: Complete the appropriate *Area of Expertise* tables (See **Table 4.2.1** to **Table 4.2.12**) At least 2 of the 12 Tables must be provided in the bid instead of referred to in the resume(s).

1. Reference the resource proposed including: name, page number, indicate if the proof of education is provided, and their number of years of experience.
2. Up to 6 persons can be submitted for each Area of Expertise. The same person can be submitted for multiple Areas of expertise.
3. In the grid space provided for each *Field of Specialty*, insert a score followed by the resume reference paragraph number (e.g. 2 | 6.4.1). The score is a value from zero (0) to three (3). The reference paragraph numbering is discretionary to the bidder’s submission.
4. For each imperative (I) and asset (A) *Field of Specialty*, place the maximum score achieved by an individual in the “**Field Score**” column located to the far right of the grid.
5. Sum the “**Field Score**” column to calculate the **Total** company score at the bottom where indicated (in percentage).
6. For each imperative (I) *Field of Specialty*, identify with an **X** in the right hand grid column the score achieved is to be by an imperative resource identified in table 4.2.
7. In the far right hand grid column, identify with an **X** the Imperative (I) *Fields of Specialty* covered by the Imperative (I) *Occupational Level* (See **pass/fail** criteria 2 below). Indicate the percentage achieved in the space provided.
8. In the space provided, indicate what percentage of the maximum score was achieved (See **pass/fail** criteria 3 below).

The **pass/fail criteria** for Rated Criteria R.2 for a given *Area of Expertise* are:

1. All “I” fields (**100%**) must have a score greater than zero to be compliant.
2. At least one of the resources (if more than one) proposed under the Imperative (I) *Occupational Level* must receive a non-zero score in at least **60%** of the Imperative (I) *Fields of Specialty*. Any remaining Mandatory fields must be covered by resources at the other *Occupational Levels*.
3. The qualifying score is **50%** of the Maximum Possible Total Score for a given *Area of Expertise*. The Maximum Possible Total Score is calculated as the total number of Imperative (I) and Asset (A) *Fields of Specialty* multiplied by three (3). The Maximum Possible Total Score is identified within each Table.

Points will be awarded for each proposed resource as follows:

1. Two (2) points will be awarded for significant and meaningful demonstrated experience in the *Field of Specialty* within the past five (5) years.
2. One (1) point will be awarded for significant and meaningful demonstrated experience in the *Field of Specialty* occurring between five (5) and ten (10) years or more for 4.2.1 to 4.2.3 or between five (5) and ten (10) years ago for 4.2.4 to 4.2.12.
3. Three (3) points will be awarded for significant and meaningful demonstrated experience in the *Field of Specialty* in both periods mentioned above.
4. Zero (0) points will be awarded if the proposed resources do not have significant and meaningful demonstrated experience in the *Field of Specialty*. “Significant and meaningful experience” refer to the definition above table 4.1.1 above.

Occupational Discipline:	Engineer				Field Score	Insert an X for a non-zero by an I resource		
	Occupational Level:	Senior						
Candidate Name								
Reference Page								
M.2 Proof of Education (Y / N)								
M.2 Years of Experience								
Fields of Specialty	Tag	Score	Para	Score	Para	Score	Para	
1. Ship hull structure, structural arrangement and strength, vibration and passive fire protection	I							
2. Ship design, construction, modernization and repair	I							
3. Propulsion, rudders, propellers and steering system design	I							
4. Vessel stability, open water and ice	I							
5. Hull systems including areas such as accommodation outfit, launch and recovery systems, doors and closures, closing appliances, corrosion control, etc.	I							
6. Materials and materials maintenance as applied to the construction of ships hull and outfit systems, paint coatings	I							
7. Ship condition surveys and advice	I							
8. Canadian acts, regulations, international conventions, codes and Classification society rules pertaining to the design, construction and operation of ships in all Voyage Classes and ASPRR types and classes	I							
9. Design standards and classification rules as they may apply to the Coast Guard Fleet	I							
10. Ship structure, design and analysis, advanced structure analysis techniques	I							
11. Manoeuvring; Open water and ice	O						N/A	
12. Sea keeping and towing	O						N/A	
13. Cargo gear/ lifting systems	O						N/A	
14. Anchor and mooring gear	O						N/A	
		The Maximum Possible Total Score is 30 points.				Total Score:		
		All mandatory criteria have a Field score greater than zero:						Y / N
		Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):						____ %
		Percentage (%) of the Maximum Possible Total Score (Min 50%):						____ %

RESULTS

Table 4.2.2 Marine Engineering

Occupational Discipline:	Eng. or Tech. Spec.	Score						Field Score (Max3)	Insert an X for a non-zero by an I resource
		Score	Para.	Score	Para.	Score	Para.		
Occupational Level:	Senior								
Candidate Name									
Reference Page									
M.2 Proof of Education (Y / N)									
M.2 Years of Experience									
Fields of Specialty	Tag								
1. Diesel Prime mover	I								
2. Electrical generation and distribution (propulsion and ship service)	I								
3. Manoeuvring (thrusters, azimuthing drives, bubbleblers etc)	I								
4. Propulsion controls and instrumentation, alarm and monitoring	I								
5. Propeller pitch control, shafting, reduction gear and pod propulsion	I								
6. Steering gear	I								
7. Fire protection systems	I								
8. Auxiliary and Domestic Systems (refrigeration, hydraulic, compressor, purifier, potable, waste water, HVAC, dynamic positioning, etc)	I								
9. Pumps, Valves and piping system	O							N/A	N/A
10. Deck machinery and cargo equipment, including fishing gear, towing equipment	O							N/A	N/A
11. Vibration and stress analysis, including ice-prop milling	O							N/A	N/A
12. Waterborne Noise Management (ICES and others)	O							N/A	N/A
RESULTS		The Maximum Possible Total Score is 24 points.						Total Score:	
		All mandatory criteria have a Field score greater than zero:							Y / N
		Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):						_____ %	
		Percentage (%) of the Maximum Possible Total Score (Min 50%):						_____ %	

Occupational Discipline:	Eng. or Tech. Spec.							Field Score (Max3)	Insert an X for a non-zero by an I resource	
		Senior	Score	Para.	Score	Para.	Score			Para.
Occupational Level:										
Candidate Name										
Reference Page										
M.2 Proof of Education (Y / N)										
M.2 Years of Experience										
Fields of Specialty	Tag	Score	Para.	Score	Para.	Score	Para.	Score	Para.	
1. Mission profile determination and design tradeoff analysis	I									
2. Canadian acts, regulations, international conventions, codes and Classification society rules pertaining to the design, construction and operation	I									
3. Deck and skirt systems – Structural analysis	I									
4. Propulsion systems and controls and speed	I									
5. Lift forces and systems	I									
6. Structures and components	I									
7. Auxiliary systems requirements & cargo handling	I									
8. Stability and maneuverability;	I									
9. Fuel ballast management system (Trim and heel)	O							N/A	N/A	
10. Propeller design	O							N/A	N/A	
		The Maximum Possible Total Score is 24 points.						Total Score:		
RESULTS		All mandatory criteria have a Field score greater than zero:								Y / N
		Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):								____ %
		Percentage (%) of the Maximum Possible Total Score (Min 50%):								____ %

Table 4.2.4 Marine Communication and Navigation Systems: Vessel Based

Occupational Discipline:	Tech. Spec.			Score	Para.	Score	Para.	Score	Para.	Score	Para.	Field Score (Max3)	Insert an X for a non-zero by an resource
	Occupational Level:	Senior											
Candidate Name													
Reference Page													
M.2 Proof of Education (Y / N)													
M.2 Years of Experience													
Fields of Specialty	Tag	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Field Score (Max3)	Insert an X for a non-zero by an resource
1. Radio Communications and Direction Finder Systems: VHF/HF/MF Communication, Secure Radios, Digital Selective Calling (DSC) systems, Satellite communications systems	A												N/A
2. Situational Awareness and Position Reporting Systems: Automatic Identification (AIS), Long Range Identification and Tracking (LRIT), GPS/DGPS Systems, Radar, Electronic Chart Systems	A												N/A
3. Antennae and filtering (tuning)	A												N/A
4. Marine Communications: Telecommunication systems, Cellular Phones, Integrated Communication Systems	A												N/A
5. Digital techniques including voice digitization, compression, multiplexing and switching	A												N/A
6. Meteorological Systems: Navtex (Meteorological info in text form), Fax (weather), Ice imagerie	A												N/A
7. Instrumentation and Monitoring Systems	A												N/A
8. Uninterruptible Power Supplies (UPS)	A												N/A
9. Ergonomics	A												N/A
10. Integrated Navigation Systems	A												N/A
11. Gyrocompass	A												N/A
12. Safety of Life at Sea (SOLAS) requirements: Emergency Position Indicating Radio Beacons (EPIRBs), Global Maritime Distress and Safety Systems (GMDSS)	A												N/A
13. Autopilot systems	A												N/A
RESULTS													
The Maximum Possible Total Score is 39 points.												Total Score:	
All mandatory criteria have a Field score greater than zero:													Y / N
Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):													N/A

	Percentage (%) of the Maximum Possible Total Score (Min 50%):	_____ %
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Table 4.2.5 Marine Communication and Navigation Systems: Shore Based

Occupational Discipline:	Tech. Spec.	Score						Para.						Field Score (Max3)	Insert an X for a non-zero by an I resource	
		Score	Para.													
Occupational Level:	Senior															
Candidate Name																
Reference Page																
M.2 Proof of Education (Y / N)																
M.2 Years of Experience																
Fields of Specialty	Tag															
1. Radio Communications and Direction Finder Systems: VHF/HF/MF Communication, Secure Radios, Digital Selective Calling (DSC) systems, Satellite communications systems	A														N/A	
2. Situational Awareness and Position Reporting Systems: Automatic Identification (AIS), Long Range Identification and Tracking (LRIT), GPS/DGPS Systems, Radar, Electronic Chart Systems	A														N/A	
3. Antennae and filtering (tuning)	A														N/A	
4. Marine Communications: Telecommunication systems, Cellular Phones, Integrated Communication Systems	A														N/A	
5. Digital techniques including voice digitization, compression, multiplexing and switching	A														N/A	
6. Meteorological Systems: Navtex (Meteorological info in text form), Fax (weather), Ice imagerie	A														N/A	
7. Instrumentation and Monitoring Systems	A														N/A	
8. Uninterruptible Power Supplies (UPS)	A														N/A	
9. Ergonomics	A														N/A	
10. Vessel Traffic Marine Information Systems	A														N/A	
11. Radar beacons (Racons)	A														N/A	
12. Radio beacons	A														N/A	
13. Radio Frequency (RF) Multiplexers	A														N/A	
14. Programmable Logic Controllers (PLC)	A														N/A	
RESULTS																
The Maximum Possible Total Score is 42 points.														Total Score:		
All mandatory criteria have a Field score greater than zero:																Y / N
Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):																N/A
Percentage (%) of the Maximum Possible Total Score (Min 50%):																____ %

Table 4.2.6 Marine Informatics Technology

Occupational Discipline:	Tech. Spec.										Field Score (Max3)	Insert an X for a non-zero by an I resource	
	Occupational Level:	Senior	Score	Para.	Score	Para.	Score	Para.	Score	Para.			
Candidate Name													
Reference Page													
M.2 Proof of Education (Y / N)													
M.2 Years of Experience													
Fields of Speciality	Tag		Score	Para.	Score	Para.	Score	Para.	Score	Para.			
1. Voice, data, and universal communications networks	A											N/A	
2. Computer systems (hardware, software and related technologies)	A											N/A	
3. Emerging telecommunications and information technologies and their application	A											N/A	
4. Telecommunication services and their respective regulatory environment and standards	A											N/A	
5. WAN / Satellite / Carrier service procurement	A											N/A	
6. Information Systems Standards	A											N/A	
7. Networks (wired and wireless), hardware, software, power, cooling, monitoring, security and management	A											N/A	
8. Remote patch management over unreliable connectivity	A											N/A	
9. Network design best practices	A											N/A	
10. Communications Control Systems (CCS)	A											N/A	
11. Remote monitoring and maintenance	A											N/A	
12. Technical database administration	A											N/A	
13. Custom programs and applications	A											N/A	
14. IT security	A											N/A	
15. Cryptographic technologies and their application	A											N/A	
16. Disaster Recovery and Business Continuity	A											N/A	
RESULTS													
The Maximum Possible Total Score is 48 points.											Total Score:		
All mandatory criteria have a Field score greater than zero:											Y / N		
Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):											N/A		
Percentage (%) of the Maximum Possible Total Score (Min 50%):											_____ %		

Table 4.2.7 Infrastructure

Occupational Discipline:	Engineer										Field Score (Max3)	Insert an X for a non-zero by an I resource	
	Occupational Level:	Senior	Score	Para.	Score	Para.	Score	Para.	Score	Para.			
Candidate Name													
Reference Page													
M.2 Proof of Education (Y / N)													
M.2 Years of Experience													
Fields of Specialty			Score	Para.	Score	Para.	Score	Para.	Score	Para.			
1. Varying Tower Structures (guyed, freestanding; steel, aluminum, foundations, obstruction lighting, fall arrest, anti-climb, grounding; etc.)	<u>A</u>											N/A	
2. Communications buildings/trailers (turnkey services incl. electrical, HVAC, grounding, etc)	<u>A</u>											N/A	
3. Site grounding systems	<u>A</u>											N/A	
4. Other structures including: Helicopter pads (timber, concrete), Ice shields, Fencing	<u>A</u>											N/A	
5. Land surveying/Geomatics, Erosion	<u>A</u>											N/A	
6. Marine structures, such as: Docks/wharves, offshore piers, weirs, break water, dolphins	<u>A</u>											N/A	
7. Foundations and foundations stabilization	<u>A</u>											N/A	
8. Regulations and codes as applicable to the area of expertise (e.g. national building, electrical, fire, etc)	<u>I</u>												
RESULTS													
The Maximum Possible Total Score is 24 points.											Total Score:		
All mandatory criteria have a Field score greater than zero:													Y / N
Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):													_____ %
Percentage (%) of the Maximum Possible Total Score (Min 50%):													_____ %

Table 4.2.8 Mechanical, Electrical & Power Systems: Shore Based

Occupational Discipline:	Engineer										Field Score (Max3)	Insert an X for a non-zero by an I resource	
	Occupational Level:	Senior	Score	Para.	Score	Para.	Score	Para.	Score	Para.			
Candidate Name													
Reference Page													
M.2 Proof of Education (Y / N)													
M.2 Years of Experience													
Fields of Specialty	Tag	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.		
1. Electrical distribution: small (building) and large (site – overhead/buried/submarine power supply cables)	<u>A</u>											N/A	
2. Battery technology	<u>A</u>											N/A	
3. Power generation and control systems, such as: Diesel generator sets, Small wind power generation; Solar power systems, alternative technologies (e.g. fuel cells)	<u>A</u>											N/A	
4. Combined technology power systems integration	<u>A</u>											N/A	
5. Fuel storage infrastructure (fuel tanks and piping, pressure vessels, etc)	<u>A</u>											N/A	
6. Alarm sensors and equipment monitoring systems	<u>A</u>											N/A	
7. Heavy equipment (e.g. cranes, winches, etc)	<u>A</u>											NA	
8. Regulations and codes as applicable (e.g. CSA, Building electrical code, Environment Canada fuel storage regulations, etc)	<u>I</u>												
RESULTS													
The Maximum Possible Total Score is 24 points.											Total Score:		
All mandatory criteria have a Field score greater than zero:													Y / N
Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):													N/A
Percentage (%) of the Maximum Possible Total Score (Min 50%):													____ %

Occupational Discipline:	Occupational Level:	Candidate Name	Reference Page	M.2 Proof of Education (Y / N)	M.2 Years of Experience	Tech. Spec.						Field Score (Max3)	Insert an X for a non-zero by an I resource		
						Tag	Score	Para.	Score	Para.	Score			Para.	Score
1. Night-time visual ATON: range lights, sector lights, and beacons (LED, incandescent, other)						A									N/A
2. Audible ATON (Fog detectors and fog horns)						A									N/A
3. Floating ATON: buoy and buoy mooring systems (Design, maintenance and performance; metallic, synthetic)						A									N/A
4. Material sciences for ATON: corrosion, welding, failure and repair						A									N/A
5. Visual ATON recognition science, considering: environmental factors; colour chromaticity, size and shape recognition						A									N/A
6. Painting and coatings technology in a marine environment for shore (towers) and marine (buoys, anti-fouling) applications						A									N/A
RESULTS						The Maximum Possible Total Score is 18 points.						Total Score:			
						All mandatory criteria have a Field score greater than zero:							Y / N		
						Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):							N/A		
						Percentage (%) of the Maximum Possible Total Score (Min 50%):							_____%		

Table 4.2.10 Environmental Services: Vessel and Shore Based

Occupational Discipline:		Tech. Spec.										Field Score (Max3)		Insert an X for a non-zero by an I resource	
Occupational Level:		Senior													
Candidate Name															
Reference Page															
M.2 Proof of Education (Y / N)															
M.2 Years of Experience															
Fields of Specialty	Tag	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.
1. Applicable National and International Environmental Laws and Regulations	I														
2. Contaminant detection and remediation	A														N/A
3. Coating application, inspection, and certification	A														N/A
4. Environmental Management Framework	A														N/A
5. Emissions and Fuels	A														N/A
6. Environmental sensors	A														N/A
7. Hazardous materials and substances	I														
8. Compliance audit experience	A														N/A
RESULTS														Total Score:	
The Maximum Possible Total Score is 24 points.															
All mandatory criteria have a Field score greater than zero:														Y / N	
Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):														_____ %	
Percentage (%) of the Maximum Possible Total Score (Min 50%):														_____ %	

Table 4.2.11 Health and Safety Services

Occupational Discipline:	Tech. Spec.		Score	Para.	Field Score (Max3)	Insert an X for a non-zero by an I resource								
	Occupational Level:	Senior												
Candidate Name														
Reference Page														
M.2 Proof of Education (Y / N)														
M.2 Years of Experience														
Fields of Specialty	Tag	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Field Score (Max3)
1. Marine Occupational Health and Safety	A													N/A
2. Occupational Health and Safety	A													N/A
3. Human factors, ergonomics, biomechanics	A													N/A
4. Compliance audit experience	A													N/A
5. Industrial hygiene assessments or services	A													N/A
RESULTS														
The Maximum Possible Total Score is 15 points.												Total Score:		
All mandatory criteria have a Field score greater than zero:												Y / N		
Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):												N/A		
Percentage (%) of the Maximum Possible Total Score (Min 50%):												_____ %		

Table 4.2.12 Integrated Logistic Support

Occupational Discipline:		Tech. Spec.								Field Score (Max3)		Insert an X for a non-zero by an I resource			
Occupational Level:		Senior													
Candidate Name															
Reference Page															
M.2 Proof of Education (Y / N)															
M.2 Years of Experience															
Fields of Specialty	Tag	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.	Score	Para.		
1. Life Cycle Management	I														
2. Technical Data Management	A												N/A		
3. Configuration Management	A												N/A		
4. Supply Chain Management	A												N/A		
5. Maintenance Management	A												N/A		
6. Technical Training Management	A												N/A		
RESULTS												Total Score:			
All mandatory criteria have a Field score greater than zero:															Y / N
Percentage (%) of the mandatory fields covered by the mandatory Occupational Level (Min 60%):															N/A
Percentage (%) of the Maximum Possible Total Score (Min 50%):															_____ %