Wharf refit
SUMMER 2019

CCGS Martha L. Black

Version 3

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1 GENERAL REMARKS S

1.1 Identification

These general remarks describe the Coast Guard's (CCG) requirements applicable to all attached technical specifications.

1.2 Reference documents

1.2.1 Applicable documents :

Fleet Safety and Security Manual (FSSM) Procedures	Title
7. A. 1	Risk Prevention Program
7. B .1	Diving operation
7. B. 2	Protection against falls
7. B. 3	Access to confined spaces
7. B. 4	Hot work
7. B. 5	Locking and labelling
7. B. 6	Electrical work on live circuits
10.A. 2	Contractor Safety and Security

1.2.2 Publications :

TP3177E	Standards for the protection against the hazards of gases on ships to be repaired or modified
T127E	Transport Canada Marine Safety Electrical Standards
IEEE 45	Recommended Practice for Electrical Installations on Shipboard
CSA W47.1	Certification of steel structure fusion welding companies, section 2 (Certification)
CSA W47.2	Certification of aluminium fusion welding companies

1.2.3 Laws and regulations :

CSA	Canada Shipping Act
LAB	Canada Labour Code
SSTMMM	Occupational health and safety (ships)

1.3 Occupational health and safety

a) The Contractor and all Subcontractors must comply with Occupational Health and Safety (OHS) instructions in accordance with applicable federal and provincial regulations and ensure that the Contractor's activities are conducted safely and in a manner that does not compromise the safety of any employee.

b) The contractor and its employees, including subcontractors, must participate in a safety orientation session on board the vessel before the work begins in order to be familiar with the specific risks on board a vessel and the permit systems related to work protocols, as well as the safety, risk prevention, hazard response and pre-work safety assessment procedures. The contractor will have access to an uncontrolled copy of the Fleet Safety and Security Manual.

c) The contractor must comply with the Fleet Safety and Security Manual (DFO/5737) and work instructions on board the vessel, in addition to the relevant regulations of the Canada Labour Code, while performing tasks involving the following aspects:

- Diving operation
- Hot work;
- Work at height;
- Access to confined spaces;
- Locking and labelling;
- Electrical work on live circuits
- Risk Assessment

d) For locking and labelling purposes, the contractor must provide locks and locking devices to its employees, in addition to those provided by the chief engineer to the ship's crew.

e) The contractor must provide a copy of the degassing certificate from a certified marine chemist or other qualified person to the technical authority when work is performed in tanks and sentries before the work begins. The certificates shall specify "safe for persons" or "safe for hot work" as appropriate. Certificates will be displayed in full view and close to the entrance of the compartment. All open-tube tanks and tunnels for inspection and testing shall be cleaned and subjected to a final inspection by the technical authority before closure.

f) The contractor and his employees will not have access to the ship's crew quarters or sanitary facilities. The contractor must provide the necessary amenities to its employees and subcontractors.

1.4 Access to the workplace

a) The contractor shall ensure that the technical authority and CCG personnel have unimpeded access to the work site at all times throughout the duration of the contract.

1.5 Workplace Hazardous Materials Information System (WHMIS).

a) The contractor must provide the TA with Product Safety Data Sheets (PSSTs) for all products supplied by the contractor that are controlled under WHMIS.

b) The TA will allow the contractor to access the FSSPs for all controlled products on board the vessel as part of all specified work elements.

1.6 Smoking in the workplace

a) The contractor must ensure compliance with the *Non-Smokers' Health Act*. The contractor must ensure that each employer, and any person acting on behalf of an

employer, ensures that smoking is not permitted in workspaces under the employer's control. The contractor must ensure that absolutely no one smokes on board the ship.

1.7 Healthy and safe workplace

a) Before the contractor begins work on the vessel, the TA and the contractor's quality assurance representative must visit the areas where work will take place, including access roads. The contractor's quality assurance representative must take digital photos of each area to show that they comply with the requirements of this document. He must then upload these photos in JPG format to a CD or DVD. Each photo must be dated and indicate which location on the ship it is. Copies of the CD or DVD must be provided to the TA for reference purposes within 48 hours of the beginning of the contract period.

b) During the work period, the contractor shall maintain the areas of the vessel used by its personnel to access the work areas. The areas must be clean and free of debris, and waste must be removed daily.

c) Areas that present a hazard as a result of the work specified in this specification must be secured and clearly identified by the contractor. Signs must be posted to inform and protect all employees, in accordance with the applicable requirements of the Canada Labour Code.

d) At the end of this contract, the contractor shall ensure that all waste generated as part of the work under this specification is disposed of and that the vessel is as clean as it was before the beginning of the contract period.

e) Once all known work has been completed and the final clean-up has been completed, the contractor's quality assurance representative shall visit all areas of the vessel where work has been performed by the contractor. Any deficiencies or damage noted should be recorded, and compared to the photographs taken to determine if the deficiency or damage results from the work performed by the contractor. If this is the case, the damage will have to be repaired by the contractor at no cost to CCG.

1.8 Protection against fire

a) The contractor shall ensure that the isolation, removal and installation of fire detection and suppression systems and related components are performed by a qualified technician. When fire detection or suppression systems are deactivated or shut down by the contractor for the duration of the contract, a qualified technician must recertify that they are fully functional. The original signed and dated certificate must be submitted to the Technical Authority (TA) and the Technical Inspection before the end of the contract.

b) The contractor shall notify and obtain the written approval of the technical inspection and the TA before disturbing, removing, isolating, deactivating, deactivating, shutting down or locking any part of the fire detection and suppression systems, including heat and smoke detectors.

c) The contractor must provide fire protection at all times and therefore also while work is being done on the ship's fire detection and suppression systems. This can be done as proposed below, only after obtaining the written approval of the TA:

- disable only one part of the system at a time;
- maintain the system in operation with spare parts while work is in progress;

- use other methods accepted and approved by the TA.

g) The contractor should be aware that if all necessary precautions are not taken when working on the ship's fire suppression systems, this could result in an accidental release of fire extinguishing agents. The contractor shall then have the containers or systems that have been emptied as a result of such work filled and certified at its own expense.

1.9 Damaged paint and touch-ups

a) Unless otherwise specified, the contractor shall provide and apply two coats of marine primer compatible with the ship's paint system on all new metal surfaces and surfaces requiring touch-up.

b) Before applying the first coat, the contractor must prepare all new steel structures and those requiring touch-ups according to the paint manufacturer's instructions.

1.10 CCG and other employees on board the vessel

a) CCG and DFO employees and other employees, such as manufacturer's representatives, TCMS or classification investigators, may perform other work on board ship, including work not mentioned in this specification, during the work period.

b) The TA will make every effort to ensure that other work, related inspections and investigations do not interfere with the contractor's work. The contractor shall not coordinate related inspections or pay inspection fees for this work.

1.11 Regulatory inspections and/or class inspections

a) The contractor shall schedule, request and coordinate all regulatory inspections and class inspections with the appropriate authority, e. g. Transport Canada Marine Safety, Classification Society, Health Canada, Environment Canada or others, based on this specification.

b) Any document produced as part of the above inspections and investigations and demonstrating that they have taken place (e. g. original signed and dated certificates) must be submitted to the TA.

c) The contractor shall not substitute TA inspection for TCMS regulatory inspections or classification surveys.

d) The contractor must give at least 24 hours' notice to the TA prior to TCMS regulatory inspections or planned classification surveys so that the TA can attend the inspection.

(e) CCGS Martha L. Black is a vessel in inspection delegation with ABS , which ensures that the vessel meets Canadian regulations

1.12 Test results and data collection

a) The contractor must design a test and trial plan that includes at least all the tests and trials mentioned in the specifications. This plan must be submitted to the TA for review one week before the start of the original planned work period.

b) All data specific to tests, measurements, calibrations and readings shall be recorded, dated, signed by the person who took the measurements, and transmitted to the Technical Authority and Marine Safety in hard copy and electronic format.

c) The data recorded must be accurate to three decimal places (unless otherwise specified) and in accordance with the measurement system in place on the vessel.
d) The contractor must provide the TA with valid calibration certificates for all instruments used in the test plan to demonstrate that the instruments have been calibrated in accordance with the manufacturer's instructions.
e) Hard copies of reports should be placed in standard three-ring binders, typed on letter size paper and filed by specification number. Electronic copies must be in unprotected Adobe PDF format on CD-ROM. The contractor must provide three hard copies and one electronic copy of all reports.
f) All documents produced during the term of the contract must be included in a data collection and then submitted to the TA at the end of the contract.
g) All requested drawings will be made on ANSI ANSI format paper - ANSI B format (11" x 17") at least. Three copies must be provided. The drawings will also be submitted in DWG format (AutoCAD 2000 or later), on CD-ROM, and will not be password protected. One (1) CD-ROM must be provided.

1.13 Material and tools provided by the contractor

a) The contractor must ensure that all equipment is new and has never been used.
b) The contractor shall ensure that all replacement products such as gasket components, gaskets, insulation, small hardware, oils, lubricants, degreasing solvents, preservatives, paints, coatings, bolts and bolting equipment, among others, comply with the equipment manufacturer's drawings, manuals and instructions.
c) Where no specific item is specified or where a replacement is to be made, the TA must approve in writing the replacement item. The contractor must provide details to the TA on the equipment used and the grade and quality certificate of various materials before using them.
d) The contractor must provide all equipment, apparatus, tools and machinery, such as welding stations, cranes, scaffolding and assemblies required to perform the work specified in this specification.
e) The contractor shall provide disposal services for oil and any other hazardous or controlled waste generated as part of the work provided for in this specification. The contractor must provide disposal certificates for all waste listed above**.**
f) These disposal certificates must show that the disposal has been carried out in accordance with applicable federal, provincial and municipal regulations.

1.14 Material and tools provided by the government

a) All tools must be provided by the contractor unless otherwise specified in the technical specifications.
b) If the TA provides tools, the contractor must return them to the TA in the same condition as they were before the loan. The tools borrowed must be inventoried. The contractor must sign the inventory statement upon receipt of the tools and when they are returned to the TA.
c) The contractor must keep all government-provided goods in a secure warehouse or store with a controlled atmosphere, in accordance with the manufacturer's instructions.

1.15 Restricted access areas

a) The contractor must not enter the following areas (except to perform work in accordance with the specifications): cabins, offices, workshops, engineering offices, wheelhouse, control room, washrooms, galley, crew quarters, rest areas and other areas with restricted access marked with signs.
b) The contractor must give the TA 24 hours' notice when working in occupied premises or offices. This will provide CCG with sufficient time to move personnel and secure the areas.

1.16 Contractor inspections and equipment and workplace protection

a) In collaboration with the TA, the contractor must coordinate an inspection of the condition and location of the components to be removed before performing the specified work or accessing a site to work on it.
b) Any damage resulting from the Contractor's work and attributable to the performance of the work by the Contractor shall be repaired by the Contractor at its own expense. The equipment used for replacements or repairs must meet the criteria for equipment provided by the contractor, as indicated in the Equipment and Tools provided by the contractor section.
c) The contractor must protect the equipment and adjacent areas from damage. Workplaces should be protected against water infiltration, sandblasting and welding particles, etc. Temporary covers should be installed in the workplace.
d) The contractor must protect the vessel from vermin infestations (insects, mammals). If an infestation occurs during the term of the contract, the contractor must ensure, at his own expense, that the vermin are exterminated before the ship leaves and the contract ends.

1.17 Recording work in progress

TA can record work in progress by various methods, including photos, digital videos or film.

1.18 List of confined spaces

The contractor may request a list of the vessel's confined spaces at the pre-refit meeting.

1.19 Hazardous materials

a) CCG will provide an up-to-date record of the hazardous materials on board the vessel. It is the contractor's responsibility to plan these works based on the presence of these hazardous materials.
b) The contractor shall not use any material containing asbestos.
c) The handling of asbestos-containing materials must be performed by personnel trained and certified to remove asbestos-containing materials in accordance with applicable federal, provincial and municipal regulations and the Fleet Safety and Security Manual. The contractor must provide the TA with disposal certificates for all asbestos-containing materials that have been removed from the vessel to demonstrate

that disposal has been carried out in accordance with applicable federal, provincial and municipal regulations.

d) The contractor must not use lead paint.
e) In the past, lead paint has been used to paint CCG vessels. As a result, some of the contractor's processes, such as grinding, soldering and burning, could result in the release of lead from the paint. The contractor must ensure that tests are conducted in the work areas to verify the presence of lead in the paint, and that the work is performed in accordance with applicable federal and provincial regulations.
f) The contractor must obtain Health Canada approval for paints applied to the surface of hulls subject to Health Canada and Pest Management Regulatory Agency regulations.

1.20 Materials and equipment removed

All equipment removed as part of this quotation remains the property of CCG, unless otherwise specified in certain sections of the quotation.

1.21 Certification for welding

a) For any work involving fusion welding of steel structures, the contractor or its subcontractors must be certified by the Canadian Welding Bureau in accordance with subsection 2.1 of the most recent version of the Canadian Standards Association standard W47.103.
b) For any work involving fusion welding of steel structures, the contractor or its subcontractors must be certified by the Canadian Welding Bureau in accordance with section 16 of the most recent version of the Canadian Standards Association CSA\ACNOR AWS standard.
c) For any work involving fusion welding of steel structures, the contractor or its subcontractors must be certified by the Canadian Welding Bureau in accordance with subsection 2.1 of the most recent version of the Canadian Standards Association standard W47.2.
d) The contractor is required to provide the technical authority with documents clearly specifying the welding certification for all employees who will perform all welding work specified in this specification.

1.22 Electrical installations

a) All electrical installations and repairs must be performed in accordance with the latest version of TP127E (Transport Canada Marine Safety Electrical Standards) and Institute of Electrical and Electronic Engineers Standard 45 (Recommended Practice for Electrical Installations on Shipboard).
b) All installations and repairs of electronic equipment must be carried out in accordance with the Canadian Coast Guard's publication on telecommunications and electronics entitled "General Guide for the Installation of Electronic Equipment on Board Ships".

1.23 Refrigeration and air conditioning systems

Any work on refrigeration and air conditioning systems shall be carried out in accordance with sections 2.7 and 2.8 of the Environmental Code of Practice for the Elimination of Fluorocarbon Emissions from Refrigeration Systems.

1.24 Skill of tradespeople

a) The contractor must use and supervise qualified, certified (if applicable) and competent tradespeople to ensure a consistent high level of performance quality.
b) The inspector may request to consult and record details of the contractor's tradesperson certifications or qualifications. This request should not be made unduly, but only to ensure that qualified tradespeople perform the necessary work.

1.25 Crane on board the ship

The ship's crane can be available to perform the necessary handling to load the equipment on board the ship, but the contractor must submit his request to the chief engineer at least 24 hours before the start of the handling.

1.26 Contractor's Crane

It is the responsibility of the contractor to verify the load restrictions applicable to the wharf where the vessel is moored. The slings and lifting devices will be provided by the contractor.

1.27 Power supply and compressed air

120 VAC electricity and 120 psi compressed air will be provided by the ship.

1.28 SERVICES - Optional

The contractor shall provide an estimate for the following services:

A) Crane

The contractor shall provide a daily price for the services of a 25-tonne crane for general use, including an operator and all personnel necessary to ensure that these operations are carried out safely. The contractor must maintain a usage record that must be signed weekly by the IA. CCG will give the contractor 24 hours' notice before using this crane. The contractor will be responsible for verifying the load restrictions applicable to the wharf where the vessel is moored. Slings and lifting devices must be provided by the contractor.

B) Boom lift

The contractor must provide a weekly price to provide the vessel with an articulated boom lift. The platform must be telescopic, capable of accommodating two people, have a horizontal reach of at least 70 ft. and a lifting height of at least 80 ft.

C) Underwater hull inspection

The contractor shall provide a daily price to offer the services of divers to perform an inspection and/or other underwater work on the ship's hull. A copy of the valid diver certification before starting the work must be provided upon request.

D) Welder

The contractor shall provide an hourly rate to provide the vessel with a certified welder (CSA Standard W47.1). This welder may be required to perform various welding tasks throughout the vessel, primarily repair work, and will report directly to the chief engineer. Estimated time required: 150 hours

E) Assistant Electrician

The contractor shall provide an hourly rate to provide the vessel with a certified electrical assistant. The assistant electrician may be required to perform various maintenance work on the entire vessel. He will be under the responsibility of the ship's electrician and will report directly to him. Estimated time required: 150 hours

F) Refrigeration technician

The contractor shall provide an hourly rate to provide the ship with a certified refrigeration refrigeration technician. The refrigeration technician may have to carry out various maintenance work on the entire ship. Estimated time required: 50 hours

LIST OF ACRONYMS

ACA Contracting Authority (PWGSC)
Canadian Coast Guard
CCTC Canadian Labour Code
MFEM equipment provided by the contractor
CSA Canadian Standards Association
BCSB Canadian Welding Bureau
MPOP Fisheries and Oceans Canada
MSSF Fleet Safety and Security Manual (FSSM)
Seconded representative
Government-provided BFGBiens
GEFGovernment provided equipment
SCSanté Canada
IEEEIInstitute of Electrical and Electronics Engineers
LHTOverall length
FSSPProduct Safety Data Sheet
OHS Occupational Health and Safety
PWGTCPublic Works and Government Services Canada
SGSSSafety and security management system
SCTS Treasury Board of Canada Secretariat
Transport Canada Marine Safety TCMS
ATA Technical Authority - Owner's Representative (CCG)
SIMDUTS Information system on hazardous materials used at work

2 GENERAL SHIP INFORMATION

Name : CCGS Martha L. Black

Type : Large buoy vessel / icebreaker

Year of construction : 1986

Shipbuilder: Burrard Dry dock, Vancouver, B.C.

Length : 83.0 m

Width : 16.2

Draught under load: 6.08 m

Displacement under load: 3819 T

Power : 7000 hp

Propulsion: Electric diesel

10 SAFETY AND SECURITY EQUIPMENT

10.1 FIRE-FIGHTING SYSTEMS

10.1.1 Scope

Perform annual inspection and maintenance of firefighting systems as required by Transport Canada.

10.1.2 References

Listings

- Fixed systems
- List of portable fire extinguishers
- List of portable extinguishers due for maintenance
- AFFF foam containers 3% AFFF
- Location of detectors

Regulation

- Canada Shipping Act and Regulations

10.1.3 Technical description

10.1.3.1 General description

a) The contractor must include in its bid all known work under the lists provided as references.

(b) Labels indicating the name of the contractor, the date and initials of the person performing the inspection shall be affixed to each system

10.1.3.3.2 CO2 and FM200 fixed extinguishing systems

NOTE: The contractor must be an authorized distributor of Pyrene parts and services (Kidde) for CO^2 fixed systems and demonstrate that it has the necessary spare parts if necessary to perform work on CO^2 cylinders and equipment.

a) Check the proper operation of all timer, visual indications, audible alarms and shutdowns of the ship's ventilation systems. The cylinders must be uncoupled to avoid accidental discharges. The ducts must be blown with dry air, nitrogen or another inert gas.
b) The contractor shall have sufficient full cylinders at the beginning of each day to blow the ducts throughout the inspection period to avoid delays
c) Demonstrate that all nozzles and distribution lines are free of obstructions. These tests require the disassembly and sealing of certain parts of the conduits to connect the pressurization cylinders for the tests. Each system must be returned to its original operating condition once the tests have been completed at the end of each day.

d) Check the proper functioning of all local or remote operating devices and time delays as well as temperature rise releases.
e) Ensure that the flexible hoses connecting the cylinders to the distribution pipes are watertight and in good condition.
f) The level of all cylinders in each system must be checked. A label must be affixed to the cylinder indicating the level of the cylinder.
g) It is agreed that fire equipment will be accessible and available in the event of an emergency and that adequate precautions will be taken when hot work is performed to complete the inspection.
h) In all cases where a fixed extinguishing medium cylinder is found defective, under its normal load or a hydrostatic test is required, the contractor will be responsible for removing the cylinder, emptying and filling it, returning it to its original location on board and connecting it. Give a unit price for each of the following categories:
   - Cylinder of 100 lbs. of CO^2, (front bank for hold and rear bank for diesel room, etc.)
   - 113 lbs. FM 200 cylinder, 113 lbs., (rear wheel chock)
   - 50 lbs. CO^2 cylinders. (each generator)
i) Perform all hydrostatic tests on fixed fire extinguishing cylinders that are due within the next 12 months.

10.1.3.3.3 Portable fire extinguishers

a) The contractor shall carry out the annual inspection of all portable fire extinguishers on board the vessel according to the list provided as a reference. The inspection shall be carried out on board the vessel. If for any reason the fire extinguishers are to be brought ashore, the chief officer or chief engineer shall be notified.
b) Each extinguisher will be removed from its wall bracket and inspected for any anomalies. The pressure gauges and the date of the last hydrostatic test will be checked.
c) All powder extinguishers equipped with a cartridge must have the cartridges checked and weighed.
d) Labels with the name of the contractor, date and initials of the person performing the inspection must accompany each fire extinguisher.
e) The contractor will repair, recharge any extinguisher found defective, at the bottom of its normal load and perform a hydrostatic test if necessary. The contractor will be responsible for removing the extinguishers, filling them up and replacing them in their respective locations.
   Provide a unit price for the following types of portable fire extinguishers:
   - ABC: 2.5, 5, 10, 15 and 20 lbs;
   - CO^2: 5, 10 and 15 lbs. ;
   - BC: 20lbs..;
   - AFF 9.5 litres;
f) Perform all hydrostatic tests and 6-year maintenance on portable fire extinguishing cylinders that are due within the next 12 months, see the list in the document entitled List of Fire Extinguishers in the Appendix.
g) Provide a replacement price for the fire extinguishers indicated for deduction.

Provide a unit price for the following types of portable fire extinguishers:

- ABC: 2.5, 5, 10, 15 and 20 lbs of the same type as the existing ones;
- CO^2 : 5, 10 Lbs. of type equivalent to those existing;
- BC: 20 lbs. of type equivalent to those existing;
- AFF 9.5 litres of type equivalent to those existing;

h) It is agreed that fire equipment will be accessible and available in case of emergency. Adequate protection will be provided when hot work is required to complete the inspection.

10.1.3.3.4 Fixed fire extinguishing system (Pyrochem) in the kitchen

a) The contractor will perform a complete annual inspection of the fixed kitchen system during the following hours from 13:00 to 15:30 or after 18:00 hours;
b) The contractor will check the proper functioning of ventilation stops, visual indications and fuses.
c) Local, remote and automatic operation devices must be checked.
d) The condition of the cylinder should be checked, its level and the date of the last hydrostatic test. The Pyrochem cylinder of the kitchen had its hydrostatic in September 2014.
e) The contractor will need to install a system-compatible cylinder if the current cylinder is to be removed and taken to the contractor's facility. The cylinder will only be removed if it is to be recharged or hydrostatically tested.
f) The contractor will have to renew the labelling once the inspection has been completed.

10.1.3.3.5 Flight Deck Fire Suppression Systems

a) Perform annual inspection and maintenance of fixed foam flight deck fire suppression systems, 1 Minute Man system, 1 Fire Combat system and a 3% foam central system;
b) The contractor must provide the sampling containers in order to take a sample of AFFF foam from the system: one from the gun system (Aero-Lite 3%), one from the Minute Man and one from each reserve lot indicated by the Chief Officer, therefore 4 samples in total.
c) See the reference document in appendix.
d) The analytical results of each sample shall be provided to the CCG.

10.1.4 Proof of performance

10.1.4.4.1 Inspection

The proper functioning of the equipment must be demonstrated in the presence of the Chief Officer or its representative.
The contractor shall provide a detailed inspection report including:
(a) list of work performed,
(b) list of replaced parts,
(c) list of hydrostatic tests, maintenance and refilling carried out on fixed or portable extinguishing cylinders.
(d) list of recommendations, if any.

10.1.4.4.2 Tests

The proper functioning of the equipment must be demonstrated to the Chief Officer.

10.1.5 Deliverables

10.1.1.5.1 Certification

The contractor must provide the Chief Officer with two paper copies of the inspection certificates with the original copy. The contractor will also send an electronic copy of the certificates to the ship's maintenance manager.

10.1.5.2 Report

The contractor must provide a complete report detailing the work replaced. The contractor shall provide the chief mechanic and maintenance manager with an electronic copy of the report in PDF format.

11 HULL AND RELATED STRUCTURE

11.1 REPLACEMENT OF THE FACADE – Boom crane control room

11.1.1 Scope:

The work consists of replacing the entire façade of the boom crane control room, including removing the current front, designing a new façade with new windows, replacing the floor covering and moving the manual emergency brake.

Note that the work will have to be done in conjunction with the replacement of wall panels on the boat deck and the officers' deck.

11.1.2 Reference:

a) Technical specifications NT-2727-18-DT001A and Navtech plans NT-2727-18-001, NT-2727-18-002 and NT-2727-18-500
b) Drawing 108-H-4410 Insulation plane
c) 17-1 Replacement of the load mast control consoles

11.1.3 Technical description:

Boom crane control room: General description of the work

The following is a brief description of the work to be done. The complete description of the work can be found in Navtech's specification entitled Martha L Black boom crane Control Room and on the final version of the reference documents.
The contractor must provide the material and labour to perform the following work:

- Dismantle all components that will need to be reused. The components to be reused will be identified at the beginning of the work by the chief officer and the chief engineer. See final version of document # NT-2727-18-500
- Remove the facade of the control room
- Modify the emergency brake at the location indicated on the final version of document # NT-2727-18
- Remove the floor covering. Note: contains asbestos
- Prepare all surfaces and submit them for AT inspection
- Provide and install the new facade including new windows, heated windows, and an option for unheated tempered marine windows, in case of late delivery
- On interior surfaces, apply 2 coats of primer paint, provided by the Canadian Coast Guard, 5 mils minimum dry film, to all clear surfaces.

- On exterior surfaces, apply 1 coat of primer paint and 2 coats of finish paint, provided by the Canadian Coast Guard, 5 mils minimum dry film for all surfaces.
- Provide equipment and prepare the floor to install a new floor covering.
- Provide and install the new floor covering
- Provide and install new windshield wipers (2)
- Provide and install insulation on the walls of the new facade and finish on the interior wall. Refer to the final version of Navtech document NT-2727-18 for specifications
- Reinstall all components to be reuse.

11.1.4 Proof of performance

Testing and Inspection

The proper functioning of the equipment must be demonstrated in the presence of the chief engineer and the person responsible for the maintenance of the vessel.
The contractor shall schedule NDT tests on new welds
The contractor shall demonstrate the watertightness of the new windows at the end of the installation

Report

The contractor must provide a report describing the materials used, their technical data sheet and installation details.
Provide up-to-date mechanical and electrical drawings in CAD version

11.2 MAIN MAST AND REAR MAST- Provide and install scaffolding

11.2.1 Scope:

The work consists of providing and installing scaffolding around the main mast and scaffolding around the aft mast.

11.2.2 Reference:

a) H29-10
b) Photo - Scaffolding

11.2.3 Technical description:

Provide and install approved scaffolding for the duration of the work.
Scaffolding will be used to do maintenance and painting work on the masts
Install a protective cloth around the scaffolding.
The front mast will be the first to be put into work and then the equipment will be transferred to the rear mast with one week to make the move.
On each mast, the scaffolding should remain in place for 4 to 6 weeks. The start date of the installation will be agreed with the ship's chief officer.

At the end of the work, remove the scaffolding.

11.3 - HELICOPTER HANGAR- Steel thickness readings on the rail base

11.3.1 Scope:

The work consists of providing the equipment and labour to take steel thickness measurements at the rail base for the helicopter garage.

11.3.2 Reference:

a) H3-3
b) Drawing - Helicopter garage

11.3.3 Technical description:

Take 50 ultrasonic steel thickness measurements on the rail base on each side of the hangar for a total of 100 measurements.
Measurements should be taken in the hatched area on the drawing (b)

11.3.4 Proof of performance

Testing and Inspection

The readings shall be taken in the presence of the chief engineer and the ship's maintenance manager or their representative.

Report

Provide a report of the measures taken.

11.4 SEA CHEST AND SEA BAY- Replacement of pipe sections

11.4.1 Scope:

The work consists of providing equipment and labour to replace 5 sections of vent pipes for the sea chest and the internal sea box

11.4.2 Reference:

a) 67-30-01 Diagram air & soundings
b) 67-30-02-01 Arrangement of air & sounding pipes fr 70-106
c) 67-30-02-02 Arrangement of air & sounding pipes fr 70-106
d) Drawing events

11.4.3 Technical description:

Provide equipment and labour to replace the sections of 5 vent pipes that cross the lower deck in the engine room.

The section to be replaced will start from the first junction below the floor of the lower deck to the last junction below the main deck, including the doubler. The approximate length of each section is 3m.

Port sea bay vent: diameter 6"
Starboard sea bay vent: diameter 6"
Port sea chest vent: diameter 3 inches
Starboard sea chest vent: diameter 3 inches
Evaporator sea bay vent: diameter 2.5 inches

The pipes will be sch40 with double hot-dip galvanizing

The contractor will be responsible for dismantling and reassembling wall and ceiling panels and all other components allowing him to access the pipes to be replaced.

11.4.4 Proof of performance

Testing and Inspection

The proper functioning of the equipment must be demonstrated in the presence of the chief engineer and the person responsible for the maintenance of the vessel.

Report

The contractor shall provide a report showing the work performed, the materials used and any other relevant information.

11.5 OUTDOOR Stairs - replacement of steps

11.5.1 Scope:

The work consists of providing the material and labour to replace:

a) the steps of 6 external stairs (11 steps per staircase).

b) Replace the step at the entrance to the cable room. (1 step)

11.5.2 Reference:

a) picture

11.5.3 Technical description:

A) Provide equipment and labour to replace the steps of the following 6 exterior stairs:
Upper deck to boat deck (Qty:2 stairs) aft of the ship
Boat bridge at the officers' deck (Qty:2 stairs) in the centre of the ship
Officers' bridge at the wheelhouse deck (Qty:2 stairs) aft of the wheelhouse

B) Provide equipment and labour to replace the step at the entrance to the cable passage room of the loading mast

On all new welds, apply two coats of primer and one top coat. The paint will be provided by the ship

The stairs are removable. The work can be done on site or in the workshop. Dismantle a maximum of 3 stairs at a time and on the same side.

Material to be used for the steps: Pressed galvanized serrated pressed grating steel. Same as the stairs already replaced on the front deck.

11.5.4 Proof of performance

Testing and Inspection

The proper functioning of the equipment must be demonstrated in the presence of the chief engineer and the person responsible for the maintenance of the vessel.

11.6 FUEL TANK – Gasket replacement for the access panel of the upper stabilization tank

11.6.1 Scope:

The work consists of providing the material and labour to replace the gasket on the access panel to the upper stability tank.

11.6.2 Reference:

a) Photo: 11.6-Flume panel

11.6.3 Technical description:

The contractor shall provide material and labour to replace the access panel gasket for the upper stability tank. The access panel is located in the winch room (engine room). The gasket will be made of nitrile and can be made into sections that will be assembled. The materials used must be resistant to diesel fuel.

The work consists of: removing the panel; cleaning the surface; supplying and installing a new nitrile gasket; replace the panel with new fasteners (Qty: 96).

Note :
The insulation material used on the bolts and access panel contains asbestos. The contractor will need to make the necessary arrangements when working on these components.
It is the contractor's responsibility to take the measures for the new gasket

11.6.4 Proof of performance

Testing and Inspection

The proper functioning of the equipment must be demonstrated in the presence of the chief engineer and the person responsible for the maintenance of the vessel.
At the end of the work a pressure test must be carried out on the tank (min 2 hours under pressure)

11.7 OUTDOOR WINDOWS - Replacement of 3 windows in the wheelhouse - OPTIONAL

11.7.1 Scope:

The work consists of providing labour to replace 3 windows in the wheelhouse:

11.7.2 Reference:

a) Photo: 11.7- Windows to replace

11.7.3 Technical description:

The contractor must provide labour to replace 3 windows located forward of the wheelhouse in the centre. The windows will be provided by the Coast Guard.

The work consists of:
Remove all accessories that must be removed to perform the work (e. g. windshield wipers)
Remove the finishing material inside the wheelhouse if necessary.
Remove the currently installed windows without damaging them.
Install new windows according to manufacturer's instructions
Reinstall all accessories that had been removed and re-finish.
The contractor shall take the necessary measures to protect all equipment around the working area.

Note: The insulation material used on bolts and window frames contains asbestos. The contractor will need to make the necessary arrangements when working on these components

11.7.4 Proof of performance

Testing and Inspection

The proper functioning of the equipment must be demonstrated in the presence of the chief engineer and the person responsible for the maintenance of the vessel.
Following installation, a leak test will be carried out by the contractor.

12 PROPULSION AND MANOEUVRING SYSTEMS

12.1 CYCLOCONVERTER- Cyclo-converter replacement

12.1.1 Scope:

This item is listed for information purposes only

Please note that work to replace the cyclo-converter will be in progress during the repair period.

12.2 PROPULSION TRANSFORMERS - Replacement of propulsion transformers - Optional

12.2.1 Range:

The contractor must provide equipment and labour to remove existing transformers and install new transformers provided by CCG.

12.2.2 Reference:

a) Replacement specification for propulsion transformers NT-275-19-DT001A in attached documents

12.2.3 Technical description:

General description

The contractor must provide the material and labour to perform the following work:

a) Dismantle and remove the existing propulsion transformers from the vessel.
b) Install new propulsion transformers

12.2.4 Proof of performance

Inspection

The proper functioning of the equipment must be demonstrated in the presence of the chief engineer and the person responsible for the maintenance of the vessel.

Report

Provide test reports for installation services.
Provide up-to-date mechanical and electrical drawings in CAD version

13 PRODUCTION OF THE SHIP'S ELECTRICAL POWER

13.1 AUXILARY GENERATOR – Add of stop blocks in the event of a collision

13.1.1 Scope:

The contractor must provide the equipment and labour to manufacture and install collision stop blocks for the C32 auxiliary generator

13.1.2 Reference:

a) 2983-04-00 George R Pearkes-New CAT C32 Genset Collision Chocks

13.1.3 Technical description:

The contractor shall provide the equipment and labour to manufacture and install collision stop blocks for auxiliary generator C32 as shown on drawing 2983-04-00

13.1.4 Proof of performance

Tests

Start-up and testing in the presence of the ABS inspector and the chief engineer and/or maintenance manager of the vessel.

Inspection

The proper functioning of the equipment must be demonstrated in the presence of the chief engineer and the person responsible for the maintenance of the vessel.

Report

Provide an installation report.

14 ELECTRICAL DISTRIBUTION

Not used

15 AUXILIARY SYSTEMS

15.1 OILY WATER SEPARATOR - replacement

15.1.1 Scope:

The contractor must provide equipment and labour to replace the oily water separator

15.1.2 Reference:

(a) 2.1.1.1_170-COM01000-0065_G_Angeb
(b) ows piping chart_001.pdf
c) 80-40-1 electrical plan

15.1.3 Technical description:

General description

The contractor must provide the material and labour to perform the following work:

a) Remove the separator currently in place and all its accessories.
b) Remove the old separator from the ship.
c) Prepare the seat for the new separator. The height of the separator seat will be determined with the chief engineer when the old separator is removed.
d) Make a new foundation for the ref: 2.1.1.1_170-COM01000-0065_G_Angeb.
e) Install the new separator in place
f) Make connections to the following systems:
   1-Bilge water: connect to the outlet of the double strainers
   2- Flusing water: connect after the junction between fresh water and seawater
   3- Overboard discharge: connect to line 2" near the rear watertight bulkhead
   4- Return to the oily water tank: connect to the return line to the 1.5" tank
   5- Connect the compressed air line
   6- Make the electrical connections as well as the connection to the alarm system
g) Provide up-to-date mechanical and electrical drawings in CAD version

15.1.4 Proof of performance

Tests

a) Start up
b) Running in recirculation mode in the presence of the ABS inspector and the chief engineer and/or maintenance manager of the vessel.

The proper functioning of the equipment must be demonstrated in the presence of the chief engineer and the person responsible for the maintenance of the vessel.

15.2 CERTIFICATION OF FUEL TRANSFER HOSES (DIESEL, GASOLINE, JET A-1)

15.2.1 Scope:

Perform hydrostatic checks and tests, as per RMA publication IP-11-4, on eight (8) fuel transfer hoses (diesel, gasoline and Jet A1). The work required for this item must be performed between September [1] and 15, 2019

15.2.2 Reference:

List of hoses

Two (2) CONTINENTAL extreme flexpetrolium diesel fuel transfer hoses, 3 in. dia. and 50 feet long. (Test at 300 psi).

One (1) Jet A-1 fuel transfer hose, 1½ in. dia. and 85 feet long (leave no trace of water in this hose): # 1217-3 (Q-054) (test at 300 psi).

One (1) Jet A-1 fuel transfer hose, 1½ in. dia. and 85 feet long (leave no water residue): # 1217-3 (Q-054) (test at 300 psi).

One (1) ¾ in. by 50 feet long fuel transfer hose. # 2751 (Q-053) (test at 225 psi).

One (1) 1 1/2" diesel hose by 60 feet long. # 87025 (Q-052) (test at 225 psi).

Two (2) Petroliom Goodyear hoses, ¾" x 50 feet long. (Q-051 and Q-050) (test at 225 psi).

15.2.3 Technical description:

General description

The contractor must provide the material, tools and labour to perform a hydrostatic test on the eight (8) hoses listed above in RMA publication IP-11-4.
The contractor must provide a price, at the time of bidding, for the disposal of water used for testing according to the environmental standards for the disposal of oily water.
The hoses will be given empty to the contractor and will have to come back empty.

15.2.4 Report

Provide a certificate attesting to the successful completion of the test for each hose.
The certificate will be valid for a period of 1 year from the date of issue.

16 DOMESTIC SYSTEMS

16.1 BLACK WATER SYSTEM - Annual maintenance

16.1.1 Scope

Completely empty the black water tank with a vacuum truck and provide 3 chemical toilets during system maintenance

16.1.2 Regulation

- Canada Shipping Act and Regulations
- Prevention of pollution from ships' wastewater

16.1.3 Technical description

Before emptying the tank, the contractor will provide the ship with 3 chemical toilets to be installed on the flight deck.
Provide the services of a vacuum truck to completely empty the black water holding tank (+- 8m3).
When the tank is emptied, the ship's crew will maintain the system (allow 72 hours).
When the maintenance is completed the contractor will be able to recover the 3 chemical toilets

16.1.4 Proof of performance

Inspection

The contractor shall show the chief engineer or his representative that the tank is empty.

16.1.5 Deliverable

Report

The contractor must provide a copy of the loading slip for the vacuum truck

16.2 REFRIGERATION AND COOLING SYSTEMS - Annual inspection and certification

16.2.1 Scope

Perform annual maintenance and inspection of refrigeration and air conditioning systems.

16.2.2 Regulation

- Canada Shipping Act and Regulations
- Federal Halocarbon Regulations, 2003
- *Environmental Code of Practice for the Elimination of Fluorocarbon Emissions from Refrigeration Systems - Environment Canada*

16.2.3 Technical description

16.2.3.1 Domestic Refrigeration

Type :

- Two (2) domestic compressors Model Carrier 5F30-C654,
- These systems operate at R-134.

a) Provide materials and labour to perform the following work:
   - Check the condition of the mechanical seals and replace if necessary, provide a price for this item (parts and labour)
   - Replace oil and desiccant filter
   - Open the bases for inspection and cleaning
   - Check and adjust the unloader
   - Check Start/stop adjustments, cutout and thermostatic valve.
   - Carry out a complete inspection of the systems.

b) Perform a refrigerant leak detection test. All piping must be checked, evenpiping in the ceiling at the main deck passageway. Make sure they are no leak. Ceiling tiles should be carefully removed for this inspection. They must be put back in place at the end of the work.

c) Check and clean the evaporators (8) and their defrosting system (8), in the four (4) chambers and the lobby.

d) Check the evaporator drain and their heating cable system. Make sure they are free for flow. Repair the insulation after this check.

e) For the quotation, include 10 kg of refrigeration gas.

f) Check and adjust all operating parameters.

g) The compressor in service will have its maintenance first, then it will be put back into service to service the second, and at the end of the maintenance of the second compressor will put it back into service. In such a way that the unit that was stopped at the beginning of the work is back in operation at the end of the work.

16.2.3.2 Air conditioning systems S1, S2 and S3

Type :
Two (2) compressors Unit S1and S2,
These systems operate at R4XX A
Compressor model S3(wheelhouse)06DM 3160FA0120.
These systems operate at R438A.

a) The contractor must provide the material and labour to perform the following work:
   - Carry out a complete inspection of the systems.
   - Perform a refrigerant leak detection test.
   - The refrigerant gas, if necessary, must be provided by the contractor via Form 1379.
   - Check all operating parameters.
   - Switch on the systems.
   - Make the necessary adjustments.

16.2.4 Proof of performance

Inspection

The proper functioning of the equipment must be demonstrated in the presence of the chief mechanic.

Tests

The chief engineer or his delegate must be present during the tests.

Certification

The contractor must provide the chief engineer with the original copies of the certificates and an electronic copy in PDF format. The contractor will also send an electronic copy to the person responsible for the maintenance of the vessel

16.2.5 Deliverable

Report

The contractor must provide a complete report detailing the work carried out, the cause of the failures (if any), the necessary modifications and the replaced parts.

The technician must be certified to the HRAI standard and provide his numbers to put on our files.

The contractor shall provide an electronic copy of the report in PDF format.

16.3 CLEANING THE KITCHEN HOOD AND THE UNDERSIDE OF THE COOKTOP

16.3.1 Scope

Carry out the annual cleaning of the hood, the ventilation duct of the range hood and the underside of the cooktop, the work must be carried out in the evening after 7pm.

16.3.2 Technical description

a) Clean and degrease the exhaust duct from the kitchen hood to the exhaust fan located on the starboard upper deck.
b) The contractor shall open and close the access panels for cleaning purposes. It will be necessary to remove ceiling tiles to reach the access panels
c) The hood and its components must also be cleaned.
d) The contractor must also clean the underside of the cooktop.

The contractor shall return the kitchen and cleaning product room to the same state of cleanliness as they were before the work. In addition, the waste must be disposed of by the contractor.

16.3.3 Proof of performance

Inspection

The contractor shall demonstrate to the chief engineer or his representative that the grease has been removed from the kitchen hood system and that it is clean.

16.3.4 Deliverable

Report

The contractor must provide a complete report that explains the work in detail.

17 DECK EQUIPMENT / SHIP SUPPORT SYSTEMS

17.1 BOOM CRANE- Replacement of the control consoles of the boom crane

17.1.1 Scope

The contractor shall provide and install a new console for the control room of the charging mast, replacing the existing console.

17.1.2 Reference:

a) Plan of the new console and parts list
b) N.G.C.C. Martha L. Black, diagram of controls for 275A•& 80A Hoist Drive drawings no. 06190-01 rev.7

17.1.3 Technical description

a) Remove the consoles currently in place, having previously identified all the required wiring (metal label).
b) Provide and install the new console.
   - the console will be manufactured according to the plan provided
   - The controls will be relay type.
   -All components and materials used in the manufacture of the console must be equivalent or superior to the components and materials indicated on the parts list that refers to the plan of the new console.
c) Make all connections
d) Carry out the tests
e) Provide up-to-date mechanical and electrical drawings in CAD version

17.1.4 Proof of performance

Inspection

The proper functioning of the equipment must be demonstrated in the presence of the ABS inspector and the chief mechanic.

17.1.5 Deliverable

Report

The contractor must provide a complete report detailing the work and including all certificates for new equipment.

The contractor will provide updated plans in CAD format, with all mechanical and electrical modifications.

Tests

Start up

17.2 Dumbwaiter- Annual maintenance

17.2.1 Scope

Annual maintenance and inspection of the dumbwaiter.
The work will be carried out between 1 September and 15 September 2019

17.2.2 Technical description

The contractor shall provide parts and specialized labour to perform the annual inspection and maintenance of the ship's dumbwaiter, in accordance with the guidelines in section 12 of CAN/CSA-B44-M90.

Dumbwaiter lift

i) Manufacturer : D. A. Mathot

ii) Model: 100

iii)Series: 17572

Following the work, update the maintenance logbook for the equipment

17.2.3 Proof of performance

Inspection and testing

The proper functioning of the equipment must be demonstrated in the presence of the chief mechanic.
The chief engineer must be present during inspections and tests.

Certification

The contractor must provide the chief engineer with the original copy of the inspection certificates at the end of the work. The contractor will also send an electronic copy of all reports and certificates to the vessel's maintenance manager.

17.2.4 Deliverable

Report

At the end of the work, the contractor must provide a complete report of the work performed, the cause of the failures (if any), the necessary modifications and the parts replaced. The contractor shall also provide the chief mechanic and the maintenance manager with an electronic copy in PDF of the report.