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CCGS AMUNDSEN

Work Specifications

Modification of Officers' Deck – Access to Lifeboats

PRESENTED TO
FISHERIES AND OCEANS CANADA — CANADIAN COAST GUARD

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TABLE OF ABBREVIATIONS, SYMBOLS AND TERMS

Description	French Français	Anglais English
CWB	Canadian Welding Bureau	Bureau Canadien de Soudage
cm	Centimetre	Centimètre
kg	Kilogram	Kilogramme
lb	Pound	Livre
m	Metre	Mètre
P	Port side	Bâbord
DFO-CCG	Fisheries and Oceans Canada – Canadian Coast Guard	Pêches et Océans Canada – Garde côtière canadienne
t	Metric tonne	Tonne métrique
TCMS	Transport Canada Marine Safety	Transports Canada Sécurité Maritime

1 INTRODUCTION

The work consists of changes to the exterior officers' deck of the icebreaker CCGS *Amundsen* near the port and starboard lifeboats.

The work will be monitored and inspected by TCMS and DFO-CCG until final acceptance of the work.

The Contractor will provide, unless otherwise specified in this document, the labour, technical assistance, tools, materials, and all equipment required to carry out the work. The Contractor will also provide all services required for dismantling, reassembling, transporting and handling all the equipment to be used during the work, in addition to disposing of solid and liquid debris. All of these services and products will have to be taken into account and included in each item involved.

1.1 DEFINITIONS AND ADDRESSES

The following definitions and addresses apply to the specifications in full, unless otherwise specified:

- The Owner and its representatives
Fisheries and Oceans Canada, Canadian Coast Guard
101 Champlain Boulevard
Québec City, Quebec G1K 7Y7
Person responsible: Pierre Collette
- The Contractor
The bidder chosen to carry out the work.
- Regulatory agency
Transport Canada Marine Safety
401-1550 D'Estimauville Avenue
Québec City, Quebec G1J 0C8
- Consultant
Navtech Inc.
105 Côte de la Montagne, Suite 701
Québec City, Quebec G1K 4E4

1.2 MAIN FEATURES

Vessel Name.....	CCGS AMUNDSEN
Vessel Type	Class 3 (1200) Arctic Icebreaker
Port of Registry	Ottawa, Ontario, Canada
Region.....	Quebec
Home Port	Port of Québec, QC, Canada
Official Number	383347
Year Built.....	1979
Builder.....	Burrard Dry Dock Ltd. Vancouver, BC, Canada
Hull Number.....	222
Overall Length	96.33 m
Length Between Perpendiculars	87.94 m
Moulded Length	19.51 m
Draft	7.16 m
Gross Tonnage	5911
Net Tonnage	1678
Cruising Speed	14 knots
Maximum Speed	16 knots

1.3 APPLICABLE ACTS AND REGULATIONS

This document was produced in compliance with the following acts and regulations:

- LLOYD'S REGISTER – *Rules and Regulations for the Classification of Ships* – July 2015.
- IACS No. 47 – *Shipbuilding and Repair Quality Standard* – 1999

1.4 REFERENCE MATERIAL

The reference documents listed below were made available by the vessel owner:

- FISHERIES AND OCEANS CANADA, Document no. 222-H-101-T revision A
General Arrangement, 2009-04-22
- BURRARD DRYDOCK LTD – plan n° 221-H-35 - *Deckhouse Boat Deck* – 02/24/1976
- BURRARD DRYDOCK LTD – plan n° 221-H-38 – *Officers Deck* – 02/24/1976

The Consultant has not verified these documents. The Contractor will need to check all relevant data before work begins and inform the Owner of any differences that could affect its bid.

The dimensional surveys were conducted aboard the CCGS *Pierre Radisson*. The arrangement of the CCGS *Amundsen* may differ from these surveys. The Contractor will be responsible for ensuring that work is feasible before starting work.

2 GENERAL CONSIDERATIONS

All dimensions, drawings, and specifications provided to the Contractor will have to be verified by the Contractor on board prior to execution, for example by first obtaining the necessary information from the various suppliers and manufacturers. All measurements of compatibility between existing and new equipment will be compiled and verified by the Contractor prior to the start of work; any incompatibilities identified will be communicated to the Owner's representative for appropriate instructions.

No changes to the plans or specifications or any additional work will be carried out by the Contractor without the prior written consent of the Owner's representative. This consent must indicate the type of work, the schedule agreed upon if required, and any additional costs if applicable.

All work included in these specifications must be accepted by the Owner by a procedure agreed upon before the start of work.

2.1 VESSEL USE

None of the ship's equipment will be used by the Contractor throughout the full duration of all work.

The Contractor will provide sanitary facilities for its employees. No ship equipment and/or facility will be used for this purpose.

2.2 EQUIPMENT SUPPLIED BY OWNER

The Owner will not supply any equipment for this work.

2.3 EQUIPMENT SUPPLIED BY CONTRACTOR

All equipment required to safely complete the work, including but not limited to scaffolding, cranes, and slings, will be provided by the Contractor, and the associated cost will be included in the bid.

All materials installed must be new, be up to code, and meet the specific requirements of DFO-CCG and TCMS.

2.4 FIRE SAFETY

Except in the event of an emergency, the ship's fire extinguishers may not be used. The Contractor must inform the owner at the start and end of any hot work. The Contractor must implement appropriate fire protection equipment for the full duration of the work.

2.5 HOT WORK

A hot work permit delivered by the Chief Engineer will be required before starting any grinding, welding or cutting work. Precautions must be taken to ensure the safety of the locations where this work is performed.

3 GENERAL DESCRIPTION OF WORK

3.1 SCOPE OF WORK

These specifications describe the work to be performed by the Contractor to modify the port and starboard officers' deck near the lifeboats.

3.2 WORK SITE

The work will be performed the next time the vessel is in the dry dock. The exact location of this stop will be determined later.

3.3 WORKING CONDITIONS

The Contractor must take the necessary measures to maintain an appropriate temperature and environment in the areas in which welding and painting work will be carried out. If necessary, temporary shelters may be constructed for this purpose.

The Contractor must ensure that the compartments affected by the work are sufficiently ventilated for the full duration of the work. Special attention must be paid to sufficiently remove smoke and other emissions to avoid disturbing the crew who live on board. The ventilation must operate 24 hours a day.

3.4 LIABILITY

The Contractor will be liable for all dismantled equipment from the start to the end of the work.

The Contractor will be liable for the equipment provided by the Owner starting from when it is delivered to the work site and for all other equipment and materials to be added to the vessel, until the end of the work.

Any damage to ship surfaces, equipment, supplies, or accessories caused by the Contractor or any of its sub-contractors during the work will be repaired at the Contractor's expense.

The Contractor will also be liable for any damages or inconveniences it causes that affect ship operations.

3.5 CLEAN-UP

The Contractor will clean, degrease and drain all surfaces, structures, compartments and equipment in the work zone.

Cleaning will be done regularly and no accumulation of debris or substances that are harmful or affect the safety of the sites will be tolerated on board.

The Contractor must leave the premises in the same state of cleanliness as that found prior to starting work.

3.6 MATERIALS

All materials used for the work will be new, unless otherwise specified, and must meet the applicable regulatory requirements and those of the Owner.

3.7 WELDING

All welding must be performed according to TCMS and Canadian Welding Bureau (CWB) standards.

The dimensions of all welds must be as indicated on the plans, except for special cases, which must be reported to the representatives of the Owner and TCMS.

Unless otherwise indicated, welds must begin at the fixed end of the parts and go toward the free end or the centre, as appropriate.

Temporary welds must be minimally attached and in no way restrict the movement of structures during final welds. Welds will be checked using X-rays and other methods, based on TCMS requirements, at the Owner's expense. The Contractor will cooperate fully with staff assigned to inspect welds and will provide the necessary support during this work.

Any staff assigned to welding must be certified by the CWB for the work required to modify the ship. All certified staff must visibly wear at all times a laminated ID card with their photograph and CWB certification number. Should welding staff fail to comply with the requirements described above, at the Owner's option work may be stopped and an exhaustive X-ray examination of all welds may be conducted entirely at the Contractor's expense.

Any weld found to be deficient based on the recognized acceptance criteria will be entirely redone at the Contractor's sole expense using a method approved beforehand by all normative organizations involved in welding quality.

3.8 REMOVAL OF EXISTING EQUIPMENT

The following section applies to the cabins located below the boat deck on either side of the vessel. The addition of a pillar between the officers' deck and the boat deck to support the added section of deck will require intervention in the cabins located below the boat deck to the right of the pillars.

3.8.1 General

All equipment in the work area must be dismantled and stored in a safe, dry location. The items listed below are the main equipment requiring the Contractor's intervention. This list is not exhaustive, and any item that could interfere with the work or be damaged during work must be moved or dismantled.

The Contractor must make sure to note the location of all equipment dismantled and to identify each item for future reinstallation.

A list of non-recoverable items with the budget to replace them must be produced once dismantling is completed and submitted to the Owner immediately.

3.8.2 Furniture

All furniture moved or dismantled for the work identified in these specifications must be stored in a dry, safe and secure location.

3.8.3 Ceiling cladding

All ceiling cladding, including the mounts supporting tiles adjacent to a work area identified in these specifications, must be removed, stored, and reinstalled at the end of work.

3.8.4 Ventilation

Any ventilation ducts in the work area that interfere with the installation of the equipment described in these specifications must be dismantled. Insulation for the exhaust ducts may contain asbestos, and the Contractor must take the necessary provisions to comply with health and safety standards for this type of work, if required.

3.8.5 Electrical cables and wires

All electrical power and control cables in the work area that could be affected by the work must be disconnected from power and wound outside the work area for reuse after the end of work.

3.8.6 Insulation

The insulation below the deck must be removed in the appropriate locations to perform the necessary welding work on the structure.

3.9 INSTALLATION

3.9.1 General

The Contractor must reinstall all dismantled equipment that is in good enough condition based on the Owner's criteria. Replacements must be of a type approved by TCMS and the Owner.

3.9.2 Furniture

Furniture must be reinstalled in its initial location.

3.9.3 Ceiling cladding

All ceiling cladding and mounts must be reinstalled in the places from which they came.

3.9.4 Ventilation

All dismantled ventilation ducts must be reinstalled. Supports must be in sufficient number for this type of vessel.

3.9.5 Electrical cables and wires

If any electrical cables need to be replaced, they must meet TCMS's requirements for the marine environment, as described in TP 127 *Ships Electrical Standards*. The allowable voltage in each cable must not be less than the nominal voltage of the circuit in which it is used.

3.9.6 Insulation

The dismantled insulation must be reinstalled if it is deemed acceptable by the Owner; otherwise, it must be replaced by an equivalent material.

3.10 LIFTING EYES

Before using the ship's lifting eyes or anchor points, the Contractor must test and certify the lifting eyes in accordance with the applicable laws in the province where the work takes place.

3.11 PREPARATION OF SURFACES FOR PAINTING

All surfaces to be painted must be cleaned and degreased. All new parts of the structure must be grit blasted and the corners grinded, based on the paint system supplier's guidelines.

3.12 PAINTING

All areas affected by the work must be painted. All paint will be supplied by the Contractor. There will be one (1) primer coat, followed by two (2) finish coats. One (1) stripe coat must be applied to all welds, borders, access holes, etc. before the primer coat is applied and before the first finish coat is applied.

Paint must be applied to all new metal surfaces and areas affected by the work as follows:

- Underside of the officers' deck: two (2) coats of ASTEK MarineCoat.
- Underside of the boat deck (underside of the added pillar): two (2) primer coats compatible with the existing primer. The surface must be prepared after welding and before painting.
- Surface of the officers' deck and the boat deck: two (2) coats of ASTEK MarineCoat.
- Handrails and drain (galvanized steel): An Intergard 345 epoxy primer must be applied with a dry film thickness of 3 mils, followed by an Interthane 990 coat with a dry film thickness of 2 mils. Before painting, surfaces must first be degreased and de-oiled and light sand blasting must be conducted to roughen the galvanized surface (or using sandpaper, depending on the area) to ensure that the surface is clean and dry.

All coats must be applied in accordance with the manufacturer's technical specifications, especially for the drying times between coats.

3.13 WORK SEQUENCE AND SCHEDULE

The Contractor must submit to the Owner a work strategy and a detailed work schedule including the start and end dates for each task and step. It must also provide an inspection plan with the steps when the Owner, its representatives, or TCMS inspectors are required to be present. Inspection notices must be issued at least 24 hours before the start of inspections.

The sequence and schedule must be approved by the Owner before the start of work.

4 DETAILS OF WORK

For the details of the work, refer to the plan:

- 2664-17-500 – *Modification of Officers' Deck – Access to Lifeboats*

4.1 ITEMS TO REMOVE

The main items to remove on both sides of the ship for the work are listed below:

- The port and starboard boat access stairs
- The port and starboard davit access stairs
- The handrails
- The existing coaming

4.2 ITEMS TO INSTALL

The main items to install on both sides of the ship for the work are listed below and in the plan 2664-17-500 – *Modification of Officers' Deck – Access to Lifeboats*

- The new deck section
- The handrail around the sections installed
- A step to access the boat, whose height must be adjusted aboard the ship
- A pillar between the officers' deck and the boat deck
- A deck drain

4.3 ITEMS TO MOVE

In addition to the equipment listed in section 3 of these specifications, the port lighting will need to be relocated to an appropriate place, to be agreed on with the Owner, after work is finished.

5 TESTING AND COMMISSIONING

All equipment reinstalled on the ship will be tested at the dock, including lifeboat davits, to ensure that there is no interference with the added items. All systems affected by the work must be tested. The Contractor must provide a list of the equipment that will be dismantled and reinstalled for testing and approval by the Owner's representative.

All tests will take place in the presence of the Owner and its representatives. All test results will be recorded and noted in a report provided to the Owner.

All new equipment installed on the ship must be commissioned, and the Contractor must demonstrate that it operates optimally and meets performance expectations, to the satisfaction of the Owner.

6 ACCEPTANCE OF WORK

Work will be deemed completed only after written acceptance of it by the Owner.

7 WARRANTY

The work performed by the Contractor must be guaranteed for a period of one (1) year from the date the work is accepted by the Owner.