

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

REPAIR OF THE WHARF (PHASE 2) LA ROMAINE

V/Ref. : R.088251.001

N/Ref. : R01009B

FOR TENDER

AUGUST 2017

CONSORTIUM



CIMA
WABAN-AKI



Public Works and
Government Services
Canada

**REPAIR OF THE WHARF (PHASE 2)
LA ROMAINE**

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SPECIFICATIONS

FOR TENDER

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Divisions	Sections		Number of page
00 <u>Specifications Group</u>	00 01 11	Table of Contents	2
01 <u>General Requirements</u>	01 11 01	Summary of Work	4
	01 14 00	Work Restrictions	2
	01 29 00	Payment Procedures	4
	01 29 83	Payment Procedures for Testing Laboratory Services	2
	01 32 16.07	Construction Progress Schedule – Bar (GANTT) Chart	3
	01 33 00	Submittal Procedures	4
	01 35 29.06	Health and Safety Requirements	15
	01 35 43	Environmental Procedures	4
	01 45 00	Quality Control	3
	01 51 00	Temporary Utilities	2
	01 52 00	Construction Facilities	5
	01 56 00	Temporary Barriers and Enclosures	2
	01 74 11	Cleaning	2
	01 74 21	Construction/Demolition Waste Management and Disposal	4
02 <u>Existing Conditions</u>	02 41 16.01	Structure Demolition – Short Form	3
03 <u>Concrete</u>	03 10 00	Concrete Forming and Accessories	3
	03 20 00	Concrete Reinforcing	4
	03 30 00.01	Cast-in-Place Concrete Short Form	6
05 <u>Metals</u>	05 50 00	Metal Fabrications	4

Appendix

Appendix A	Photography	52
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List of Drawings	Description	Sheet N°
1	Front Page	C01 of 08
2	General Layout and Operation area When Ship at the Wharf	C02 of 08
3	Existing Layout, Interventions Location	C03 of 08
4	Existing Layout, Interventions Location	C04 of 08
5	Existing Layout and Repair of Sheet Piles	C05 of 08
6	Typical Sections and Details	C06 of 08
7	Typical Sections and Details	C07 of 08
8	Typical Sections and Details	C08 of 08

A solid blue background with a white, folded-corner effect in the top-left corner, resembling a piece of paper. The text is centered in the lower half of the image.

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Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 14 00, Work Restrictions.
- .2 Section 01 29 00, Measurement.
- .3 Section 01 32 16.07, Construction Progress Schedule – Bar (GANTT) chart.
- .4 Section 01 56 00, Temporary Barriers and Enclosures

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- .1 This project will take place at the commercial wharf of La Romaine (Gethsemane) on the Lower North Shore. This village is located approximately 460 km from Sept-Îles and is accessible by air and by the maritime shipping services provided by Groupe Desgagnés.
- .2 Work of this Contract mainly consist of H piles reinforcement located within the wharf and of sheet pile repair in the tidal zone. Some maintenance construction is also part of this contract.
- .3 The following list of work is not necessarily complete and does not relieve the Contractor from his responsibility to perform any other work, change or modification required to complete the work of this contract:
 - .1 Reinforcement of 9 H piles located within the wharf (service space underneath the transfert slab) in the berthing sector by addition of bolts and/or welded steel shapes and steel plates;
 - .2 The repair of steel sheet pile by means of welded steel plates in various configurations;
 - .3 The replacement of 13 bolts on the wailing maintaining the sheet piles wall;
 - .4 The repair of the existing access door on the face of the sheet pile wall of the wharf;
 - .5 The repair of service ladders by adding ladder rung mainly located below the
 - .6 The concrete repair of two mooring bases;
 - .7 The repair of two expansion joints in the concrete slab of the wharf deck;
 - .8 The wharf deck concrete slab repair by casting mass concrete ;
 - .9 Refilling of the deck slab to be repaired foundation support by adding mass
 - .10 Fixation of the steel plate on top of the wharf deck including steel cutting work, by addition of L shapes welded to the existing steel plates and by the addition of chemical anchors to the concrete slab underneath.

1.3 WORK SEQUENCE

- .1 Construct Work in stages to accommodate the use of premises by Transport Canada during construction.
- .2 Co-ordinate Progress Schedule during construction.

1.4 CONTRACTOR USE OF PREMISES

- .1 Limit use of premises for Work to allow:
 - .1 Continued operation of the Basse-Côte-Nord maritime services by Groupe Desgagnés and handled by Relais Nordik;
 - .2 The delivery of fuel on behalf of La Fiducie en approvisionnement de carburant de la Basse-Côte-Nord.
- .2 Coordinate the use of the premises as specified on the drawings and as directed by the Departmental Representative.
- .3 During the stopovers of maritime services, hire a controller placed at the entrance of the wharf in order to limit access to authorized persons only, and to the equipment and vehicles required for unloading and loading of cargo. Apart from these activities, maintain the barrier at the entrance of the wharf closed.
- .4 If necessary, find the additional work or storage areas required for the performance of work under this contract and assume all costs.
- .5 At work completion, the existing structure should be in a condition equal to or better than it was at the outset of the work.

1.5 OCCUPANCY BY THE DEPARTMENTAL REPRESENTATIVE

- .1 Transport Canada will occupy premises during the entire construction period for the conduct of normal operations.
- .2 Co-operate with the Departmental Representative in scheduling operations to minimize conflict and to facilitate the Departmental Representative usage.
- .3 Ensure access to building at all times.

1.6 SITE VISIT

- .1 No visit of the site will be organized by the Departmental Representative. The Contractor may, however, visit the site to examine site conditions and assess the condition of the facilities, the constraints and difficulties which might hinder the execution of work, including among others the incidence of tides, harsh weather conditions and exposure of the work site to the latter and any other conditions likely affect the execution of work.
- .2 The Contractor shall become aware of tidal conditions on the following website:
<http://www.niveauxdeau.gc.ca/eng>.
- .3 Deficient knowledge of local conditions may not be argued to claim additional amounts of money or work extension.

1.7 PROJECT MEETINGS

- .1 Departmental Representative will organize site meetings to be held every three (3) weeks and will draft the minutes.
- .2 The Contractor shall make arrangements to provide a room or other space to hold the meetings.

1.8 ESTABLISHMENT OF WORK

- .1 Assume full responsibility for implementing the work and ensure the full execution with respect to indicated locations, lines and levels.
- .2 Before starting work, the Contractor shall verify all field measurements and notify the Departmental Representative of any error or mismatch.
- .3 All elevations indicated on the drawings refer to chart datum (tidal datum).

1.9 EXISTING UTILITY SERVICES

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.10 REQUIRED DOCUMENTS

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Directives of construction site.
 - .5 Reviewed Shop Drawings.
 - .6 List of Outstanding Shop Drawings.
 - .7 Change Orders.
 - .8 Field Test Reports.
 - .9 Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.
 - .11 Other documents as specified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 01, Work related general information.
- .2 Section 01 35 29.06, Health and safety requirements.
- .3 Section 01 35 43, Environmental procedures.

1.2 USE OF SITE AND FACILITIES – GENERAL REQUIREMENTS

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Safety may not be reduced due to construction activities. Provide other temporary measures to ensure the safety of persons and property.
- .4 Closures: protect work temporarily until work completion.

1.3 CAPACITY OF EXISTING STRUCTURES

- .1 The rehabilitation project is required by the existing conditions of the structural components of the wharf, several of which have reached the end of their useful life. The Contractor shall therefore foresee a work plan taking into account the condition of the wharf.
- .2 Permissible surcharge loading:
 - .1 Storage on large surface areas of the deck: maximum 5 kPa (510 kg/m²).
 - .2 Concentrated loads and loads related to rolling stock:
 - .1 Full restriction within one (1) metre of the wharf face.
 - .2 Operation of equipment prohibited within 3 m of any storage area on the wharf.
 - .3 Stress transferred to the transfer slab shall never exceed 5 kPa taking into account load distribution in the fill of the wharf; use a recognised engineering computational method.
 - .4 For information and solely for the planning of working methods, please find below two instances of stress as applied to the transfer slab:
 - .1 Telescoping lift truck (sky track type) with operating weight of 12 000 kg and a 2,8 m x 2,4 m footprint: 3,6 kPa on the transfer slab.
 - .2 Platform on wheels with operating weight of 10 000 kg and a 2,5 m x 2,9 m footprint: 3,0 kPa on the transfer slab.
 - .5 Contractor to provide the technical sheets of the equipment he intends to use, together with his method of work no later than two (2) weeks before mobilization to the site for validation by the Departmental Representative.

- .3 Any specific loading case must first be submitted to the Departmental Representative for approval. Allow three (3) business days for analysis.

1.4 MARITIME SERVICES

- .1 Ensure safe navigation, berthing and mooring. Provide free access to the wharf for maritime services of the N/M Bella Desgagnés operated by Relais Nordik.
- .2 For the schedule of the 2015-2016 maritime services and the arrival and departure planned at La Romaine wharf, visit <http://www.relaisnordik.com/en/home/24.aspx>.
- .3 For information related to the Relais Nordik operations on the wharf, refer to drawing C02.

1.5 FUEL DELIVERY OPERATIONS

- .1 The Contractor is aware that the delivery of fuel from a tanker is performed twice a year, in June and December.
- .2 If applicable, ensure safe navigation, berthing and mooring of the tanker at the wharf, as well as the free circulation on the site to the Fiducie en approvisionnement de carburant de la Basse-Côte-Nord who is responsible of pumping the fuel to the refuelling tanks.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 – General

1.1 RELATED SECTIONS

- .1 Section 01 11 01, Work Related General Information.

1.2 METHOD OF MEASUREMENT

- .1 Unless otherwise indicated, the provision of expertise and the supply of materials, labour, tools, equipment, protection, transportation, administrative costs, profit, financing, etc., required to complete the work of this contract are included in each of the items described below.
- .2 Tendered prices shall include the cost of miscellaneous work which, although not specified in the contract documents, are customary and necessary for the completion of works required under this contract so that such works fulfill their intended use.
- .3 The Contractor shall provide, no later than two (2) weeks after notice of acceptance of offer the detailed breakdown of each item measured as an inclusive (global) unit for approval by the Departmental Representative.
- .4 The method of measurement for the categories of labour, tools, equipment or materials required to perform the work of this project is as follows:

- .1 ITEM NO 01 – MOBILIZATION

- This item will be paid following delivery of facilities to the site.

- .2 ITEM NO 02 - DEMOBILIZATION

- This item will be paid when the site facilities have been removed; includes final cleaning of the site.

- .3 ITEM NO 03 – SITE ORGANIZATION

- This item will be paid in proportion to the work performed and includes all project work that is not itemized on the bid form, as well as all the items covered by the following specification sections:

- .1 01 11 01 – Work Related General Information.
 - .2 01 14 00 – Work Restrictions.
 - .3 01 29 83 – Payment Procedures for Testing Laboratory Services.
 - .4 01 32 16.07 – Construction Progress Schedule - Bar Chart (Gantt).
 - .5 01 33 00 – Submittal Procedures.
 - .6 01 35 29.06 – Health and Safety Requirements.
 - .7 01 35 43 – Environmental Procedures.

- .8 01 51 00 – Temporary Utilities.
- .9 01 52 00 – Construction Facilities.
- .10 01 56 00 – Temporary Barriers and Enclosures.
- .11 01 74 11 – Cleaning.
- .12 01 74 21 – Construction/Demolition Waste Management and Disposal.

The site organization fees is calculated considering the repair of 9 H piles in addition to any other work shown on plans and specification. Any activity related to the continuity of operations at the wharf is also included in this item.

.4 ITEM NO 04 – ACCESS DOOR REPAIR

This item includes the supply and installation of any required material for the reinstallation of the access door, as shown on drawing. It includes any required partial demolition, preparation and adjustment work on site to ensure a proper installation.

The activities of this payment item include, without limitation, the recuperation of the plates composing the door on site, the assembly and installation of steel components to create the new fixation method of the access door, in addition to the reinstallation of the access door to the sheet piles.

.5 ITEM NO 05 – STEEL SHEET PILE REPAIRS

This item includes, without limitation, surveying the actual dimensions of the repairs to be performed, the fabrication of steel plates and other elements comprising the work, surface preparation and installation. It is important to note that the details shown on the drawings are intended to indicate the repair design principle and it is expected that the Contractor will adjust the concept to the geometry and alignment of the elements on site, which vary with their location.

.6 ITEM NO 06 – REPAIR OF THE H PILES UNDER THE TRANSFER SLAB

This item includes the supply, the fabrication and the installation of the pile repair elements, as well as all the elements required for their adjustment on site, all as shown on plans.

This item also includes a final video inspection of the repairs performed toward the acceptance of the work.

.7 ITEM NO 07 – REPLACEMENT OF THE WALER BOLTS IN THE PILE WHARF

This item includes, without limitation, the removal and disposal of defective bolts and nuts; the cutting of bolts and concrete removal where required; the supply of new assemblies (bolts, nuts, plates, etc.) and the installation of the new assemblies.

This item also includes a final video inspection of the repairs performed toward the acceptance of the work.

.8 ITEM NO 08 – DECK STEEL PLATES REPAIRS

This item includes, the supply and installation of the L shapes in order to fix the steel plates to the concrete slab of the deck. It includes the supply and installation of fixation hardware and of chemical anchoring product to be install to the concrete slab. It includes the cutting of the steel plates, the shaping of the plates (including welding work), all, as indicated on plans and specifications. It includes all required material and adjustment work on site.

.9 ITEM NO 09 – REPAIR OF JOINTS IN THE CONCRETE SLAB

This item includes, without limitation, the definition, with saw cuts, of the area to be demolished, concrete demolition and disposal of demolition materials; cleaning and preparation of the area to be repaired; placement of the repair concrete and curing; saw cuts and introduction of sealant into the joint.

.10 ITEM NO 10 – REPAIR OF CONCRETE MOORING BASES

This item includes, without limitation, the definition, with saw cuts, of the area to be demolished, concrete demolition and disposal of demolition materials; cleaning and preparation of the surface to be repaired. This item includes the supply and installation of the forms (and removal), of any steel required for the concrete repair, the concrete, the curing, all, as indicated on plans and specifications.

.11 ITEM NO 11 – REPAIR OF CONCRETE SLAB

This item includes, without limitation, the definition, with saw cuts if required, the excavation of materials and disposal of demolition materials; cleaning and preparation of the surface to be repaired. This item includes the supply and installation of the forms (and removal), of the concrete, the curing, all, as indicated on plans and specifications.

.12 ITEM NO 12 – REPAIR OF CONCRETE SLAB FOUNDATION SUPPORT

This item includes, without limitation, the excavation and disposition of the material for the placement of the concrete to the satisfaction of the Departmental Representative, the supply and installation of the concrete,

the curing, all, as indicated on plans and specifications.

.13 ITEM NO 13 – ADDITION OF LADDER RUNGS TO THE
SERVICES LADDERS

This item includes, but is not limited to, the supply and installation of the steel ladder rung to be added to the existing services ladders, as indicated on plans and specifications. This item includes the preparation of the steels and any other means required to the execution of the work below the water level, and it includes all related fees.

Part 2 - Products

2.1 NOT USED

.1 Sans objet.

Part 3 - Execution

3.1 NOT USED

.1 Sans objet.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under diverse technical sections as follows.

1.2 APPOINTMENT AND PAYMENT

- .1 Departmental Representative will appoint and pay for services of testing laboratory except follows:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Mill tests and certificates of compliance.
 - .4 Tests specified to be carried out by Contractor under supervision of Departmental Representative.
 - .5 Additional tests specified under the article 1.2.2 as follows:
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

1.3 CONTRACTOR'S RESPONSIBILITIES

- .1 Provide labour, equipment and facilities to:
 - .1 Provide access to Work for inspection and testing.
 - .2 Facilitate inspections and tests.
 - .3 Make good Work disturbed by inspection and test.
 - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Notify Departmental Representative at least 48 hours in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 01, Work related general information.
- .2 Section 01 14 00, Work restrictions.
- .3 Section 01 35 29.06, Health and safety requirements.
- .4 Section 01 35 43, Environmental procedures.

1.2 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.3 REQUIREMENTS

- .1 The Contractor shall commence work immediately after receiving notice of acceptance of offer.
- .2 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .3 Plan to complete Work in accordance with prescribed milestones and time frame.

- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.
- .5 The Contractor is responsible for planning all his work and deadlines taking into account the continuity of the services he must provide and other directions as specified in Section 01 14 00, Work Restrictions.
- .6 Where it is foreseeable that the deadlines or work completion date will not be met, the Contractor shall, and at no additional cost to the Departmental Representative, take one or more of the following measures: increase labour, increase working time or take other actions to eliminate the backlog of work.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit to Departmental Representative within 10 working days of notice of acceptance of offer Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .2 Submit detailed Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

1.5 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
 - .1 The mobilization to the work site should be completed no later than fifteen (15) working days after notice of acceptance of offer.

1.6 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Departmental Representative will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become the Master Plan used as baseline for updates.

1.7 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Preparation and approval of the safety program and contingency plan.
 - .3 Submittal of permits, authorizations and certificates of conformity.
 - .4 Execution of field measurements.
 - .5 Submittal and review of shop drawings, samples.
 - .6 Ordering, fabrication, shipping and delivery of materials and structural elements.

- .7 Mobilization.
- .8 Repair of the access door.
- .9 Repair of the sheet piles.
- .10 Repair of the piles.
- .11 Repair of the concrete slab.
- .12 Repairs to the concrete slab.
- .13 Replacement of the waler bolts.
- .14 Fixation of the steel plates to the concrete slab.
- .15 Repair of the concrete mooring bases.
- .16 Addition of ladder rungs to the service ladder.
- .17 Cleaning and overhaul of the site.
- .18 Demobilization.

1.8 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on biweekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.9 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Provide Departmental Representative with submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .9 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 When requested, submit drawings stamped and signed by professional engineer registered or licensed in Province of Québec.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 7 working days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Technical characteristics.
 - .5 Standards.
 - .6 Operating weight.
 - .7 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit one electronic copy of shop drawings for each requirement requested in specification Sections or as Departmental Representative may reasonably request.
- .11 Submit one electronic copy of product data sheets or brochures for requirements requested in specification Sections or as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit one electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

- .13 Submit one electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit one electronic copy of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit one electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Submit one electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.3 SAMPLES

- .1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.

- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 MOCK-UPS

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.5 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic copy of colour digital photography in jpg format, fine resolution monthly with progress statement.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 8 locations.
 - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: monthly or as directed by Departmental Representative.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDE

- .1 The Contractor shall manage his activities so that the health and safety of the public and personnel on site, and the protection of the environment always have precedence over issues related to the cost and schedule of work.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA).
- .2 Workplace Hazardous Materials Information System (WHMIS)/Health Canada.
 - .1 Materials safety data sheets (MSDS).
- .3 An Act Respecting Occupational Health and Safety, L.R.Q. Chap. S-2.1.
- .4 Safety Code for the construction industry, S-2.1, r.4.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 At least three (3) weeks prior to the mobilization of the workforce, forward to the Departmental Representative, the CNESST and ASP Construction (Association paritaire en santé et sécurité du secteur de la construction) the site-specific prevention program described in section 1.8. The Departmental Representative will review the health and safety plan prepared by the Contractor for the construction site and will provide observations within seven (7) working days of the receipt of this document. If necessary, the Contractor will revise the health and safety plan and resubmit to the Departmental Representative within three (3) business days after receipt of the observations.
- .3 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as an approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .4 Submit to Departmental Representative the worksite/workplace inspection sheet, duly completed at intervals indicated in article 1.12.1.
- .5 Submit to Departmental Representative within 24 hours one copy of any inspection report, correction notice or recommendation issued by federal or provincial inspectors.
- .6 Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.
- .7 Submit to Departmental Representative all material safety data sheets for controlled products to be used at the worksite/workplace at least three (3) days before they are to be used on the worksite/workplace.
- .8 Submit to Departmental Representative copies of the training certificates required toward the application of the safety program, namely:
 - .1 General construction site safety and health courses;
 - .2 First aid in the workplace and cardiopulmonary resuscitation;

- .3 Training certification in professional diving;
- .4 Work in confined spaces;
- .5 Lockout procedures;
- .6 Any other training called for by regulation or the safety program.
- .9 Medical examinations: where legislation, regulations, directions, specifications or a safety program require medical examinations, the Contractor shall:
 - .1 Prior to mobilization, submit to Departmental Representative the certificates of medical examination for all concerned supervisory staff and employees who will be on duty when the worksite/workplace opens.
 - .2 Thereafter, submit without delay certificates of medical examination for any newcomers to the worksite/workplace who are designated in the first paragraph of this article.
- .10 The emergency plan, as defined in article 1.8.3 - Safety and Health Management, shall be submitted to Departmental Representative at the same time as the site-specific safety program.
- .11 Notice of site opening: Notice of site opening shall be submitted to the Commission de la santé et de la sécurité du travail (CNESST - Québec) before work begins. A copy of such notice shall be submitted to Departmental Representative at the same time and another posted in full view on the worksite. At demobilization, a notice of site closing shall be forwarded to CNESST, with copy to Departmental Representative.
- .12 Engineering plans and certificates of compliance: the Contractor shall provide the CNESST and the Departmental Representative with a copy of all plans and certificates of compliance signed and sealed by an engineer as required in the Construction Safety Code (S-2.1, r. 6) or by any other legislation or regulation or by any other clause in the specifications or in this contract. A copy of these documents must be on hand at the site at all times.
- .13 Certificate of compliance delivered by CNESST: The certificate of compliance is a document delivered by CNESST certifying that the Contractor is in good standing with CNESST, i.e., that he has paid out all the benefits concerning any given contract. This document must be provided to Departmental Representative at work completion.

1.4 SAFETY ASSESSMENT

- .1 The Contractor must identify all hazards inherent to each task to be carried out at the site.
- .2 The contractor must plan and organize work so as to eliminate hazards at the source or promote mutual protection so that reliance on individual protective gear can be kept to a minimum. Where individual protection against falls is required, workers shall use a safety harness that meets CAN/CSA-Z-259.10-M90 requirements. Safety belts shall not be used as protection against falls.
- .3 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work at hand.

- .4 All mechanical equipment shall be inspected before delivery to the work site. Before using any mechanical equipment, submit to Departmental Representative a certificate of compliance signed by a qualified mechanic. Whenever he suspects a defect or the risk of an accident, the Departmental Representative may order the immediate shut-down of equipment and require a new inspection by a specialist of his own choosing.
- .5 For any use of hoisting equipment to lift persons or materials, ensure that the inspections required by applicable regulations made and be able to submit a copy of the inspection certificate upon request by the Departmental Representative.

1.5 MEETINGS

- .1 A Contractor's representative who has decisional ability must attend all meetings at which site safety and health issues are to be discussed.
- .2 The Contractor shall set up a site safety committee, and convene meetings in accordance with the Construction Safety Code.

1.6 REGULATORY REQUIREMENTS

- .1 Comply with all legislation, regulations and standards applicable to the Work at hand.
- .2 Comply with specified standards and regulations to ensure safe operations on sites contaminated with hazardous or toxic materials.
- .3 Regardless of the publication date shown in the construction safety code, always use the most recent version applicable.

1.7 PROJECT/SITE CONDITIONS

- .1 The personnel in charge of construction activities on the work site will be exposed to the following elements which must be factored in the Contractor's safety plan:
 - .1 Work in the vicinity of a water body;
 - .2 Work on piles in a cluttered environment;
 - .3 Work on piles in confined spaces;
 - .4 Diving work in a cluttered environment;
 - .5 Continued operations of the N/M Bella Desgagnés maritime services;
 - .6 Line of oil and gas present in the fill of the dock;
 - .7 Wharf with structural deficiencies (specify security measures to prevent the risks related to this situation).

1.8 GENERAL REQUIREMENTS

- .1 Acknowledge and assume all the tasks and obligations which customarily devolve upon a Head Contractor under the terms of the Act Respecting Occupational Health and Safety (R.S.Q., chapter S-2.1) and the Construction Safety Code (S-2.1, r.4).

- .2 The Contractor shall prepare a specific worksite/workplace safety program based on hazard identification and apply it from the start of project until close-out is completed. The safety plan must take into account the information provided in article 1.7. It must be distributed to all persons concerned as required in article 1.3. At minimum, the safety program shall include:
 - .1 Company safety and health policy;
 - .2 A description of the work, total costs, schedule and projected workforce curve;
 - .3 Flow chart of safety and health responsibility;
 - .4 The physical and material layout of the site;
 - .5 First-aid and first-line treatment standards;
 - .6 Identification of site-specific hazards;
 - .7 Risk assessment for the tasks to be carried out, including preventive measures and the procedures for applying them;
 - .8 Training requirements;
 - .9 Procedures in case of accident/injury;
 - .10 Written commitment from all parties to comply with the prevention program;
 - .11 A site inspection schedule based on the preventive measures.
- .3 The contractor must draw up an effective emergency plan based on the characteristics and constraints of the site and its surroundings. Submit the emergency plan to all parties concerned, pursuant to the provisions of article 1.3. The emergency plan must include:
 - .1 Evacuation procedure;
 - .2 Identification of respondents (police, firefighters, ambulance services, etc.);
 - .3 Identification of persons in charge at the site;
 - .4 Identification of first-aid attendants;
 - .5 Training required for those responsible for applying the plan;
 - .6 Any other information needed, in the light of the site characteristics.

1.9 RESPONSIBILITY

- .1 No matter the size of the construction site or how many workers are present at the workplace, designate one (1) competent person to supervise and take responsibility for health and safety. Take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the site and likely to be affected by any of the work.
- .2 Take all necessary measures to ensure application of and compliance with the safety and health requirements of the contract documents, federal and provincial regulations and applicable standards as well as the site-specific safety program, complying without delay with any order or correction notice issued by CNESST.
- .3 Take all necessary measures to keep the site clean and in good order throughout the course of the work.

1.10 COMMUNICATIONS AND POSTING

- .1 Make all necessary arrangements to ensure effective communication of safety and health information at the site. As they arrive on site, all workers must be informed of their rights and obligations pertaining to the site specific safety program. The Contractor must insist on their right to refuse to perform work which they feel may threaten their own health, safety or physical integrity or that of other persons at the site. The Contractor must keep on the site and update a written record of all information transmitted with signatures of all affected workers.
- .2 The following information and documents must be posted in a location readily accessible to all workers:
 - .1 Notice of site opening;
 - .2 Identification of Principal Contractor;
 - .3 Company OSH policy;
 - .4 Site-specific safety program;
 - .5 Emergency plan;
 - .6 Material safety data sheets (MSDS) for all hazardous material used at the site;
 - .7 Minutes of site committee meetings;
 - .8 Names of site committee representatives;
 - .9 Names of first-aid attendants;
 - .10 Action reports and correction notices issued by CNESST.

1.11 UNFORESEEN HAZARDS

- .1 Whenever a source of danger not defined in the specifications or identified in the preliminary site inspection arises as a result of or in the course of the work, immediately suspend work, take appropriate temporary measures to protect the workers and the public and notify Departmental Representative, both verbally and in writing. Then the Contractor must modify or update the site specific safety program in order to resume work in safe conditions.

1.12 WORKPLACE INSPECTION AND CORRECTION OF HAZARDOUS SITUATIONS

- .1 Proceed to inspection of worksite and fill the worksite inspection schedule at least once a week.
- .2 Immediately take all necessary measures to correct any lapses from legislative or regulatory requirements and any hazards identified by a government inspector, by the Departmental Representative, by the site safety and health coordinator or during routine inspections.
- .3 Submit to Departmental Representative written confirmation of all measures taken to correct lapses and hazardous situations.
- .4 Work interruption: Give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order interruption and resuming of work as and when deemed necessary or desirable in the interests of safety and health. This person should always act so that the safety and health of the public and site workers and environmental protection take precedence over cost and scheduling considerations.

- .5 Without limiting the scope of sections 1.8 and 1.9, the Departmental Representative may order cessation of work if, in his/her view, there is any hazard or threat to the safety or health of site personnel or the public or to the environment.

1.13 BLASTING

- .1 Blasting or other use of explosives is not permitted.

1.14 POWDER ACTUATED DEVICES

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.
- .2 Any person using a power fastener must hold a training certificate and comply with all the requirements of section 7 of the Safety Code for the construction industry (S-2.1, r.4).
- .3 Any other such device must be used according to manufacturer's instructions and applicable standards and regulations.

1.15 HOT WORK

- .1 Hot work: means work and activities where a flame is used or sparks are produced such as in welding, cutting, riveting, drilling, grinding, burning and heating.
- .2 Before beginning work, receive from the wharfinger, who is responsible for the place of work, the "hot-work permit" where work involves hot work. A permit must be issued for each work shift. Refer to the attached form in Appendix B.
- .3 Similarly, make sure before starting work on the absence of any trace of oil in water.
- .4 Keep one (1) hand extinguisher in working order and adequate for the risk at hand in the work area within 5 m of any flame, sparks or intense heat.
- .5 Designate a person to make the round (fire) for a minimum period of 60 minutes after the end of the work shift. This person shall countersign the permit and give it back to the person for the place of work (or his representative) after the 60-minute period.
- .6 The storage of propane cylinders must comply with CAN/CSA-B149.2, Propane Storage & Handling Code, in addition to meeting the specific conditions set out in this document. Cylinders must be stored outdoors in a safe place, free from tampering, in a storage cabinet designed for this purpose, held securely upright and locked at all times, where there is no movement of vehicles unless protected by barriers or equivalent measures.
- .7 All propane cylinders used or stored on construction sites shall be provided with a collar designed to protect the valve.
- .8 The filling of propane cylinders on site is prohibited unless the procedure is compliant with CAN / CSA B149.2 and approved and authorized by Departmental Representative.

1.16 WELDING AND CUTTING

- .1 Welding and cutting must be executed in accordance with article « 3.13. Supply of compressed gas » and « 3.14. Welding and Cutting » of the Safety Code for the Construction Industry, S-2.1, r.6.

- .2 Welding and cutting devices are extreme fire hazards on construction sites. The following precautions should be taken in this type of work:
 - .1 Store compressed gas cylinders on a fireproof surface and make sure the area is well ventilated.
 - .2 Store all oxygen cylinders at minimum distance of 6 meters from flammable gas cylinders (i.e., acetylene) or combustible materials such as oil or grease, unless separated by a non-combustible partition as specified in Article 3.13.4. Safety Code for the Construction Industry, S-2.1, r.6.
 - .3 Install fireproof canvas where welding works are superimposed and where there is a risk of falling sparks.
 - .4 Store all cylinders away from any heat sources.
 - .5 Do not put acetylene in contact with metals such as silver, mercury, copper, and brass alloys containing more than 65% copper, to avoid the risk of an explosive reaction.
 - .6 Ascertain that arc welding equipment is supplied with the required voltage and is grounded.
 - .7 Ascertain that arc welding wire conductors are not damaged.
 - .8 Place welding equipment on level ground and sheltered from weather conditions.
 - .9 Move away or cover combustible materials that may be near the welding set-up.
 - .10 Do not weld or cut any closed container.
 - .11 Provide protection measures when welding or cutting is performed near piping, tanks or other containers of flammable materials.
 - .12 Do not make any cutting, welding or any open flame work on a container, tank, pipe or other container that may contain flammable or explosive substance unless:
 - .1 Air samples were collected indicating that the job can be carried out safely, or
 - .2 Measures have been taken to ensure the safety of workers.

1.17 HOISTING OF MATERIALS

- .1 Locate lifting equipment in such way that loads do not travel over the heads of workers, of occupants and the public, and that loads comply with the load restrictions on the wharf.
- .2 Forward to the Departmental Representative a working procedure, including among others the position of the crane, the mast length and maximum weight of loads to be handled.
- .3 All mobile cranes manufactured after 1 January 1980 must be fitted with an overload protection device.
- .4 All mobile cranes with cables, except where used for other ends than lifting loads, must be provided with a safety device against twoblocking.
- .5 The Contractor shall provide the Departmental Representative with a mechanical service inspection certificate for each lifting device. Inspections must be carried out just prior to the delivery of the equipment to the work site.

- .6 In addition to the mechanical service inspection certificate, the annual inspection certificate and the crane logbook must be aboard all crane and crane-truck cabs.
- .7 The entire lifting area shall be closed off to prevent non-authorized people from entering.
- .8 Make a thorough inspection of all slings and lifting accessories to ensure that material in poor condition is destroyed and disposed of.
- .9 Lift compressed gas cylinders with a basket specially designed for this purpose.

1.18 SCAFFOLDING

- .1 Foundation
 - .1 Scaffolding shall be installed on a solid foundation so that it does not slip or rock.
- .2 Assembly, bracing and mooring:
 - .1 All scaffolding shall be assembled, braced and moored in accordance with the Manufacturer's instructions and the provisions of the Safety Code for the construction industry.
 - .2 Where a situation requires the removal of part of the scaffolding (e.g., crosspieces), the Contractor shall submit an assembly procedure signed and sealed by an engineer certifying that the scaffolding assembled in that manner will allow the work to be done safely given the loads to which it will be subject.
 - .3 For scaffolding where the span between two supports is greater than 3 m, the Contractor shall provide an assembly plan signed and sealed by an engineer.
- .3 Platforms:
 - .1 Scaffolding platforms shall be designed and installed in accordance with the provisions of the Safety Code for the construction industry.
 - .2 If planks are used, they shall be approved and stamped in accordance with section 3.9.8 of the Safety Code for the construction industry (current edition).
 - .3 The platforms shall cover the entire surface protected by the guardrails.
 - .4 Notwithstanding the above, scaffolding 4 sections (or 6 m) high or higher shall have a full platform covering the entire surface of the putlogs every 3 m or fraction thereof, and the components of that platform shall not be moved at any time to create an intermediate landing.
- .4 Guardrails:
 - .1 A guardrail shall be installed on every landing.
 - .2 Cross braces are not considered guardrails.
 - .3 Where scaffolding 4 sections (or 6 m) high or higher requiring full platforms is used, guardrails shall be installed on each landing at the start of work and shall remain in place until the work is completed.
- .5 Access:
 - .1 The Contractor shall ensure that access to the scaffolding does not compromise worker safety.
 - .2 Where the platforms of the scaffolding are comprised of planks, ladders shall be installed in such a way that planks extending beyond the platform do not block the way up or down.

- .3 Notwithstanding the provisions of the Safety Code for the construction industry, stairs shall be installed on all scaffolding that has 6 or more rows of uprights or is 6 sections (or 9 m) high or higher.
- .6 Protection of the public and occupants:
 - .1 The Contractor shall identify the boundaries of and barricade the work area so as to limit access to authorized workers only.

1.19 WORK IN THE VICINITY OF A WATER BODY

- .1 The following requirements shall be met for work involving drowning risks:
 - .1 In all work carried out water the Contractor shall comply with the following requirements in addition to article 2.10.13 of the Safety Code for the construction industry.
 - .2 Wherever possible, the Contractor shall plan his work so as to implement safety measures to prevent any worker from falling into the water. The use of such security measures should be preferred to wearing a life jacket.
 - .3 Wear a life jacket or buoyancy device to maintain the user's head above water and to float effortlessly.
 - .4 Submit to CNESST and to the Departmental Representative the following documents before work begins:
 - .1 Work related information (work dates, location, water body, description of work, etc.);
 - .2 The list of vessels and working platforms used during the work, specifying their respective use;
 - .3 Evidence that an evaluation and inspection were conducted by Transport Canada for each boat, motorized platform, or non self-propelled platform;
 - .4 A transportation plan on water for workers (where applicable);
 - .5 A rescue plan specific to this work with the following information and ensuring that all workers affected have received the training and information needed to apply the plan:
 - .1 A complete description of the procedures, including the responsibilities of persons who are allowed access to the workplace;
 - .2 The location of the emergency equipment.
 - .5 The Contractor shall be able to demonstrate that the operators of each craft has the knowledge and skills required to perform their duties safely.
 - .6 Ensure that a rescue vessel is moored to the wharf and available at all times within thirty (30) metres of the workers.

1.20 DIVING WORK

- .1 Comply with all requirements of the regulations on salubrity and safety (S-2.1, r.19.1), and specifically to section XXVI.I, work performed underwater. Comply also with the requirements of CSA Z275.2 - Occupational safety code for diving operations, CSA Z275.1 - Hyperbaric Facilities, and CSA Z275.4 - Competency standard for diving, hyperbaric chamber, and remotely operated vehicle operations (current editions). In case of discrepancies among requirements, comply with the most stringent provision.

- .2 In addition to the previous paragraph, where of construction work is performed, comply with the Safety Code for the construction industry (S-2.1, r.4).
- .3 Before work is undertaken, submit the following documents to the Departmental Representative in keeping with the content required in the occupational health and safety regulations:
 - .1 The training certificate in professional diving of every member of the dive team, or the document certifying recognition of the skills of these people to CAN/CSA Z 275.4 (Competency standard for diving, hyperbaric chamber, and remotely operated vehicle operations) in accordance with article 312.8 of this regulation;
 - .2 The workplace first aid training certificate of every member of the dive team;
 - .3 The medical certificate of each member of the dive team;
 - .4 For each dive under this project, a dive plan as required by the occupational health and safety regulations;
 - .5 A notice confirming that a communication system with the medical emergency service for diving emergencies is available at all times at the diving station.
- .4 Before work begins, carry out a simulation of the rescue procedure at the site as required in section 312.31 of the occupational health and safety regulation.
- .5 Submit to Departmental Representative the filled daily checklist confirming the presence and condition of the equipment required at the dive site in the dive plan.
- .6 Ensure that all other documents required in section XXVI of the occupational health and safety regulation are available at all times on the site (dive record, diver logbook, etc.).
- .7 Comply with the requirements of sections 355 to 357 of the occupational health and safety regulation for all people assigned to this project and who remain at the surface.
- .8 The Contractor shall consider the following features on the work site and adjust the contents of his dive plan accordingly:
 - .1 Presence of an impressed current cathodic protection system on the site. It is therefore necessary to provide a lockout procedure for these special conditions.
 - .2 With respect to the work carried out inside the wharf (service void), the Contractor shall be consider that they will be undertaken in enclosed and cluttered space conditions.
- .9 If the diving station is more than two (2) metres above the water, forward the following to the Departmental Representative:
 - .1 The plan of the equipment used to get the worker in the water if a platform is not used as a launching means;
 - .2 The plan of the equipment used to lift the platform or the other device unless the equipment is a crane or a boom truck.
- .10 If diving is done from a boat, provide the Departmental Representative with the following documents:
 - .1 Evidence of the qualification of the boat operator;
 - .2 The boat's certificate of conformity issued by Transport Canada.

1.21 WORK IN THE WHARF SERVICE SPACE

- .1 In addition to meeting provincial requirements that apply to enclosed spaces, the Contractor shall further comply with the requirements set out in the following paragraphs. The Contractor must first develop a second access as shown on the drawings in addition to the existing access to create an emergency exit should the existing access become impracticable during construction.
- .2 The Departmental Representative reserves the right, based on the Contractor's level of competency with confined spaces, to require the latter to hire the services of a firm specialized in health and safety, or in enclosed spaces, to analyse the risks inherent to confined spaces, to fill the entry permit, to perform work supervision, or for any other activity related to work in confined spaces.
- .3 The Contractor shall designate a person responsible for health and safety working in confined spaces. This person must be a qualified as defined in section 297 of the Regulation respecting occupational health and safety (S-2.1, r.13). The person must be present at all times during work in confined spaces and ensure that all regulatory requirements and the requirements of this section are met. The designated person must include fill and issue the enclosed space entry permit.
- .4 Mandatory training:
 - .1 All persons having access to an enclosed space, as well as the responsible person and the confined space supervisor, must be trained on the entry into enclosed areas.
 - .2 All persons who have to use a self-contained breathing apparatus for confined space entry should be trained on the use of such devices.
 - .3 All persons identified as respondents for confined spaces emergencies must be trained on rescue in confined spaces.
 - .4 Each training required in the above paragraphs must be given by a firm specialized in health and safety or in enclosed spaces.
 - .5 The training certificates of those listed above must be forwarded to the Departmental Representative before the start of work in confined areas.
- .5 Risk assessment within the wharf (crawl space).
 - .1 The Contractor shall conduct an assessment of the risks inherent and related to confined spaces, including:
 - .1 The prevailing internal atmosphere, namely the concentration of oxygen, flammable gases and vapors;
 - .2 Availability of natural ventilation;
 - .3 Cubic measurement or footprint and the possible presence of debris and construction materials on the seabed;
 - .4 The variation in water depths;
 - .5 Any other special conditions.
 - .2 The risk assessment must be performed and signed by the person responsible for health and safety work in confined spaces. The report must be forwarded to the Departmental Representative for review at least ten (10) days before the date set for work in confined areas.

- .6 The Contractor shall forward to the Departmental Representative for review at least five (5) days before the date set for work inside the wharf, a copy of the entry permit. The entry permit must be completed by the person responsible for health and safety working in confined spaces, and include the following information:
 - .1 Description of the work to be executed and the method of work, including the equipment and tools required to perform the work;
 - .2 Description of the risks and corresponding control measures, based on the results of the risk assessment inherent to the confined space and based on the risks involved in the work to be performed;
 - .3 Safety equipment used to control the risks in enclosed spaces (i.e., fans, gas detecting device, local ventilation, personal protective equipment, etc.);
 - .4 Rescue procedure containing at least the following elements:
 - .1 Means of communication between the supervisor of the confined area and the workers inside the confined space;
 - .2 Rescue equipment specific to each confined space;
 - .3 Confirmation that the municipal emergency department has been notified of the work in confined spaces specifically on this site and can respond to a rescue in a confined space; otherwise the Contractor shall identify workers on site who will act as rescuers should there be a need to access the inside of the enclosed area (mandatory rescue training);
 - .4 Location of the telephone, and telephone number of the municipal emergency service (where applicable);
 - .5 Date of entry permit;
 - .6 Name of person issuing the permit and name of this person's employer;
 - .7 Name of supervisor and name of this person's employer;
 - .8 Names of workers who must enter the confined space and name of each of their employers.
- .7 The Contractor shall forward to the Departmental Representative a medical certificate dated within two years for all persons using a supplied-air respirator. The certificates should confirm the fitness of each person to use this kind of device.
- .8 Requirements for work in confined spaces.
 - .1 Before each entry in an enclosed area, the responsible person must take measurements of oxygen concentration, of flammable gases, and all toxic gases likely to be found, and record the results of these measurements on the entry permit. These measures must be taken at various places under the dock (in corners and other places where the air can be stagnant).
 - .2 No worker may enter a confined area if the following requirements are not complied with:
 - .1 Oxygen concentration must be greater than or equal to 19.5%, and less than or equal to 23%;
 - .2 The concentration of flammable gases or vapors must be less than or equal to 10% of the lower explosive limit (LEL);

- .3 The concentration of other gases must not exceed the standards referenced in Schedule I of the Regulation respecting occupational health and safety (S-2.1, r.13).
- .3 Where the measured concentrations of oxygen and gas remain within the regulatory values, the person responsible must ensure that all preventive measures indicated on the permit are in place and must finish completing the entry permit (date, time, signatures, etc.) before issuing the permit and allowing access to the confined area.
- An entry permit should only cover one (1) work shift; the Contractor shall issue a new permit for each additional work shift.
- .4 During work within the confined area, gas concentrations must be measured continuously and the detecting device installed at the workers' breathing zone level. If the prevailing conditions inside the confined space are such that workers could not hear or see the alarm, the Contractor must find a way for the supervisor of the enclosed space to monitor concentration measurements while maintaining measurements in the workers' breathing zone.
- Where the work is organized in such way that the workers are distant from each other in an enclosed area of large dimensions, the Contractor shall provide for additional gas detectors.
- .5 The Contractor shall provide gas detectors and maintain them in good working condition. He must be able to demonstrate that the gas detectors used have been calibrated and adjusted by the responsible person or by a qualified person according to the manufacturer's recommendations. The Departmental Representative may at all times verify the accuracy of the Contractor's equipment. In case of failure of a detection device, the work must immediately be suspended and all workers must leave the enclosed area.
- The manufacturer's Instruction Manual for the gas detector must be available on site.
- .6 At the entrance to an enclosed space and during the performance of work in conditions free from diving, the Contractor shall proceed continuously without interruption to mechanical ventilation for forty-eight (48) hours before allowing the access under the dock. The ventilation system must be of sufficient capacity to maintain concentrations of contaminants below regulatory concentration limits.
- .7 If the alarm of a gas detector is triggered, all workers must leave the enclosed area. The concentration readings must then be recorded on the entry permit. The Contractor must identify and neutralize the source of contamination, ventilate the confined area to remove any contaminant residues and allow access to the confined space when the oxygen and gas concentrations have returned to normal.
- .8 No compressed gas cylinder or welding machine must be brought within confined spaces: this equipment must stay outside and must not block the access to or exit from the confined areas; all cylinders must be properly secured.
- .9 Electrical tools and equipment used for work in confined spaces should be grounded and, where necessary, explosion-proof. All equipment must be connected to a ground fault circuit interrupter (GFCI) or a step down transformer. The Contractor shall, at own expense, have a qualified electrician change the

electrical outlets and/or circuit breakers he intends to use which do not meet these criteria.

- .10 Where hot work is required, the Contractor shall obtain a hot work permit and comply with the requirements specified in article 1.15 of this section.
- .11 The Contractor shall assign a competent person to assume the supervision. The supervisor should be assigned exclusively to these functions and must remain outside the confined space as long as workers remains inside the confined area. In addition, the supervisor shall:
 - .1 Check that the entry permit is completed, signed and posted next to the confined area;
 - .2 Be knowledgeable of the specific working procedures in enclosed spaces and ensure that they are complied with;
 - .3 Ensure ongoing communication with all workers in the confined area;
 - .4 Ascertain that the necessary emergency equipment is in place;
 - .5 Be knowledgeable of booster fan systems and ensure proper operation for the duration of the work, as applicable;
 - .6 Prevent access to unauthorized persons;
 - .7 Ensure that conditions surrounding the area the confined spaces do not affect the health and safety of workers within.
 - .8 Trigger the emergency procedure as needed.
- .12 The same person may assume the monitoring functions and that of the person responsible for health and safety working in confined spaces, subject to complying with all the requirements of both functions.

1.22 LOCKOUT PROCEDURES

- .1 When work is carried out on electrically supplied equipment or equipment likely to be turned on accidentally, the Contractor shall provide and enforce a written lockout procedure, and submit this procedure to the Departmental Representative.
- .2 The supervising personnel and all workers concerned must have taken the course on lockout techniques offered by ASP Construction or equivalent training from another organization.

1.23 FLOATING MATERIAL

- .1 Mark floating equipment with lights/markers in accordance with the most stringent regulation between:
 - .1 CNESST: Commission de la santé et de la sécurité du travail;
 - .2 Canadian Coast Guard regulations;
 - .3 International "Rules of the Road".
- .2 Maintain radio watch on board.
- .3 Place in position and maintain all required buoys/markers throughout contract duration.

- .4 Contractor shall, on an ongoing basis, report accurately all movements of his floating equipment to the Canadian Coast Guard Marine Communications and Traffic Services (SCTM Québec). As well, report to SCTM the start and end hours of all construction periods.
- .5 Provide updates to the Transport Canada local representative for issuance of Notices to Shipping.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 14 00, Work restrictions.
- .2 Section 01 74 21, Construction-demolition waste management and disposal.

1.2 REFERENCES

- .1 Definitions:
 - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade the environment aesthetically, culturally and/or historically.
 - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit one electronic copy of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative.
- .4 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .5 Address topics at level of detail commensurate with environmental issue and required construction activities.
- .6 Include in Environmental Protection Plan:
 - .1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Work area plan showing proposed activity in each portion of area and identifying areas of work, storage and traffic.
 - .3 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - .4 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including work debris.
 - .5 Waste Water Management Plan identifying methods and procedures for management and discharge of waste waters which are directly derived from construction activities, such as clean up water used to wash concreting equipment and tools.

1.4 WASTE DISPOSAL

- .1 Burying wastes and waste materials on site is prohibited.
- .2 Fires and burning of rubbish on site is not permitted.
- .3 Disposal of wastes or volatile materials such as mineral spirits and oil or paint thinners into waterways, storm or sanitary sewers is prohibited.

1.5 DRAINAGE

- .1 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.6 WORK ADJACENT TO WATERWAYS

- .1 Construction equipment to be operated from the wharf or on land only.
- .2 Waterways to be kept free of excavated fill, waste material and debris. All debris accidentally introduced in the aquatic environment shall be removed without delay.
- .3 Do not skid logs or building materials from one side to the other stream.

1.7 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
 - .1 Provide temporary enclosures where directed by Departmental Representative.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
- .5 Store and handle carefully hydrocarbons and other hazardous materials used on site (diesel, gasoline, engine and hydraulic oils, lubricants) in a suitable area on the mainland at least 30 metres from the shoreline.
- .6 Use type HF biodegradable oil in equipment and machinery in contact with or operating on water.
- .7 Use clean equipment and machinery in good working condition. Machinery must not show any sign of leaking fuel, oil or grease. Provide upon request of Departmental Representative a mechanical inspection certificate.
- .8 Do not idle machinery engines when not in use.

- .9 The Contractor shall have permanently on hand an emergency petroleum product recovery kit comprised of flotation collars, absorbent pads or collars, drums and related equipment (gloves, etc.) essential to deal with a small-scale spill. This type of kit is available from specialised suppliers and the must be approved by the Departmental Representative.
- .10 The Contractor shall provide the work site personnel with a briefing on recovery methods before starting work.
- .11 In the event of equipment failure, repair the equipment immediately and apply the usual emergency measures to control the situation; the area contaminated by toxic substances will be contained and cleaned and the contaminated material removed and disposed of at a site authorized by MDDELCC (ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatique).
- .12 In the event of an environmental emergency, the Contractor shall take all necessary measures to minimize the impacts, including compliance with MTQ's « Guide sur le transport des matières dangereuses ». The Contractor shall also notify the Departmental Representative as soon as the first steps to minimize environmental impacts have been taken.
- .13 Report any incident to Environment Canada's Emergencies Reporting System (1-866-283-2333), to MDDELCC (1-866-694-5454) and to the Departmental Representative.
- .14 The Contractor must have at all time a boat and the necessary equipment (life jackets) to recover any material accidentally released in the marine environment.

1.8 NOTIFICATION

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
 - .1 Take action only after receipt of written approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.
- .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .4 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00.

1.2 INSPECTION

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.3 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.4 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.7 REPORTS

- .1 Submit 4 copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

1.8 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.9 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations as specified in specific Section acceptable to Departmental Representative.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of Work or when acceptable to Departmental Representative.
- .7 Mock-ups may remain as part of Work.
- .8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.10 MILL TESTS

- .1 Submit mill test certificates as requested.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 52 00 - Construction facilities.
- .2 Section 01 56 00 - Temporary barriers and enclosures.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.4 TEMPORARY POWER AND LIGHT

- .1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.
- .2 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than [10] lx.
- .3 The Contractor will be allowed to tap into the electrical service panel located in the Transport Canada building only for the needs of the site offices. The connection must be performed by a licensed electrician in accordance with the Canadian Electrical Code. Pay all costs of connection and disconnection.
- .4 The electrical installations set up by the Contractor must comply with applicable standards, codes and regulations.

1.5 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for temporary telephone, fax, Internet link, printers with scanner, hook up lines and equipment necessary for own use and that of the Departmental Representative.

1.6 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and by governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 51 00 - Temporary utilities.
- .2 Section 01 56 00 - Temporary barriers and enclosures.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.4 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.5 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ladders and platforms.

1.6 HOISTING

- .1 Provide cranes required for moving materials.
- .2 Cranes to be operated by qualified operator.

1.7 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Make sure that the limits of load authorized on the platform are any time respected.
- .3 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.8 CONSTRUCTION PARKING

- .1 Parking will not be permitted on site and within the boundaries of the Transport Canada property.
- .2 Clean runways and taxi areas where used by Contractor's equipment.

1.9 SECURITY

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.10 OFFICES

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.
- .4 Departmental Representative's Site office.
 - .1 Provide temporary office for Departmental Representative.
 - .2 Inside dimensions minimum 3.6 m long x 3 m wide x 2.4 m high, with floor more than 0.3 m above grade, complete with 2, 50% opening, windows and one lockable door.
 - .3 Insulate building and provide heating system to maintain 22 degrees C inside temperature at -20 degrees C outside temperature.
 - .4 Finish inside walls and ceiling with plywood, hardboard or wallboard and paint in selected colours. Finish floor with 19 mm thick plywood.
 - .5 Install electrical lighting system to provide min 750 lx using surface mounted, shielded commercial fixtures with 10 % upward light component.
 - .6 Equip office with a desk 1.5 m x 0.9 m with drawers, a drafting table, a stool, 4 chairs, one 3-drawer filing cabinet, one plan rack and one coat rack, shelves, one computer, one printer, one photocopier, one scanner and one mobile phone and pay all costs.
 - .7 Maintain in clean condition.

1.11 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Store materials in the reserved areas indicated on the drawings. If the Contractor wishes to use additional storage adjacent to the site, he must make arrangements with the owners and provide a copy of such agreement to the Departmental Representative.
- .3 Leave premises in the original pre-construction condition and forward the owners' certificate of acceptance the Departmental Representative.

1.12 SANITARY FACILITIES

- .1 Provide sanitary facilities, insulated and heated during the cold season, for the workforce and the Departmental Representative in accordance with governing regulations and ordinances and maintain supply of paper towels and toilet tissue.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Canada Transport's permanent facilities may not be used.

1.13 CONSTRUCTION SIGNAGE

- .1 Provide project identification site sign comprising framing, and one 1200 x 2400 mm signboard as detailed and as described below.
 - .1 Framework and battens: SPF, pressure treated minimum 89 x 89 mm.
 - .2 Signboard: 19 mm Medium Density Overlaid Douglas Fir Plywood to CSA O121.
 - .3 Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.
 - .4 Fasteners: hot-dip galvanized steel nails and carriage bolts.
 - .5 Vinyl sign face: printed project identification, self adhesive, vinyl film overlay, supplied by Departmental Representative.
- .2 Locate project identification sign as directed by Departmental Representative and construct as follows:
 - .1 Build one concrete foundation or blocking, erect framework, and attach signboard to framing.
 - .2 Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.
 - .3 Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.
- .3 Direct requests for approval to erect Contractor and Subcontractor signboard to Departmental Representative. For consideration general appearance of Consultant/Contractor signboard must conform to project identification site sign. Wording in both official languages.

- .4 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .5 Maintain approved signs and notices in good condition for duration of project, and remove from site on completion of project or earlier if directed by the Departmental Representative.

1.14 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected road as well as on site during the construction period.
- .3 Provide measures for protection of traffic and public, including the services of flagpersons and of watch-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with traffic on site (parking and wharf). If need be, hire the services of flagpersons.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .8 Provide snow removal during period of Work.

1.15 CRAFT FOR USE BY THE DEPARTMENTAL REPRESENTATIVE

- .1 Provide the Departmental Representative with a safe boat suitable for site conditions, including a 25-horsepower engine, fuel, life jackets and all the equipment required by the Canadian Coast Guard regulations.
- .2 The craft with operator must be accessible at all times by the Departmental Representative for the duration of the project.
- .3 The Contractor may use the boat for his own purposes after obtaining the Departmental Representative's authorisation.
- .4 In addition to the boat provide upon request by Departmental Representative workers and equipment needed for inspection and supervision of work.

1.16 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable outside the boundaries of the wharf in a location authorised by the Departmental Representative.

.4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 51 00, Temporary utilities.
- .2 Section 01 52 00, Construction facilities

1.2 HOARDING

- .1 Erect temporary site enclosures with 1.8 m high steel wire mesh solidly anchored in the ground to the requirements of CNESST
- .2 Provide at least one lockable entrance gate conforming to directives. Equip gates with locks and keys.
- .3 Keep the gate to the work site closed.

1.3 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around Work zone.
- .2 Provide as required by governing authorities and as directed by Departmental Representative.

1.4 SNOW REMOVAL

- .1 For the duration of the contract, during construction, Contractor to proceed to the removal of snow in the areas occupied by the construction. Snow removal in the access road and in the zones beyond the work areas will be provided by Transport Canada.
- .2 The removal and disposal of snow off site must be carried out in compliance with applicable federal, provincial and municipal laws and regulations. Snow cover accumulation or build-up will not be tolerated on the site.

1.5 FIRE ROUTES

- .1 Maintain access to property for use by emergency response vehicles.

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 35 43 - Environmental procedures.
- .2 Section 01 74 21 - Construction/Demolition waste management and disposal.

1.2 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
- .2 Do not accumulate waste that pose hazards.
- .3 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .4 Clear snow and ice from access to Work, remove from site.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Provide on-site containers for collection of waste materials and debris.
- .7 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .8 Dispose of waste materials and debris off site.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

1.3 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Owner.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean up mooring bollards, wheel guards, protection bollards and electrical cabinets / panels; where necessary, touch up scratches and damages as directed by the Departmental Representative.
- .8 Clean lighting reflectors.

- .9 Clean and grade gravel roads affected by construction activities.
- .10 Broom and clean and wash all exterior paved surfaces affected by the works, and remove stains and marks found by the Departmental Representative's instructions.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

- .1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's waste management goal and Contractor's proposed Waste Reduction Workplan for Construction, Renovation and /or Demolition (CRD) waste to be project generated.
- .2 PWGSC's waste management goal: to divert a minimum 75 percent of total Project Waste from landfill sites. Prior to project completion provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Specific material target percentages for reuse and/or recycling:
 - .1 Pavement: 100 %.
 - .2 Metals: 100 %.
 - .3 Wood: 80 %.
 - .4 Others: 50 %.
- .4 Protect environment and prevent environmental pollution damage.

1.2 RELATED REQUIREMENTS

- .1 Section 01 33 00, Submittal procedures.
- .2 Section 01 35 43, Environmental procedures.
- .3 Section 01 74 11, Cleaning.

1.3 REFERENCES

- .1 Definitions:
 - .1 Approved/Authorized recycling facility: waste recycler approved by applicable provincial authority or other users of material for recycling approved by the Departmental Representative.
 - .2 Inert Fill: inert waste - exclusively asphalt and concrete.
 - .3 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
 - .4 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
 - .5 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
 - .6 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

- .1 Salvaging reusable materials from re-modelling or repair projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
- .2 Returning reusable items including pallets or unused products to vendors.
- .7 Separate Condition: refers to waste sorted into individual types.
- .8 Source Separation: act of keeping different types of waste materials separate beginning from the point they became waste.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit the following prior to issuance of the certificate of substantial performance:
 - .1 Waste Diversion Report, indicating final quantities in tones, cubic metres or percentage by material types salvaged for reuse, recycling or disposal in landfill and recycling centres, re-use depots, landfills and other waste processors that received waste materials.
 - .2 Provide receipts, scale tickets, waybills, waste disposal receipts that confirm quantities and types of materials reused, recycled or disposed of and destination.

1.5 USE OF SITE AND FACILITIES

- .1 Execute Work with minimal interference and disturbance to normal use of premises.
- .2 Maintain security measures established by facility provide temporary security measures approved by Departmental Representative.

1.6 WASTE PROCESSING SITES

- .1 Contractor is responsible to research and locate waste diversion resources and service providers. Salvaged materials are to be transported off site to approved and/or authorized recycling facilities or to users of material for recycling.

1.7 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations approved by Departmental Representative.
- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .5 Provide on-site facilities and containers for collection and storage of reusable and recyclable materials.
- .6 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated processing facilities.

- .1 On-site source separation is recommended.
- .2 Remove co-mingled materials to off site processing facility for separation.
- .3 Obtain waybills, receipts and/or scale tickets for separated materials removed from site.
- .4 Materials reused on-site are considered to be diverted from landfill and as such are to be included in all reporting.

1.8 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste into waterways.
- .3 Keep records of construction waste including:
 - .1 Number and size of bins.
 - .2 Waste type of each bin.
 - .3 Total tonnage generated.
 - .4 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .4 Remove materials on-site as Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis.

1.9 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 APPLICATION

- .1 Execute work in compliance with Departmental Representative's directions.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

- .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.3 DIVERSION OF MATERIALS

- .1 Separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative, and consistent with applicable fire regulations.
 - .1 Mark containers or stockpile areas.
 - .2 Provide instruction on disposal practices.
- .2 On-site sale of salvaged materials is permitted.

3.4 WASTE DIVERSION REPORT

- .1 At completion of Project, prepare written Waste Diversion Report indicating quantities of materials reused, recycled or disposed of as well as the following:
 - .1 Identify final diversion results and measure success against goals from Waste Reduction Workplan.
 - .2 Compare final quantities/percentages diverted with initial projections and explain variances.

END OF SECTION

DIVISION 02 EXISTING CONDITIONS

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Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 35 43, Environmental procedures.
- .2 Section 01 74 21, Construction – Demolition waste management and disposal.
- .3 Section 03 30 00.01, Cast-in-place concrete short form.

1.2 SITE CONDITIONS

- .1 The Contractor shall become familiar with the existing site conditions including access restriction to the work zones.

1.3 PROTECTION OF EXISTING STRUCTURES

- .1 The Contractor shall protect existing structures that must remain in place and the materials identified for salvage. If damaged, notify the Departmental Representative and repair or replace immediately at own cost.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 EQUIPMENT

- .1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.
- .2 Contractor to demonstrate that tools, equipment and machinery used will carry out the work within schedule and that they will contribute to preserve the structures / features that remain intact.

Part 3 Execution

3.1 PREPARATION

- .1 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements and 01 35 43 - Environmental procedures.
- .2 Protection:
 - .1 Prevent movement, settlement, or damage to adjacent structures, utilities and parts of work to remain in place.
 - .2 Keep noise and dust to minimum.

- .3 Protect building systems, services and equipment.
- .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .3 De-energize the electrical systems located within the work area before beginning work. Implement the mandatory lockout procedure.
- .4 Locate and protect utility lines crossing the Work zone.

3.2 DEMOLITION – GENERAL

- .1 The information concerning the existing structures or elements is not exhaustive and will therefore need to be completed on site.
- .2 No compensation will be paid for demolition beyond the boundaries indicated on the drawings or required by the Departmental Representative.
- .3 Remove all demolition materials to elevations and dimensions shown and indicated on the drawings.

3.3 PARTIAL DEMOLITION OF THE CONCRETE DECK AND FOR MOORING BASES

- .1 Two (2) weeks before the start of the demolition work, the Contractor shall provide the Departmental Representative with the work method he intends to use.
- .2 The demolition method chosen by the Contractor shall not damage or weaken any part of the slab sections to be preserved.
- .3 The demolition equipment chosen by the Contractor shall in no way affect the stability and structural integrity of the concrete deck.
- .4 The concrete surfaces to be demolished as shown on the drawings are approximate. The exact location and extent of the demolition work will be determined on site by the Departmental Representative.
- .5 The Contractor shall make a 25 mm deep sawcut around the edge of the demolition area.
- .6 The Contractor shall demolish the concrete to a minimum depth as indicated on the drawings or as required by the Departmental Representative.
- .7 In the process, the Contractor may encounter reinforcing steel in the concrete. No additional money will be paid for reinforcing steel occurrences in the concrete. The following measures must be taken:
 - .1 The Contractor shall at all times take precautions to avoid damaging the rebars to be preserved.
 - .2 Reinforcing steel sufficiently weakened by corrosion should be replaced as directed by the Departmental Representative.
 - .3 Contractor to remove concrete at least 25 mm behind existing steel bars when more than half the circumference of the steel reinforcement becomes exposed during demolition of the concrete.

- .4 The demolished surface must be cleaned using a jet of pressurized air so that dust and debris are completely removed.

3.4 WALER BOLT REMOVAL

- .1 The Contractor must plan demolition work for the removal and replacement of the existing bolt by proceeding with steel cutting and/or concrete partial demolition work. Some part of the bolts are welded to plates and some part of the bolts are covered of concrete.

3.5 ACCESS DOOR REPAIR

- .1 Clean the existing door access pieces with high pressure water jet and brush the steel in order to remove any loose particles, all, to the satisfaction of the Departmental Representative.
- .2 No torch equipment is authorized for the creation of openings.
- .3 Grind and smooth the steel plates composing the existing door access after the removal of the 13 mm plates, all, to the satisfaction of the Departmental Representative.

3.6 CLEANING AND RESTORATION

- .1 Keep site clean and organized throughout demolition procedure.
- .2 Upon completion of project, reinstate areas affected by Work to condition which existed prior to beginning of Work or match condition of adjacent, undisturbed areas.

END OF SECTION

DIVISION 03 CONCRETE

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Part 1 General

1.1 SECTION CONTENT

- .1 Not used

1.2 RELATED SECTIONS

- .1 Section 01 33 00 – Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal
- .3 Section 05 50 00 – Metal Fabrication.

1.3 REFERENCES

- .1 Canadian Standards Association (CSA):
 - .1 CAN/CSA-A23.1, Concrete Materials and Methods of Concrete Construction;
 - .2 CAN/CSA-O86.1, Engineering Design in Wood (Limit States Design);
 - .3 CSA O121, Douglas Fir Plywood;
 - .4 CSA O151, Canadian Softwood Plywood;
 - .5 CSA O153, Poplar Plywood;
 - .6 CAN3-O188.0, Standard Test Methods for Mat-Formed Wood Particleboards and Waferboard;
 - .7 CSA O437 Series, Standards for OSB and Waferboard;
 - .8 CSA S269.1, Falsework for Construction Purposes;
 - .9 CAN/CSA-S269.3, Concrete Formwork.
- .2 Council of Forest Industries of British Columbia (COFI):
 - .1 COFI, Exterior Plywood for Concrete Formwork.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings for formwork in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Indicate method and schedule of construction for stripping procedures, materials, arrangement of joints, ties, liners, and locations of temporary embedded parts. Comply with CAN/CSA-S269.3 for formwork drawings.
- .3 Indicate formwork design data, such as permissible rate of concrete placement, and temperature of concrete, in forms.
- .4 Each shop drawing submission shall bear stamp and signature of qualified professional engineer registered or licensed in Province of Quebec, Canada.
- .5 Clearly indicate dimensions and details of material, design fabrication and erection procedures.
- .6 Assume responsibility for accuracy of drawings, or for unsatisfactory work arising from errors of judgement, poor workmanship or faulty materials.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Sort and recycle waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal and the Waste Reduction Workplan.

Part 2 Products

2.1 MATERIALS

- .1 Formwork materials
 - .1 For concrete without special architectural features, use wood and wood product formwork materials to CSA-O121 CAN/CSA-O86.1, CSA O437 Series CSA-O153.
 - .2 To CAN3-A23.1-M77 and approved formwork drawings. Maintain maximum tolerances of finished concrete work as specified in ACI Standard 347, Recommended Practice for Concrete Formwork.
 - .3 Form liner
 - .1 Plywood: Douglas Fir to CSA 0121, Canadian Softwood Plywood to CSA O151, medium density overlay, “A” grade, squared edges, 15 mm minimum thick.
 - .4 Form release agent: non-toxic, low VOC.
 - .5 Form stripping agent: colourless mineral oil, non-toxic, low VOC, free of kerosene, with viscosity between 70 and 110s Saybolt Universal 15 to 24 mm²/s at 40 °C, flashpoint minimum 150 °C, open cup.
 - .6 Permanent formwork: see Section 05 00 00 – Metal Fabrications for the covering plates of the cope walls, steel covering plates for sheet piles, steel plates for anti-crossing walls and steel plates to be placed at the pile cap.

Part 3 Execution

3.1 FABRICATION AND ERECTION

- .1 The Contractor is the only principal contractor for the implementation means and methods, and assumes sole responsibility. Interventions by the Departmental Representative shall not relieve Contractor of liability; conversely, the non-intervention of the Departmental Representative does not signify approval of the means or methods.
- .2 Verify lines, levels and centres before proceeding with formwork and ensure dimensions agree with drawings.
- .3 Obtain Departmental Representative's approval prior to pouring concrete directly on ground or for use of earth forms framing openings not indicated on drawings.
- .4 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete
- .5 Provide site drainage to prevent washout of soil supporting mud sills and shores.

- .6 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CAN/CSA-A23.1.
- .7 Align form joints and make watertight. Keep form joints to minimum.
- .8 Use 50 mm chamfer strips on external corners and/or 50 mm fillets at interior corners, joints, unless specified otherwise.
- .9 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.
- .10 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections. Assure that all anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.
- .11 Clean formwork in accordance with CAN/CSA-A23.1, before placing concrete.
- .12 When forms appear to be unsatisfactory, stop work until defects corrected.

3.2 REMOVAL OF FRAMEWORK

- .1 Leave formwork in place for following minimum periods of time after placing concrete.
 - .1 Three days for lamp post bases, crowning wall, concrete slabs and walls.
- .2 Re-used formwork subject to requirements of CAN/CSA-A23.1.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 – Submittal Procedures.
- .2 Section 01 45 00 – Quality Control.
- .3 Section 01 61 00 – Common Products Requirements.

1.2 REFERENCES

- .1 American Concrete Institute (ACI):
 - .1 ACI 315R, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.
- .2 American National Standards Institute/American Concrete Institute (ANSI/ACI):
 - .1 ANSI/ACI 315, Details and Detailing of Concrete Reinforcement.
- .3 Canadian Standards Association (CSA):
 - .1 CSA A23.1 F04 / CSA A23.2, Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete;
 - .2 CAN3-A23.3, Design of Concrete Structures for Buildings;
 - .3 CSA G30.3, Cold Drawn Steel Wire for Concrete Reinforcement;
 - .4 CAN/CSA-G30.18, Billet-Steel Bars for Concrete Reinforcement;
 - .5 CSA-G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel;
 - .6 CSA W186, Welding of Reinforcing Bars in Reinforced Concrete Construction;
 - .7 CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures;
 - .8 CSA 47.1S1, Supplement n° 1-M1989 CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures;
 - .9 CSA W59, Welded Steel Construction (Metal Arc Welding);
 - .10 CSA W59S1, Supplement n° 1-M1989, Steel Fixed Offshore Structures to W59, Welded Steel Construction (Metal Arc Welding).
- .4 American Society for testing and materials (ASTM):
 - .1 ASTM A767, Specification for Zinc Coated (Galvanized) Steel Bars for concrete reinforcement;
 - .2 ASTM A497, Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement;
 - .3 ASTM A185, Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement;
 - .4 ASTM A193 B7, High Strength Threaded Rods;
 - .5 ASTM A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware;
 - .6 A123A123M-13 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products;

- .7 ASTM F436, Standard Specification for Hardened Steel Washers;
- .8 ASTM A563M, Standard Specification for Carbons and Alloy Steel Nuts;
- .9 Standard Test Method for Time of Setting of Hydraulic;
- .10 Standard Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic-Cement Grout;
- .11 ASTM 615-92b, Hot-rolled threaded bar.
- .5 Institut d'acier d'armature du Canada (RSIC/IAAC)
 - .1 IAAC, Acier d'armature, Manuel de normes recommandées.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit shop drawings including placing of reinforcement in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Indicate on shop drawings, bar bending details, lists, quantities of reinforcement, sizes, spacing, locations of reinforcement and mechanical splices if approved by Departmental Representative, with identifying code marks to permit correct placement without reference to structural drawings. Prepare reinforcement drawings in accordance with Reinforcing Steel Manual of Standard Practice – by Reinforcing Steel Institute of Canada.
- .3 Detail lap lengths and bar development lengths to CAN3-A23.3, unless otherwise indicated.

1.4 QUALITY ASSURANCE

- .1 Submit in accordance with Section 01 45 00 - Quality Control.
 - .1 Test report from shop tests: supply to the Departmental Representative, at least 4 weeks prior to the beginning of the reinforcement placement, a certified copy of the tests report of the tests done in shop.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Reinforcing steel must come from a Canadian steel mill that holds a registration certificate compliant with ISO 9001:2008 “Quality Management Systems”. Provide the name of the steel mill that manufactured the reinforcement to the Departmental

Representative at least two weeks prior the delivery of the reinforcement to the work site or to the manufacturing plant.

- .2 Any replacement of reinforcing with different dimensions must be authorized in writing by the Departmental Representative.
- .3 Reinforcing steel: billet steel, grade 400W, deformed bars to CAN/CSA-G30.18, unless otherwise indicated.
- .4 Cold-drawn annealed steel wire ties: to CSA G30.3 of ASTM A82/A82M.
- .5 Chairs, bolsters, bar supports, spacers: to CAN/CSA-A23.1.
- .6 Mechanical splices: subject to approval of Departmental Representative.
- .7 Steel jacket with metal mesh: crenelated steel wire fabric: to ASTM A497.
- .8 Galvanized steel: to ASTM A153, with a minimum galvanizing thickness of 87 µm.

2.2 FABRICATION

- .1 Fabricate reinforcing steel in accordance with CAN/CSA-A23.1, ANSI/ACI 315, and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada unless indicated otherwise.
- .2 Obtain Departmental Representative's approval for locations of reinforcement splices other than those shown on placing drawings.
- .3 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.
- .4 Galvanized steel bar reinforcement to be provided must be galvanized prior to bending. Field bending is forbidden.

2.3 SOURCE QUALITY CONTROL

- .1 Upon request, provide Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 4 weeks prior to commencing reinforcing work.

Part 3 Execution

3.1 PREPARATION

- .1 Galvanizing to include chromate treatment.
 - .1 Duration of treatment to be 1 hour per 25 mm of bar diameter.
- .2 Conduct bending tests to verify galvanized bar fragility in accordance with ASTM A 143/A 143M.

3.2 FIELD BENDING

- .1 Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.
- .2 When field bending is authorized, bend without heat, applying a slow and steady pressure.
- .3 Replace bars which develop cracks or splits.

3.3 PLACING REINFORCEMENT

- .1 Place reinforcing steel as indicated on approved placing drawings and in accordance with CAN/CSA-A23.1.
- .2 At least 24 hours prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.
- .3 Ensure 75 mm cover to reinforcement, unless otherwise indicated.
- .4 Metal pieces susceptible of rusting shall not touch the surface of concrete parts exposed to bad weather.
- .5 If reinforcing steel bars are cut on site, ends must be coated with a zinc-rich protection product.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 35 43, Environmental procedures.
- .2 Section 01 74 21, Construction/Demolition waste management and disposal.
- .3 Section 02 41 16.01, Structure demolition – short form.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM D260, Standard Specification for Boiled Linseed Oil.
 - .2 ASTM D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non extruding and Resilient Bituminous Types).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-19.24, Multicomponent, Chemical-Curing Sealing Compound.
- .3 CSA International
 - .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA A3000, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
 - .3 CAN/CSA-G30.18, Billet-Steel Bars for Concrete Reinforcement.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 At least four (4) weeks prior to work inception, submit a certificate stating that the selected mix design will produce concrete of the quality, durability and performance called for, and that it will meet the requirements of CAN/CSA - A23.1/A23.2/A23.4.
- .3 Submit a certificate stating that the equipment and materials to be used for the manufacture of concrete meet the requirements of CAN/CSA-A23.1/A23.2/A23.4.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Type 10 Portland cement: to CAN/CSA-A3000-A5.
- .2 Water: to CSA A23.1/A23.2.
- .3 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.
- .4 Welded steel wire fabric: to ASTM A185.
- .5 Joint filler:
 - .1 Bituminous impregnated fibreboard: to ASTM D1751.
- .6 Joint sealer/filler: grey to CAN/CGSB-19.24, Type 1, Class B.
- .7 Other concrete materials: to CSA A23.1/A23.2.
- .8 Heavy-duty cementitious non-shrink grout with the following properties:
 - .1 Flow-cone in accordance with CSA A23.2-1B standard of 20-35 sec;
 - .2 Plastic expansion in accordance with CSA A23.2-1B standard of 0.8 %;
 - .3 Volume change in accordance with ASTM C 827 standards of 1.4 %;
 - .4 Final-set time in accordance with ASTM C 191 standards of 7.2 h;
 - .5 Expansion hardness in accordance with ASTM C 1090 standard of 0.04 %;
 - .6 Adhesion to steel in accordance with the Lane and Best method > 0.2 MPa;
 - .7 Open spaces under the plate testing in accordance with the H.A. Simons/Levelton method of 0.2 %;
 - .8 Compression resistance in accordance with the CSA A23.2-1B standard after one day of 25 MPa, after three (3) days of 42 MPa, after 7 days of 50 MPa and after 28 days of 62 MPa;
 - .9 Porosity in accordance with ASTM C642 standard of 9.3 % of absorption by boiling;
 - .10 Resistance in accordance with H.A. Simons/Levelton method of 6220 Ohm-cm;
 - .11 Chloride ions proof at 28 days in accordance with AASHTO T277 standard of 2760 coulombs.
- .9 Chemical anchor products:

Epoxy adhesive allowing linkage between anchors and concrete shall have the following characteristics:

 - .1 Bond strength to: ASTM C882, (2) day cure and seven (7) day cure, 12.4 MPa;
 - .2 Compressive strength to: ASTM D-695, 82.7 MPa;
 - .3 Compressive modulus to: ASTM D-695, 1,493 MPa;
 - .4 Tensile strength 7 days to: ASTM D-638, 43.5 MPa;

- .5 Elongation at break to: ASTM D-638, 2%;
- .6 Heat deflection temperature to: ASTM D-648, 63 °C;
- .7 Absorption to: ASTM D-570, 0.06%;
- .8 Linear coefficient of shrinkage on cure to: ASTM D-2566, 0.004;
- .9 Electrical resistance to DIN IEC 93 (12, 93), $6.6 \times 10^{13} \Omega/m$.

Super HAS type anchor rod with epoxy adhesive to: ASTM A193, B7 grade. Super HAS type nuts to: ASTM A563. Super HAS type washers to: ASTM F436.

- .10 Materials shall comply with normes 3101, 5101, 3501, 3801 and 31001 of MTMDDET

2.2 CONCRETE MIX FOR SLAB REPAIR, MOORING BASE AND FILLING UNDERNEITH THE SLAB

- .1 Prepare and provide V-S type concrete mix, in accordance with standard 301 of the Ministère des Transports, de la Mobilité durable et de l'Électrification des transports (MTMDDET), "Tome VII – Matériaux", which includes the following properties (Table 3101-2):
 - .1 28 days compressive resistance: 35 MPa;
 - .2 Exposure class: C-1 according to Table 1 of the CAN/CSA A23.1 standards;
 - .3 Type GUB-SF Portland Cement;
 - .4 Aggregate size: 5-20 mm;
 - .5 Slump: at time and point of discharge: 130 ± 30 mm;
 - .6 Air-entraining: 5 to 8 %;
 - .7 Water reducer: quantity recommended by the manufacturer;
 - .8 Water/cement maximum ratio: maximum 0.4;
 - .9 Adding a superplasticizer and silica fume is required.
- .2 Notwithstanding what is specified in CAN/CSA-A23.1 and CAN/CSA-A23.4, the Contractor shall provide the Departmental Representative a mixing formula for the concrete mix. This formula serves only as a guide and is determined by the aggregates provided by the Contractor, which have been subjected to laboratory testing for all required operations such as sieving, washing, etc. The Contractor is responsible for using the same aggregates and the same processes to ensure effective results. The Contractor is also responsible for adjusting this formula based on possible changes in aggregates or other concrete components.

2.3 EQUIPMENT FOR INSTALLING ANCHORS

- .1 Before the work, submit to the approval of the Departmental Representative an equipment list to use for the placement of the anchoring tie-rods.
 - .1 Supply necessary details to evaluate equipment performance;

- .2 Supply details concerning required equipment for the drilling and excavation work, cleaning of the drilling, installation of the anchoring tie-rods and the grouting in the anchoring tie-rods.

Part 3 Execution

3.1 PREPARATION

- .1 Provide Departmental Representative 24 hours notice before each concrete pour.
- .2 Place concrete reinforcing in accordance with as indicated on the drawings or as directed by the Departmental Representative.
- .3 During concreting operations:
 - .1 Development of cold joints not allowed.
 - .2 Ensure concrete delivery and handling facilitates placing with minimum of rehandling, and without damage to existing structure or Work.
- .4 Protect previous Work from staining.
- .5 Clean and remove stains prior to application of concrete finishes.

3.2 INSTALLATION/APPLICATION

- .1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.

3.3 FINISHES

- .1 Pavements, walks, curbs and exposed site concrete:
 - .1 Screed to plane surfaces and use aluminum floats.
 - .2 Provide round edges and joint spacings using standard tools.
 - .3 Trowel smooth to provide lightly brushed non-slip finish.

3.4 EXPANSION AND ISOLATION JOINTS

- .1 Install premoulded joint filler in expansion and isolation joints to full depth of slab and flush with finished surface to CSA A23.1/A23.2.

3.5 CURING

- .1 Use curing compounds compatible with applied finish on concrete surfaces free of bonding agents and to CSA A23.1/A23.2.

3.6 SITE TOLERANCES

- .1 The tolerances of concrete slab finishes must comply with CSA A23.1/A23.2.

3.7 FIELD QUALITY CONTROL

- .1 Concrete testing: to CSA A23.1/A23.2 by testing laboratory designated and paid for by Departmental Representative.

3.8 GROUT PLACEMENT

- .1 High performance non-shrink cement grout must be put in place in accordance with the manufacturer's recommendations. The Contractor shall submit a work method to the Departmental Representative for approval, at least 10 days prior to beginning work.

3.9 INSERTS

- .1 During pouring of concrete, place sleeves, clips, anchors sections, anchors, reinforcements, frames, bolts, gaskets, joints as well as other elements to be integrated into the work.

3.10 CHEMICAL ANCHORS

- .1 The Contractor can find reinforcing bars during the drilling of the existing concrete.
- .2 Unless otherwise specified in the plans and specifications, the characteristics of the drill holes for anchors are as follows:
 - .1 The diameter of the drill hole shall be at least 3 mm larger than the overall diameter of the metal rod to be inserted;
 - .2 Minimum depth shall be 200 mm;
- .3 Hole walls shall be cleaned as recommended by the anchor manufacturer. If an air blast is used, it must be equipped with a filter that removes oil; filter efficiency must be demonstrated before using the equipment.
- .4 For anchors with theoretical hole depth is equal to or greater than 300 mm, or for anchors installed in the ceiling position, the Contractor shall use an injection plunger compatible with the type of resin and the hole diameter used. The injection shall begin from the hole bottom and move outwards.
- .5 The Contractor shall follow the manufacturer's recommendations for holes drilling and preparation as well as the placement of the anchor product.
- .6 Place anchors in concrete as shown on plans.

3.11 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Use trigger operated spray nozzles for water hoses.
- .3 Designate cleaning area for tools to limit water use and runoff.
- .4 Cleaning of concrete equipment to be done in accordance with Section 01 35 43 Environmental Procedures.
- .5 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Use excess concrete for: additional paving.
 - .2 Provide appropriate area on job site where concrete trucks and be safely washed.

- .3 Do not dispose of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

END OF SECTION

DIVISION 05 METALS

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Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00, Submittal procedures.
- .2 Section 01 74 21, Construction-demolition waste management and disposal.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A6/A6M, Standard Specification for general Requirements for Rolled Structural steel Bars, Plates, Shapes and Sheet Piling.
- .2 CSA International
 - .1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .3 CSA W59, Welded Steel Construction (Metal Arc Welding).
- .3 Underwater welding: to ANSI/AWS D3.6.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for sections and plates and include product characteristics, performance criteria, physical size and limitations.
- .3 Shop Drawings:
 - .1 Indicate materials, core thicknesses, connections, welding, reinforcement, details, and accessories.
 - .2 Provide a written description of the welding procedures approved by the Canadian Welding Bureau or by a certified metallurgical engineer, entitled to practice in the province of Québec in which case the shop drawings will bear the seal of the engineer.
 - .3 Assembly drawings to include the method of work and the assembly order of the elements.

1.4 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

- .2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations
 - .2 Handle steel elements to avoid permanent deformations.
 - .3 Replace defective or damaged materials with new.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21- Construction/ Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.
- .2 Bolts: to ASTM A307.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Where possible, fit and shop assemble work, ready for erection.
- .3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 ACCESS LADDERS

- .1 Steel Rungs: 20 mm diameter, welded to existing stringers/angle iron to match existing rungs.

2.4 CHANNEL FRAMES

- .1 Fabricate frames from steel, sizes of channel and opening as indicated.
- .2 Weld channels together to form continuous frame for jambs and head of openings, sizes as indicated.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that the condition of substrates of existing steel piles and sheet piles are acceptable for metal fabrications installation in accordance with the requirements in the plans and specifications.
 - .1 Visually inspect the steel piles and sheet piles in presence of the Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- .2 Verify the dimensions of existing elements.

3.2 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Assemble the items on site using bolts to CSA S16 standard welding.

3.3 FABRICATION AND WELDING

- .1 Structural steel pieces shall be fabricated in accordance with CAN/CSA-S16 and the specifications in the shop drawings.
- .2 Shear studs shall be installed in accordance with CSA W59.
- .3 Weldings out of water in accordance with CAN/CSA W59.

3.4 SERVICES LADDERS

- .1 Add the ladder rungs as indicated on plans. Clean the steel pieces that must be welded in order to remove any rust, organic subtract or any contamination source on the welding areas.

3.5 ACCESS DOOR FIXATION

- .1 Install the new fixation mod of the access door as indicated on plans. Prepare the steel surfaces that must be weld in order to remove any rust, dust, oil and any other contamination source that may affect the welding work.

3.6 STEEL PLATES FIXATION ON TOP SURFACE

- .2 Cut the plates as indicated on plans prior to shape the plates.
- .3 Maintain the charge on the plates until the welding work are finished and approved by the Departmental Representative.

- .4 Proceed with L shape installation and concrete anchoring once the welding work have been approved by the Departmental Representative.

3.7 UNDERWATER WELDING

- .1 The Contractor shall comply with the American Welding Society – American Standards Institute – Specification for underwater welding (ANSI/AWS D 3.6), Category C.
- .2 Contractor personnel shall be qualified for this type of welding. The Departmental Representative will require evidence of welders' qualifications.
- .3 Departmental Representative may also require test samples for each type of weld. Costs of sample tests to be borne by the Contractor.

3.8 CONTROL AND INSPECTION

- .1 Provide a written description of welding procedures for approval of the Departmental Representative.
- .2 Provide Departmental Representative with all facilities and assistance necessary for the examination of the welds, at no extra cost.
- .3 Should weld checks show a defect, the weld must be repaired, or redone. The Contractor shall adjust his welding method to prevent such defects.
- .4 Allow Departmental Representative to conduct inspections at the fabrication and/or assembly shop.

3.9 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.10 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

APPENDIX PHOTOGRAPHY

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Two sets of text, each consisting of multiple lines of repeated words and phrases, arranged in a grid-like pattern. The text is small and dense, filling the right half of the page.



Ladders Pictures



Ladder no 1



Ladder no 2



Ladder no 3



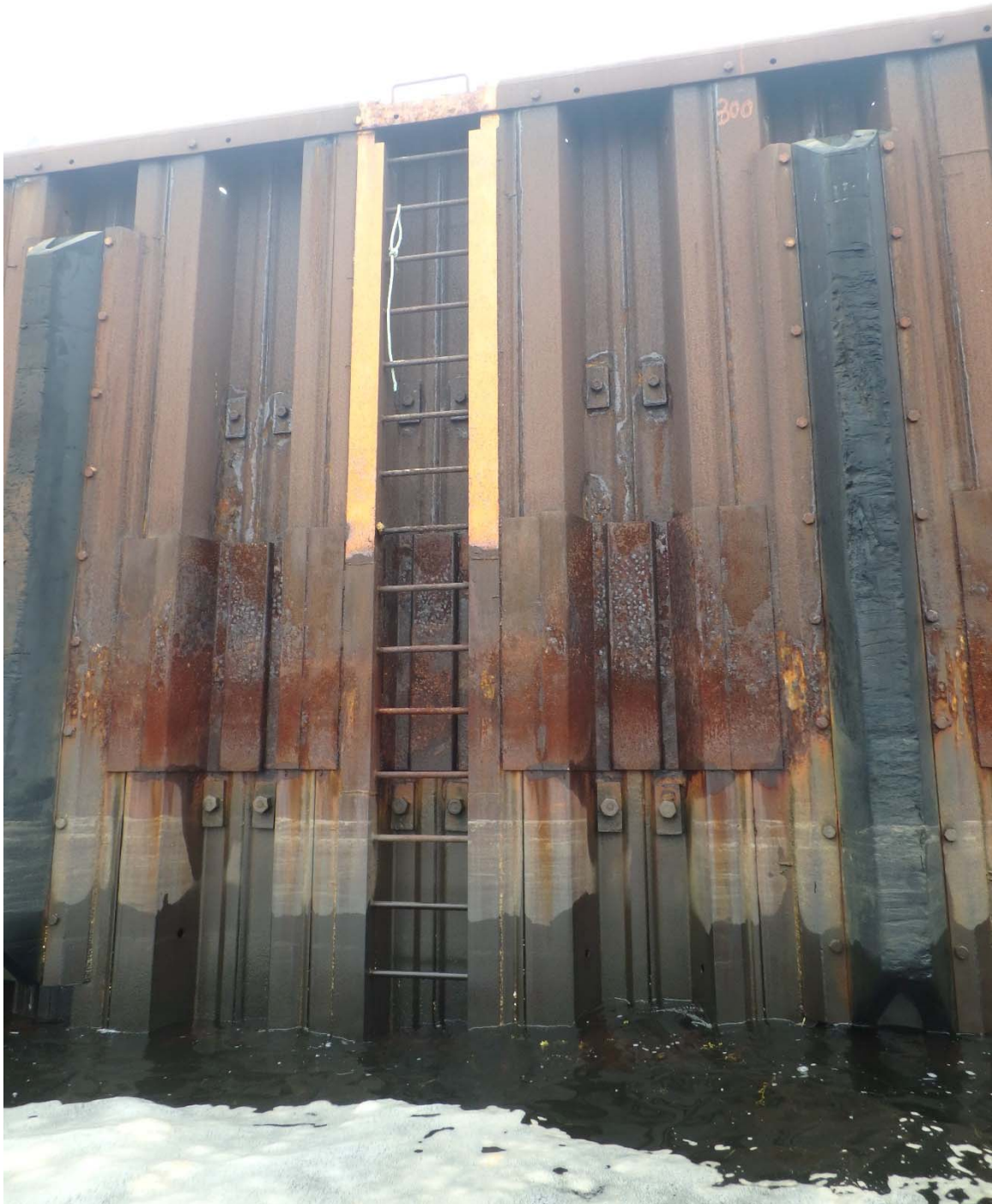
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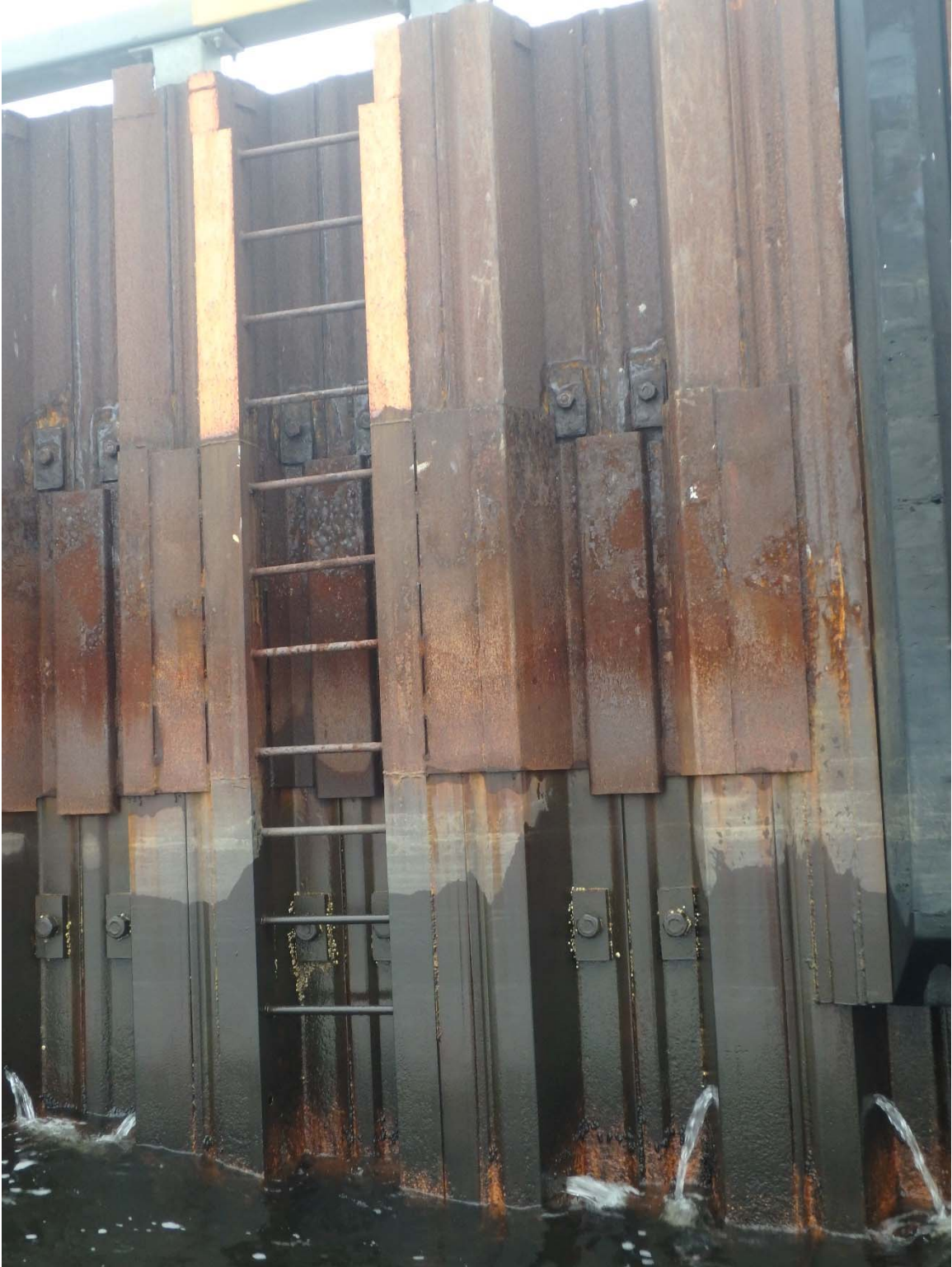
Ladder no 5



Ladder no 6



Ladder no 7



Ladder no 8

Waler Bolts Pictures – East Wall



Axe 5 – North Waler



Axe 5 – South Waler



Axe 7 – North Waler



Axe 7– South Waler



Axe 10 – North Waler



Axe 10 – South Waler



Axe 11 – North Waler



Axe 11 – South Waler



Axe 13 – North Waler



Axe 13 – South Waler



Axe 14 – North Waler



Axe 14 – South Waler



Axe 17 – North Waler



Axe 17 – South Waler



Axe 18 – North Waler



Axe 18 – South Waler



Axe 20 – North Waler



Axe 20 – South Waler

Waler Bolts Pictures – West Wall



Axe 16 – North Waler



Axe 16 – South Waler



Axe 17 – North Waler



Axe 17 – South Waler

Access Door to Repair Pictures



Existing Access Door (two panels) – General Layout



Existing Access Door (two panels) – General Layout



Existing Access Door (two panels) – General Layout



Access Door – 13 mm plates to be cut



Access Door – Hinge



Access Door – Hinge



Access Door – Hinge



Access Door – Hinge

Sheet Piles 132, 159 and 160 to Repair Pictures



Sheet Pile 132 - Hole



Sheet Pile 132 - Hole Sheet Pile 132 - Hole



Sheet Pile 159-160 - Hole



Sheet Pile 159-160 - Hole



Sheet Pile 159-160 - Hole



Sheet Pile 159-160 - Hole



Sheet Pile 159-160 - Hole



Sheet Pile 160 - Hole

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