SPECIFICATION

KING'S COVE HARBOUR REPAIRS, NL

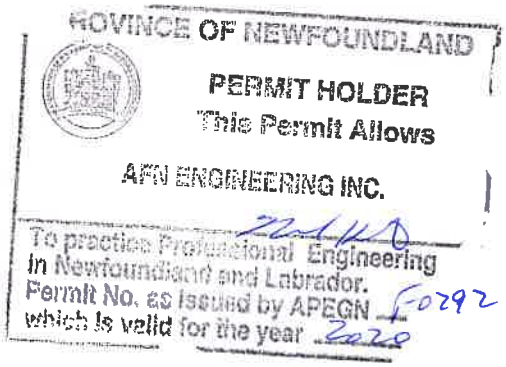
Project Number 723422

PREPARED ON BEHALF OF:

Fisheries and Oceans Canada

DATE

September 14, 2020
Revision 2



LIST OF DRAWINGS

DRAWING NO	TITLE
C1 of 7	Sounding and Topographic Survey
C2 of 7	Demolition Plan
C3 of 7	New Site Plan
C4 of 7	New Launchway Plan and Section
C5 of 7	New Launchway Sections and Details
C6 of 7	Uplands Slab and Crib
C7 of 7	New Breakwater Section

1.1 SCOPE

.1 The work consists of the furnishing of all plant, labour, equipment and material for facility repairs at King’s Cove, NL, in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of the Contract.

.2 Note that the Contractor must incorporate COVID-19 standardized protocols in their site specific Health and Safety Plan. The protocols are to include:
.1 Prevention (signage, practices to reduce risk of transmission, encouragement of social distancing, use of PPE, use of individual modes of transportation, monitoring status of workers, construction jobsite and trailer cleaning protocols, etc.).
.2 Detection (screening at entry of construction site, unauthorized entry points, etc.).
.3 Response measures (shut down procedures, individual case handling, etc.)

1.2 DESCRIPTION OF WORK

.1 In general, work under this contract will consist of, but will not necessarily be limited to, the following:

.1 Removal of the existing concrete launchway, removal of asphalt, removal of deck overhang on marginal wharf, clean-up of scattered boulders around the site and reshaping of the uplands (including washed-out areas along the marginal and approach to the finger pier), as noted on the drawings.
.2 Construction of a new concrete launchway, complete with toe crib, to the dimensions as indicated on the drawings.
.3 Asphalt paving and construction

of a new uplands slab on grade (supported by granulars), as noted on the drawings.
.4 Supply and installation of a new treated timber crib (portion of which is concrete ballasted) at the approach to the finger pier.
.5 Protection of existing conduit (by encasing in concrete), as noted on the drawings.
.6 Supply and installation of rock fill core, filter stone and armour stone, as noted on the drawings.

1.3 SITE OF WORK

.1 Work will be carried out at King’s Cove, NL, in the location as shown on the accompanying drawings.

1.4 DATUM

.1 Datum used for this project is Lowest Normal Tides (LNT) which is assumed to be 4.183m below bench mark PWC 1-2019. Confirm the benchmark is accurate and not damaged, before proceeding with work. If required, establish a new bench mark to the approval of the Departmental Representative.

.2 Bidders are advised to consult the Tide Tables issued by Fisheries and Oceans in order to make sure of the tidal conditions affecting work.

1.5 FAMILIARIZATION WITH SITE

.1 Before submitting a bid, it is recommended that bidders visit the site and its surroundings to review and verify the form, nature and extent of the work, materials needed for the completion of the work, the means of access to the site, severity, exposure and uncertainty of weather, soil conditions, any accommodations they may require, and in general shall obtain all necessary information as to risks, contingencies and

other circumstances which may influence or affect their bid or costs to do the work. No allowance shall be made subsequently in this connection on account of error or negligence to properly observe and determine the conditions that will apply.

.2 Contractors, bidders or those they invite to site are to review specification Section 01 35 29 - Health and Safety Requirements before visiting site. Take all appropriate safety measures for any visit to site, either before or after acceptance of bid.

1.6 CODES AND STANDARDS

.1 Perform work in accordance with the latest edition of the National Building Code of Canada, FCC Standard 373 - Standard for Piers and Wharves (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/373/page00.shtml), and any other code of provincial or local application including all amendments up to project bid closing date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

.2 Materials and workmanship must meet or exceed requirements of specified standards, codes and referenced documents.

1.7 TERM ENGINEER

.1 Unless specifically stated otherwise, the term Engineer where used in the Specifications and on the Drawings shall mean the Departmental Representative as defined in the General Conditions of the Contract.

1.8 SETTING OUT WORK

.1 Set grades and layout work in detail from control points and grades established by Departmental Representative.

.2 Assume full responsibility for and execute

complete layout of work to locations, lines and elevations indicated or as directed by Departmental Representative.

.3 Provide devices needed to layout and construct work.

.4 Supply such devices as straight edges and templates required to facilitate Departmental Representative's inspection of work.

.5 Supply stakes and other survey markers required for laying out work.

1.9 COST BREAKDOWN

.1 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price.

.2 Provide cost breakdown in same format as the numerical and subject title system used in this specification project manual and thereafter sub-divided into major work components as directed by Departmental Representative.

.3 Upon approval by Departmental Representative, cost breakdown will be used as basis for progress payment.

.4 All work items not designated in the unit price table as a measurement for payment, are to be included in the lump sum arrangement, as noted on the Bid and Acceptance Form.

1.10 WORK SCHEDULE

.1 Submit within 7 work days of notification of acceptance of bid, a construction schedule showing commencement and completion of all work within the time stated on the Bid and Acceptance Form and the date stated in the bid acceptance

letter.

.2 Provide sufficient details in schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones.

.3 As a minimum, work schedule to be prepared and submitted in the form of Bar (GANTT) Charts, indicating work activities, tasks and other project elements, their anticipated durations and planned dates for achieving key activities and major project milestones provided in sufficient details and supported by narratives to demonstrate a reasonable plan for completion of project within designated time. Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.

.4 Submit schedule updates on a minimum monthly basis and more often, when requested by Departmental Representative, due to frequent changing project conditions. Provide a narrative explanation of necessary changes and schedule revisions at each update.

.5 The schedule, including all updates, shall be to Departmental Representative's approval. Take necessary measures to complete work within approved time. Do not change schedule without Departmental Representative's approval.

.6 All work on the project will be completed within the time indicated on the Bid and Acceptance Form.

1.11 ABBREVIATIONS

.1 Following abbreviations of standard specifications have been used in this specification and on the drawings:

CGSB - Canadian Government Specifications Board
CSA - Canadian Standards Association
NLGA - National Lumber Grades Authority
ASTM - American Society for Testing and Materials

.2 Where these abbreviations and standards are used in this project, latest edition in effect on date of bid call will be considered applicable.

1.12 QUARRY AND EXPLOSIVES

.1 Make own arrangements with Provincial authorities and owners of private properties, for the quarrying and transportation of rock and all materials and machinery necessary for work over their property, roads or streets as case may be.

1.13 SITE OPERATIONS

.1 Arrange for sufficient space adjacent to project site for conduct of operations, storage of materials and so on. Exercise care so as not to obstruct or damage public or private property in area. Do not interfere with normal day-to-day operations in progress at site. All arrangements for space and access will be made by Contractor.

.2 Remove snow and ice as required to maintain safe access in a manner that does not damage existing structures or interfere with the operations of others.

1.14 PROJECT

.1 Departmental Representative will arrange

MEETINGS

project meetings and assume responsibility for setting times and recording minutes.

.2 Project meetings will take place on site of work unless so directed by the Departmental Representative.

.3 Departmental Representative will assume responsibility for recording minutes of meetings and forwarding copies to all parties present at the meetings.

.4 Have a responsible member of firm present at all project meetings.

1.15 PROTECTION

.1 Store all materials and equipment to be incorporated into work to prevent damage by any means.

.2 Repair or replace all materials or equipment damaged in transit or storage to the satisfaction of Departmental Representative and at no cost to Canada.

1.16 EXISTING SERVICES

.1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to site operations, pedestrian, vehicular traffic and tenant operations.

.2 Before commencing work, establish location and extent of service lines in area of work and notify Departmental Representative of findings.

.3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility. This includes disconnection of electrical power and communication services to tenant's operational areas. Adhere to approved schedule and provide

notice to affected parties.

.4 Provide temporary services when directed by Departmental Representative to maintain critical facility systems.

.5 Provide adequate bridging over trenches which cross walkways or roads to permit normal traffic.

.6 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.7 Protect, relocate or maintain existing active services as required. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction over service. Record locations of maintained, re-routed and abandoned service lines.

1.17 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each of the following:
.1 Contract Drawings
.2 Specifications
.3 Addenda
.4 Reviewed Shop Drawings
.5 List of outstanding shop drawings
.6 Change Orders
.7 Other modifications to Contract
.8 Field Test Reports
.9 Copy of Approved Work Schedule
.10 Site specific Health and Safety Plan and other safety related documents
.11 Other documents as stipulated elsewhere in the Contract Documents.

1.18 PERMITS

.1 Obtain and pay for all permits, certificates and licenses as required by Municipal, Provincial, Federal and other

Authorities.

.2 Provide appropriate notifications of project to municipal and provincial inspection authorities.

.3 Obtain compliance certificates as prescribed by legislative and regulatory provisions of municipal, provincial and federal authorities as applicable to the performance of work.

.4 Submit to Departmental Representative, copy of application submissions and approval documents received for above referenced authorities.

.5 Submit to Departmental Representative, copy of quarry permit, if applicable, prior to start of quarry operations.

.6 Comply with all requirements, recommendations and advice by all regulatory authorities unless otherwise agreed in writing by Departmental Representative. Make requests for such deviations to these requirements sufficiently in advance of related work.

1.19 CUTTING, FITTING AND PATCHING

.1 Execute cutting, including excavation, fitting and patching required to make work fit properly.

.2 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work. This includes patching of openings in existing work resulting from removal of existing services.

.3 Do not cut, bore, or sleeve load-bearing members.

.4 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

1.20 EXISTING SUB-SURFACE CONDITIONS

.1 Information pertaining to the existing sub-surface conditions may be available by contacting the Departmental Representative.

.2 Contractors are cautioned that any previous investigations that may be available for review, were intended to provide general site information only. Any interpolation and/or assumptions made relative to any previous investigations is the Contractor's responsibility.

1.21 LOCATION OF EQUIPMENT

.1 Location of work shown or specified shall be considered as approximate. Actual location shall be as required to suit conditions at time of installation and as is reasonable. Obtain approval of Departmental Representative.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Departmental Representative when impending installation conflicts with other new or existing components. Follow directives for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.22 FISH HABITAT

.1 This work is being conducted in an area where fish habitat may be affected. Perform work to conform with rules and

regulations governing fish habitat and in accordance with authorization for work or undertakings affecting fish habitat.

.2 Contact the local Department of Fisheries and Oceans detachment at least 48 hours in advance of starting any work on site. Submit confirmation to the Departmental Representative that DFO have been contacted.

1.23 NOTICE TO SHIPPING/MARINERS

.1 Notify the Marine Communications and Traffic Services' Centre, of Fisheries and Oceans Canada, at (709)695-2168, ten (10) days prior to commencement and upon completion of the work, in order to allow for the issuance of Notices to Shipping/Mariners.

.2 During construction any vessels or barges utilized must be marked in accordance with the provisions of the Canada Shipping Act Collision Regulations.

1.24 ACCEPTANCE

.1 Prior to the issuance of the Certificate of Substantial Performance, in company with Departmental Representative, make a check of all work. Correct all discrepancies before final inspection and acceptance.

1.25 WORKS COORDINATION

.1 Responsible for coordinating the work of the various trades, where the work of such trades interfaces with each other.

.2 Convene meetings between trades whose work interfaces and ensure that they are fully aware of the areas and the extent of where interfacing is required. Provide each trade with the plans and specifications of the interfacing trade, as required, to assist them in planning and carrying out their respective work.

.3 Canada will not be responsible for or held accountable for any extra costs incurred as a result of the failure to carry out coordination work. Disputes between the various trades as a result of their not being informed of the areas and extent of interface work shall be the sole responsibility of the General Contractor and shall be resolved at no extra cost to Canada.

1.26 CONTRACTOR'S USE OF SITE

.1 Construction operations, including storage of materials for this contract, not to interfere with the fishing activity and/or operations at this harbour facility.

.2 Responsible for arranging the storage of materials on or off site, and any materials stored at the site which interfere with any of the day to day activities at or near the site will be moved promptly at the Contractor's expense, upon request by Departmental Representative.

.3 Contractor will take adequate precautions to protect existing concrete decks and asphalt when operating tracked equipment.

.4 Exercise care so as not to obstruct or damage public or private property in the area.

.5 At completion of work, restore area to its original condition. Damage to ground and property will be repaired by Contractor. Remove all construction materials, residue, excess, etc., and leave site in a condition acceptable to Departmental Representative.

1.27 WORK COMMENCEMENT

.1 Mobilization to project site is to commence immediately after acceptance of bid and submission of Site Specific Safety

Plan and insurance documentation, unless otherwise agreed by Departmental Representative.

.2 Project work on site is to commence as soon as possible, with a continuous reasonable work force, unless otherwise agreed by Departmental Representative.

.3 Weather conditions, short construction season, delivery challenges and the location of the work site may require the use of longer working days and additional work force to complete the project within the specified completion time.

.4 Make every effort to ensure that sufficient material and equipment is delivered to site at the earliest possible date after acceptance of bid and replenished as required.

1.28 FACILITY SMOKING ENVIRONMENT

.1 Comply with smoking restrictions.

1.29 WORKING ADJACENT TO COMMUNITY ROADS

1. The Contractor will be responsible to restore any damage to existing roadways.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Inspecting and testing by inspecting firms or testing laboratories designated by Departmental Representative.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

.1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under various sections.

1.3 APPOINTMENT AND PAYMENT

.1 Departmental Representative will appoint and pay for services of testing laboratory except for the following:
.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 the supervision of Departmental Representative.
.5 Tests requested by Departmental Representative to confirm material specifications when the applicable manufacturer's documentation or test results are unavailable.
.6 Additional tests specified in the following paragraph.

.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.

1.4 CONTRACTOR'S

.1 Provide labour, equipment and facilities

RESPONSIBILITIES

to:

.1 Provide access to Work to be inspected and tested.

.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 sufficiently 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.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Shop drawings and product data.

.2 Samples.

.3 Certificates.

1.2 SUBMITTAL GENERAL REQUIREMENTS

.1 Submit to Departmental Representative for review submittals listed, including shop drawings, samples, certificates and other data, as specified in other sections of the Specifications.

.2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.

.3 Do not proceed with work until relevant submissions are reviewed by Departmental Representative.

.4 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.5 Where items or information is not produced in SI Metric units, provide soft converted values.

.6 Review submittals prior to submission to Departmental Representative. Ensure during review that necessary requirements have been determined and verified, required field measurements or data have been taken, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.

.1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.

.7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify field measurements and affected adjacent work and coordinate.

.9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.

.11 Submittal format: paper originals, or alternatively clear and fully legible photocopies of originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Departmental Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and be returned for resubmission.

.12 Make changes or revision to submissions which Departmental Representative may require, consistent with Contract Documents and resubmit as directed by Departmental Representative. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.

.13 Keep one reviewed copy of each submittal document on site for duration of Work.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules,

performance charts, product data, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Number of Shop Drawings: submit sufficient copies of shop drawings which are required by the General Contractor and sub-contractors plus 2 copies which will be retained by Departmental Representative. Ensure sufficient numbers are submitted to enable one complete set to be included in each of the maintenance manuals specified, if applicable.

.3 Shop Drawings Content and Format:

.1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where items or equipment attach or connect to other items or equipment, confirm that all interrelated work have been coordinated, regardless of section or trade from which the adjacent work is being supplied and installed.

.2 Shop Drawings Format:

.1 Opaque white prints or photocopies of original drawings or standard drawings modified to clearly illustrate work specific to project requirements. Maximum sheet size to be 1000 x 707 mm.

.2 Product Data from manufacturer's standard catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products, to be original full colour brochures, clearly marked indicating applicable data and deleting information not applicable to project.

.3 Non or poorly legible drawings, photocopies or facsimiles will not be accepted and returned not reviewed.

.4 Supplement manufacturer's standard

drawings and literature with additional information to provide details applicable to project.
.5 Delete information not applicable to project on all submittals.

.4 Allow 10 calendar days for Departmental Representative's review of each submission.

.5 Adjustments or corrections made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, advise Departmental Representative in writing prior to proceeding with Work.

.6 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections and comments are made, fabrication and installation may proceed upon receipt of shop drawings. If shop drawings are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected shop drawings, through same submission procedures indicated above.

.7 Accompany each submission with transmittal letter, containing:
.1 Date.
.2 Project title and project 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 shall include:
.1 Date and revision dates.
.2 Project title and project 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 Cross references to particular details of contract drawings and specifications section number for which shop drawing submission addresses.

.6 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 Capacities.

.5 Performance characteristics.

.6 Standards.

.7 Operating weight.

.8 Wiring diagrams.

.9 Single line and schematic diagrams.

.10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 The review of shop drawings by the Departmental Representative or their delegated representative is for sole purpose of ascertaining conformance with general concept. This review shall not mean that the Departmental Representative approves the detail design inherent in the 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 all requirements of the construction and Contract Documents. 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 all sub-trades.

1.4 SCHEDULES, PERMITS AND CERTIFICATES

.1 Upon acceptance of bid, submit to Departmental Representative copy of Work Schedule and various other schedules, permits, certification documents and project management plans as specified in other sections of the Specifications.

.2 Submit copy of permits, notices, compliance Certificates received by Regulatory Agencies having jurisdiction and as applicable to the Work.

.3 Submission of above documents to be in accordance with Submittal General Requirements procedures specified in this section.

1.1 SECTION INCLUDES

.1 Fire Safety Requirements.

.2 Hot Work Permit.

1.2 RELATED WORK

.1 Section 01 35 25 - Special Procedures on Lockout Requirements.

.2 Section 01 35 29 - Health and Safety Requirements.

1.3 REFERENCES

.1 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:
.1 FCC No. 301-June 1982 Standard for Construction Operations (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/301/page00.shtml).
.2 FCC No. 302-June 1982 Standard for Welding and Cutting (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/302/page00.shtml).
.3 FCC standards, may also be viewed at the Regional Fire Protection Services' office (previously known as the Fire Commissioner of Canada) located at 99 Wyse Road, 8th Floor, Dartmouth, NS, Tel: (902) 426-6053.

1.4 DEFINITIONS

.1 Hot Work defined as:
.1 Welding work.
.2 Cutting of materials by use of torch or other open flame devices.
.3 Grinding with equipment which produces sparks.

1.5 SUBMITTALS

.1 Submit copy of Hot Work Procedures and sample of Hot Work permit to Departmental Representative for review, within 14 calendar days after notification of acceptance of bid.

.2 Submit in accordance with the Submittal General Requirements specified in Section 01 33 00.

1.6 FIRE SAFETY REQUIREMENTS

.1 Implement and follow fire safety measures during Work. Comply with following:
.1 National Fire Code, 2015.
.2 Fire Protection Standards FCC 301 and FCC 302.
.3 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29.

.2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.7 HOT WORK AUTHORIZATION

.1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot work on site.

.2 To obtain authorization submit to Departmental Representative:
.1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
.2 Description of the type and frequency of Hot Work required.
.3 Sample Hot Work Permit to be used.

.3 Upon review and confirmation that effective fire safety measures will be implemented during performance of hot work, Departmental Representative will provide authorization to proceed as follows:
.1 Issue one written "Authorization to Proceed" covering the entire project for

duration of work or;
.2 Separate work, or segregate certain parts of work, into individual entities. Each entity requiring a separately written "Authorization to Proceed" from Departmental Representative. Follow Departmental Representative's directives in this regard.

.4 Requirement for individual authorization based on:
.1 Nature or phasing of work;
.2 Risk to Facility operations;
.3 Quantity of various trades needing to perform hot work on project or;
.4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.

.5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.

.6 In tenant occupied Facility, coordinate performance of Hot Work with Facility Manager through the Departmental Representative. When directed, perform Hot Work only during non-operative hours of Facility. Follow Departmental Representative's directives in this regard.

1.8 HOT WORK PROCEDURES

.1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.

.2 Procedures to include:
.1 Requirement to perform hazard assessment of site and immediate hot work area for each hot work event in accordance with Hazard Assessment and Safety Plan requirements of Section 01 35 29.
.2 Use of a Hot Work Permit system for each hot work event.

.3 The step by step process of how to prepare and issue permit.
.4 Permit shall be issued by Contractor's site Superintendent, or other authorized person designated by Contractor, granting permission to worker or subcontractor to proceed with hot work.
.5 Provision of a designated person to carryout a Fire Safety Watch for a minimum of 60 minutes immediately upon completion of the hot work.
.6 Compliance with fire safety codes and standards specified herein and occupational health and safety regulations specified in Section 01 35 29.

.3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.

.4 Hot Work Procedures shall clearly establish worker instructions and allocate responsibilities of:
.1 Worker(s),
.2 Authorized person issuing the Hot Work Permit,
.3 Fire Safety Watcher,
.4 Subcontractors and Contractor.

.5 Brief all workers and subcontractors on Hot Work Procedures and Permit system established for project. Stringently enforce compliance.
.1 Failure to comply with the established procedures may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 29.

1.9 HOT WORK PERMIT

.1 Hot Work Permit to include, as a minimum, the following data:
.1 Project name and project number.
.2 Building name, address and specific room

or area where hot work will be performed.
.3 Date when permit issued.
.4 Description of hot work type to be performed.
.5 Special precautions required, including type of fire extinguisher needed.
.6 Name and signature of person authorized to issue the permit.
.7 Name of worker (clearly printed) to which the permit is being issued.
.8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time and date, and completion time and date.
.9 Worker signature with date and time upon hot work termination.
.10 Specified time period requiring safety watch.
.11 Name and signature of designated Fire Safety Watcher, complete with time and date when safety watch terminated, certifying that surrounding area was under continual surveillance and inspection during the full watch time period specified in Permit and commenced immediately upon completion of Hot Work.

.2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.

.3 Each Hot Work Permit to be completed in full and signed as follows:
.1 Authorized person issuing Permit before hot work commences.
.2 Worker upon completion of Hot Work.
.3 Fire Safety Watcher upon termination of safety watch.
.4 Returned to Contractor's Site Superintendent for safe keeping.

1.10 DOCUMENTS ON SITE

.1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.

.2 Upon request, make available to Departmental Representative or to authorized safety

representative for inspection.

1.1 SECTION INCLUDES

.1 Procedures to isolate and lockout electrical facility or other equipment from energy source.

1.2 RELATED WORK

.1 Section 01 35 24 - Fire Safety Requirements.

.2 Section 01 35 29 - Health and Safety Requirements.

1.3 REFERENCES

.1 C22.1-06 - Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.

.2 CAN/CSA C22.3 No. 1-10 - Overhead Systems.

.3 CAN/CSA C22.3 No. 7-10 - Underground Systems.

.4 COSH, Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.

1.4 DEFINITIONS

.1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.

.2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment is isolated.

.3 De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD).

.4 Guarded: means that an equipment or facility

is covered, shielded, fenced, enclosed, inaccessible by location, or otherwise protected in a manner that, to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.

.5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of energy that is capable of making it dangerous.

.6 Live/alive: means that an electrical facility produces, contains, stores or is electrically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.

1.5 COMPLIANCE REQUIREMENTS

.1 Perform lockouts in compliance with:
.1 Canadian Electrical Code.
.2 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29.
.3 Regulations and code of practice as applicable to mechanical equipment or other machinery being de-energized.
.4 Procedures specified herein.

.2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.6 SUBMITTALS

.1 Submit copy of proposed Lockout Procedures and sample form of lockout permit or lockout

tags for review.

.2 Submit documentation within 7 calendar days of acceptance of bid. Do not proceed with work until submittal has been reviewed by Departmental Representative.

.3 Submit above documents in accordance with the submittal requirements specified in Section 01 33 00.

.4 Resubmit Lockout Procedures with noted revisions as may result from Departmental Representative's review.

1.7 ISOLATION OF EXISTING SERVICES

.1 Obtain Departmental Representative's written authorization prior to conducting work on an existing active, energized service or facility required as part of the work and before proceeding with lockout of such services or facility.

.2 To obtain authorization, submit to Departmental Representative the following documentation:
.1 Written Request for Isolation of the service or facility and;
.2 Copy of Contractor's Lockout Procedures.

.3 Make a Request for Isolation for each event, unless directed otherwise by Departmental Representative, and as follows:
.1 Fill-out standard forms in current use at the Facility when so directed by Departmental Representative or;
.2 Where no form exist at Facility, make request in writing identifying:
.1 Identification of system or equipment to be isolated, including it's location;
.2 Time duration, indicating Start time and date, and Completion time and

date when isolation will be in effect;
.3 Voltage of service feed to system or equipment being isolated;
.4 Name of person making the request.

.3 Document to be in typewritten format.

.4 Do not proceed until receipt of written notification from Departmental Representative granting the Isolation Request and authorization to proceed with the isolation of designated equipment or facility. Departmental Representative may designate other individual at the Facility as the person authorized to grant the Isolation Request.

.5 Conduct safe, orderly shut down of equipment or facilities, de-energize and isolate power and other sources of energy and lockout items in accordance with requirement of clause 1.8 below.

.6 Plan and schedule shut down of existing services in consultation with the Departmental Representative and the Facility Manager. Minimize impact and downtime of facility operations.

.7 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require a Request for Isolation. Follow Departmental Representative's directives in this regard.

.8 Conduct hazard assessment as part of the planning process of isolating existing equipment and facilities. Hazard Assessments to conform with requirements of Health and Safety Section 01 35 29.

1.8 LOCKOUTS

.1 Isolate and lockout electrical facilities, mechanical equipment and machinery from all potential energy sources prior to starting work on such items.

.2 Develop and implement lockout procedures to be followed on site as an integral part of the Work.

.3 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.

.4 Use industry standard lockout tags.

.5 Provide appropriate safety grounding and guards as required.

.6 Prepare Lockout Procedures in writing. Describe safe work practices, work functions and sequence of activities to be followed on site to safely isolate all potential energy sources and lockout/tagout facilities and equipment.

.7 Include within procedures a system of worker request and issuance of individual lockout permit by a person, employed by Contractor, designated to be "in-charge" and being responsible for:

.1 Controlling issuance of permits or tags to workers.

.2 Determining permit duration.

.3 Maintaining record of permits and tags issued.

.4 Submitting a Request for Isolation to Departmental Representative when required in accordance with Clause 1.7 above.

.5 Designating a Safety Watcher, when one is required based on type of work.

.6 Ensuring equipment or facility has been properly isolated, providing a Guarantee of Isolation to worker(s) prior to proceeding with work.

.7 Collecting and safekeeping lockout tags, returned by workers, as a record of the event.

.8 Clearly establish, describe and allocate, within procedures, the responsibilities of:
.1 Workers.
.2 Designated person controlling issuance of lockout tags/permits.
.3 Safety Watcher.
.4 Subcontractors and General Contractor.

.9 Procedures shall meet the requirements of Codes and Regulations specified in clause 1.5 above.

.10 Generic procedures, if used, must be edited, supplemented with pertinent information and tailored to reflect specific project conditions. Clearly label as being the procedures applicable to this contract.
.1 Incorporate site specific rules and procedures established by Facility Manager and in force at site. Obtain such procedures through Departmental Representative.

.11 Procedures to be in typewritten format.

.12 Submit copy of Lockout Procedures to Departmental Representative, in accordance with submittal requirements of clause 1.6 herein, prior to commencement of work.

1.9 CONFORMANCE

.1 Ensure that lockout procedures, as established for project on site, are stringently followed. Enforce use and compliance by all workers.

.2 Brief all persons working on electrical facilities, mechanical and other equipment fed by an energy source on requirements of this section.

.3 Failure to perform lockouts in accordance with regulatory requirements or follow procedures specified herein may result in the

issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 29.

1.10 DOCUMENTS ON SITE

.1 Post Lockout Procedures on site in common location for viewing by workers.

.2 Keep copies of Request for Isolation submitted to Departmental Representative and lockout permits or tags issued to workers during the course of work for full project duration.

.3 Upon request, make such data available to Departmental Representative or to authorized safety representative for inspection.

1.1 RELATED WORK

.1 Section 01 35 24 - Special Procedures on Fire Safety Requirements.

.2 Section 01 35 25 - Special Procedures on Lockout Requirements.

1.2 DEFINITIONS

.1 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.

.2 Competent Person: means a person who is:

.1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;

.2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;

.3 Knowledgeable about potential or actual danger to health or safety associated with the Work.

.3 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.

.4 PPE: personal protective equipment.

.5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00.

.2 Submit site-specific Health and Safety

Plan prior to commencement of Work.

.1 Submit within 10 work days of notification of Bid Acceptance. Provide 3 copies.

.2 Departmental Representative will review Health and Safety Plan and provide comments.

.3 Revise the Plan as appropriate and resubmit within 5 work days after receipt of comments.

.4 Departmental Representative's review and comments made of the Plan shall not be construed as an endorsement, approval or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.

.5 Submit revisions and updates made to the Plan during the course of Work.

.3 Submit name of designated Health & Safety Site Representative and support documentation specified in the Safety Plan.

.4 Submit building permit, compliance certificates and other permits obtained.

.5 Submit copy of Letter in Good Standing from Provincial Workers Compensation or other department of labour organization.

.1 Submit update of Letter of Good Standing whenever expiration date occurs during the period of Work.

.6 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.7 Submit copies of incident reports.

.8 Submit WHMIS MSDS - Material Safety Data Sheets.

1.4 COMPLIANCE REQUIREMENTS

.1 Comply with the Occupational Health and Safety Act for the Province of Newfoundland and Labrador, and the Occupational Health and Safety Regulations made pursuant to the Act.

.2 Comply with Canada Labour Code Part II, (entitled Occupational Health and Safety) and the Canada Occupational Health and Safety Regulations (COSH) as well as any other regulations made pursuant to the Act.

.1 The Canada Labour Code can be viewed at: www.http://laws.justice.gc.ca/en/L-2/

.2 COSH can be viewed at: www.http://laws.justice.gc.ca/eng/SOR-86-304/ne.html.

.3 A copy may be obtained at: Canadian Government Publishing Public Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: (819) 956-4800 (1-800-635-7943) Publication No. L31-85/2000 E or F).

.3 Observe construction safety measures of:

.1 Part 8 of National Building Code.

.2 Municipal by-laws and ordinances.

.4 In case of conflict or discrepancy between any specified requirements, the more stringent shall apply.

.6 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof of clearance through submission of Letter of Good Standing.

.7 Medical Surveillance: Where prescribed by legislation or regulation, obtain and maintain worker medical surveillance documentation.

1.5 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property and for protection of persons and environment adjacent to the site to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by all workers, sub-contractors and other persons granted access to work site with safety requirements of Contract Documents, applicable Federal, Provincial, and local by-laws, regulations, and ordinances, and with site specific Health and Safety Plan.

1.6 SITE CONTROL AND ACCESS

.1 Control the Work and entry points to Work Site. Approve and grant access only to workers and authorized persons. Immediately stop and remove non-authorized persons.

.1 Departmental Representative will provide names of those persons authorized by Departmental Representative to enter onto Work Site and will ensure that such authorized persons have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.

.2 Isolate Work Site from other areas of the premises by use of appropriate means.

.1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment.

.2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.

.3 Use professionally made signs with bilingual message in the 2 official languages or international known graphic symbols.

.3 Provide safety orientation session to persons granted access to Work Site. Advise of hazards and safety rules to be observed while on site.

.4 Ensure persons granted site access wear appropriate PPE. Supply PPE to inspection authorities who require access to conduct tests or perform inspections.

.5 Secure Work Site against entry when inactive or unoccupied and to protect persons against harm. Provide security guard where adequate protection cannot be achieved by other means.

1.7 PROTECTION

.1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.

.2 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take measures to rectify situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

1.8 FILING OF NOTICE

.1 File Notice of Project with pertinent provincial health and safety authorities prior to beginning of Work.

.1 Departmental Representative will assist in locating address if needed.

1.9 PERMITS

.1 Post permits, licenses and compliance certificates, specified in section 01 10 10, at Work Site.

.2 Where a particular permit or compliance

certificate cannot be obtained, notify Departmental Representative in writing and obtain approval to proceed before carrying out applicable portion of work.

1.10 HAZARD ASSESSMENTS

.1 Perform site specific health and safety hazard assessment of the Work and its site.

.2 Carryout initial assessment prior to commencement of Work with further assessments as needed during progress of work, including when new trades and subcontractors arrive on site.

.3 Record results and address in Health and Safety Plan.

.4 Keep documentation on site for entire duration of the Work.

1.11 PROJECT/SITE CONDITIONS

.1 The following are known or potential project related safety hazards at site:

.1 Working in close proximity of water.
.2 Use of water crafts and floating platforms.
.3 Wet and slippery conditions.
.4 Inclement weather.
.5 Potential structural weakness of existing structures.
.6 Heavy equipment activity in the area.
.7 Heavy lifting.
.8 Working at heights.
.9 Cutting tools and other construction power tools.
.10 Overhead power/utility lines.
.11 Risk of electric shock.
.12 Vehicular and pedestrian traffic.
.13 Confined spaces.

.2 Above items shall not be construed as

being complete and inclusive of potential health, and safety hazards encountered during work.

.3 Include above items into hazard assessment process.

.4 MSDS Data sheets of pertinent hazardous and controlled products stored on site can be obtained from Departmental Representative.

1.12 MEETINGS

.1 Attend pre-construction health and safety meeting, convened and chaired by Departmental Representative, prior to commencement of Work, at time, date and location determined by Departmental Representative. Ensure attendance of:
.1 Superintendent of Work.
.2 Designated Health & Safety Site Representative.
.3 Subcontractors.

.2 Conduct regularly scheduled tool box and safety meetings during the Work in conformance with Occupational Health and Safety regulations.

.3 Keep documents on site.

1.13 HEALTH AND SAFETY PLAN

.1 Prior to commencement of Work, develop written Health and Safety Plan specific to the work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.

.2 Health and Safety Plan shall include the following components:
.1 List of health risks and safety hazards identified by hazard assessment.
.2 Control measures used to mitigate risks and hazards identified.
.3 On-site Contingency and Emergency

Response Plan as specified below.
.4 On-site Communication Plan as specified below.
.5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.
.6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.

.3 On-site Contingency and Emergency Response Plan shall include:
.1 Operational procedures, evacuation measures and communication process to be implemented in the event of an emergency.
.2 Evacuation Plan: site and floor plan layouts showing escape routes, marshaling areas. Details on alarm notification methods, fire drills, location of fire fighting equipment and other related data.
.3 Name, duties and responsibilities of persons designated as Emergency Warden(s) and deputies.
.4 Emergency Contacts: name and telephone number of officials from:
.1 General Contractor and subcontractors.
.2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.
.3 Local emergency resource organizations.
.5 Harmonize Plan with Facility's Emergency Response and Evacuation Plan. Departmental Representative will provide pertinent data including name of Departmental Representative and Facility Management contacts.

.4 On-site Communication Plan:
.1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.
.2 List of critical work activities to be communicated with Facility Manager which have a risk of endangering health and safety of Facility users.

.5 Address all activities of the Work including those of subcontractors.

.6 Review Health and Safety Plan regularly during the Work. Update as conditions warrant to address emerging risks and hazards, such as whenever new trade or subcontractor arrive at Work Site.

.7 Departmental Representative will respond in writing, where deficiencies or concerns are noted and may request re-submission of the Plan with correction of deficiencies or concerns.

.8 Post copy of the Plan, and updates, prominently on Work Site.

1.14 SAFETY SUPERVISION

.1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.

.2 Health & Safety Site Representative may be the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibility and authority to:
.1 Implement, monitor and enforce daily compliance with health and safety requirements of the Work
.2 Monitor and enforce Contractor's site-specific Health and Safety Plan.
.3 Conduct site safety orientation session

to persons granted access to Work Site.

.4 Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent to their activities at the site or are escorted by a competent person while on the Work Site.

.5 Stop the Work as deemed necessary for reasons of health and safety.

.3 Health & Safety Site Representative must:

.1 Be qualified and competent person in occupational health and safety.

.2 Have site-related working experience specific to activities of the Work.

.3 Be on Work Site at all times during execution of the Work.

.4 All supervisory personnel assigned to the Work shall also be competent persons.

.5 Inspections:

.1 Conduct regularly scheduled safety inspections of the Work on a minimum bi-weekly basis. Record deficiencies and remedial action taken.

.2 Conduct Formal Inspections on a minimum monthly basis. Use standardized safety inspection forms. Distribute to subcontractors.

.3 Follow-up and ensure corrective measures are taken.

.6 Cooperate with Facility's Occupational Health and Safety representative should one be designated by Departmental Representative.

.7 Keep inspection reports and supervision related documentation on site.

1.15 TRAINING

.1 Use only skilled workers on Work Site who are effectively trained in occupational health and safety procedures and practices

pertinent to their assigned task.

.2 Maintain employee records and evidence of training received. Make data available to Departmental Representative upon request.

.3 When unforeseen or peculiar safety-related hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.16 MINIMUM SITE SAFETY RULES

.1 Notwithstanding requirement to abide by federal and provincial health and safety regulations; ensure the following minimum safety rules are obeyed by persons granted access to Work Site:
.1 Wear appropriate PPE pertinent to the Work or assigned task; minimum being hard hat, safety footwear, safety glasses and hearing protection.
.2 Immediately report unsafe condition at site, near-miss accident, injury and damage.
.3 Maintain site and storage areas in a tidy condition free of hazards causing injury.
.4 Obey warning signs and safety tags.

.2 Brief persons of disciplinary protocols to be taken for non compliance. Post rules on site.

1.17 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct

non-compliance of health and safety issues identified.

.3 Departmental Representative will stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.

1.18 INCIDENT REPORTING

.1 Investigate and report the following incidents to Departmental Representative:
.1 Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board or to other regulatory Agency.
.2 Medical aid injuries.
.3 Property damage in excess of $10,000.00.
.4 Interruptions to Facility operations resulting in an operational lost to a Federal department in excess of $5000.00.

.2 Submit report in writing.

1.19 HAZARDOUS PRODUCTS

.1 Comply with requirements of Workplace Hazardous Materials Information System WHMIS).

.2 Keep MSDS data sheets for all products delivered to site.
.1 Post on site.
.2 Submit copy to Departmental Representative.

1.20 BLASTING

.1 Blasting or other use of explosives is not permitted on site without prior receipt of written permission and instructions from Departmental Representative.

.2 Do blasting operations in accordance with local and provincial codes.

1.21 POWDER

.1 Use powder actuated fastening devices only

ACTUATED DEVICES

after receipt of written permission from Departmental Representative.

1.22 CONFINED SPACES

.1 Abide by occupational health and safety regulations regarding work in confined spaces.

.2 Obtain an Entry Permit in accordance with Part XI of the Canada Occupational Health and Safety Regulations for entry into an existing identified confined space located at the Facility or premises of Work.
.1 Obtain permit from Facility Manager
.2 Keep copy of permit issued.
.3 Safety for Inspectors:
.1 Provide PPE and training to Departmental Representative and other persons who require entry into confined space to perform inspections.
.2 Be responsible for efficacy of equipment and safety of persons during their entry and occupancy in the confined space.

1.23 SITE RECORDS

.1 Maintain on Work Site copy of safety related documentation and reports stipulated to be produced in compliance with Acts and Regulations of authorities having jurisdiction and of those documents specified herein.

.2 Upon request, make available to Departmental Representative or authorized Safety Officer for inspection.

1.24 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.

.2 Post other documents as specified herein, including:
.1 Site specific Health and Safety Plan.

.2 WHMIS data sheets.

1.25 DIVING OPERATIONS

.1 All diving work to comply fully with the requirements of CSA Z275.2-04, "Occupational Safety Code for Diving Operations", CSA Z275.4-02, "Competency Standards for Diving Operations "and CSA Z180.1-00,"Compressed Breathing Air and Systems."

.2 Dive personnel must meet the minimum competency requirements of the CSA Z275.4-02 (R2008) and all divers must possess a valid Category 1 Diving Certificate or an Unrestricted Surface-supplied Certificate.

.3 Diving in free-swim mode is not permitted at the work site.

.4 Divers must have a current(less than one year) validated medical examination certificate(s) from a licensed Diving Physician in Newfoundland and Labrador who is knowledgeable and competent in diving and hyperbaric medicine, for all dives.

1.1 RELATED WORK

.1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.2 DEFINITIONS

.1 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.

1.3 FIRES

.1 Fires and burning of rubbish on site not permitted.

1.4 DISPOSAL OF WASTES AND HAZARDOUS MATERIALS

.1 Do not bury rubbish and waste materials on site. Dispose at approved landfill sites as specified in Section 01 74 21.

.2 Do not dispose of hazardous waste or volatile materials, such as mineral spirits, paints, thinners, oil or fuel into waterways, storm or sanitary sewers or waste landfill sites.

.3 Store, handle and dispose of hazardous materials and hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.

.4 Dispose of construction waste materials and demolition debris, resulting from work, at approved landfill sites only. Carryout such disposal in strict accordance with provincial and municipal rules and regulations. Separate out and prevent improper disposal of items banned from landfills.

.5 Establish methods and undertake construction practices which will minimize waste and optimize use of construction materials. Separate at source all construction waste

materials, demolition debris and product packaging and delivery containers into various waste categories in order to maximize recycling abilities of various materials and avoid disposal of debris at landfill site(s) in a "mixed state". Where recycling firms, specializing in recycling of specific materials exist, transport such materials to the recycling facility and avoid disposal at landfill sites.

.6 Communicate with landfill operator prior to commencement of work, to determine what specific construction, demolition and renovation waste materials have been banned from disposal at the landfill and at transfer stations.

1.5 DRAINAGE

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with governing regulations and requirements.

.4 Pumped water must meet applicable federal, provincial, and municipal standards before it can be discharged to a surface water body. If regulatory guidelines exceedences are noted, the Departmental Representative has the right to issue stop pumping instructions to the Contractor. Contractor will not be compensated for any delays associated with retrofitting equipment to meet guidelines.

.5 Provide control devices such as filter

fabrics, sediment traps and settling ponds to control drainage and prevent erosion of adjacent lands. Maintain in good order for duration of work.

1.6 PERMITS

.1 All guidelines and instructions stated on permits must be strictly adhered to.

1.7 WORK ADJACENT TO WATERWAYS

.1 Do not operate construction equipment in waterways.

.2 Do not use waterway beds for borrow material.

.3 Do not dump excavated fill, waste material or debris in waterways.

.4 At borrow sites, design and construct temporary crossings to minimize erosion to waterways in strict conformance with provincial and federal environmental regulations.

.5 Do not skid logs or construction materials across waterways.

.6 Avoid indicated spawning beds when constructing temporary crossings of waterways.

.7 Do not blast within 100 m of spawning beds.

.8 Do not refuel any type of equipment within 100 m of a water body. Maintain equipment in good working condition with no fluid leaks, loose hoses or fittings.

1.8 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Control emissions from equipment and plant to local authorities emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads and around entire construction site.

.5 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when storage began.

.6 Have emergency spill response equipment and rapid clean-up kit, appropriate to work, at site. Locate adjacent to work and where hazardous materials are stored. Provide personal protective equipment as required for clean-up.

.7 Report, to Federal and Provincial Department of the Environment, spills of petroleum and other hazardous materials as well as accidents having potential of polluting the environment. Also notify Departmental Representative and submit a written spill report to Departmental Representative within 24 hours of occurrence.

.8 Provide a floating debris containment boom whenever any of the Contractors methods of work allow for the potential of floating debris.

1.9 WILDLIFE PROTECTION

.1 Should nests of migratory birds in wetlands be encountered during work, immediately notify Departmental Representative for directives to be followed.

.1 Do not disturb nest site and neighbouring vegetation until nesting is completed.

.2 Minimize work immediately adjacent to such areas until nesting is completed.
.3 Protect these areas by following recommendations of Canadian Wildlife Service.

1.1 SECTION INCLUDES

.1 Inspection and testing, administrative and enforcement requirements.

.2 Tests and mix designs.

.3 Mill tests.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 78 00 - Closeout Submittals.

1.3 INSPECTION

.1 Facilitate Departmental Representative's access to Work. If part of Work is being fabricated at locations other than construction site, make preparations to allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection of Work designated for special tests, inspections or approvals by Departmental Representative or by inspection authorities having jurisdiction.

.3 If Contractor covers or permits to be covered Work designated for special tests, inspections or approvals before such is made, uncover Work until particular inspections or tests have been fully and satisfactorily completed and until such time as Departmental Representative gives permission to proceed. Pay costs to uncover and make good such Work.

.4 In accordance with the General Conditions, Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

1.4 INDEPENDENT INSPECTION AGENCIES

.1 Departmental Representative may engage and pay for service of Independent Inspection and Testing Agencies for purpose of inspecting and testing portions of Work except for the

following which remain part of Contractor's responsibilities:

.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 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.

.4 Mill tests and certificates of compliance.

.5 Tests as specified within various sections designated to be carried out by Contractor under the supervision of Departmental Representative.

.6 Additional tests specified in Clause 1.4.2.

.2 Where tests or inspections by designated Testing Agency reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests or inspections as Departmental Representative may require to verify acceptability of corrected work.

.3 Employment of inspection and testing agencies by Departmental Representative does not relax responsibility to perform Work in accordance with Contract Documents.

1.5 ACCESS TO WORK

.1 Furnish labour and facility to provide access to the work being inspected and tested.

.2 Co-operate to facilitate such inspections and tests.

.3 Make good work disturbed by inspections and tests.

1.6 PROCEDURES

.1 Notify Departmental Representative sufficiently in advance of when work is ready for tests, in order for Departmental Representative to make attendance

arrangements with Testing Agency. When directed by Departmental Representative, notify such Agency directly.

.2 Submit representative samples of materials specified to be tested. Deliver in required quantities to Testing Agency. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples on site. Provide sufficient space on site for Testing Agency's exclusive use to store equipment and cure test samples.

1.7 REJECTED WORK

.1 Remove and replace defective Work, whether result of poor workmanship, use of defective or damaged products and whether incorporated in Work or not, which has been identified by Departmental Representative as failing to conform to Contract Documents.

.2 Make good damages to existing or new work, including work of other Contracts, resulting from removal or replacement of defective work.

1.8 TESTING BY CONTRACTOR

.1 Provide all necessary instruments, equipment and qualified personnel to perform tests designated as Contractor's responsibilities herein or elsewhere in the Contract Documents.

.2 At completion of tests, turn over 2 copies of fully documented test reports to Departmental Representative.

.3 Submit mill test certificates and other certificates as specified in various sections.

.4 Furnish test results and mix designs as specified in various sections.

1.1 ACCESS

.1 Provide and maintain adequate access to project site.

.2 Maintain access roads for duration of contract and make good damage resulting from Contractors' use of roads.

1.2 CONTRACTOR'S SITE OFFICE

.1 Be responsible for and provide own site office, if required, including electricity, heat, lights and telephone. Locate site office as directed by Departmental Representative.

1.3 DEPARTMENTAL REPRESENTATIVE'S SITE OFFICE

.1 Provide or construct a separate site office for the use of the Departmental Representative and the Site Representative. The building must be in place prior to commencement of work.

.2 Provide heating system to maintain 22°C inside temperature at -20°C outside temperature.

.3 The building will be approximately 2400 mm x 3600 mm. It will have a suitable frame covered with a weatherproof siding and lined with plywood or other approved material. The floor will be of 19 mm thick material. It will be provided with suitable window with at least 1 m^2 of glass and arranged to provide at least 0.5 m^2 of screened opening. The door will be fitted with a lockset and 2 keys.

.4 The office will be equipped with a drafting chair and a 900 mm x 1500 mm table having a hinged, smooth wooden top suitable for drafting.

.5 Install electrical lighting system to provide minimum 750 lux using surface mounted, shielded commercial fixtures with 10% upward light component.

.6 Maintain office in clean condition.

.7 Arrange and pay for telephone and facsimile machine in the Departmental Representative's Office for Site Representative's exclusive use. Long distance calls or faxes placed on this phone by the Departmental Representative or the Site Representative will be paid by the Departmental Representative.

.8 Contractor may, on approval of Departmental Representative, provide cellular or mobile phone. If approval to use cellular or mobile phone is granted, be responsible for all services, airtime, license and network access fees, and all other fees or charges required to utilize the phone as intended by the manufacturer.

1.4 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.5 POWER

.1 Arrange, pay for and maintain temporary electrical power supply in accordance with governing regulations and ordinances.

.2 Supply and install all temporary facilities for power such as pole lines and underground cables to approval of local power supply authority.

1.6 WATER SUPPLY

.1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.

1.7 SCAFFOLDING

.1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance

with CSA797-09.

.2 Erect scaffolding independent of walls. Remove when no longer required.

1.8 CONSTRUCTION SIGN AND NOTICES

.1 Contractor or subcontractor advertisement signboards are not permitted on site.

.2 Only notices of safety or instructions are permitted on site.

.3 Safety and Instruction Signs and Notices:
.1 Signs and notices for safety and instruction shall be in both official languages.

.4 Maintenance and Disposal of Site Signs:
.1 Maintain approved signs and notices in good condition for duration of project and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.9 REMOVAL OF TEMPORARY FACILITIES

.1 Remove temporary facilities from site when directed by Departmental Representative.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Barriers.

.2 Traffic Controls.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 HOARDING

.1 Erect temporary site enclosure using new 1.2 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m centres. Provide one lockable truck gate. Maintain fence in good repair.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around open excavations.

.2 Provide barricades along wharf structure when wheelguard is removed.

.3 Provide as required by governing authorities.

1.5 ACCESS TO SITE

.1 Provide and maintain access to adjacent harbour facilities.

1.6 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform work and protect the public.

1.7 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 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.

1.1 DESCRIPTION

.1 This section specifies requirements for board, lodgings and related services to be provided by the Contractor for the Inspector.

.2 It is a requirement of this contract that the Contractor provide and pay for all board and lodgings for the Site Inspector's sole use for the duration of the project. Provide for and maintain acceptable living accommodations on site for the Site Inspector's sole use. The minimum requirement would be a hotel within 5km of the project site, or other arrangement approved by the Departmental Representative. The minimum daily allowance for the site inspector's meals (to be paid for by the contractor), is in accordance with the latest published Treasury Board guidelines for breakfast/lunch/dinner allowances (these can be found on-line at http://www.njc-cnm.gc.ca/directive/travel-voyage/s-td-dv-a3-eng.php).

1.2 BOARD AND LODGINGS

.1 For the purpose of this contract board and lodgings shall include but not necessarily be limited to: sleeping accommodation, meals and dining facilities, washroom facilities, laundry facilities, electrical and heating service, linens and bedding, etc. and any reasonable service as directed by the Departmental Representative.

.2 Board and lodgings must be approved by the Departmental Representative and Contractor will cooperate in providing all services required to maintain an acceptable standard of living during construction period.

.3 The Contractor shall include all calendar

days, including weekends and statutory holidays in determining the cost.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

.1 Comply with any or all applicable Agencies regulation of the Province of Newfoundland and Labrador, relating to the set up, servicing and maintenance of accommodations for the Site Inspector.

.2 Obtain and pay for any permits which may be required and comply to regulations of same.

1.1 GENERAL

.1 Use new material and equipment unless otherwise specified.

.2 Within 7 days of written request by Departmental Representative, submit following information for any materials and products proposed for supply:
.1 name and address of manufacturer;
.2 trade name, model and catalogue number;
.3 performance, descriptive and test data;
.4 manufacturer's installation or application instructions;
.5 evidence of arrangements to procure.
.6 evidence of manufacturer delivery problems or unforseen delays.

.3 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.

.4 Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.2 PRODUCT QUALITY AND REFERENCED STANDARDS

.1 Contractor shall be solely responsible for submitting relevant technical data and independent test reports to confirm whether a product or system proposed for use meets contract requirements and specified standards.

.2 Final decision as to whether a product or system meets contract requirements rest solely with the Departmental Representative in accordance with the General Conditions.

1.3 ACCEPTABLE

.1 Acceptable Materials: When materials

MATERIALS AND ALTERNATIVES

specified include trade names or trade marks or manufacturer's or supplier's name as part of the material description, select and only use one of the names listed for incorporation into the Work.

.2 Alternative Materials: Submission of alternative materials to trade names or manufacturer's names specified must be done during the bidding period following procedures indicated in the Instructions to Bidders.

.3 Substitutions: After acceptance of bid, substitution of a specified material will be dealt with as a change to the Work in accordance with the General Conditions of the Contract.

1.4 MANUFACTURERS INSTRUCTIONS

.1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods to be used. Do not rely on labels or enclosure provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental representative in writing of any conflict between these specifications and manufacturers instructions, so that Departmental Representative will designate which document is to be followed.

1.5 AVAILABILITY

.1 Immediately notify Departmental Representative in writing of unforeseen or unanticipated material delivery problems by manufacturer. Provide support documentation as per Clause 1.1.2 above.

1.6 WORKMANSHIP

.1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed.

.2 Remove unsuitable or incompetent workers from site as stipulated in General Conditions.

.3 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision on site at all times.

.4 Coordinate work between trades and subcontractors.

.5 Coordinate placement of openings, sleeves and accessories.

1.7 FASTENINGS - GENERAL

.1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work and in humid areas.

.2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage. Wood or organic material plugs not acceptable.

.3 Keep exposed fastenings to minimum, space evenly and lay out neatly.

.4 Fastenings which cause spalling or cracking of material to which anchorage is made, are not acceptable.

.5 Do not use explosive actuated fastening devices unless approved by Departmental Representative. See Section 01 35 29 on Health and Safety in this regard.

1.8 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur and, use resilient washers with stainless steel.

1.9 STORAGE, HANDLING AND PROTECTION

.1 Deliver, handle and store materials in manner to prevent deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled materials in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work. Provide additional cover where manufacturer's packaging is insufficient to provide adequate protection.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Immediately remove damaged or rejected materials from site.

.9 Touch-up damaged factory finished surfaces

to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.10 CONSTRUCTION EQUIPMENT AND PLANT

.1 On request, prove to the satisfaction of Departmental Representative that the construction equipment and plant are adequate to manufacture, transport, place and finish work to quality and production rates specified. If inadequate, replace or provide additional equipment or plant as directed.

.2 Maintain construction equipment and plant in good operating order. Prevent oil and other contaminant leaks. Should any contaminant leak onto ground or into the water, take immediate and appropriate measures to contain, cleanup and dispose in an environmentally responsible manner.

PART 1 - GENERAL

1.1 GENERAL

.1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

.2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.3 Prevent accumulation of wastes which create hazardous conditions.

.4 Provide adequate ventilation during use of volatile or noxious substances.

1.2 MATERIALS

.1 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.3 CLEANING DURING CONSTRUCTION

.1 Maintain project grounds and public properties in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.

.2 Provide on-site garbage containers for collection of waste materials and debris.

.3 Remove waste materials and debris from site on a daily basis.

1.4 FINAL CLEANING

.1 In preparation for acceptance of the Work perform final cleaning.

.2 Inspect finishes, fitments and equipment. Ensure specified workmanship and operation.

.3 Broom clean exterior paved and concrete surfaces; rake clean other surfaces of grounds.

1.1 RELATED SECTIONS

.1 Section 01 35 43 - Environment Procedures.

.2 Section 02 41 16 - Sitework, Demolition and Removal.

.3 Section 03 30 00 - Cast-in-Place Concrete.

.4 Section 06 05 73 - Wood Treatment.

.5 Section 31 53 13 - Timber Cribwork.

.6 Section 31 53 16 - Structural Timber.

Note: Any reference in this section to recycling or re-use of materials does not apply to creosote timber. If creosote timber is encountered, it is to be removed/disposed at the Contractor's cost at an approved waste site (either Robin Hood Bay or Norris Arm).

1.2 WASTE MANAGEMENT PLAN

.1 Prior to commencement of work, prepare waste Management Workplan.

.2 Workplan to include:
.1 Waste audit.
.2 Waste reduction practices.
.3 Material source separation process.
.4 Procedures for sending recyclables to recycling facilities.
.5 Procedures for sending non-salvageable items and waste to approved waste processing facility or landfill site.
.6 Training and supervising workforce on waste management at site.

.3 Workplan to incorporate waste management requirements specified herein and in other sections of the Specifications.

.4 Develop Workplan in collaboration with all subcontractors to ensure all waste management issues and opportunities are addressed.

.5 Submit copy of Workplan to Departmental

Representative for review and approval.
.1 Make revisions to Plan as directed by Departmental Representative.

.6 Implement and manage all aspects of Waste Management Workplan for duration of work.

.7 Revise Plan as work progresses addressing new opportunities for diversion of waste from landfill.

1.3 WASTE AUDIT

.1 At project start-up, conduct waste audit of:
.1 Site conditions identifying salvageable and non-salvageable items and waste resulting from demolition and removal work.
.2 Projected waste resulting from product packaging and from material leftover after installation work.

.2 Develop written list. Record type, composition and quantity of various salvageable items and waste anticipated, reasons for waste generation and operational factors which contribute to waste.

1.4 WASTE REDUCTION

.1 Based on waste audit, develop waste reduction program.

.2 Structure program to prioritize actions, with waste reduction as first priority, followed by salvage and recycling effort, then disposal as solid waste.

.3 Identify materials and equipment to be:
.1 Protected and turned over to Departmental Representative when indicated.
.2 Salvaged for resale by Contractor.
.3 Sent to recycling facility.
.4 Sent to waste processing/landfill site for their recycling effort.
.5 Disposed of in approved landfill site.

.4 Reduce construction waste during installation work. Undertake practices which

will minimize waste and optimize full use of new materials on site, such as:
.1 Use of a central cutting area to allow for easy access to off-cuts;
.2 Use of off-cuts for blocking and bridging elsewhere.
.3 Use of effective and strategically placed facilities on site for storage and staging of left-over or partially cut materials to allow for easy incorporation into work whenever possible avoiding unnecessary waste.

.5 Develop other strategies and innovative procedures to reduce waste such as minimizing the extent of packaging used for delivery of materials to site, etc.

1.5 MATERIAL SOURCE SEPARATION PROCESS

.1 Develop and implement material source separation process at commencement of work as part of mobilization and waste management at site.

.2 Provide on-site facilities to collect, handle and store anticipated quantities of reusable, salvageable and recyclable materials.
.1 Use suitable containers for individual collection of items based on intended purpose.
.2 Locate to facilitate deposit but without hindering daily operations of existing building tenants.
.3 Clearly mark containers and stockpiles as to purpose and use.

.3 Perform demolition and removal of existing structure components and equipment following a systematic deconstruction process.
.1 Separate materials and equipment at source, carefully dismantling, labelling and stockpiling alike items for the following purposes:
.1 Reinstallation into the work where indicated.

.2 Salvaging reusable items not needed in project which Contractor may sell to other parties. Sale of such items not permitted on site.
.3 Sending as many items as possible to locally available recycling facility.
.4 Segregating remaining waste and debris into various individual waste categories for disposal in a "non-mixed state" as recommended by waste processing/landfill sites.

.4 Isolate product packaging and delivery containers from general waste stream. Send to recycling facility or return to supplier/manufacturer.

.5 Send leftover material resulting from installation work for recycling whenever possible.

.6 Establish methods whereby hazardous and toxic waste materials, and their containers, encountered or used in the course work are properly isolated, stored on site and disposed in accordance with applicable laws and regulations from authorities having jurisdiction.

.7 Isolate and store existing materials and equipment identified for re-incorporation into the Work. Protect against damage.

1.6 WORKER TRAINING AND SUPERVISION

.1 Provide adequate training to workforce, through meetings and demonstrations, to emphasize purpose and worker responsibilities in carrying out the Waste Management Plan.

.2 Waste Management Coordinator: designate full-time person on site, experienced in waste management and having knowledge of the purpose and content of Waste Management Plan

to:

.1 Oversee and supervise waste management during work.

.2 Provide instructions and directions to all workers and subcontractors on waste reduction, source separation and disposal practices.

.3 Post a copy of Plan in a prominent location on site for review by workers.

1.7 CERTIFICATION OF MATERIAL DIVERSION

.1 Submit to Departmental Representative, copies of certified weigh bills from authorized waste processing sites and sale receipts from recycling/reuse facilities confirming receipt of building materials and quantity of waste diverted from landfill.

.2 Submit data at pre-determined project milestones as determined by Departmental Representative.

.3 Compare actual quantities diverted from landfill with projections made during waste audit.

1.8 DISPOSAL REQUIREMENTS

.1 Burying or burning of rubbish and waste materials is prohibited.

.2 Disposal of waste, volatile materials, mineral spirits, oil, paint, paint thinner or unused preservative material into waterways, storm, or sanitary sewers is prohibited.

.3 Do not dispose of preservative treated wood through incineration.

.4 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.

.5 Dispose of treated wood, end pieces, wood scraps and sawdust at a sanitary landfill.

.6 Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.

.7 Contact the authority having jurisdiction prior to commencement of work, to determine what, if any, demolition and construction waste materials have been banned from disposal in landfills and at transfer stations. Take appropriate action to isolate such banned materials at site of work and dispose in strict accordance with provincial and municipal regulations.

.8 Transport waste intended for landfill in separated condition, following rules and recommendations of Landfill Operator in support of their effort to divert, recycle and reduce amount of solid waste placed in landfill.

.9 Collect, bundle and transport salvaged materials to be recycled in separated categories and condition as directed by recycling facility. Ship materials only to approved recycling facilities.

.10 Sale of salvaged items by Contractor to other parties not permitted on site.

1.1 SECTION INCLUDES

.1 Project Record Documents as follows:
.1 As-built drawings;
.2 As-built specifications;
.3 Reviewed shop drawings.

1.2 PROJECT RECORD DOCUMENTS

.1 Departmental Representative will provide two white print sets of contract drawings and two copies of Specifications Manual specifically for "as-built" purposes.

.2 Maintain at site one set of the contract drawings and specifications to record actual as-built site conditions.

.3 Maintain up-to-date, real time as-built drawings and specifications in good condition and make available for inspection by the Departmental Representative at any time during construction.

.4 As-Built Drawings:
.1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of project and prior to final inspection, neatly transfer notations to second set (also by use of red ink). Submit both sets to Departmental Representative. All drawings of both sets shall be stamped "As-Built Drawings" and be signed and dated by Contractor.
.2 Show all modifications, substitutions and deviations from what is shown on the contract drawings or in specifications.
.3 Record following information:
.1 Horizontal and vertical location of various elements in relation to Geodetic Datum.
.2 Field changes of dimension and detail.
.3 All design elevations, sections, and details dimensioned and marked-up to consistently report finished installation conditions.
.4 Any details produced in the course

of the contract by the Departmental Representative to supplement or to change existing design drawings must also be marked-up and dimensioned to reflect final as-built conditions and appended to the as-built drawing document.

.5 All change orders issued over the course of the contract must be documented on the finished as-built documents, accurately and consistently depicting the changed condition as it applies to all affected drawing details.

.5 As-built Specifications: legibly mark in red each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly items substituted from that specified.

.2 Changes made by Addenda and Change Orders.

.3 Mark up both copies of specifications; stamp "as-built", sign and date similarly to drawings as per above clause.

.6 Maintain As-built documents current as the contract progresses. Departmental Representative will conduct reviews and inspections of the documents on a regular basis. Frequency of reviews will be subject to Departmental Representative's discretion. Failure to maintain as-builts current and complete to satisfaction of the Departmental Representative shall be subject to financial penalties in the form of progress payment reductions and holdback assessments.

1.3 REVIEWED SHOP DRAWINGS

.1 Compile 2 full sets of all reviewed shop drawings.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for demolishing and removing wholly or in part various items designated to be removed or partially removed.

.2 Demolition and removal will consist of, but not necessarily be limited to, the following:

.1 Removal of the existing concrete launchway, removal of asphalt, removal of deck overhang on marginal wharf, clean-up of scattered boulders around the site and reshaping of the uplands (including washed-out areas along the marginal and approach to the finger pier), as noted on the drawings.
.2 Protection of existing conduit (and encasing the conduit in concrete), as noted on the drawings.

1.2 GENERAL REQUIREMENTS

.1 A Notice to Shipping is to be issued prior to commencement and upon completion of work.

.2 During construction, any vessels or barges utilized must be marked in accordance with the provisions of the Canada Shipping Act Collision Regulations.

.3 Upon completion of the project, a written Notice to Mariners must be issued.

1.3 PROTECTION

.1 Protect existing objects designated to remain. In event of damage, immediately replace or make repairs to approval of and at no additional cost to Canada.

.2 Place a floating boom around entire demolition site to prevent loss of any materials.

.3 Remove all floating debris from water on a routine and timely basis.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.1 EXECUTION

.1 Inspect site and verify with Departmental Representative objects designated for removal.

.2 Locate and protect utility lines. Preserve in operating condition active utilities traversing site.

3.2 REMOVAL

.1 Remove in their entirety all materials and objects specified for removal.

.2 Do not disturb adjacent work designated to remain in place.

3.3 DISPOSAL OF MATERIAL

.1 All demolished materials, except materials designated to be reused, will become property of contractor and will be removed from site and disposed of to satisfaction of Departmental Representative and in accordance with environmental guidelines. It is the sole responsibility of the contractor to dispose of all demolished materials at an approved disposal site. Ensure that disposal site is approved and willing to accommodate any materials disposed of from work site.

.2 Contractor shall obtain and pay for all necessary permits and disposal fees for use

of an approved waste disposal site.

3.4 RESTORATION

.1 Upon completion of work, remove debris, trim surfaces and leave work site in clean condition.

.2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 03 20 00 - Concrete Reinforcing.

.2 Section 03 30 00 - Cast-in-Place Concrete.

.3 Section 07 92 10 - Joint Sealing.

1.2 REFERENCES

.1 Canadian Standards Association (CSA)
.1 CAN/CSA-A23.1-09, Concrete Materials and Methods of Concrete Construction.
.2 CAN/CSA-O86-09, Engineering Design in Wood.
.3 CSA O121-08, Douglas Fir Plywood.
.4 CSA O151-09, Canadian Softwood Plywood.
.5 CSA O153-M1980 (R2008), Poplar Plywood.
.6 CAN3-O188.0-M78, Standard Test Methods for Mat-Formed Wood Particleboards and Waferboard.
.7 CSA O437 Series-93 (R2006), Standards for OSB and Waferboard.
.8 CSA S269.1-1975 (R2003), Falsework for Construction Purposes.
.9 CAN/CSA-S269.3-M92 (R2008), Concrete Formwork.

1.3 SHOP DRAWINGS

.1 Submit shop drawings for formwork and falsework in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts. Comply with CSA S269.1, for falsework drawings 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 Indicate sequence of erection and removal of formwork/falsework as directed by Departmental Representative.

.5 Each shop drawing submission shall bear stamp and signature of qualified Professional Engineer registered or licensed in Province of Newfoundland and Labrador, Canada.

1.4 WASTE MANAGEMENT AND DISPOSAL

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

.2 Place materials defined as hazardous or toxic waste in designated containers.

.3 Ensure emptied containers are sealed and stored safely for disposal away from children.

.4 Use sealers, form release and stripping agents that are non-toxic, biodegradable and have zero or low VOC's.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Formwork materials:
.1 Use formwork materials to CAN/CSA-A23.1.

.2 Form ties:
.1 Removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm diameter in concrete surface.

.3 Form release agent: non-toxic, chemically active release agents containing compounds

that react with free lime present in concrete to provide water insoluble soaps, preventing set of film of concrete in contact with form.

.4 Falsework materials: to CSA-S269.1.
.1 Materials required to bear grade marks, or be accompanied with certificates, test reports or other proof of conformity.

.5 Premoulded joint fillers:
.1 Bituminous impregnated fibreboard to ASTM D1751.

.6 Bond Breaker:
.1 Impermeable tube formed of polyvinylchloride, rubber or similar material to the approval of the Departmental Representative. Internal diameter equal to dowels.

.7 Sealant: to Section 07 92 10 - Joint Sealing.

PART 3 - EXECUTION

3.1 FABRICATION AND ERECTION

.1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.

.2 Obtain Departmental Representative's approval for use of earth forms framing openings not indicated on drawings.

.3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.

.4 Fabricate and erect falsework in accordance with CSA S269.1.

.5 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.

.6 Align form joints and make watertight. Keep form joints to minimum.

.7 Use 25 mm chamfer strips on external corners and/or 25 mm fillets at interior corners, joints, unless specified otherwise.

.8 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.

.9 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.

.10 Clean formwork in accordance with CAN/CSA-A23.1, before placing concrete.

3.2 REMOVAL AND RESHORING

.1 Leave formwork in place for following minimum periods of time after placing concrete.
.1 5 days for slabs, decks and other structural members, or 3 days when replaced immediately with adequate shoring to standard specified for falsework.

.2 Remove formwork when concrete has reached 75% of its design strength or minimum period noted above, whichever comes later, and replace immediately with adequate reshoring.

.3 Provide all necessary reshoring of members where early removal of forms may be required or where members may be subjected to additional loads during construction as required.

.4 Space reshoring in each principal direction at not more than 3000 mm apart.

.5 Re-use formwork and falsework subject to requirements of CAN/CSA-A23.1.

3.3 JOINT FILLERS

.1 Install joint filler in all joints.

3.4 JOINT SEALANT

.1 Fill control joints with sealer as per manufacturer instructions. Sealant to be suitable for application in a seawater marine environment.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 03 10 00 - Concrete Forming and Accessories.

.2 Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES

. 1 American Concrete Institute (ACI)
.1 ACI 315R-04, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.

.2 American National Standards Institute/American Concrete Institute (ANSI/ACI)
.1 ANSI/ACI 315-99, Details and Detailing of Concrete Reinforcement.

.3 American Society for Testing and Materials International (ASTM)
.1 ASTM A185/A185M-07, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
.2 ASTM A497/A497M-07, Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
.3 ASTM-A123/A123M-09, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

.4 Canadian Standards Association (CSA)
.1 CAN/CSA-A23.1-09, Concrete Materials and Methods of Concrete Construction.
.2 CSA-A23.3-04(R2010), Design of Concrete Structures.
.3 CAN/CSA-G30.18-09, Carbon Steel Bars for Concrete Reinforcement.
.4 CSA-G40.20-04/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.5 CSA W186-M1990 (R2007), Welding of

Reinforcing Bars in Reinforced Concrete Construction.

1.3 SHOP DRAWINGS

.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, spacings, locations of reinforcement and mechanical splices if approved by Departmental Representative, with identifying code marks to permit correct placement without reference to structural drawings. Indicate sizes, spacings and locations of chairs, spacers and hangers. Prepare reinforcement drawings in accordance with Reinforcing Steel Manual of Standard Practice - by Reinforcing Steel Institute of Canada. ANSI/ACI 315 and ACI 315R, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate 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 Substitute different size bars only if permitted in writing by Departmental Representative.

.2 Reinforcing steel: billet steel, grade 400, deformed bars to CAN/CSA-G30.18, unless indicated otherwise.

.3 Reinforcing steel: weldable low alloy steel deformed bars to CAN/CSA-30.18.

.4 Cold-drawn annealed steel wire ties: to ASTM A-82/A-82M.

.5 Chairs, bolsters, bar supports, spacers: to CAN/CSA-A23.1.

.6 Mechanical splices: subject to approval of Departmental Representative.

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. ACI 315R, Manual of Engineering and Placing Drawings for Reinforced Concrete Structures unless indicated otherwise.

.2 Obtain Departmental Representative's approval for locations of reinforcement splices other than those shown on placing drawings.

.3 Upon approval of Departmental Representative, weld reinforcement in accordance with CSA W186.

.4 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.

2.3 SOURCE QUALITY CONTROL

.1 Provide Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 2 weeks prior to commencing reinforcing work.

.2 Upon request inform Departmental Representative of proposed source of material to be supplied.

PART 3 - EXECUTION

3.1 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.

3.2 PLACING REINFORCEMENT

.1 Place reinforcing steel as indicated on reviewed placing drawings and in accordance with CAN/CSA-A23.1.

.2 Use approved type chairs to locate the reinforcing steel at the proper grade.

.3 Tie reinforcement where spacing in each direction is:
.1 Less than 300 mm: tie at alternate intersections.
.2 300 mm or more: tie at each intersection.

.4 Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.

.5 Ensure cover to reinforcement is maintained during concrete pour.

3.3 CLEANING

.1 Clean reinforcing before placing concrete to CAN/CSA-A23.1.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for supply, placing, finishing, protecting and curing cast-in-place concrete for concrete slab on grade, pre-cast panels, concrete ballast and concrete deck on approach crib to finger pier.

1.2 RELATED SECTIONS

.1 Section 03 10 00 - Concrete Forming and Accessories.

.2 Section 03 20 00 - Concrete Reinforcing.

1.3 REFERENCES

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM C109/C109M-08, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or 50 mm Cube Specimens).
- .2 ASTM C260/260M-10a, Standard Specification for Air-Entraining Admixtures for Concrete.
- .3 ASTM C494/C494M-10a, Standard Specification for Chemical Admixtures for Concrete.

.2 Canadian Standards Association (CSA)
- .1 CAN/CSA-A23.1-09, Concrete Materials and Methods of Concrete Construction.
- .2 CAN/CSA-A23.2-09, Methods of Test for Concrete.
- .3 CSA-A283-06, Qualification Code for Concrete Testing Laboratories.
- .4 CAN/CSA-A3000-08, Cementitious Materials Compendium (consists of A3001, A3002, A3003, A3004 and A3005).
  - .1 CSA-A3001-08, Cementitious Materials for Use in Concrete.

1.4 CERTIFICATES

.1 Submit certificates in accordance with Section 01 33 00 - Submittal Procedures.

.2 Minimum 2 weeks prior to starting concrete

work submit to Departmental Representative manufacturer's test data and certification by qualified independent inspection and testing laboratory that following materials will meet specified requirements:
.1 Portland cement.
.2 Blended hydraulic cement.
.3 Supplementary cementing materials.
.4 Grout.
.5 Admixtures.
.6 Aggregates.
.7 Water.
.8 Joint filler.
.9 Joint Sealant.

.3 Provide certification that mix proportions selected will produce concrete of quality, yield and strength as specified in concrete mixes, and will comply with CAN/CSA-A23.1.

.4 Provide certification that plant, equipment, and materials to be used in concrete comply with requirements of CAN/CSA-A23.1.

1.5 STORAGE OF MATERIALS

.1 Store materials to prevent contamination or deterioration.

.2 Provide adequate storage facilities for materials to ensure a continuous supply of these materials during batching operations.

.3 Store cement in weathertight facility.

1.6 QUALITY ASSURANCE

.1 Minimum 2 weeks prior to starting concrete work, submit proposed quality control procedures to Departmental Representative for the following items:
.1 Cold weather concrete.
.2 Curing.
.3 Finishes.

.4 Formwork removal.
.5 Joints.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Use trigger operated spray nozzles for water hoses.

.2 Designate a cleaning area for tools to limit water use and runoff.

.3 Carefully coordinate the specified concrete work with weather conditions.

.4 Ensure emptied containers are sealed and stored safely for disposal away from children.

.5 Prevent plasticizers, water-reducing agents and air-entraining agents from entering drinking water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with an inert, noncombustible material and remove for disposal. Dispose of all waste in accordance with applicable local, provincial and national regulations.

.6 Choose least harmful, appropriate cleaning method which will perform adequately.

1.8 MEASUREMENT FOR PAYMENT

.1 Concrete Deck – wharf approach crib: Supply and installation of the concrete deck on the approach crib to the finger pier to be measured in square metres (m^2) calculated from actual field measurements. Contractor to provide all plant, equipment, material, and labour including concrete and reinforcing steel.

.2 Concrete slab on grade – uplands: Supply and installation of the concrete slab on grade for the uplands to be measured in

square metres (m^2) calculated from actual field measurements. Contractor to provide all plant, equipment, material, and labour including concrete and reinforcing steel.

.3 Concrete slab on grade – launchway: Supply and installation of the concrete slab on grade for the launchway to be measured in square metres (m^2) calculated from actual field measurements. Contractor to provide all plant, equipment, material, and labour including concrete and reinforcing steel. If dewatering is required to pour the slab on grade in the dry, it is to be completed by the Contractor at no additional cost.

.4 Precast Concrete Panels - Launchway: Supply and installation of the pre-cast concrete panels for the launchway will be measured in square metres (m^2) calculated from actual field measurements, excluding area occupied by the coping. Include all plant, equipment and labour in the unit price.

.5 No separate payment will be made for any other ingredient or feature of concrete work, and all factors, including cold weather placement, reinforcing steel, joint filler for control joints, cement, thickening of slab to achieve slope, concrete ballast, plant and labour will be considered as being included in the unit price for item.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Cement to CAN/CSA-A3001. Type GU.

.2 Supplementary cementing materials: to CAN/CSA-A3001.

.3 Cementitious hydraulic slag: to CAN/CSA-A3001.

.4 Water: to CAN/CSA-A23.1.

.5 Aggregates: to CAN/CSA-A23.1. Coarse aggregates to be normal density.

.6 Air entraining admixture: to ASTM C260.

.7 Chemical admixtures: to ASTM C494/C494M. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.

.8 Concrete retarders: to ASTM C494/C494M. Do not allow moisture of any kind to come in contact with the retarder film.

.9 Curing compound: curing compounds are not to be used.

.10 Premoulded joint fillers:
.1 Sponge rubber: to ASTM D1752, Type I, flexible grade.

2.2 MIXES

.1 Proportion concrete in accordance with CAN/CSA-A23.1, Clause 4.3.

.2 Proportion concrete to comply with Alternate 1, Table 2 in CAN/CSA-A23.1 and following requirements:
.1 Cement:
.1 Type GU Portland Cement.
.2 Minimum compressive strength: 35 MPa at 28 days.
.3 Class of exposure: C1 (chloride ion penetrability test requirement of <1,500 coulombs within 56 days does not have to be met for this mix design).
.4 Minimum cement content: 385 kg/m^3 of concrete.
.5 20 mm nominal size coarse aggregate.
.6 Air content 5% to 8%.
.7 Density of air-dry concrete in range

of 2240 kg/m³ to 2400 kg/m³.
.8 Slump at time and point of discharge 50 mm to 100 mm.

.3 When the Contractor wishes to purchase concrete from a ready mix concrete supplier, submit a letter from the supplier certifying the following:
.1 That plant and equipment is certified and all materials to be used in the concrete comply with the requirements of CAN/CSA-A23.1.
.2 That the mix proportions selected will produce concrete of the specified quality and yield. Indicate mix proportions and sources of all materials.
.3 That the strengths will comply with the strengths specified herein.

.4 When the Contractor wishes to mix concrete on site, identify the source of aggregates and submit samples of fine and coarse aggregates to a testing laboratory for testing and trial mixes in order to determine a suitable mix design. The testing laboratory, at Contractor's cost, will test the trial mix for slump, air content, density and strength. The results of these tests will be submitted to the Departmental Representative to be reviewed for compliance with the specification. This review must be completed before permission to place concrete is given.
.1 The sand, gravel, water and air entraining agent should be mixed prior to the addition of cement and water reducer.

.5 Weigh aggregates, cement, water and admixture when batching. No alternative methods of measuring will be permitted.

.6 Do not use calcium chloride.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Obtain Departmental Representative's approval before placing concrete. Provide 24 hours notice prior to placing of concrete.

.2 Pumping of concrete is permitted only after approval of equipment and mix.

.3 Ensure reinforcement and inserts are not disturbed during concrete placement.

.4 Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse weather.

.5 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.

.6 Do not place load upon new concrete until authorized by Departmental Representative.

3.2 CONSTRUCTION

.1 Comply with additional requirements of CAN/CSA-A23.1, Clause 4.1.1.5, for concrete exposed to seawater environments.

.2 Minimum concrete cover over reinforcing steel bars to be 75 mm.

.3 Place concrete in hot weather to CAN/CSA-A23.1.

.4 Place concrete in cold weather to CAN/CSA-A23.1.

.5 Keep concrete surfaces moist continually during protection stage.

.6 Place, consolidate, finish, cure and protect concrete to CAN/CSA-A23.1.

.7 Do not commence placing concrete until Departmental Representative has inspected and approved forms, foundations, reinforcing steel, joints, conveying, spreading, consolidation and finishing equipment and curing and protective methods.

3.3 FORMWORK

.1 Install and strip formwork to CAN/CSA-A23.1 and Section 03 10 00.

3.4 INSERTS

.1 Position and secure anchor bolts in formwork to maintain line and grades.

3.5 CONTROL JOINTS

.1 Construct control joints in locations shown on drawings or directed by Departmental Representative.

.2 All joints will be centred over a support. Joints will be made in a perfectly straight line.

.3 Cut control joint when concrete has hardened.

.4 Fill saw cut with joint sealer as specified.

3.6 PLACING CONCRETE

.1 Place and consolidate concrete to CAN/CSA-A23.1.

.2 Do not place concrete on or against frozen material.

.3 Place concrete continuously from joint to joint.

.4 Place concrete in a uniform heading,

normal to the centreline. Limit rate of placing to that which can be finished before beginning of initial set.

3.7 STRIKE OFF AND CONSOLIDATION

.1 High speed internal poker vibrators shall be used to consolidate the concrete during placing. Final compaction of the surfaces shall be done by beam-type vibratory air screed as approved by Departmental Representative. A surcharge of approximately 65 mm of concrete will be maintained at the screed face during consolidation.

.2 Strikeoff and consolidation must be completed before excess water bleeds to the surface.

.3 Ensure that the concrete deck conforms to the elevations and slopes as shown on the drawings so that satisfactory drainage will result.

3.8 FINISHING

.1 Only ACI certified or other pre-approved concrete finishers are to be utilized in finishing all concrete works. All work is to be finished to CAN/CSA-A23.1, and as specified below.

.2 The surface will be brought to the specified level by means of darbying or bull floating which will be carried out immediately following screeding and must be completed before any bleed water is present on the surface. Surface tolerance to be 8 mm under a 3 metre straight edge.

.3 Provide slope as shown on the drawings to permit proper drainage of the concrete deck.

.4 Finish slabs to elevations indicated on

drawings.

.5 Strike off the surface with a straight edge.

.6 Hand tamp low slump concrete with jitterbug.

.7 Darby or bull float the surface to smooth and level the concrete.

.8 Allow bleed water or sheen to disappear.

.9 Float the surface by means of power and/or hand float where the concrete has hardened enough for a man to leave only slight footprints on the surface.

.10 Do not bring water and fines to the surface by over floating. Where extra floating is required the floating operation shall be repeated after the time interval necessary for any sheen to disappear and for concrete to set further.

.11 Steel trowel the concrete surfaces by means of power and/or hand trowel. Do not leave any hard, smooth, polished or burnished surface area.

.12 Do not bring water and fines to the surface by overtrowelling.

.13 After slight interval necessary for concrete to further harden, repeat the trowelling operation.

.14 Lightly broom surface with a soft bristle broom obtaining a fine and even textured finish with a non-slip finish. All brush strokes to be parallel across paving.

.15 The surface shall be true and accurate to a maximum tolerance of 1 mm in 500 mm.

3.9 PROTECTION AND CURING

.1 Cure to CAN/CSA-A23.1.

.2 Cure concrete by protecting it against loss of moisture, rapid temperature change and mechanical injury for at least 7 days after placement. After finishing operations have been completed, the entire surface of the newly placed concrete shall be covered by whatever curing medium is applicable to local conditions and approved by the Departmental Representative. The edges of concrete slabs exposed by removal of forms shall be protected with continuous curing treatment equal to the method selected for curing the slab and curb surfaces. Cure to CAN/CSA-A23.1. Have the equipment needed for adequate curing at hand and ready to install before actual concrete placement begins.

.3 When air temperature is at or below 5°C or when there is a probability of its falling to that limit within 24 hours of placing (as forecast by the nearest official meteorological office) cold weather protection as per CAN/CSA-A23.1 will be provided and the following:

.1 Housing - Protect concrete by a windproof shelter of canvas or other material to allow free circulation of inside air around fresh touch formwork and provide sufficient space for removal of formwork for finishing. Supply approved heating equipment capable of keeping inside air at a constant temperature sufficiently high to maintain concrete at following curing temperatures.

.1 For initial 3 days at a temperature of not less than 15°C nor more than 27°C at surface.

.2 Maintain concrete at 10°C for an extra 4 days plus the initial 3 days.

.3 In addition to the protective housing, the concrete must be cured as outlined in Clause 3.9.2 above.

3.10 TESTING

.1 Departmental Representative will appoint a concrete testing company to test all work under this section of specification as per CAN/CSA-A23.1.

.2 Cost of compressive strength tests shall be paid for by the Departmental Representative.

.3 Testing company shall issue reports to Departmental Representative on quality of test cylinders.

.4 Notify Departmental Representative at least 7 days prior to start of placing concrete. Provide for testing purposes an adequate quantity of approved test cylinders.

.5 At least 1 set of 3 cylinders each shall be taken from 25 m^3 or fraction thereof of each day's pour, whichever is less. 1 cylinder shall be tested at 7 days and other 2 tested at 28 days.

.6 Crate cylinders and deliver to the testing laboratory within 48 hours after casting in accordance with CAN/CSA-A23.1. Contractor will pay for crating and delivery of cylinders to the laboratory.

.7 If strength tests of test cylinder for any portion of the work falls below the specified compressive strength at 28 days, the Departmental Representative reserves the right to determine the acceptability of the concrete by performing additional field testing as outlined in CAN/CSA-A23.1.

.8 If concrete does not conform to drawings or specifications, take measures as directed to correct the deficiency. All costs of correctional measures will be at the expense of the Contractor.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)
- .1 ASTM A 53/A53M-10, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Steamless.
- .2 ASTM A 269-10, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- .3 ASTM A307-10, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .4 AST-A123/A123M-09, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
- .2 CAN/CGSB-1.181-99, Ready-Mixed, Organic Zinc-Rich Coating.

.3 Canadian Standards Association (CSA International)
- .1 CSA-G40.20/G40.21-04 (R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CAN/CSA-S16.1-09, Design of Steel Structures.
- .3 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding

Bureau).
.4 CSA W59-03 (R2008), Welded Steel Construction (Metal Arc Welding).

.4 The Environmental Choice Program
.1 CCD-047a-98, Paints, Surface Coatings.
.2 CCD-048-98, Surface Coatings - Recycled Water-borne.

1.3 SUBMITTALS

.1 Product Data:
.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
.1 For finishes, coatings, primers and paints.

.2 Shop Drawings
.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY ASSURANCE

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

.2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

.2 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.3 Storage and Protection:
.1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
.2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W.

.2 Welding materials: to CSA W59.

.3 Welding electrodes: to CSA W48 Series.

.4 Bolts and anchor bolts: to ASTM A 307.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.

.3 Where possible, fit and shop assemble work, ready for erection.

.4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating to ASTM-A123/A123M.

.2 Shop coat primer: to CAN/CGSB-1.40.

.3 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

2.4 SHOP PAINTING

.1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

.2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.

.3 Clean surfaces to be field welded; do not paint.

PART 3 - EXECUTION

3.1 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 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Make field connections with bolts to

CAN/CSA-S16.1, or weld.

.6 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

.7 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

3.2 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 - GENERAL

1.1 REFERENCES

.1 American Wood-Preservers' Association (AWPA)
.1 AWPA M2-01, Standard Inspection of Treated Wood Products.
.2 AWPA M4-06, Standard for the Care of Preservative-Treated Wood Products.

.2 Canadian Standards Association (CSA)
.1 CSA O80 Series-97 (R2007), Wood Preservation.
.2 CSA O80.201-97, Standard for Hydrocarbon Solvents for Preservatives. This Standard covers hydrocarbon solvents for preparing solutions of preservatives. This is not stand alone specification
.3 CSA O322-02, Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.

1.2 QUALITY ASSURANCE

.1 Testing of products treated with preservative by pressure impregnation will be carried out by the manufacturer's testing laboratory to AWPA M2, and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.

.2 Inspection and testing of timber materials will be carried out by the manufacturer.

1.3 CERTIFICATES AND ASSAY RETENTION RESULTS

.1 Submit certificates and assay retention results in accordance with Section 01 33 00 - Submittal Procedures.

.2 For products treated with preservative by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
.1 Information listed in AWPA M2 and revisions specified in CSA O80 Series,

Supplementary Requirement to AWPA M2 applicable to specified treatment.
.2 Moisture content after drying following treatment with water-borne preservative.
.3 Assay retentions results representing each treated batch of supplied timber.
.4 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Do not dispose of preservative treated wood through incineration.

.2 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.

.3 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill approved by Departmental Representative.

.4 Dispose of unused wood preservative material at official hazardous material collections site approved by Departmental Representative.

.5 Do not dispose of unused preservative material into sewer system, into streams, lakes, onto ground or in other location where they will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Preservative: to CSA-O80 Series.

.2 Solvent: to CSA-O80.201.

2.2 PRESERVATIVE TREATMENTS

.1 Treat to CSA 080, commodity standard 080.18, Table 1 and its referenced standards, with the following minimum assay retentions:

Species	CCA kg/m3	ACA kg/m3
Dimension Timber		
-Coast Douglas Fir	24	24
-Western/Eastern Hemlock	24	24
-Hemlock, Douglas Fir (Wheelguard, Wheelguard Blocking)	10	10
-Birch or Maple	Treat to Refusal	

Note: Birch or maple must be air dried for six (6) months in weather protected environment or kiln dried.

PART 3 - EXECUTION

3.1 FIELD TREATMENT

.1 Handle pressure treated material in a manner that will avoid damage which may expose untreated material. Rejection of any damaged material may result and replacement will be at the Contractor's expense.

.2 Fill all bored bolt holes with preservative immediately after boring. Use a pressurized container with hose to apply preservative, or some alternate method acceptable to the Departmental Representative.

.3 Fill all unused bored holes and spike holes with tight fitting treated wooden plugs.

3.2 CUTTING

.1 Field cuts, if authorized, are to receive three (3) liberal coats of the applicable preservative applied to dry wood on each application.

3.3 FIELD QUALITY

.1 Timber which contain rot, splits exposing untreated wood, excessive wane, or timbers which cannot be fastened in the work so as to be structurally sound are unacceptable.

.2 The Departmental Representative reserves the right to carry out field testing of treated timber for penetration and retention of preservative. Timber not meeting the requirements of the specification may be rejected for use under the contract.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Materials, preparation and application for caulking and sealants.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 45 00 - Testing and Quality Control.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Section 03 10 00 - Concrete Forming and Accessories.

.6 Section 03 30 00 - Cast-in-Place Concrete.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB)

.2 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.3 Department of Justice Canada (Jus)
.1 Canadian Environmental Protection Act, 1999 (CEPA).

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.5 Transport Canada (TC)
.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.4 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Manufacturer's product to describe.
.1 Caulking compound.
.2 Primers.
.3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

.3 Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Procedures.
.1 Instructions to include installation instructions for each product used.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.6 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.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material, in appropriate on-site bins, for recycling in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.
.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and

Municipal regulations.

.6 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

.7 Divert unused joint sealing material from landfill to official hazardous material collections site approved by Departmental Representative.

.8 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.

.9 Fold up metal banding, flatten, and place in designated area for recycling.

1.7 PROJECT CONDITIONS

.1 Environmental Limitations:
.1 Do not proceed with installation of joint sealants under following conditions:
.1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
.2 When joint substrates are wet.

.2 Joint-Width Conditions:
.1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:
.1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.8 ENVIRONMENTAL

.1 Comply with requirements of Workplace

REQUIREMENTS

Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of Material Safety Data Sheets (MSDS) acceptable to Labour Canada.

.2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

PART 2 - PRODUCTS

2.1 SEALANT MATERIALS

.1 Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Polysulfide Two Part.

.2 Self-Leveling to CAN/CGSB-19.24, Type 1, Class B, colour to match concrete.

.3 Polysulfide Two Part.
.1 Non-Sag to CAN/CGSB-19.24, Type 2, Class B, colour to match concrete.

.4 Preformed Compressible and Non-Compressible back-up materials.
.1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
.1 Extruded closed cell foam backer rod.
.2 Size: oversize 30 to 50%.
.2 Neoprene or Butyl Rubber.
.1 Round solid rod, Shore A hardness 70.
.3 High Density Foam.
.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20,

tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m³ density, or neoprene foam backer, size as recommended by manufacturer.

.4 Bond Breaker Tape.

.1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 JOINT CLEANER

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

.2 Primer: as recommended by manufacturer.

PART 3 - EXECUTION

3.1 PROTECTION

.1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE PREPARATION

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

.1 Apply bond breaker tape where required to manufacturer's instructions.

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 APPLICATION

.1 Sealant.
.1 Apply sealant in accordance with manufacturer's written instructions.
.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
.3 Apply sealant in continuous beads.
.4 Apply sealant using gun with proper size nozzle.
.5 Use sufficient pressure to fill voids and joints solid.
.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
.7 Tool exposed surfaces before skinning begins to give slightly concave shape.
.8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing.
.1 Cure sealants in accordance with sealant manufacturer's instructions.
.2 Do not cover up sealants until proper

curing has taken place.

.3 Cleanup.
.1 Clean adjacent surfaces immediately and leave Work neat and clean.
.2 Remove excess and droppings, using recommended cleaners as work progresses.
.3 Remove masking tape after initial set of sealant.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.3 Section 32 12 16 - Asphalt Paving.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)
.1 ASTM D4791-05, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

1.3 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Allow continual sampling by Departmental Representative during production.

.3 Provide Departmental Representative with access to source and processed material for sampling.

.4 Install sampling facilities at discharge end of production conveyor, to allow Departmental Representative to obtain representative samples of items being produced. Stop conveyor belt when requested by Departmental Representative to permit full cross section sampling.

.5 Pay cost of sampling and testing of aggregates which fail to meet specified requirements.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Divert unused granular materials from landfill to local quarry facility as approved by Departmental Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious manner for use intended.

.2 Flat and elongated particles of coarse aggregate: to ASTM D4791.
.1 Greatest dimension to exceed five times least dimension.

.3 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:
.1 Natural sand.
.2 Manufactured sand.
.3 Screenings produced in crushing of quarried rock, boulders, gravel or slag.

.4 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:
.1 Crushed rock.
.2 Gravel and crushed gravel composed of naturally formed particles of stone.
.3 Light weight aggregate, including slag and expanded shale.

2.2 SOURCE QUALITY CONTROL

.1 Inform Departmental Representative of proposed source of aggregates and provide access for sampling at least 2 weeks prior to commencing production.

.2 If, in opinion of Departmental Representative, materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet

specified requirements.

.3 Advise Departmental Representative 2 weeks in advance of proposed change of material source.

.4 Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Aggregate source preparation

.1 Prior to excavating materials for aggregate production, clear and grub area to be worked, and strip unsuitable surface materials. Dispose of cleared, grubbed and unsuitable materials as directed by Departmental Representative.

.2 Where clearing is required, leave screen of trees between cleared area and roadways as directed.

.3 Clear, grub and strip area ahead of quarrying or excavating operation sufficient to prevent contamination of aggregate by deleterious materials.

.4 When excavation is completed dress sides of excavation to nominal 1.5:1 slope, and provide drains or ditches as required to prevent surface standing water.

.5 Trim off and dress slopes of waste material piles and leave site in neat condition.

.2 Processing

.1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.

.2 Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use methods and equipment approved by Departmental Representative.
.3 Wash aggregates, if required to meet specifications. Use only equipment approved by Departmental Representative.
.4 When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate.

.3 Handling
.1 Handle and transport aggregates to avoid segregation, contamination and degradation.

.4 Stockpiling
.1 Stockpile aggregates on site in locations as indicated unless directed otherwise by Departmental Representative. Do not stockpile on completed pavement surfaces.
.2 Stockpile aggregates in sufficient quantities to meet Project schedules.
.3 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
.4 Except where stockpiled on acceptably stabilized areas, provide compacted sand base not less than 300 mm in depth to prevent contamination of aggregate. Stockpile aggregates on ground but do not incorporate bottom 300 mm of pile into Work.
.5 Separate different aggregates by strong, full depth bulkheads, or stockpile far enough apart to prevent intermixing.
.6 Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Departmental Representative within 48 hours of rejection.

.7 Stockpile materials in uniform layers of thickness as follows:
.1 Max 1.5 m for coarse aggregate and base course materials.
.2 Max 1.5 m for fine aggregate and sub-base materials.
.3 Max 1.5 m for other materials.
.8 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.
.9 Do not cone piles or spill material over edges of piles.
.10 Do not use conveying stackers.
.11 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.

3.2 CLEANING

.1 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.

.2 Leave any unused aggregates in neat compact stockpiles as directed by Departmental Representative.

.3 For temporary or permanent abandonment of aggregate source, restore source to condition meeting requirements of authority having jurisdiction.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies supply, placement and compaction of rock and gravel fill. The Contractor will make his own assessment of the quantities required by confirming critical measurements in the field before submitting Bid. Rock/gravel fill will not be measured separately for payment, and these costs are to be included in the lump sum arrangement.

PART 2 - PRODUCTS

2.1 ROCK FILL

.1 Rock fill will be of hard, durable, evenly graded blasted stone having a maximum diameter of 300 mm in major portion of fill and a maximum diameter of 150 mm in upper 600 mm of rock fill. Fill material will contain not more than 6 percent by weight passing the 25 mm sieve. Rock fill to be evenly graded within the limits specified.

.2 Use of shale rock or slate will not be permitted.

2.2 GRAVEL FILL

.1 Gravel fill will consist of hard, durable, particles of stone mixed with suitable binding material. It shall be free from flat, elongated particles and shall be well graded. When tested by means of laboratory sieves it shall fulfill requirements as follows:

Sieve Size	% by Weight Passing
56 mm	100
16 mm	45-80
4.75 mm	25-55
1.25 mm	10-35
0.300 mm	5-15
0.075 mm	3-8

PART 3 - EXECUTION

3.1 PLACING ROCK FILL

.1 Only rock fill material approved by Departmental Representative will be placed. Material will be placed uniformly across full cross-section in layers not exceeding 300 mm loose depth.

.2 Use suitable earth moving and surface grading equipment to place and spread rock fill in continuous and uniform horizontal layers.

.3 Compact rock fill after each 300 mm lift.

.4 Place rock fill to 350 mm below bottom of finished grade.

3.2 PLACING GRAVEL FILL

.1 Top 300 mm of fill will consist of gravel fill as specified in Clause 2.2.1 of this section.

.2 Place gravel fill in two (2) equal lifts to minimum 95% standard proctor density.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for supply and installation of treated timber and necessary fastenings for fabrication, placing, and ballasting of timber cribwork for the crib at the approach to the finger pier and the crib at the toe of the new launchway.

1.2 RELATED SECTIONS

.1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Section 06 05 73 - Wood Treatment.

1.3 MEASUREMENT FOR PAYMENT

.1 Treated Timber Cribwork – wharf approach crib: to be measured in cubic metres (m^3) of completed work which include excavation, ballast stone, concrete ballast, gravel, treated timber, fastenings, and all plant, labour, materials and equipment to perform work.

.2 Treated Timber Cribwork – launchway: to be measured in cubic metres (m^3) of completed work which include excavation(including rock excavation/busting if required to achieve minimum crib seat shown on drawings), ballast, gravel, treated timber, divers (if required to ensure slopes/elevations), fastenings, and all plant, labour, materials and equipment to perform work.

.3 Measure timber cribwork in cubic metres determined by product. Use following dimensions measured in place:

.1 Height: average of measurements taken at each vertical from bottom of lowest timber to top side of uppermost course of timber.

.2 Width: average of measurements between outside faces of exterior longitudinal timbers, each width measured

on top ties of each row of cross ties.
.3 Length: measured horizontally along centre-line of crib between outside faces of exterior cross ties.

.4 Cribwork below step will be determined by product of following dimensions measured in place:
.1 Height: average of measurements taken at each vertical from bottom of lowest timber to top side of uppermost course of timber.
.2 Width: average of measurements between outside faces of exterior longitudinal timbers, measured at each crosstie at low water elevations.
.3 Length: measured horizontally along centre-line of crib and parallel to level water surface between outside faces of exterior cross ties.

.5 Cribwork above step will be determined by product of following dimensions measured in place:
.1 Height: average of measurements taken at each vertical from top of step crib to top of top course of timber.
.2 Width: average of measurements between outside faces of exterior longitudinal timbers, each width measured on top tier of each row of crossties.
.3 Length: measured horizontally along centre-line of crib and parallel to level water surface between outside faces of exterior cross ties.

.6 Measurements of the vertical lengths, widths and lengths of cribwork, will be taken in the presence of both the Contractor and the Inspector and will be verified and signed by both parties on the site to avoid any disputes. Departmental Representative will make final approval in this regard, as there will be no

overpayment for cribwork not actually installed in the work.

1.4 SAFETY REQUIREMENTS

.1 Worker protection:

.1 Workers must wear gloves, respirators, dust masks, long sleeved clothing, eye protection, protective clothing when handling, drilling, sawing, cutting or sanding preservative treated wood and applying preservative materials.

.2 Workers must not eat, drink or smoke while applying preservative material.

.3 Clean up spills of preservative materials immediately with absorbent material. Safely discard of absorbent material to sanitary landfill.

1.5 REFERENCES

.1 American Society for Testing and Materials (ASTM International)
.1 ASTM A307-07b, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile.
.2 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.2 American Wood-Preserver's Association (AWPA)
.1 AWPA M4-06, Standard for the Care of Preservation - Treated Wood Products.

.3 Canadian Standards Association (CSA International)
.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
.2 CAN/CSA-G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Steel.
.3 CAN/CSA G164-M92(R2003), Hot Dip

Galvanizing of Irregularly Shaped Articles.
.4 CAN/CSA-O80 Series-97 (R2007), Wood Preservation.

.4 Canadian Wood Council
.1 Wood Design Manual.

.5 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber 2000 edition.

1.6 SUBMITTALS

.1 Ballast:
.1 Submit proposed placing method to Departmental Representative for approval, prior to placing of ballast.

1.7 WASTE MANAGEMENT

.1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.2 Dispose of all corrugated cardboard and polystyrene plastic packaging material in appropriate on-site bin for recycling.

.3 Place materials defined as hazardous or toxic in designated containers.

.4 Ensure emptied containers are sealed and stored safely.

.5 Do not dispose of preservative treated wood through incineration.

.6 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.

.7 Dispose of treated wood, end pieces, wood scraps and sawdust at a sanitary landfill.

.8 Dispose of unused preservative material at an official hazardous material collections

site. Do not dispose of unused preservative material into sewer system, streams, lakes, on ground or in any other location where they will pose a health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Timber: Use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Accreditation Board of CSA.

.2 Species: Douglas Fir, Pacific Coast Hemlock and Eastern Hemlock.

.3 Grade: No. 1 Structural.

.4 Grading authority: NLGA.

.5 Preservative treatment: To CSA O80 for coastal waters and Section 06 05 73. Supply timbers in lengths required. Cut and field treat timbers only as may be necessary to suit site conditions. Contractor will have on site sufficient lengths and thickness of treated timber to permit leveling of cribs after ballasting operations.

.6 Miscellaneous steel: Medium structural steel conforming to CSA Specification G40.21 "Structural Quality Steels".
.1 Hot dip galvanized: to CAN/CSA-G164. Minimum weight of zinc coating as stated in Table 1 of this Standard. Fabricator to adhere to recommendations in Appendix A and B of Standard.
.2 Wire nails, spikes, staples: to CSA-B111.
.3 Bolts, nuts, washers: to ASTM A307.

.4 Drift Bolts: to G40.21 from round stock, button head and diamond or wedge point.

.5 Washers:

.1 Round Plate Washers: for 19 mm diameter machine bolts, 79 mm diameter by 7.9 mm thick, with hole diameter of 21 mm. Washers to G40.21.

.2 Square washers not permitted to be used.

.6 All hardware galvanized.

.7 Ballast for filling cribs to following requirements:

.1 Stone, consisting of hard durable particles free from clay lumps, organic material and other deleterious materials.

.2 Dry density in place: minimum 2600 kg per cubic metre.

.3 Ballast stone to be well graded with maximum sizes not exceeding 400 mm on any side and minimum size of not less than 250 mm on any side.

.4 Concrete ballast for approach crib to finger pier as per Section 03 30 00.

.8 Gravel: Evenly graded pit run or crushed stone, maximum size, 50 mm, with not more than 8% passing the 0.075 mm sieve.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Place crib to elevations shown. Achieve minimum elevation for launchway toe crib as shown on drawings.

.2 Contractor to confirm with Departmental Representative that bottom is adequate for cribwork placement.

.3 Before construction, stockpile sufficient ballast to completely fill cribs. Provide suitable plant and equipment to keep crib

in proper position and alignment during sinking operations.

.4 Take closely spaced accurate soundings and probings, 1500 mm centre to centre or less, precisely located by template, to determine actual base area of crib.

.5 Cribs out of alignment or not correctly located to be refloated and replaced in correct position.

3.2 CRIB CONSTRUCTION

.1 Levelling Pieces:
.1 Place treated timber levelling pieces beneath bottom timbers to conform to shape of base area.
.2 Place levelling pieces horizontally.
.3 Secure succeeding pieces at intersections of bottom timbers and vertical posts, and other levelling pieces with machine bolts.

.2 Bottom timbers:
.1 Place bottom timbers lengthwise, and crosswise to form bottom three courses of cribs.
.2 Crosswise bottom timbers to be of one piece.
.3 Lengthwise bottom timbers to be of one piece.
.4 Secure three courses of bottom timbers together with machine bolts at every intersection with each other and with vertical posts.

.3 Ballast floor:
.1 Place ballast floor on pockets on bottom or middle course of bottom timbers.
.2 Secure each ballast floor timber to bottom timbers with drift bolts securing adjacent ballast floor timbers to same bottom timber.

.4 Longitudinals:
.1 Longitudinals one length for individual cribs below LNT.
.2 Longitudinals minimum 6100 mm long above LNT.
.3 Butt join exterior and interior longitudinals a minimum distance of 600 mm from crosstie with joint in centre of a 1200 mm long joiner block.
.4 Secure block to lower timber with drift bolt at centre and secure longitudinals and splice at ends to block with drift bolts.
.5 Stagger joints in longitudinal timbers. Do not join in same bay or on same vertical post.
.6 Secure longitudinals to intersection of cross ties with drift bolt and to intersection of vertical posts with machine bolt every third course of longitudinals, along with the top course.
.7 Countersink machine bolts on exterior face above LNT.

.5 Cross ties: one length across cribs.
.1 Secure cross ties to intersection of longitudinals with drift bolt and to intersection of vertical posts with machine bolt every third course of cross tie, along with the top course.
.2 One row of crossties and verticals may be eliminated from one crib where cribs marry together above +400 mm LNT.

.6 Vertical posts: one length from bottom of cribwork to top of cribwork. Locate one vertical post at corner of each crib and at intersection of crossties with longitudinals.

.7 Blocking: install treated timber filler blocking as indicated on drawings.
.1 Cut blocking exact length to completely fill spaces and such that the

total thickness of crossties and longitudinals carrying the bearing weight of the deck be a minimum of 1000 mm if cribwork ends on a crosstie.

.2 If cribwork ends on a longitudinal one additional tier of blocking is required.

.3 Blocking of same size and material as crossties or longitudinals and fastened with 2 drift bolts into timber immediately below it.

.8 Levelling: treated timber required for levelling of cribwork after ballasting, must be full width continuous over entire length to be levelled.

.9 Bolt Sizing and Holing:

.1 Drift Bolts: length of drift bolts equal to thickness of timbers fastened less 50 mm, unless otherwise specified. Bore holes for drift bolts 2 mm smaller diameter than bolt and for full length of bolt.

.2 Machine Bolts: length of machine bolts equal to thickness of timbers fastened plus thickness of washers plus 40 m. Where bolts are countersunk, the length, as noted above, less depth of countersink. Thread machine bolts for 64 mm. Bore holes for machine bolts to same diameter as bolts.

3.3 HANDLING TREATED TIMBER

.1 Handle treated material without damaging original treatment.

.1 Replace treated timber with major damage to original treatment, as instructed by Departmental Representative.

.2 Field treatment: to CAN/CSA-O80. Apply and saturate cuts, minor surface damage, abrasions, and nail and spike holes with preservative.

.3 Ripping of treated timber not permitted without prior approval of Departmental Representative.

3.4 BALLAST

.1 Place ballast to avoid damage to timber cribwork.

.2 Place ballast so that differential height of fill between adjacent cells, at any time, will be less than 1 m.

.3 Pockets of cribs ballasted within 100 mm of top of crib timbers.

3.5 GRAVEL

.1 Where applicable, install a 100 mm layer of gravel over the top of ballast to form a base for the reinforced concrete deck.

.2 Hand place final items of ballast stone to fill voids and depressions to hold gravel in place.

.3 Install gravel to grade required and compact in preparation for concrete deck work.

.4 Clean any loose gravel off timber surface prior to placement of deck.

3.6 TOLERANCES

.1 1 in 300 in overall dimensions.

.2 Locate cribs within 100 mm of location as indicated. Horizontal misalignment within 100 mm along the outside faces.

3.7 PROTECTION

.1 Protect work from damage resulting from work on other sections and from damage resulting from environmental conditions.

.2 Repair or replace portion or entire crib at no additional cost if damaged by work.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for supply and installation of structural timber as follows:

.1 Supply and installation of treated dimension timber wheelguard, wheelguard blocking, coping, and associated painting.

1.2 RELATED WORK

.1 Section 02 41 16 - Sitework, Demolition and Removal.

.2 Section 03 30 00 - Cast-in-Place Concrete.

.3 Section 06 05 73 - Wood Treatment.

.4 Section 31 53 13 - Timber Cribwork.

1.3 REFERENCES

.1 American Society for Testing and Materials (ASTM International)
.1 ASTM A307-07b, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile.

.2 American Wood-Preserver's Association (AWPA)
.1 AWPA M4-06, Standard for the Care of Preservation - Treated Wood Products.

.3 Canadian Standards Association (CSA International)
.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
.2 CAN/CSA-G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Steel.
.3 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
.4 CAN/CSA-O80 Series-97 (R2007), Wood Preservation.

.4 Canadian Wood Council

.1 Wood Design Manual.

.5 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber 2000 edition.

1.4 DIMENSIONS

.1 Check existing site dimensions and report discrepancies to Departmental Representative before commencing work.

1.5 PROTECTION

.1 Avoid dropping, bruising or breaking of wood fibres.

.2 Avoid breaking surfaces of treated timber.

.3 Do not damage surfaces of treated timber by boring holes or driving nails or spikes into them to support temporary material or staging.

.4 Treat cuts, breaks or abrasions on surfaces of treated timber with 3 brush coats of preservative to CSA 080.

.5 Treat bolt holes, cutoffs and field cuts in accordance with CSA 080.

1.6 DELIVERY AND STORAGE

.1 Store timber horizontally, evenly supported and open piled permit circulation when stored for prolonged period.

.2 When handling long timber, provide support at sufficient number of points, properly located to prevent damage due to excessive bending.

.3 Handle treated timber with hemp, manila or sisal rope slings or other approved means of support that will not damage surface.

.4 Do not use sharp pointed tools to handle treated timber. Any timber so handled will

be rejected and be replaced at Contractor's expense.

1.7 MEASUREMENT FOR PAYMENT

.1 Structural Timber:

.1 Treated Dimension Timber: The supply and installation of treated dimension timber for wheelguard, wheelguard blocking and coping will be measured by the cubic metre (m^3) of timber secured in place, including all timber, chemical anchors to slab on grade, fastenings, plant, material, equipment, labour, wheelguard bolt hole levelling sealant, painting of wheelguard and wheelguard blocking.

.2 Payment for all dimension timber will be made on volume calculated from nominal sizes as indicated on drawing and specified, eg. 200 mm x 200 mm.

PART 2 - PRODUCTS

2.1 TIMBER MATERIALS

.1 Timber: Use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Administration Board of CSA.

.2 Species
.1 Wheelguard, wheelguard blocks and coping: Hemlock or Douglas Fir (CCA or ACA treated).

.3 Grade: No. 1 Structural Grade

.4 Grading Authority: NLGA

.5 Preservative Treatment: Treat to CSA 080, for coastal waters and Section 06 05 73. Timbers will be treated in the lengths required.

Unnecessary field cutting will not be permitted.

.6 Primer: Alkyd undercoat, exterior oil wood primer, similar to Pittsburgh 6-9.

.7 Paint: Alkyd/Oil Resin paint similar to Pittsburgh Paints "Safety Yellow" Product ID 7-808. Paint to conform to CAN/CGSB-1.61-2004.

2.2 MISCELLANEOUS STEEL AND FASTENINGS

.1 Miscellaneous Steel: All steel and fastenings to be CSA G40.21, Grade 300 W, galvanized.

.2 Nails and Spikes: to CSA B111.

.3 Machine Bolts and Nuts: to ASTM A307. All machine bolts and nuts to be galvanized.

.4 Drift Bolts: to G40.21 from round stock button head and diamond or wedge point. All drift bolts to be galvanized.

.5 Washers:
.1 Round Plate Washers: for 16 mm machine bolts will be 76 mm diameter by 6.4 mm thick, for 19 mm machine bolts will be 79 mm diameter by 7.9 mm thick and have a hole diameter of 18 mm and 21 mm diameter respectively. Washers to conform to G40.21. All washers to be galvanized.
.2 Plain Washers: to CSA B19.1, Class 2. All washers to be galvanized.
.3 Square washers are not permitted.

.6 Galvanizing: will conform to CSA G164 "Hot Dip Galvanizing of Irregularly Shaped Articles." Unless otherwise specified, minimum weight of zinc coating will be as stated in Table 1 of this standard. Fabricator is to adhere to recommendations of Appendix A and Appendix B of standard.

.7 Welding in accordance with CSA Standards. The welders will be qualified to the appropriate classification as stated in CSA W47.1 "Certification of Companies for Fusion Welding of Steel Structures." Conform welding to all appropriate requirements and recommendations of CSA Standard W59 "Welded Steel Construction" (metal arc welding).

PART 3 - EXECUTION

3.1 PREPARATION

.1 Install structural timbers to details shown on drawings or as specified.

3.2 PAINTING

.1 Paint four (4) sides and exposed ends of wheelguard and exposed sides of wheelguard blocking as directed by the Departmental Representative.

.2 Use one (1) coat of exterior oil wood primer and two (2) coats of alkyd/oil resin paint as specified. Paint materials for each coat to be product of a single manufacturer as specified. Ensure previous coat of primer or paint is dry before second coat is applied.

3.3 BOLT SIZING

.1 Drift Bolts: Drift bolts used in the work will have a length equal to thickness of timbers being fastened less 50 mm unless otherwise specified. Holes for drift bolts will be bored 2 mm smaller diameter than size of steel used and for full length of bolts.

.2 Machine Bolts: Machine bolts used in work will have a length equal to thickness of timbers being fastened plus thickness of washers plus 40 mm. Where bolts are countersunk, the length will be as above less depth of countersinking. Machine bolts will be threaded for 64 mm. Holes will be drilled same diameter as bolt.

.3 Lag Screws: All lag screws used in the work will have a length equal to thickness of timbers being fastened less 50 mm and depth of countersinking. Holes for lag screws to be drilled same diameter as shank portion of screw and to inside thread diameter for threaded portion of screw and for full length. All lag screws will be countersunk, screwed, not driven in place, and will have one (1) standard washer under the head.

.4 Bolting of timbers without properly drilled bolt holes will not be accepted.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies the requirements for the supplying, producing and placing crushed gravel for quarried stone as a granular base course to lines, grades and typical cross sections indicated, or as directed by Departmental Representative.

1.2 REFERENCES

.1 ASTM C 117-04, Test method for material finer than 0.075 mm sieve in mineral aggregates by washing.

.2 ASTM C 131-06. Test method for resistance to degradation of small size coarse aggregate by abrasion and impact in the Los Angeles machine.

.3 ASTM C 136-6, Method for sieve analysis of fine and coarse aggregates, CAN/CGSB-8.2-M88, Sieves testing, woven wire, metric..

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver and stockpile aggregates as directed by Departmental Representative.

1.4 MEASUREMENT FOR PAYMENT

.1 Class “A” Granular Base: The supply and installation of Class “A” granular base will be measured in cubic metres of materials supplied and installed in the work. Include all costs in the unit price including plant, material and labour.

.2 Class “B” Granular Sub-Base: The supply and installation of Class “B” granular sub-base will be measured in cubic metres of materials supplied and installed in the work. Include all costs in the unit price including plant, material and labour.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Granular base fill (Class “A”) will consist of clean, hard, durable crushed gravel or stone, free from shale, clay, friable materials, organic matter and other deleterious substances and graded within the following limits when tested to ASTM C136 and ASTM C117 and giving a smooth curve without sharp breaks when plotted on a semi-chart.

ASTM Sieve Designation	% Passing
19.0 mm	100
9.51 mm	50-80
4.76 mm	35-60
1.20 mm	15-35
300 um	7-20
75 um	3-6 (Pit Source)
	3-8 (Rock Source)

.2 Physical Requirements for Class “A”:

.1 Liquid Limit ASTM D4318: Maximum 25

.2 Plasticity Index ASTM D4318: Maximum 0

.3 Los Angeles Abrasion ASTM C131-81 Maximum % loss by weight: 35

.4 Crushed Fragments: 50%. The percent of crushed particles will be determined by examining the fraction retained on the 4.76mm sieve and dividing the weight of the crushed particles by the total weight retained on the 4.76 mm

sieve.

.5 CBR: ASSHTO T193-72 Min 100 when compacted to 100% of AASHTO T180-74 Method D.

.3 Granular base fill (Class "B") will consist of clean, hard, durable crushed gravel or stone, free from shale, clay, friable materials, organic matter and other deleterious substances and graded within the following limits when tested to ASTM C136 and ASTM C117 and giving a smooth curve without sharp breaks when plotted on a semi-chart.

ASTM Sieve Designation	% Passing
50.8 mm	100
25.4 mm	50 - 100
4.76 mm	20 - 55
1.20 mm	10 - 35
300 um	5 - 20
75 um	2 - 6 (Pit Source) 2 - 8 (Rock Source)

.4 Physical Requirements for Class “B”:

.1 Liquid Limit ASTM D4318: Maximum 25

.2 Plasticity Index ASTM D4318: Maximum 0

.3 Los Angeles Abrasion ASTM C131-81 Maximum % loss by weight: 35

.4 Crushed Fragments: 50%.
The percent of crushed particles will be determined by examining the fraction retained on the 4.76 mm sieve and dividing the weight of the crushed particles by the total weight retained on the 4.76 mm sieve.

.5 CBR: ASSHTO T193-72 Min 100 when compacted to 100% of AASHTO T180-74 Method D.

.5 Materials from deposits acceptable as to the quality of the particles, but deficient in sizes to provide the required gradation, may be accepted if the contractor furnishes and satisfactorily incorporates into the product supplementary sizes from other sources to produce the required grading. If the deficiencies occur in Class “A” or Class "B" materials, corrections may be attempted by crushing to a smaller maximum particle size. In that event, the Departmental Representative will furnish special grading limits on the actual maximum particle size.

.6 Material shall be considered unsuitable even though particle sizes are within the specified gradation limits if particle shape or any other characteristic precludes satisfactory compaction or fails to provide a roadway suitable for traffic. If, in the opinion of the Departmental Representative, an improved particle shape can be achieved by using a different crushing unit for that proposed by the contractor, then the Contractor shall supply and use a crushing unit of the type directed by the Departmental Representative.

.7 Class “A” and Class "B" shall be processed by crushing and, when necessary, to eliminate surplus fines passing the 4.76 mm sieve, shall be screened and washed.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Place granular base after sub-base surface is inspected and approved by Departmental Representative.

.2 Placing:

.1 Construct granular base to depth and grade in area indicated.

.2 Ensure no frozen material is placed.

.3 Place material only on clean unfrozen surface, free from snow and ice.

.4 The contractor shall place all granular bases in such a manner as to prevent contamination by other materials and to prevent segregation. If, in the opinion of the Departmental Representative, the methods and techniques used by the Contractor cannot overcome contamination or segregation, then the Departmental Representative may direct a modification in these methods which may require the use of an approved spreader box or other acceptable device.

.5 All granular bases shall be placed in uniform layers such that the thickness of the compacted layer does not exceed 50 mm.

.6 Prior to closing down operations for each working day, all granular materials shall be bladed and compacted to the specified density.

.7 The materials shall be sprayed with water when and as directed by the Departmental Representative, either to aid compaction or reduce dust nuisance or both. When water is added to aid compaction, it shall be applied immediately ahead of the compacting unit

.8 Each layer of granular base shall

be bladed shaped and compacted as necessary to produce the required profile and cross-section. The finished surface shall not deviate at any place on a 3 m straight edge by more than 10mm for Class “A” and Class "B". The upper layer shall be maintained to these tolerances and to the specified density until compaction of the contract. This may require keeping the moisture content at the appropriate value during periods of dry weather in addition to regarding and re-compacting as frequently as may be deemed necessary by the Departmental Representative.

.3 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.

.4 Compaction Equipment:

.1 Compaction equipment to be capable of obtaining required material densities.

.5 Compacting:

.1 All Class “A” and Class "B" materials shall be compacted to not less than 100% of the maximum Standard Proctor Dry Density ASTM D698-07e1 Method D.

.2 Compaction operations shall be carried out as closely as possible behind the placing and spreading operation. At the end of each working day, all materials placed shall have been compacted to the specified density.

.3 Each layer of material shall be graded and compacted as specified before the next layer is placed.

.4 Where necessary to obtain the required compaction, the contractor shall apply sufficient water by means of an approved distributor.

3.2 INSTALLATION

.1 Testing of materials and compaction will be carried out by testing laboratory designated by the Departmental Representative.

.2 Contractor will pay costs for inspection and testing.

.3 Sieve Analysis: proposed granular material will be tested to confirm suitability for intended use and conformity with specifications.

.4 Frequency of Tests: to be determined by the Departmental Representative.

3.3 TOLERANCES

.1 Finished base surface to be within plus or minus 10 mm of established grade and cross section but not uniformly high or low.

3.4 PROTECTION

.1 Maintain finished base in condition conforming to this section until succeeding material is applied or until acceptance by Departmental Representative.

PART 1 - GENERAL

1.1 SUMMARY

.1 This method covers measurement of loss of Marshall Stability resulting from action of water on compacted asphalt paving mixtures containing penetration grade asphalt cement.

.2 Numerical index of retained stability is obtained by comparing stability of specimens determined in accordance with usual Marshall procedures with stability of specimens that have been immersed in water for prescribed period.

1.2 RELATED SECTIONS

.1 Section 32 12 16 - Asphalt Paving.

1.3 REFERENCES

.1 American Association of State Highway and Transportation Officials (AASTHO)
.1 AASHTO T245-97(2001), Resistance to Plastic flow of Bituminous Mixtures Using Marshall Apparatus.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Representative samples of each asphalt paving mixture proposed for use on Project.

2.2 EQUIPMENT

.1 One or more water baths with automatic controls for immersing specimens. Baths normally used for Marshall test are

suitable for test.

.2 Scale and water bath with suitable accessory equipment for weighing test specimens in air and in water to determine their densities.

.3 Flat transfer plates of glass or metal. Keep one plate under each specimen during immersion period and during subsequent handling, except when weighing and testing, to prevent breakage or distortion of specimens.

.4 Apparatus required to conduct Marshall test.

PART 3 - EXECUTION

3.1 PREPARATION OF TEST SPECIMENS

.1 Prepare at least 8 specimens for each test with hand-operated hammer, in accordance with AASHTO T245, except where specified otherwise.

3.2 TEST PROCEDURE

.1 Do Marshall testing in accordance with AASHTO T245, except where specified otherwise.

.2 Weigh each specimen in air and in water. Weigh in water as rapidly as possible to minimize absorption.

.3 Calculate specific gravity of each specimen as follows:
.1 Specific Gravity = A / (A-B)
.2 Where A = weight of specimen in air in grams
.3 B = weight of specimen in water in

grams

.4 Sort each set of 8 specimens into 2 groups of 4 specimens each so that average specific gravity of specimens in group 1 is essentially same as that of group 2.

.5 Test group 1 specimens for Marshall stability. Calculate S1 = Marshall stability of group 1 (average).

.6 Immerse group 2 specimens in water for 24 h at 60°C, then test immediately for Marshall stability. Calculate S2 = Marshall stability of group 2 (average).

3.3 TEST REPORT

.1 Report test results to Departmental Representative.

.2 Report numerical index of retained stability as resistance of asphaltic paving mixtures to detrimental effect of water, expressed as percentage of original stability retained after immersion period.

.3 Calculate index as follows:
.1 Index of Retained Stability = S2 / S1 x 100.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Materials and installation for asphalt concrete paving.

1.2 RELATED SECTIONS

.1 Section 01 29 83 - Payment Procedures for Testing Laboratory Services.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 35 29 - Health and Safety Requirements

.4 Section 31 05 17 - Aggregate Materials.

.5 Section 32 12 10 - Marshall Immerson Test for Bitumen.

1.3 REFERENCES

.1 American Association of State Highway and Transportation Officials (AASHTO)
.1 AASHTO M320-02, Standard Specification for Performance Graded Asphalt Binder.
.2 AASHTO R29-02, Standard Specification for Grading or Verifying the Performance Graded of an Asphalt Binder.
.3 AASHTO T245-97(2001), Resistance to Plastic flow of Bituminous Mixtures Using Marshall Apparatus.

.2 Asphalt Institute (AI)
.1 AI MS2-1994 Sixth Edition, Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.

.3 American Society for Testing and Materials International, (ASTM)
.1 ASTM C88-05, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulphate or Magnesium Sulphate.
.2 ASTM C117-04, Standard Test Method for Material Finer Than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.

.3 ASTM C123-04, Standard Test Method for Lightweight Particles in Aggregate.
.4 ASTM C127-07, Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.
.5 ASTM C128-07a, Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate.
.6 ASTM C131-06, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
.7 ASTM C136-06, Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
.8 ASTM C207-06, Standard Specification for Hydrated Lime for Masonry Purposes.
.9 ASTM D995-95b(2002), Standard Specification for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
.10 ASTM D2419-02, Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
.11 ASTM D3203-05, Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.
.12 ASTM D4791-05e1, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

.4 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-8.2-M88, Sieves Testing, Woven Wire, Metric.
.2 CAN/CGSB-16.3-M90, Asphalt Cements for Road Purposes.

1.4 PRODUCT DATA

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

.2 Submit viscosity-temperature chart for asphalt cement to be supplied showing

either Saybolt Furol viscosity in seconds or Kinematic Viscosity in centistokes, temperature range 105 to 175 degrees C at least 2 weeks prior to beginning Work.

.3 Submit manufacturer's test data and certification that asphalt cement meets requirements of this Section.

.4 Submit asphalt concrete mix design and trial mix test results to Departmental Representative for review at least 2 weeks prior to beginning Work.

1.5 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Inform Departmental Representative of proposed source of aggregates and provide access for sampling at least 2 weeks prior to beginning Work.

.3 Submit samples of following materials proposed for use at least 2 weeks prior to beginning Work.
.1 One 5 L container of asphalt cement.

.4 If materials have been tested by an independent testing laboratory within previous 6 months and have successfully passed tests equal to requirements of this specification, disregard above instructions and submit test certificates from testing laboratory showing suitability of materials for this project.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver and stockpile aggregates in accordance with Section 31 05 17 - Aggregate Materials. Stockpile minimum 50% of total amount of aggregate required before beginning asphalt mixing operation.

.2 When necessary to blend aggregates from one or more sources to produce required gradation, do not blend in stockpiles.

.3 Stockpile fine aggregate separately from coarse aggregate, although separate stockpiles for more than two mix components are permitted.

.4 Provide approved storage, heating tanks and pumping facilities for asphalt cement.

1.7 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.

.2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.4 Divert unused aggregate materials from landfill to quarry facility for reuse as approved by Departmental Representative.

.5 Divert unused asphalt from landfill to facility capable of recycling materials.

.6 Fold up metal banding, flatten and place in designated area for recycling.

1.8 MEASUREMENT FOR PAYMENT

.1 Asphalt: will be measured by the square metre (m^2) of compacted surface coarse asphalt installed in the work within the limits indicated on the drawings. The square metre area includes varying thicknesses of compacted asphalt (with the minimum being 80mm) to provide positive site drainage.

.2 No separate payment will be made for any other ingredient or feature of the work

and all factors, including asphalt bituminous tack coat, compaction, cold weather, asphalt, aggregates, granular base courses, saw cutting, and all plant, labour and materials is inclusive in the above price.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Performance graded asphalt cement: to AASHTO M320, grade PG 58 - 28 when tested to AASHTO R29.

.2 Aggregates: in accordance with Section 31 05 17 - Aggregate Materials: General and following requirements:
.1 Crushed stone or gravel.
.2 Gradations: within limits specified when tested to ASTM C136 and ASTM C117. Sieve sizes to CAN/CGSB-8.2.
.3 Table

Sieve Designation	% Passing	
	Lower Course	Surface Course
200 mm	-	-
75 mm	-	-
50 mm	-	-
38.1 mm	-	-
25 mm	100	-
19 mm	-	-
12.5 mm	70-85	100
9.5 mm	-	-
4.75 mm	40-65	55-75
2.00 mm	30-50	35-55
0.425 mm	15-30	15-30
0.180 mm	5-20	5-20
0.075 mm	3-8	3-8

.4 Coarse aggregate: aggregate retained on 4.75 mm sieve and fine aggregate is aggregate passing 4.75 mm sieve when tested to ASTM C136.
.5 When dryer drum plant or plant without hot screening is used, process fine aggregate through 4.75 mm sieve and stockpile separately from coarse aggregate.
.6 Do not use aggregates having known polishing characteristics in mixes for surface courses.
.7 Sand equivalent: ASTM D2419. Min: 50.
.8 Magnesium Sulphate soundness: to ASTM C88. Max% loss by mass:
.1 Coarse aggregate surface course: 12%.
.2 Coarse aggregate lower course: 12%.
.3 Fine aggregate, surface course: 16%.
.4 Fine aggregate, lower course: 16%.
.9 Los Angeles degradation: Grading B, to ASTM C131. Max % loss by mass:
.1 Coarse aggregate, surface course: 25%.
.2 Coarse aggregate, lower course: 35%.
.10 Absorption: to ASTM C127. Max % by mass:
.1 Coarse aggregate, surface course: 1.75%.
.2 Coarse aggregate, lower course: 2.00%.
.11 Loss by washing: to ASTM C117. Max % passing 0.075 mm sieve:
.1 Coarse aggregate, surface course: 1.5%.
.2 Coarse aggregate, lower course: 2.0%.
.12 Lightweight particles: to ASTM C123. Max % by mass less than 1.95 relative density:

.1 Surface course: 1.5%.
.2 Lower course: 3.0%.

.13 Flat and elongated particles: to ASTM D4791, (with length to thickness ratio greater than 5): Max % by mass:
.1 Coarse aggregate, surface course: 15%.
.2 Coarse aggregate, lower course: 15%.

.14 Crushed fragments: at least 60 % of particles by mass within each of following sieve designation ranges, to have at least 1 freshly fractured face. Material to be divided into ranges, using methods of ASTM C136.

Passing		Retained on
25 mm	to	12.5 mm
12.5 mm	to	4.75 mm

.15 Regardless of compliance with specified physical requirements, fine aggregates may be accepted or rejected on basis of past field performance.

.3 Mineral filler:
.1 Finely ground particles of limestone, hydrated lime, Portland cement or other approved non-plastic mineral matter, thoroughly dry and free from lumps.
.2 Add mineral filler when necessary to meet job mix aggregate gradation or as directed to improve mix properties.
.3 Mineral filler to be dry and free flowing when added to aggregate.

2.2 EQUIPMENT

.1 Pavers: mechanical grade controlled self-powered pavers capable of spreading mix within specified tolerances, true to line, grade and crown indicated.

.2 Rollers: sufficient number of type and weight to obtain specified density of

compacted mix.

.3 Vibratory rollers:
.1 Minimum drum diameter: 1200 mm.
.2 Maximum amplitude of vibration (machine setting): 0.5 mm for lifts less than 50 mm thick.

.4 Haul trucks: sufficient number and of adequate size, speed and condition to ensure orderly and continuous operation and as follows:
.1 Boxes with tight metal bottoms.
.2 Covers of sufficient size and weight to completely cover and protect asphalt mix when truck fully loaded.
.3 In cool weather or for long hauls, insulate entire contact area of each truck box.

.5 Hand tools:
.1 Lutes or rakes with covered teeth for spreading and finishing operations.
.2 Tamping irons having mass not less than 12 kg and bearing area not exceeding 310 cm^2 for compacting material along curbs, gutters and other structures inaccessible to roller. Mechanical compaction equipment, when approved by Departmental Representative, may be used instead of tamping irons.
.3 Straight edges, 4.5 m in length, to test finished surface.

2.3 MIX DESIGN

.1 Mix design to be approved by Departmental Representative.

.2 Mix design to be developed by testing laboratory approved by Departmental Representative.

.3 Design of mix: by Marshall method to requirements below.
.1 Compaction blows on each face of test specimens: 75.

.2 Mix physical requirements:

Property	Roads
Marshall Stability at 60°C kN min	5.5 surface course 4.5 lower course
Flow Value mm	2-4
Air Voids in Mixture, %	3-5 surface course 2-6 lower course
Voids in Mineral Aggregate, % min	15 surface course 13 lower course
Index of Retained Stability % minimum	75

.3 Measure physical requirements as follows:

.1 Marshall load and flow value: to AASHTO T245.

.2 Compute void properties on basis of bulk specific gravity of aggregate to ASTM C127 and ASTM C128. Make allowance for volume of asphalt absorbed into pores of aggregate.

.3 Air voids: to ASTM D3203.

.4 Voids in mineral aggregates: to AI MS2, chapter 4.

.5 Index of Retained Stability: measure in accordance with Section 32 12 10 - Marshall Immersion Test for Bitumen.

.4 Do not change job-mix without prior approval of Departmental Representative. When change in material source proposed, new job-mix formula will be provided to be approved to be reviewed by Departmental Representative.

.5 Return plant dust collected during processing to mix in quantities acceptable to Departmental Representative.

PART 3 - EXECUTION

3.1 PLANT AND MIXING REQUIREMENTS

.1 Batch and continuous mixing plants:

.1 To ASTM D995.
.2 Feed aggregates from individual stockpiles through separate bins to cold elevator feeders. Do not load frozen materials into bins.
.3 Feed cold aggregates to plant in proportions to ensure continuous operations.
.4 Calibrate bin gate openings and conveyor speeds to ensure mix proportions are achieved.
.5 Before mixing, dry aggregates to moisture content not greater than 1% by mass or to lesser moisture content if required to meet mix design requirements.
.6 Immediately after drying, screen aggregates into hot storage bins in sizes to permit recombining into gradation meeting job-mix requirements.
.7 Store hot screened aggregates in manner to minimize segregation and temperature loss.
.8 Heat asphalt cement and aggregate to mixing temperature directed by Departmental Representative. Do not heat asphalt cement above maximum temperature indicated on temperature-viscosity chart.
.9 Make available current asphalt cement viscosity data at plant. With information relative to viscosity of asphalt being used, Departmental Representative to review temperature of completed mix at plant and at paver after considering hauling and placing conditions.
.10 Maintain temperature of materials within 5 degrees C of specified mix temperature during mixing.
.11 Mixing time:
.1 In batch plants, both dry and wet mixing times as directed by

Departmental Representative. Continue wet mixing as long as necessary to obtain thoroughly blended mix but not less than 30s or more than 75s.
.2 In continuous mixing plants, mixing time as directed by Departmental Representative but not less than 45s.
.3 Do not alter mixing time unless directed by Departmental Representative.

.2 Dryer drum mixing plant:
.1 To ASTM D995.
.2 Load aggregates from individual stockpiles to separate cold feed bins. Do not load frozen materials into bins.
.3 Feed aggregates to burner end of dryer drum by means of multi-bin cold feed unit and blend to meet job-mix requirements by adjustments of variable speed feed belts and gates on each bin.
.4 Meter total flow of aggregate by an electronic weigh belt system with indicator that can be monitored by plant operator and which is interlocked with asphalt pump so that proportions of aggregate and asphalt entering mixer remain constant.
.5 Provide for easy calibration of weighing systems for aggregates without having material enter mixer.
.6 Calibrate bin gate openings and conveyor speeds to ensure mix proportions are achieved. Calibrate weigh bridge on charging conveyor by weighing amount of aggregate passing over weigh bridge in set amount of time. Difference between this value and amount shown by plant computer system to differ by not more than plus or minus 2%.
.7 Make provision for conveniently sampling full flow of materials from cold feed.

.8 Provide screens or other suitable devices to reject oversize particles or lumps of aggregate from cold feed prior to entering drum.
.9 Provide system interlock stop on feed components if either asphalt or aggregate from bin stops flowing.
.10 Accomplish heating and mixing of asphalt mix in approved parallel flow dryer-mixer in which aggregate enters drum at burner end and travels parallel to flame and exhaust gas stream. Control heating to prevent fracture of aggregate or excessive oxidation of asphalt. Equip system with automatic burner controls and provide for continuous temperature sensing of asphalt mixture at discharge, with printing recorder that can be monitored by plant operator. Submit printed record of mix temperatures at end of each day.
.11 Mixing period and temperature to produce uniform mixture in which particles are thoroughly coated, and moisture content of material as it leaves mixer to be less than 2%.

.3 Temporary storage of hot mix:
.1 Provide mix storage of sufficient capacity to permit continuous operation and designed to prevent segregation.
.2 Do not store asphalt mix in storage bins in excess of 3 hours.

.4 Mixing tolerances:
.1 Permissible variation in aggregate gradation from job mix (percent of total mass).

4.75 mm sieve and larger	5.0
2.00 mm sieve	4.0
0.425 mm sieve	3.0
0.180 mm sieve	2.0
0.075 mm sieve	1.0

.2 Permissible variation of asphalt cement from job mix: 0.25%.
.3 Permissible variation of mix temperature at discharge from plant: 5 degrees C.

3.2 PREPARATION

.1 Remove existing asphalt and/or concrete slab on grade as noted on the drawings or as otherwise directed by Departmental Representative.

3.3 TRANSPORTATION OF MIX

.1 Transport mix to job site in vehicles cleaned of foreign material.

.2 Paint or spray truck beds with limewater, soap or detergent solution, or non petroleum based commercial product, at least daily or as required. Elevate truck bed and thoroughly drain. No excess solution to remain in truck bed.

.3 Schedule delivery of material for placing in daylight, unless Departmental Representative approves artificial light.

.4 Deposit mix from surge or storage silo to trucks in multiple drops to reduce segregation. Do not dribble mix into trucks.

.5 Deliver material to paver at uniform rate and in an amount within capacity of paving and compacting equipment.

.6 Deliver loads continuously in covered vehicles and immediately spread and compact. Deliver and place mixes at temperature within range as directed by Departmental Representative, but not less than 135 degrees C.

3.4 PLACING

.1 Obtain Departmental Representative's approval of subgrade material prior to placing asphalt.

.2 Apply asphalt bituminous tack coat as directed by Departmental Representative, prior to asphalt placement.

.3 Place asphalt concrete to thicknesses, grades and lines as indicated. Bevel all perimeter edges of asphalt as directed by the Departmental Representative.

.4 Placing conditions:
.1 Place asphalt mixtures only when air temperature is above 5 degrees C.
.2 When temperature of surface on which material is to be placed falls below 10 degrees C, provide extra rollers as necessary to obtain required compaction before cooling.
.3 Do not place hot-mix asphalt when pools of standing water exist on surface to be paved, during rain, or when surface is damp.

.5 Place asphalt concrete in compacted lifts of thickness as indicated.
.1 Lower course in 1 layer of 40 mm.
.2 Surface course in 1 layer of maximum 40 mm.

.6 Where possible do tapering and leveling where required in lower lifts. Overlap joints by not less than 300 mm.

.7 Spread and strike off mixture with self propelled mechanical finisher.
.1 Construct longitudinal joints and edges true to line markings. Departmental Representative to establish lines for paver to follow parallel to centerline of proposed pavement. Position and operate paver to follow established line closely.
.2 When using pavers in echelon, have first paver follow marks or lines, and second paver follow edge of material

placed by first paver. Work pavers as close together as possible and in no case permit them to be more than 30 m apart.
.3 Maintain constant head of mix in auger chamber of paver during placing.
.4 If segregation occurs, immediately suspend spreading operation until cause is determined and corrected.
.5 Correct irregularities in alignment left by paver by trimming directly behind machine.
.6 Correct irregularities in surface of pavement course directly behind paver. Remove by shovel or lute excess material forming high spots. Fill and smooth indented areas with hot mix. Do not broadcast material over such areas.
.7 Do not throw surplus material on freshly screeded surfaces.

.8 When hand spreading is used:
.1 Distribute material uniformly. Do not broadcast material.
.2 During spreading operation, thoroughly loosen and uniformly distribute material by lutes or covered rakes. Reject material that has formed into lumps and does not break down readily.
.3 After placing and before rolling, check surface with templates and straightedges and correct irregularities.
.4 Provide heating equipment to keep hand tools free from asphalt. Control temperature to avoid burning material. Do not use tools at higher temperature than temperature of mix being placed.

3.5 COMPACTING

.1 Do not change rolling pattern unless mix changes or lift thickness changes. Change rolling pattern only as directed by Departmental Representative.

.2 Roll asphalt continuously to density not less than 98% of blow Marshall density to

AASHTO T245

.3 General:
.1 Provide at least two rollers and as many additional rollers as necessary to achieve specified pavement density. When more than two rollers are required, one roller must be pneumatic tired type.
.2 Start rolling operations as soon as placed mix can bear weight of roller without excess displacement of material or cracking of surface.
.3 Operate roller slowly initially to avoid displacement of material. Do not exceed 5 km/h for breakdown and intermediate rolling for static steel-wheeled and pneumatic tired rollers. Do not exceed 9 km/h for finish rolling.
.4 For lifts 50 mm thick and greater, adjust speed and vibration frequency of vibratory rollers to produce minimum of 25 impacts per metre of travel. For lifts less than 50 mm thick, impact spacing not to exceed compacted lift thickness.
.5 Overlap successive passes of roller by minimum of 200 mm and vary pass lengths.
.6 Keep wheels of roller slightly moistened with water to prevent pick-up of material but do not over-water.
.7 Do not stop vibratory rollers on pavement that is being compacted with vibratory mechanism operating.
.8 Do not permit heavy equipment or rollers to stand on finished surface before it has been compacted and has thoroughly cooled.
.9 After traverse and longitudinal joints and outside edge have been compacted, start rolling longitudinally at low side and progress to high side. Ensure that all points across width of pavement receive essentially equal numbers of passes of compactors.

.10 When paving in echelon, leave unrolled 50 to 75 mm of edge which second paver is following and roll when joint between lanes is rolled.
.11 Where rolling causes displacement of material, loosen affected areas at once with lutes or shovels and restore to original grade of loose material before re-rolling.

.4 Breakdown rolling:
.1 Begin breakdown rolling with static steel wheeled roller vibratory roller immediately following rolling of transverse and longitudinal joint and edges.
.2 Operate rollers as close to paver as necessary to obtain adequate density without causing undue displacement.
.3 Operate breakdown roller with drive roll or wheel nearest finishing machine. When working on steep slopes or super-elevated sections use operation approved by Departmental Representative.
.4 Use only experienced roller operators.

.5 Intermediate rolling:
.1 Use pneumatic-tired, steel wheel or vibratory rollers and follow breakdown rolling as closely as possible and while paving mix temperature allows maximum density from this operation.
.2 Rolling to be continuous after initial rolling until mix placed has been thoroughly compacted.

.6 Finish rolling:
.1 Accomplish finish rolling with two-axle or three-axle tandem steel wheeled rollers while material is still warm enough for removal of roller marks. If necessary to obtain desired surface finish, use pneumatic-tired rollers as

directed by Departmental Representative.
.2 Conduct rolling operations in close sequence.

3.6 JOINTS

.1 General:
.1 Remove surplus material from surface of previously laid strip. Do not deposit on surface of freshly laid strip.
.2 Paint contact surfaces of existing structures such as Portland cement concrete deck, manholes, curbs or gutters with bituminous material prior to placing adjacent pavement.

.2 Transverse joints:
.1 Offset transverse joint in succeeding lifts by at least 600 mm.
.2 Cut back to full depth vertical face and tack face with thin coat of hot asphalt prior to continuing paving.
.3 Compact transverse joints to provide smooth riding surface. Use methods to prevent rounding of compacted surface at joints.

.3 Longitudinal joints:
.1 Offset longitudinal joints in succeeding lifts by at least 150 mm.
.2 Cold joint is defined as joint where asphalt mix is placed, compacted and left to cool below 100 degrees C prior to paving of adjacent lane.
.1 If cold joint can not be avoided, cut back by saw cutting previously laid lane, by at least 150 mm, to full depth vertical face, and tack face with thin coat of hot asphalt of adjacent lane.
.3 Overlap previously laid strip with spreader by 25 to 50 mm.
.4 Before rolling, carefully remove and discard coarse aggregate in material overlapping joint with lute or rake.
.5 Roll longitudinal joints directly

behind paving operation.

.6 When rolling with static or vibratory rollers, have most of drum width ride on newly placed lane with remaining 150 mm extending onto previously placed and compacted lane.

.4 Construct bevel joints so that thinner portion of joint contains fine graded material obtained by changed mix design or by raking out coarse aggregate in mix. Place and compact joint so that joint is smooth and without visible breaks in grade.

.5 Construct butt joints as directed by Departmental Representative.

3.7 FINISH TOLERANCES

.1 Finished asphalt surface to be within 5 mm of design elevation but not uniformly high or low.

.2 Finished asphalt surface not to have irregularities exceeding 5 mm when checked with 4.5 m straight edge placed in any direction.

3.8 DEFECTIVE WORK

.1 Correct irregularities which develop before completion of rolling by loosening surface mix and removing or adding material as required. If irregularities or defects remain after final compaction, remove surface course promptly and lay new material to form true and even surface and compact immediately to specified density.

.2 Repair areas showing checking, rippling, or segregation. Adjust roller operation and screed settings on paver to prevent further defects such as rippling and checking of pavement.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)
.1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm Sieve in Mineral Aggregates by Washing.
.2 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire.
.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 SUBMITTALS

.1 Submit to Departmental Representative for approval, 4 weeks before blasting, details of proposed blasting operations showing types and quantities of explosives, loading charges and patterns, type of blasting caps, blasting techniques, blast protection measures, time of blasting and other pertinent details. Submit subsequent changes to Departmental Representative before proceeding.

.2 Submit to Departmental Representative complete photographic and descriptive record of buildings, roads and structures in general area of Project Work, before blasting is started. Describe buildings both inside and out. Record existing cracks in walls or structural components.

.3 Samples
.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
.2 Inform Departmental Representative of proposed source of materials and provide

access for sampling at least 2 weeks prior to commencing Work.
.3 Submit 20 to 70 kg samples representative of quarry, minimum 2 weeks prior to beginning Work.
.4 Ship samples prepaid to Departmental Representative for approval.

1.4 INTERFERENCE TO NAVIGATION

.1 Be familiar with vessel movements and fishery activities in area affected by construction operations.

.2 Plan and execute work, in a manner that will not impede navigation, including movement of vessels at the facility.

.3 Plan and execute work, in a manner that will not interfere with fishing operations or access to marine structures by land or water.

.4 Departmental Representative will not be responsible for loss of time, equipment, material or any other charges related to interference with moored vessels in the harbour or other Contractor's operations.

.5 Keep the Marine Communications and Traffic Services' Centre, Fisheries and Oceans Canada, informed of construction operations, in order that necessary Notices to Mariners may be issued.

1.5 REGULATORY REQUIREMENTS

.1 Comply with municipal, provincial and national codes and regulations relating to project. Refer to the attachments.

.2 Mark floating equipment with sound and light signals in accordance with Collision Regulations made pursuant to the Canada Shipping Act and Notice to Mariners.

1.6 MEASUREMENT FOR PAYMENT

.1 Rock fill core: Measured in cubic metres of material and supplied and placed (m^3) in the work within the limits specified on the drawings.

.2 Filter Stone: Measured in cubic metres of material and supplied and placed (m^3) in the work within the limits specified on the drawings.

.3 Armour Stone: Measured in cubic metres of material and supplied and placed (m^3) in the work within the limits specified on the drawings.

.4 There will be no payment made for any material or stone placed beyond limits indicated on the drawings. The final contract grade must be within 200 mm of the specific elevation. Quantities will be based on an as-built survey. Any material placed outside the lines and grades as shown on the drawings will not be measured.

.5 There will be no additional payment for delays resulting from fishing operations.

.6 There will be no additional payment for delays caused by vessel traffic.

.7 There will be no additional payment for downtime.

.8 There will be no payment for any rock fill core, filter stone or armour stone that is washed out, removed, missing or deteriorated by weather or wave action.

.9 Contractor is to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings over each type of material. Measurement for payment for this will be considered included

in the cost of the supply and installation of the materials. There will be no separate payment.

.10 Construction and maintenance of haul roads will not be measured for payment.

.11 There will be no payment for any material that the Contractor may have to place over new filter and armour stone to construct new structure out to required limits.

.12 There will be no payment for any material settling below the existing bottom. The existing harbour bottom represents the pay limit which will be used for calculating final quantities.

PART 2 - PRODUCTS

2.1 ROCK MATERIAL

.1 Hard, angular rock free from cracks, seams and other defects which may impair durability.

.2 Relative density, 2.65 minimum.

.3 Absorption, 1.5 to 2.0% maximum as determined by ASTM C127 test procedure.

.4 Durability, less than 35% abrasion Wear, ASTM C535 test procedure.

.5 Sulphate Soundness Determination maximum 12% by ASTM C88.

2.2 ROCK FILL CORE

.1 Material for new rock fill core to be blasted rock.

.2 Stone size shall be well graded between 0.1 kg to 200 kg.

.3 No more than 15% of core stone to weigh less

than 20 kg.

.4 Silt content to be less than 3% by mass.

2.3 FILTER STONE

.1 Material for filter stone to be blasted rock or field stones.

.2 Stone size to be well graded between 200 kg to 400 kg, in categories specified, well graded within each category.

.3 Greatest dimension of each stone not to exceed two (2) times the least dimension.

2.4 ARMOUR STONE

.1 Material for armour stone to be blasted rock or field stones, 4-6 tonnes in size.

.2 Stone sizes to be in the ranges noted on the drawings, well graded.

.3 Greatest dimension of each stone not to exceed two (2) times least dimension.

PART 3 - EXECUTION

3.1 GENERAL

.1 Contractors take note, there are existing light poles, power lines, paved roads, public traffic and guard rail in the area of work. At times there is very high tourist activity in this area. Contractor to take precaution when excavating, salvaging and placing all material. Any damage will be the responsibility of the contractor to repair.

3.2 PREPARATION

.1 The Contractor is solely responsible for the construction and maintenance of haul roads. Haul roads are to be removed after completion of work and sites returned to their original condition. Contractor should note the accessibility to this site will consist of

narrow roads and steep hills. It is the Contractor’s responsibility to maintain all roads getting to and from site when hauling material.

.2 Contractor must protect work site at the end of each day with armour stone to stop any washout that may occur from wave or sea action. The contractor will be responsible for any wash out that occurs even if protected.

.3 Contractor will have to provide verification that each type of material was installed to the limits.

3.3 ROCK FILL CORE

.1 Place rock fill core to lines, grades and dimensions indicated on the drawings. Contractor should realize the large distance required to place the rock fill core out into the water, supply necessary equipment to complete as shown on drawings.

.2 Side slopes to be as indicated on the drawings.

.3 Sequence construction operations such that sufficient armour and filter stone is placed to protect the core at all times.

.4 The Contractor is to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings. Rock fill core must be installed to +/-50mm of the grade lines provided on the drawings. Quantities will be adjusted to the installed grade or to the max of +/-50mm of the lines shown on the drawings. Measurement for payment for this will be included in the cost of the supply and installing the above item.

3.4 FILTER STONE

.1 Place filter stone layers to grades, dimensions, profiles and cross sectional elements indicated on the drawings. Contractor should realize the large distance required to place the filter stone out into the water, supply necessary equipment to complete as shown on drawings.

.2 Place filter stone in layers as indicated on the drawings.

.3 Side slopes to be as indicated on the drawings.

.4 Do not transport different categories of material in the same truckload. If rocks of markedly different sizes are present in the same load, Departmental Representative reserves the right to have each rock measured separately and sorted prior to installing in structure.

.5 The Contractor is to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings. Filter stone rock must be installed to +/-100mm of the grade lines provided on the drawings. Quantities will be adjusted to the installed grade or to the max of +/-100mm of the lines shown on the drawings. Measurement for payment for this will be included in the cost of the supply and installing the above item.

3.5 ARMOUR STONE

.1 Place armour stone to lines, grades and dimensions indicated on the drawings. Contractor should realize the large distance required to place the armour stone out into the water, supply necessary equipment to complete as shown on drawings.

.2 Dumping of armour stone will not be permitted. Each stone will be lifted and individually

placed.

.3 Side slopes to be as indicated on the drawings.

.4 Choose stones and place them in such a way that the whole structure will be bonded and consolidated to as great an extent as nature or rock will allow. Rocks should vary in size so they don't create steep slopes when placing to the grade lines as indicated on the drawings.

.5 Do not transport different categories of material in the same truckload. If rocks of markedly different sizes are present in the same load, Departmental Representative reserves the right to have each rock measured separately and sorted prior to installing in structure.

.6 Contractor to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings. Armour stone must be installed to +/-200mm of the grade lines provided on the drawings. Quantities will be adjusted to the installed grade or to the maximum of +/-100mm of the lines shown on the drawings Measurement for payment for this work will be included in the cost of the supply and installing the above item.

3.6 ROCK MATERIAL WASHED OUT OF WORK

.1 Should during the progress of the Work, any rock material be washed out of the Work, or through neglect of carelessness of the Contractor or their employees or from any other cause, be dumped into the water near the Work or anywhere within the harbour or channel so as to interfere in the opinion of the Departmental Representative with actual depths of water and/or impede navigation, it will be removed by the Contractor when ordered

to do so by the Departmental Representative. Any material washed out of the Work or displaced beyond the contract limits will be replaced by the Contractor at no cost to Canada.

3.7 TOLERANCES

.1 Note: These tolerances are not to be considered pay limits but are specified to ensure contractor keeps within acceptable lines and grades.

.2 Completed component layers to be within the following tolerances of lines and grades indicated:

.1 Rock fill core +/-50 mm.
.2 Filter stone +/-100 mm.
.3 Armour stone +/-200 mm.

FISHERIES AND OCEANS
CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA) 2012
PROJECT EFFECTS DETERMINATION REPORT

GENERAL INFORMATION

1. Project Title: Service Area Improvements, King's Cove, NL	
2 Proponent: Fisheries and Oceans Canada, Small Craft Harbours (DFO SCH)	
3. Other Contacts (Other Proponent, Consultant or Contractor): Public Works and Government Services Canada	**4. Role:** OGD Consultant
5. Source of Project Information: Sheila Hogarth, Engineer Technician, DFO SCH	
6. Project Review Start Date: April 26, 2019	PATH # 19-SNFL-00009
7. DFO File No.:	**8. PWGSC File No:**
9. TC File No.:	

BACKGROUND

10. Background about Proposed Development (including a description of the proposed development):

The proposed project involves improvements to the upland service area, and reconstruction of the existing shoreline protection at the King's Cove SCH. The installation of additional armourstone along the shoreline protection will reinforce protection to the site.

PROJECT REVIEW

11. DFO's rationale for the project review:

Project is on federal land ☒ and;

- ☒ DFO is the proponent
- ☐ DFO to issue *Fisheries Act* Authorization or *Species at Risk Act* Permit
- ☐ DFO to provide financial assistance to another party to enable the project to proceed
- ☐ DFO to lease or sell federal land to enable the project to proceed
- ☐ Other

12. Fisheries Act Sections (if applicable): NA

13. Other Authorities	**14. Other Authorities rationale for involvement:**

15. Other Jurisdiction: n/a

16. Other Expert Departments Providing Advice:	**17. Areas of Interest of Expert Departments:**

18. Other Contacts and Responses: n/a

19. Scope of Project (details of the project subject to review):

Project Description

This project includes repairs to the upland service area, as well as reconstructing the existing armour stone shoreline protection. The existing armour stone structure will be removed and stockpiled for reuse in the new work. These materials will be re-installed along the shoreline. The structure will be composed of a layer of core stone, two layers of 200-400kg filter stone, and 2 layers of 4 tonne armour stone. Additional rock materials will be obtained at an approved quarry source and brought to the site. The new structure will reinforce and upgrade protection of the site facilities.

Operation/Maintenance

The operational aspects of environmental management of this site, as well as mitigation measures for the environmentally responsible aspects of harbour operations (fuelling, waste disposal, activities on the property and water) will be over seen by the local harbour users, in consultation with SCH.

Decommissioning

This facility is not presently planned to be decommissioned. At the time of decommissioning, Small Craft Harbours will develop a site-specific re-use or reclamation plan that is appropriate for the applicable environmental legislation and Fisheries and Oceans Canada policies.

Scheduling

Subject to regulatory approval and DFO SCH operational priorities and funding, this project may commence in the summer of 2019.

20. Location of Project:

The project site is located within the community of Kings Cove on the Bonavista Peninsula at coordinates 48°34' 5.48" N, 53°19' 57.60" W and is accessible via provincial route 235.

21. Environment Description:

Physical Environment

The proposed project site is located in King's Cove on the Bonavista Peninsula. King's Cove is located in the Eastern Hyper-Oceanic Barrens Ecoregion. This ecoregion occurs on the extreme south coast of the Avalon and Burin Peninsulas and on the northeast coast near Bay de Verde and Cape Feels. Although this ecoregion is 200 m or less in elevation the extreme oceanic climate precludes the development of forest other than Balsam Fir krummholz. The heaths in this area have a close affinity to oceanic parts of Northern Scotland and Southern Norway. Aquatic vegetation is also very limited. Gravel, cobble, boulder, and bedrock outcrops are predominant along the shoreline.

Fauna within the project area is limited to near shore fish species such as cunner, tomcod, sculpin, winter flounder, and lobster. While marine mammals such as seals and whales are common in the general area, their presence in the immediate project area is unlikely. There are a variety of small mammals and songbirds found in the general area. Gulls, crows, turrs, puffins, eagles, hawks, and osprey are common throughout the general project area.

Water depth at the proposed project site ranges between 0.8 – 6.4 metres.

Species at Risk (Aquatic and Terrestrial)

A search of the Atlantic Canada Conservation Data Centre (ACCDC) database was conducted which produced a list of rare/unique species (i.e. plants and animals) within a 5 km buffer zone (standard ACCDC procedure) of the site of the proposed work. No species were reported within this buffer.

22. Scope of Effects Considered (sections 5(1) and 5(2)):

Table 1: Potential Project / Environment Interactions Matrix

	As per Section 5(1)			*Section 5(1c)* *Aboriginal Interest*				*Section 5(2)*			*Due Diligence*			
Project Phase / Physical Work/Activity	*Fish (Fisheries Act)*	*Aquatic Species (SARA)*	*Birds (MBCA)*	*Health and Socio economic*	*Physical and cultural heritage*	*Land use*	**HAPA Significance*	*Health and Socio economic*	*Physical and cultural heritage*	**HAPA Significance*	*Water (ground, surface, drainage, etc)*	*Terrestrial / Aquatic Species*	*Soil*	*Air Quality*
Harbour development														
Armourstone installation and Upland repairs	P	-	-	-	-	-	-	-	-	-	P	-	-	P
Operation / Maintenance	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Decommissioning / Abandonment	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**structure, site or thing that is of historical, archaeological, paleontological or architectural significance.*
Legend: P = Potential Effect of Project on Environment; ' - ' = No Interaction

23. Environmental Effects of Project:

Potential Project/Environment Interactions and their effects are outlined below:

Fish:

- Sedimentation and/or increased turbidity as a result of placement of armourstone materials may negatively impact fish and quality of potential fish habitat.
- Accidental discharge of heavy machinery fuel/fluids will negatively impact fish and potential fish habitat.

Water:

- Sedimentation and/or increased turbidity as a result of placement of armourstone materials may decrease marine water quality at immediate project site.
- Construction related refuse may be deposited in water-body, decreasing marine water quality.
- Accidental discharge of heavy machinery fuel/fluids will result in a decrease of marine water quality.

Air Quality:

- Some minor disruptions and annoyance to facility users and residents who live in close proximity to the project site can be anticipated from project activities and the use of heavy equipment.

24. Mitigation Measures for Project (including Habitat Compensation):

• The in-water use of heavy equipment is not permitted. The operation of such equipment must be confined to dry stable areas.

• All vehicles and equipment must be clean and in good repair, free of mud and oil, or other harmful substances that could impair water quality.

• Shoreline areas disturbed during the proposed undertaking must be stabilized to prevent erosion before the area is abandoned.

• The proposed activities must be carried out in such a manner that sediment, and/or other construction related materials do not enter the watercourse.

• Armourstone material should be, to the greatest extent possible, free of fine grained materials to help minimize sedimentation of the waterbody and must not be obtained from below the highwater mark. Material should be clean, quarry run material.

• To the extent possible, the proposed work should be carried out during low tide and low wind-wave conditions to minimize turbidity and to minimize the area that might be affected by turbidity.

• Oil spill response equipment, such as absorbents and open-ended barrels should be available on-site in case of a spill or leak. All spills or leaks should be promptly contained, cleaned up and reported to the 24-hour environmental emergencies report system (1-800-563-2444).

• Where possible, armourstone material will be placed rather than end-dumped to minimize sedimentation of the waterbody.

25. Significance of Adverse Environmental Effects of project:

Significant adverse environmental effects are unlikely, taking into account mitigation measures provided by the various regulatory agencies.

26. Other Considerations (Public Consultation, Aboriginal Consultation, Follow-up)

Public Consultation

The proposed armourstone reinforcement and installation will increase protection at the site. No negative public concerns were received as a result of this project.

Aboriginal Consultation

Aboriginal fishers are not known to utilize the King's Cove SCH facility. As such, aboriginal consultation was not deemed necessary as part of this determination.

Government Consultation

Federal and provincial authorities likely to have an interest in the project were consulted by Public Works & Government Services Canada, Environmental Services, during the course of this assessment.

Accuracy and Compliance Monitoring

A follow-up program (as defined in S. 2(1) and as applicable to non-designated projects on federal lands) is a program for determining the effectiveness of any mitigation measures. Site monitoring (accuracy and compliance monitoring) may be conducted to verify whether required mitigation measures were implemented. The proponent must provide site access to Responsible Authority officials and/or its agents upon request.

27. Other Monitoring and Compliance Requirements (e.g. *Fisheries Act* or *Species at Risk Act* requirements)

n/a

CONCLUSION

28. Conclusion on Significance of Adverse Environmental Effects:

The Federal Authority has evaluated the project in accordance with Section 67 of *Canadian Environmental Assessment Act (CEAA), 2012*. On the basis of this evaluation, the department has determined that the project is not likely to cause significant adverse environmental effects with mitigation and therefore can proceed using mitigative measures as outlined.

29. Prepared by: Cathy Martin **30. Date:** July 8, 2019

31. Name: Cathy Martin

32. Title: Environmental Specialist, PWGSC-ES

DECISION

33. Decision Taken

☒ DFO may exercise its power, duty or function, i.e. may issue the authorization - where the project is not likely to cause significant adverse environmental effects. Confirm below the specific power, duty or function that may be exercised.

- ☐ DFO to issue *Fisheries Act* Authorization or *Species at Risk Act* Permit
- ☒ DFO to proceed with project (as proponent)
- ☐ DFO to provide financial assistance for project to proceed
- ☐ DFO to provide federal land for project to proceed

☐ DFO has decided not to exercise its power, duty or function because the project is likely to cause significant adverse environmental effects.

☐ DFO to ask the Governor in Council to determine if the significant adverse environmental effects are justified in the circumstances

34. Approved by: Paul Curran **35. Date:** July 8/19

36 Name: Paul Curran

37. Title: Regional Engineer, DFO-SCH, NL

38. References: n/a

Appendix A
Topographic Map and Aerial Photos

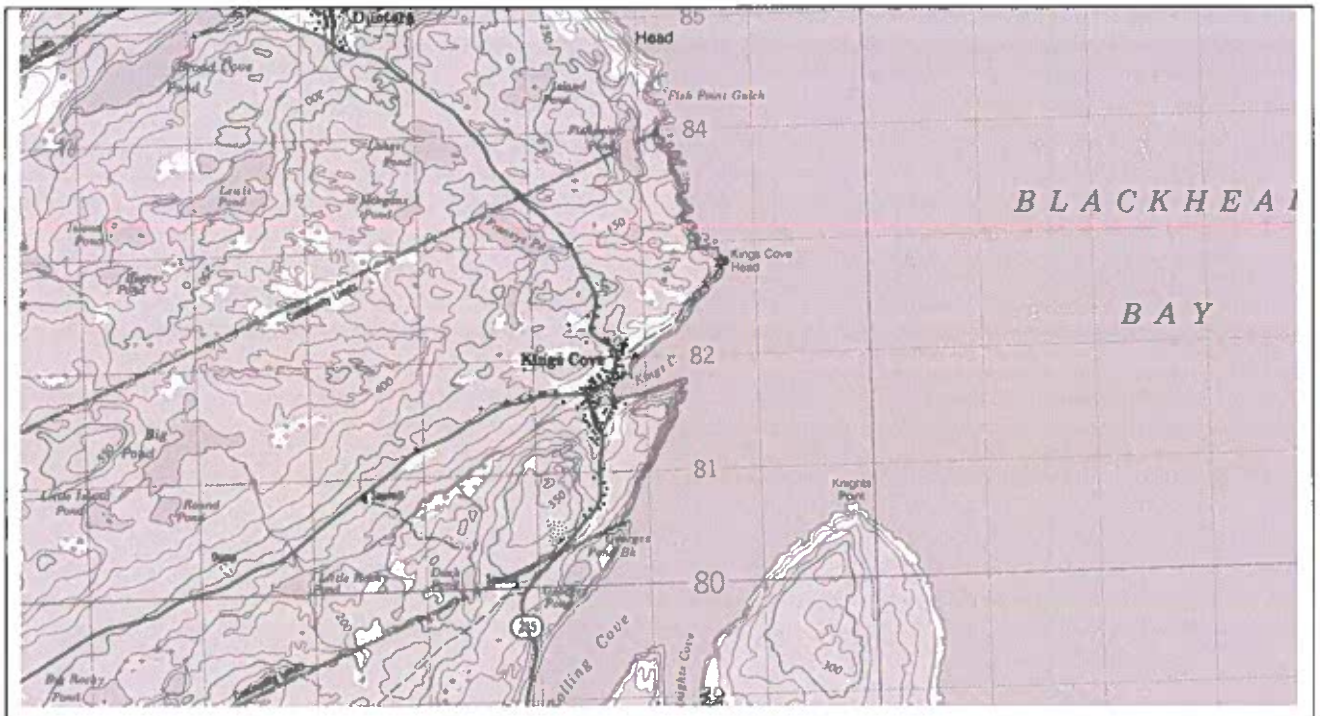


Figure 1: Topographic Map of Proposed Site

Location: King's Cove

Scale 1:50,000

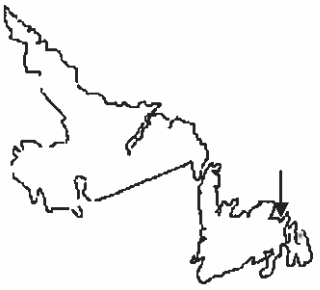


Figure 2: Overview of Project Location in King's Cove

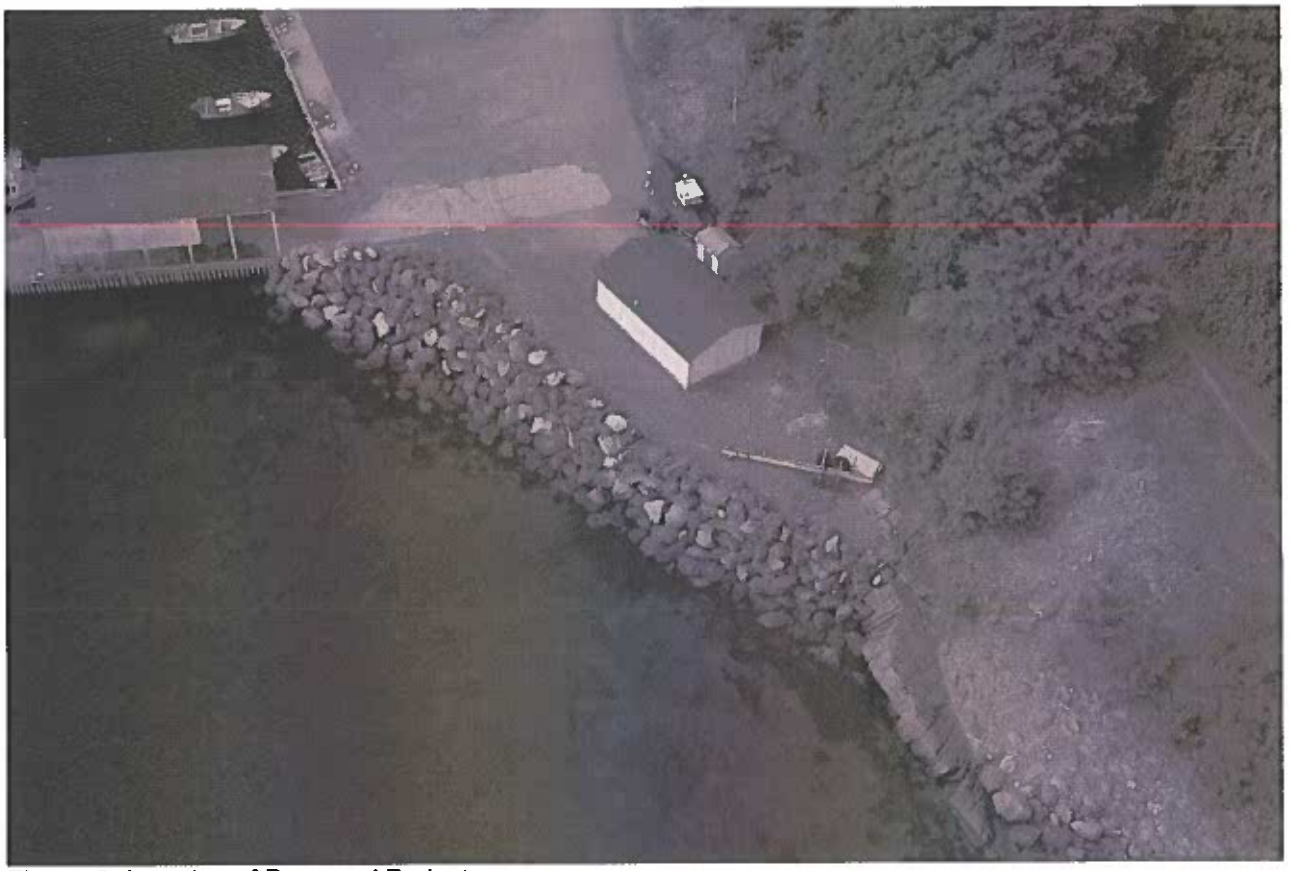


Figure 3: Location of Proposed Project

Appendix B
Site Plan of proposed project

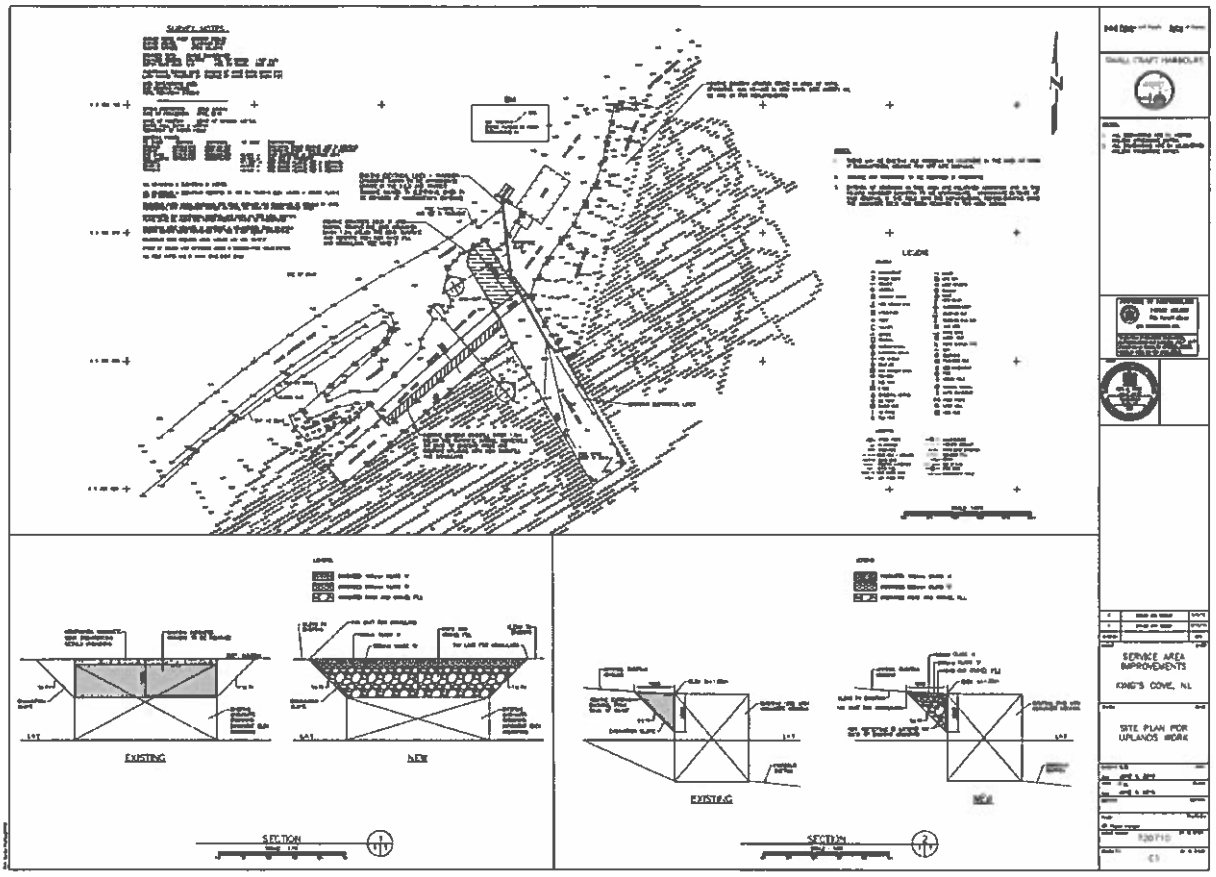


Figure 4: Site Plan for Upland Repairs

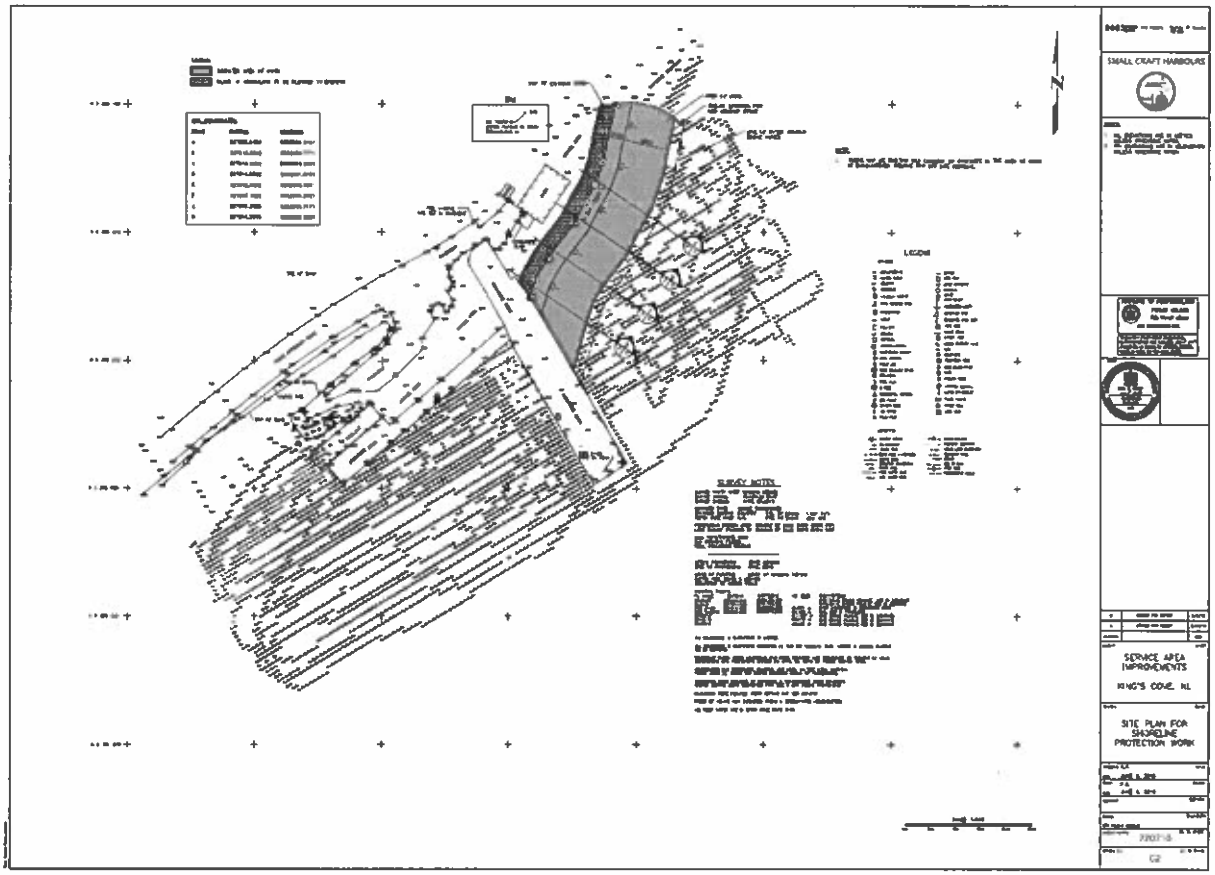


Figure 5: Site Plan for Armourstone Installation

Appendix C
Regulatory Approvals / Responses

Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Municipal Affairs and Environment
Water Resources Management Division

PERMIT TO ALTER A BODY OF WATER

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 48

Date: **DECEMBER 21, 2018**

File No: **532-02**
Permit No: **ALT10060-2018**

Permit Holder: **Department of Fisheries and Oceans Canada**
Small Craft Harbours Branch
John Cabot Building, 10 Barters Hill
St. John's, NL, A1C 5X1

Attention: **Mr. Paul Curran**

Re: **Minor DFO Dredging, Infilling, and Works Projects**

Permission is hereby given for : **routine dredging or beach grading of 3500 cubic metres or less of primarily sand, gravel, cobble and boulder material in order to provide safe navigation at various Department of Fisheries and Oceans' Small Craft Harbours facilities around the Province of Newfoundland and Labrador as well as the infilling of 500 square metres or less of DFO SCH leased waterlot to construct new or increase existing service/laydown areas at existing DFO SCH facilities, with reference to the application dated November 20, 2018.**

- This Permit does not release the Permit Holder from the obligation to obtain appropriate approvals from other concerned municipal, provincial and federal agencies.
- The Permit Holder must obtain the approval of the Crown Lands Administration Division if the project is being carried out on Crown Land.
- This Permit is subject to the terms and conditions indicated in Appendices A and B (attached).
- It should be noted that prior to any significant changes in the design or installation of the proposed works, or in event of changes in ownership or management of the project, an amendment to this Permit must be obtained from the Department of Municipal Affairs and Environment under Section 49 of the *Water Resources Act*.

MINISTER

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: **532-02**
Permit No: **ALT10060-2018**

APPENDIX A

Terms and Conditions for Permit

Dredging

1. Dredging activity must only be carried out during periods when wind, wave and tide conditions minimize the dispersion of silt and sediment from the work site.

2. The area to be dredged must be enclosed and isolated from the rest of the body of water through the use of a filter fabric curtain or similar method.

3. Dredged material must be disposed of in accordance with the regional Service NL Centre of the Department of Service NL. The Department of Service NL may require samples to be submitted for testing and analysis.

Infilling

4. The slopes along the perimeter of infilled areas must be no steeper than two horizontal to one vertical (2H:1V).

5. The constructed works must be inspected regularly so that action can be taken to undertake repairs as required.

6. Fill material must be obtained from an approved quarry site. It must not be taken from beaches or streams, and must not be dredged from a body of water.

7. The natural course of any stream must not be altered.

8. Infilling must not disrupt the established surface drainage pattern of the area.

9. Infilling must not cause increased water elevation upstream or increase flow velocity downstream of the site. Reduction of the natural cross sectional area of any watercourse is not permitted.

10. Before infilling, any vegetation and topsoil must be completely removed and under no circumstances shall it be used as fill material. Topsoil must be stored and reused in final landscaping of the infilled area.

11. The constructed works must comply with all other terms and conditions provided in the Crown Lands grant, lease, or license for occupancy.

12. Select heavy rocks must be placed along the toe of any infilling to provide slope stability and erosion protection.

13. A minimum 15 metre wide vegetated buffer zone must be maintained along the edge of the waterbody in order to provide bank stability and maintain local aesthetics.

Special Conditions

14. The Permit Holder must apply for and obtain a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 39 https://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm for any minor dredging or associated works that may take place within any designated Protected Public Water Supply Area servicing any community as indicated in Water Resources Portal available at https://maps.gov.nl.ca/water/mapbrowser/Default.aspx.

15. The Permit Holder may be required to apply for and obtain a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 48 https://assembly.nl.ca/legislation/sr/statutes/w04-01.htm for any minor dredging or associated works that may take place within any designated flood risk area as indicated at https://www.mae.gov.nl.ca/waterres/flooding/frm.html.

16. Any alteration in or near a freshwater body (including wetlands) requires a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 48 https://assembly.nl.ca/legislation/sr/statutes/w04-01.htm. The Permit Holder must avoid work activities in wetlands wherever possible.

17. A water quality monitoring program is not required at this time. However, the Department reserves the right to require that the Permit Holder sample, analyze, and submit results of water quality tests, for the purpose of ensuring that the water quality

is maintained within acceptable guidelines. All analyses must be undertaken by a CALA accredited laboratory.

18. Suitable booms must be deployed around work sites to contain any floating debris that might otherwise be carried away. All booms must be properly maintained and remain in place until all work is completed.

19. Creosote treated wood must not be used in the construction of any structures in or within 15 metre of any body of water.

20. If a minor dredging or associated work carried out under this Permit does prohibit, restrict or impede public access along the shoreline reservation then the Permit Holder shall restore the shoreline reservation to the satisfaction of the Minister within sixty (60) days of a written notice.

21. For each minor dredging or associated work carried out under this Permit, the Permit Holder must notify this Department via email to waterinvestigations@gov.nl.ca or facsimile at (709)729-0320 in accordance with a reporting protocol as deemed necessary and appropriate in the opinion of the Minister. Also, each minor dredging or associated work carried out under this Permit shall be subject to the payment of applicable fee by the Permit Holder as stated in the application fee schedules approved by the Minister.

22. The acknowledgment of the receipt of this Permit by the Permit Holder constitutes the acceptance of this Permit and its terms and conditions and requirements stated in Appendices A, B and C.

23. At the end of each year, the permit holder submits a report of all the work done under this permit along with the applicable fees incurred during the period.

General Alterations

24. Any work that must be performed below the high water mark must be carried out during a period of low water levels.

25. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.

26. Water pumped from excavations or work areas, or any runoff or effluent directed out of work sites, must have silt and turbidity removed by settling ponds, filtration, or other suitable treatment before discharging to a body of water. Effluent discharged into receiving waters must comply with the *Environmental Control Water and Sewage Regulations, 2003.*

27. All operations must be carried out in a manner that prevents damage to land, vegetation, and watercourses, and which prevents pollution of bodies of water.

28. The use of heavy equipment in streams or bodies of water is not permitted. The operation of heavy equipment must be confined to dry stable areas.

29. All vehicles and equipment must be clean and in good repair, free of mud and oil, or other harmful substances that could impair water quality.

30. During the construction of concrete components, formwork must be properly constructed to prevent any fresh concrete from entering a body of water. Dumping of concrete or washing of tools and equipment in any body of water is prohibited.

31. Wood preservatives such as penta, CCA or other such chemicals must not be applied to timber near a body of water. All treated wood or timber must be thoroughly dry before being brought to any work site and installed.

32. Any areas adversely affected by this project must be restored to a state that resembles local natural conditions. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if considered necessary in the opinion of this Department.

33. The bed, banks and floodplains of watercourses, or other vulnerable areas affected by this project, must be adequately protected from erosion by seeding, sodding or placing of rip-rap.

34. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.

35. Periodic maintenance such as painting, resurfacing, clearing of debris, or minor repairs, must be carried out without causing any physical disruption of any watercourse. Care must be taken to prevent spillage of pollutants into the water.

36. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.

37. Sediment and erosion control measures must be installed before starting work. All control measures must be inspected regularly and any necessary repairs made if damage is discovered.

38. Fill material must be of good quality, free of fines or other substances including metals, organics, or chemicals that may be harmful to the receiving waters.

39. The attached Completion Report (Appendix C) for Permit No. 10060 must be completed and returned to this Department upon completion of the approved works. Pictures must be submitted along with the completion report, showing the project site prior to and after development.

40. This Permit is effective January 1, 2019 and shall expire on December 31, 2020 or earlier if modified, suspended or cancelled by the Minister. Also, this Permit may be renewed by the Minister for such renewal term as the Minister deems appropriate, on such terms and conditions as the Minister considers appropriate and in the public interest, provided the Permit Holder applies for the renewal at least ninety (90) days before the expiry of this Permit.

41. All work must be carried out within the Permit Holder's legal property boundaries.

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: **532-02**
Permit No: **ALT10060-2018**

APPENDIX B

Special Terms and Conditions for Permit

1. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall keep all systems and works in good condition and repair and in accordance with all laws, by-laws, directions, rules and regulations of any governmental authority. The Permit Holder or its agent(s), subcontractor(s), or consultant(s) shall immediately notify the Minister if any problem arises which may threaten the structural stability of the systems and works, endanger public safety and/or the environment or adversely affect others and/or any body of water either in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for all damages suffered by the Minister and Government resulting from any defect in the systems and works, operational deficiencies/inadequacies, or structural failure.

2. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall operate the said Project and its systems and works in a manner which does not cause any water related and/or environmental problems, including but not limited to problems of erosion, deposition, flooding, and deterioration of water quality and groundwater depletion, in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for any and all damages associated with these problems caused as a result of changes, deficiencies, and inadequacies in the operational procedures by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).

3. If the Permit Holder or its agent(s), subcontractor(s), or consultant(s) fails to perform, fulfil, or observe any of the terms and conditions, or provisions of this Permit, as determined by this Department, the Minister may, without notice, amend, modify, suspend or cancel this Permit in accordance with the *Water Resources Act*..

4. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) indemnify and hold the Minister and Government harmless against any and all liabilities, losses, claims, demands, damages or expenses including legal expenses of any nature whatsoever whether arising in tort, contract, statute, trust or otherwise resulting directly or indirectly from granting this Permit, systems and works in or outside the said Project areas, or any act or omission of the Permit Holder or its agent(s), subcontractor (s), or consultant(s) in or outside the said Project areas, or arising out of a breach or non-performance of any of the terms and conditions, or provisions of this Permit by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).

5. This Permit is subject to all provisions of the *Water Resources Act* and any regulations in effect either at the date of this Permit or hereafter made pursuant thereto or any other relevant legislation enacted by the Province of Newfoundland and Labrador in the future.

6. This Permit shall be construed and interpreted in accordance with the laws of the Province of Newfoundland and Labrador.

File No: **532-02**
Permit No: **ALT10060-2018**

cc: Amir Ali Khan, Ph.D., P.Eng.
Manager, Water Rights, Investigations and Modelling Section
Water Resources Management Division
Department of Municipal Affairs and Environment
P.O. Box 8700
4th Floor, West Block, Confederation Building
St. John's, NL A1B 4J6
akhan@gov.nl.ca

cc: File Copy for Binder

cc: Mr. Ken Russell (Labrador)
Manager of Operations, GSC - Happy Valley-Goose Bay, Service NL
Government Service Centre
2 Tenth Street, P.O. Box 3014, Stn. B
Happy Valley-Goose Bay, NL A0P 1E0
krussell@gov.nl.ca

cc: Mr. Rick Curran (Eastern)
Director of Regional Operations Avalon , Service NL
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cc: Mr. Robert Locke
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cc: Mr. Wayne Lynch (Central)
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Gander, NL A1V 2N9
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cc: Ms. Susan Hoddinott (Western/Labrador)
Regional Director
Service NL
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Corner Brook NL A2H 6J8
SusanHoddinott@gov.nl.ca

cc: Marine Safety
Transport Canada, Atlantic Regional Headquarters
Airports, Harbours and Ports, and Environmental Services
95 Foundry St.
P.O. Box 42
Moncton, NB E1C 8K6
NPPATL-PPNATL@tc.gc.ca

cc: Mark McNeil
Public Works and Government Service Canada
Suite 204, 1 Regent Square
Corner Brook, NL A2H 7K6
mark.mcneil@pwgsc-tpsgc.gc.ca

cc: Mr. Shawn Kean
Environmental Services
Public Works & Government Services Canada

John Cabot Building, 10 Barter's Hill
P.O. Box 4600
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shawn.kean@pwgsc.gc.ca

Government of Newfoundland and Labrador
Department of Municipal Affairs and Environment
Water Resources Management Division

Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 48

Date: **DECEMBER 21, 2018**

File No: **532-02**
Permit No: **ALT10060-2018**

Permit Holder: **Department of Fisheries and Oceans Canada**
Small Craft Harbours Branch
John Cabot Building, 10 Barters Hill
St. John's, NL, A1C 5X1

Attention: **Mr. Paul Curran**

Re: **Minor DFO Dredging, Infilling, and Works Projects**

Permission was given for : **routine dredging or beach grading of 3500 cubic metres or less of primarily sand, gravel, cobble and boulder material in order to provide safe navigation at various Department of Fisheries and Oceans' Small Craft Harbours facilities around the Province of Newfoundland and Labrador as well as the infilling of 500 square metres or less of DFO SCH leased waterlot to construct new or increase existing service/laydown areas at existing DFO SCH facilities, with reference to the application dated November 20, 2018.**

I (the Permit Holder named above or agent authorized to represent the Permit Holder) do hereby certify that the project described above was completed in accordance with the plans and specifications submitted to the Department of Municipal Affairs and Environment and that the work was carried out in strict compliance with the terms and conditions of the Permit issued for this project.

Date: _____ Signature: _____

This completion report must be completed and forwarded to the following address upon completion of the approved work.

Department of Municipal Affairs and Environment
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6

Extract
Canada Gazette, Part I
April 19, 2014

Extrait
Gazette du Canada, Partie I
Le 19 avril 2014

DEPARTMENT OF TRANSPORT

MINISTÈRE DES TRANSPORTS

Order Amending the Minor Works and Waters (Navigable Waters Protection Act) Order

Arrêté modifiant l'Arrêté sur les ouvrages et les eaux secondaires (Loi sur la protection des eaux navigables)

DEPARTMENT OF TRANSPORT

NAVIGABLE WATERS PROTECTION ACT

Order Amending the Minor Works and Waters (Navigable Waters Protection Act) Order

The Minister of Transport, pursuant to subsection 13(1)[a] of the *Navigable Waters Protection Act*[b], makes the annexed *Order Amending the Minor Works and Waters (Navigable Waters Protection Act) Order*.

Ottawa, March 31, 2014

LISA RAITT
Minister of Transport

ORDER AMENDING THE MINOR WORKS AND WATERS (NAVIGABLE WATERS PROTECTION ACT) ORDER

AMENDMENTS

1. (1) The definitions "berm" and "high-water mark" in section 1 of the *Minor Works and Waters (Navigable Waters Protection Act) Order*[1] are repealed.

(2) The definitions "petit quai" and "plan d'eau navigable cartographié" in section 1 of the French version of the Order are repealed.

(3) The definition "charted navigable waters" in section 1 of the English version of the Order is replaced by the following:

"charted navigable water" means navigable waters for which navigation charts are produced by the Canadian Hydrographic Service or the National Oceanic and Atmospheric Administration.

"charted navigable water" « *eaux navigables cartographiées* »

(4) The marginal note to the definition "dock" in section 1 of the English version of the Order is amended by replacing "*petit quai*" with "*quai*".

(5) Section 1 of the Order is amended by adding the following in alphabetical order:

"ice breaker" "ice breaker" means a vessel that is specially constructed or modified for the purpose of navigating through ice.
« *brise-glace* »

[a] S.C. 2009, c. 2, s. 328
[b] R.S., c. N-22
[1] *Canada Gazette*, Part I, May 9, 2009

MINISTÈRE DES TRANSPORTS

LOI SUR LA PROTECTION DES EAUX NAVIGABLES

Arrêté modifiant l'Arrêté sur les ouvrages et les eaux secondaires (Loi sur la protection des eaux navigables)

La ministre des Transports, en vertu du paragraphe 13(1)[a] de la *Loi sur la protection des eaux navigables*[b], prend l'*Arrêté modifiant l'Arrêté sur les ouvrages et les eaux secondaires (Loi sur la protection des eaux navigables)*, ci-après.

Ottawa, le 31 mars 2014

La ministre des Transports
LISA RAITT

ARRÊTÉ MODIFIANT L'ARRÊTÉ SUR LES OUVRAGES ET LES EAUX SECONDAIRES (LOI SUR LA PROTECTION DES EAUX NAVIGABLES)

MODIFICATIONS

1. (1) Les définitions de « berme » et « laisse des hautes eaux », à l'article 1 de l'*Arrêté sur les ouvrages et les eaux secondaires (Loi sur la protection des eaux navigables)*[1], sont abrogées.

(2) Les définitions de « petit quai » et « plan d'eau navigable cartographié », à l'article 1 de la version française du même arrêté, sont abrogées.

(3) La définition de « chartered navigable waters », à l'article 1 de la version anglaise du même arrêté, est remplacée par ce qui suit :

"charted navigable water" means navigable waters for which navigation charts are produced by the Canadian Hydrographic Service or the National Oceanic and Atmospheric Administration.

"charted navigable water" « *eaux navigables cartographiées* »

(4) Dans la note marginale relative à la définition de « dock », à l'article 1 de la version anglaise du même arrêté, « *petit quai* » est remplacé par « *quai* ».

(5) L'article 1 du même arrêté est modifié par adjonction, selon l'ordre alphabétique, de ce qui suit :

« brise-glace » Bateau spécialement construit ou modifié pour naviguer à travers les glaces.

« brise-glace » "*ice breaker*"

[a] L.C. 2009, ch. 2, art. 328
[b] L.R., ch. N-22
[1] Partie I de la *Gazette du Canada*, le 9 mai 2009

"pipeline" « *pipeline* »

"pipeline" includes a conduit that contains wires or pipes.

« pipeline » Est assimilé au pipeline un conduit dans lequel se trouvent des fils ou des tuyaux.

« pipeline » "*pipeline*"

(6) Section 1 of the French version of the Order is amended by adding the following in alphabetical order:

(6) L'article 1 de la version française du même arrêté est modifié par adjonction, selon l'ordre alphabétique, de ce qui suit :

« eaux navigables cartographiées » "*charted navigable water*"

« eaux navigables cartographiées » Eaux navigables pour lesquelles des cartes de navigation sont produites par le Service hydrographique du Canada ou la National Oceanic and Atmospheric Administration.

« eaux navigables cartographiées » Eaux navigables pour lesquelles des cartes de navigation sont produites par le Service hydrographique du Canada ou la National Oceanic and Atmospheric Administration.

« eaux navigables cartographiées » "*charted navigable water*"

« quai » "*dock*"

« quai » S'entend notamment d'un môle ou d'une jetée.

« quai » S'entend notamment d'un môle ou d'une jetée.

« quai » "*dock*"

2. The heading before section 2 and sections 2 to 14 of the Order are replaced by the following:

2. L'intertitre précédant l'article 2 et les articles 2 à 14 du même arrêté sont remplacés par ce qui suit :

TERMS AND CONDITIONS

CONDITIONS

Imposed under paragraph 13(1)(*b*) of Act

2. Subsections 3(4) to (8), 4(3) to (6), 5(3) to (7), 6(3) to (9), 7(3) to (11), 8(3) to (11), 9(3) to (5), 11(4) to (8), 12(3) to (8) and 13(4) and (5) are terms and conditions imposed under paragraph 13(1)(*b*) of the Act.

2. Les paragraphes 3(4) à (8), 4(3) à (6), 5(3) à (7), 6(3) à (9), 7(3) à (11), 8(3) à (11), 9(3) à (5), 11(4) à (8), 12(3) à (8) et 13(4) et (5) sont des conditions prévues à l'alinéa 13(1)*b*) de la Loi.

Conditions prévues à l'alinéa 13(1)*b*) de la Loi

CLASSES OF WORKS

CATÉGORIES D'OUVRAGES

EROSION-PROTECTION WORKS

OUVRAGES DE PROTECTION CONTRE L'ÉROSION

Definitions

3. (1) The following definitions apply in this section.

3. (1) Les définitions qui suivent s'appliquent au présent article.

Définitions

"erosion-protection works" « *ouvrages de protection contre l'érosion* »

"erosion-protection works" means shoreline-stabilization, riprap or bank-protection works.

« enrochement » Couche de pierres ou de roches disposées irrégulièrement sur une pente ou une berge des eaux navigables pour protéger celles-ci contre l'affouillement ou l'érosion.

« enrochement » "*riprap*"

"groyne" or "spur" « *épi* » *ou* « *éperon* »

"groyne" or "spur" means a structure built out from the bank of a navigable water in a direction transverse to the current in order to prevent erosion of the bank.

« épi » ou « éperon » Structure construite sur la berge des eaux navigables dans un axe transversal au courant pour en prévenir l'érosion.

« épi » ou « éperon » "*groyne*" *or* "*spur*"

"riprap" « *enrochement* »

"riprap" means a layer of stones or rocks placed irregularly on a slope or a bank of a navigable water in order to protect the slope or bank against scouring or erosion.

« ouvrages de protection contre l'érosion » Ouvrages de stabilisation des rives, d'enrochement ou de protection des berges.

« ouvrages de protection contre l'érosion » "*erosion-protection works*"

"shoreline-stabilization" « *stabilisation des rives* »

"shoreline-stabilization" means stones, rocks, concrete, logs or other common building materials, or living plants, placed in order to protect the shores of a navigable water from erosion.

« stabilisation des rives » Pierres, roches, béton, rondins ou autres matériaux de construction courants, ou plantes vivantes, qui sont placés pour protéger les rives des eaux navigables contre l'érosion.

« stabilisation des rives » "*shoreline-stabilization*"

Class established

(2) Erosion-protection works are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the works are integrated with and parallel to the existing or natural shoreline or bank;

(*b*) the base of the works is 5 m or less from the high-water mark;

(*c*) the vertical to horizontal slope of the works from the navigable water is greater than 33%;

(*d*) the works are not associated with an existing or proposed structure, including a bridge, boom, dam or road, across the navigable water; and

(*e*) the works do not include groynes, spurs or other devices to deflect the current.

(2) Les ouvrages de protection contre l'érosion sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) les ouvrages sont intégrés et parallèles à la rive ou à la berge existantes ou naturelles;

b) l'assise des ouvrages se trouve à 5 m ou moins de la laisse des hautes eaux;

c) la pente des ouvrages, de la verticale à l'horizontale, à partir des eaux navigables est supérieure à 33 %;

d) les ouvrages ne sont pas associés à une structure existante ou projetée, y compris un pont, une estacade, un barrage ou une route qui traversent les eaux navigables;

e) ils ne comprennent ni épis, ni éperons, ni aucun autre dispositif, qui servent à dévier le courant.

Catégorie d'ouvrages

Temporary works — class established

(3) Temporary works that are required for the construction or placement of works of the class established by subsection (2) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works

(*a*) are in, on, over, under, through or across a navigation channel; or

(*b*) cross more than halfway from one side of the navigable water to the other side.

Catégorie d'ouvrages temporaires

(3) Les ouvrages temporaires exigés pour la construction ou l'emplacement des ouvrages de la catégorie établie par le paragraphe (2) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf dans les cas suivants :

a) ils sont situés dans un chenal de navigation, sur, sous ou à travers celui-ci, ou au-dessus de celui-ci;

b) ils occupent, sur plus de leur moitié, les eaux navigables d'un côté à l'autre.

During construction or placement

(4) During the construction or placement of works of the class established by subsection (2) or (3), the owner of the works must ensure

(*a*) that vessels can navigate safely through or around the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site; and

(*b*) in the case of a river, a stream, a creek or similar navigable water that, when measured from the ordinary high-water mark on one side of the navigable water to the ordinary high-water mark on the other side, is of a width set out in column 1 of the table to this subsection, signs stating "Construction Ahead" and "Travaux de construction" that are legible from at least 50 m are in place, upstream and downstream from the work site, at the minimum distance set out in column 2.

Durant la construction ou l'emplacement

(4) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par les paragraphes (2) ou (3), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) les bateaux peuvent naviguer de façon sécuritaire à travers le chantier ou autour de celui-ci ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier;

b) dans le cas des rivières ou des fleuves, des ruisseaux, des criques ou des eaux navigables semblables qui, lorsqu'ils sont mesurés de la laisse des hautes eaux ordinaires d'un côté des eaux navigables à la laisse des hautes eaux ordinaires de l'autre côté, sont d'une largeur figurant à la colonne 1 du tableau du présent paragraphe, des panneaux portant les mentions « Travaux de construction » et « Construction Ahead », lisibles à une distance d'au moins 50 m, sont en place en amont et en aval du chantier, à la distance minimale figurant à la colonne 2.

TABLE

Item	Column 1 Width of Navigable Water	Column 2 Minimum Distance
1.	Less than 10 m	25 m
2.	10 m or more but less than 20 m	50 m
3.	20 m or more but less than 50 m	100 m
4.	50 m or more	200 m

TABLEAU

Article	Colonne 1 Largeur des eaux navigables	Colonne 2 Distance minimale
1.	Moins de 10 m	25 m
2.	10 m ou plus mais moins de 20 m	50 m
3.	20 m ou plus mais moins de 50 m	100 m
4.	50 m ou plus	200 m

During construction or placement of temporary works

(5) During the construction or placement of works of the class established by subsection (3), the owner of the works must ensure that

(*a*) if the works are on or over a navigable water, the works are marked, from dusk to dawn and during periods of restricted visibility, with yellow flashing lights that are

(i) located on the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located on each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located on each end of the works and at any other location on the works so that the lights are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

Durant la construction ou l'emplacement d'ouvrages temporaires

(5) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (3), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) si les ouvrages sont situés sur les eaux navigables ou au-dessus de celles-ci, ils sont indiqués, du crépuscule à l'aube et durant les périodes de visibilité réduite, par des feux clignotants jaunes qui sont conformes aux exigences suivantes :

(i) ils sont situés sur l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) ils sont situés sur chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 20 m,

(iv) located on each end of the works and at any other location on the works so that the lights are spaced not more than 30 m apart, if the works are more than 30 m in length; and

(*b*) if the works are in or through a navigable water, the works are marked with cautionary buoys that are lighted from dusk to dawn and during periods of restricted visibility and are

(i) located at the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located at each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 30 m apart, if the works are more than 30 m in length.

si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m;

b) si les ouvrages sont situés dans les eaux navigables ou à travers le cours de celles-ci, ils sont indiqués par des bouées d'avertissement qui sont illuminées du crépuscule à l'aube et durant les périodes de visibilité réduite et qui sont conformes aux exigences suivantes :

(i) elles sont situées à l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) elles sont situées à chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m.

Removal of temporary works

(6) The owner of works of the class established by subsection (3) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Enlèvement d'ouvrages temporaires

(6) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (3) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Restoration of contours

(7) The owner of works of the class established by subsection (2) must, if the contours of the bed of the navigable water were disturbed by either of the following, ensure that the contours are restored to their natural state on completion of the construction or placement of the works:

(*a*) the placement or construction of the works or of works of the class established by subsection (3); or

(*b*) the removal of works of the class established by subsection (3).

Remise en état des contours

(7) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que les contours du lit des eaux navigables qui ont été perturbés pour l'une ou l'autre des raisons ci-après soient remis à leur état naturel dès l'achèvement de la construction ou de l'emplacement de ces ouvrages :

a) la construction ou l'emplacement des ouvrages ou d'ouvrages de la catégorie établie par le paragraphe (3);

b) l'enlèvement d'ouvrages de la catégorie établie par le paragraphe (3).

Works in disrepair

(8) If works of the class established by subsection (2) become a danger to navigation because of disrepair, the owner of the works must immediately repair the works so that they are no longer a danger to navigation.

Ouvrages en mauvais état

(8) Si des ouvrages de la catégorie établie par le paragraphe (2) deviennent un danger pour la navigation en raison de leur mauvais état, leur propriétaire les répare immédiatement pour qu'ils ne constituent plus un danger pour la navigation.

Docks and Boathouses

Class established

4. (1) Docks and boathouses are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the works are not within 5 m of the adjoining property lines at the ordinary high water mark;

(*b*) the works are not within 10 m of a dock, boathouse or other structure that is in, on, over, through or across the navigable water and that is not owned by the owner of the works;

Quais et remises à embarcations

Catégorie d'ouvrages

4. (1) Les quais et les remises à embarcations sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) les ouvrages ne sont pas situés à 5 m ou moins des limites d'une propriété attenante à la laisse des hautes eaux ordinaires;

b) ils ne sont pas situés à 10 m ou moins d'un quai, d'une remise à embarcations ou d'une autre structure qui se trouvent dans les eaux navigables,

(*c*) in the case of a charted navigable water, the works are not within 30 m of a navigation channel;

(*d*) the works do not extend further in, on or over the navigable water than any other structure within 100 m of the works;

(*e*) the works do not, when measured from the ordinary high-water mark, extend horizontally more than 30 m into, onto, over, through or across the navigable water;

(*f*) the works do not cross more than halfway from one side of the navigable water to the other side;

(*g*) the works are not associated with any other proposed works that are not of a class established by this Order; and

(*h*) the works are not used for float planes or other aircraft equipped with floats.

sur ou à travers celles-ci, ou au-dessus de celles-ci et qui n'appartiennent pas au propriétaire des ouvrages;

c) dans le cas des eaux navigables cartographiées, ils ne sont pas situés à 30 m ou moins d'un chenal de navigation;

d) ils ne s'étendent, ni dans les eaux navigables, ni sur celles-ci, ni au-dessus de celles-ci, à 100 m ou moins de tout autre ouvrage;

e) lorsqu'ils sont mesurés à partir de la laisse des hautes eaux ordinaires, ils ne s'étendent pas horizontalement au-delà de 30 m dans les eaux navigables, sur ou à travers celles-ci, ou au-dessus de celles-ci;

f) ils n'occupent pas, sur plus de leur moitié, les eaux navigables d'un côté à l'autre;

g) ils ne sont associés à aucun autre ouvrage projeté qui n'est pas d'une catégorie établie par le présent arrêté;

h) ils ne sont utilisés ni pour des hydravions ni pour d'autres aéronefs munis de flotteurs.

Temporary works — class established

(2) Temporary works that are required for the construction or placement of works of the class established by subsection (1) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works

(*a*) are in, on, over, under, through or across a navigation channel; or

(*b*) cross more than halfway from one side of the navigable water to the other side.

Catégorie d'ouvrages temporaires

(2) Les ouvrages temporaires exigés pour la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (1) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf dans les cas suivants :

a) ils sont situés dans un chenal de navigation, sur, sous ou à travers celui-ci, ou au-dessus de celui-ci;

b) ils occupent, sur plus de leur moitié, les eaux navigables d'un côté à l'autre.

During construction or placement

(3) During the construction or placement of works of the class established by subsection (1) or (2), the owner of the works must ensure

(*a*) that vessels can navigate safely through or around the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site;

(*b*) if the works are on or over a navigable water, that the works are marked, from dusk to dawn and during periods of restricted visibility, with yellow flashing lights that are

(i) located on the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located on each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located on each end of the works and at any other location on the works so that the lights are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located on each end of the works and at any other location on the works so that the lights are spaced not more than 30 m apart, if the works are more than 30 m in length; and

(*c*) if the works are in or through a navigable water, the works are marked with cautionary

Durant la construction ou l'emplacement

(3) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par les paragraphes (1) ou (2), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) les bateaux peuvent naviguer de façon sécuritaire à travers le chantier ou autour de celui-ci ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier;

b) si les ouvrages sont situés sur les eaux navigables ou au-dessus de celles-ci, ils sont indiqués, du crépuscule à l'aube et durant les périodes de visibilité réduite, par des feux clignotants jaunes qui sont conformes aux exigences suivantes :

(i) ils sont situés sur l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) ils sont situés sur chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci

buoys that are lighted from dusk to dawn and during periods of restricted visibility and are

(i) located at the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located at each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 30 m apart, if the works are more than 30 m in length.

de façon à n'être pas espacés de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m;

c) si les ouvrages sont situés dans les eaux navigables ou à travers le cours de celles-ci, ils sont indiqués par des bouées d'avertissement qui sont illuminées du crépuscule à l'aube et durant les périodes de visibilité réduite et qui sont conformes aux exigences suivantes :

(i) elles sont situées à l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) elles sont situées à chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m.

Removal of temporary works

(4) The owner of works of the class established by subsection (2) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Enlèvement d'ouvrages temporaires

(4) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Restoration of contours

(5) The owner of works of the class established by subsection (1) must, if the contours of the bed of the navigable water were disturbed by either of the following, ensure that the contours are restored to their natural state on completion of the construction or placement of the works:

(*a*) the placement or construction of the works or of works of the class established by subsection (2); or

(*b*) the removal of works of the class established by subsection (2).

Remise en état des contours

(5) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (1) veille à ce que les contours du lit des eaux navigables qui ont été perturbés pour l'une ou l'autre des raisons ci-après soient remis à leur état naturel dès l'achèvement de la construction ou de l'emplacement de ces ouvrages :

a) la construction ou l'emplacement des ouvrages ou d'ouvrages de la catégorie établie par le paragraphe (2);

b) l'enlèvement d'ouvrages de la catégorie établie par le paragraphe (2).

Works in disrepair

(6) If works of the class established by subsection (1) become a danger to navigation because of disrepair, the owner of the works must immediately

(*a*) repair the works so that they are no longer a danger to navigation; or

(*b*) remove the works.

Ouvrages en mauvais état

(6) Si des ouvrages de la catégorie établie par le paragraphe (1) deviennent un danger pour la navigation en raison de leur mauvais état, leur propriétaire est tenu, selon le cas :

a) de les réparer immédiatement pour qu'ils ne constituent plus un danger pour la navigation;

b) de les enlever immédiatement.

Boat Ramps, Slipways and Launch Ramps

Rampes à bateaux, cales de halage et rampes de mise à l'eau

Class established

5. (1) Boat ramps, slipways and launch ramps that are not marine railways are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the works are not within 5 m of the adjoining property lines at the ordinary high-water mark; and

(*b*) the works are not associated with any other proposed works that are not of a class established by this Order.

Catégorie d'ouvrages

5. (1) Les rampes à bateaux, les cales de halage et les rampes de mise à l'eau qui ne sont pas des slips de carénage sont établies comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) les ouvrages ne sont pas situés à 5 m ou moins des limites d'une propriété attenante à la laisse des hautes eaux ordinaires;

b) ils ne sont associés à aucun autre ouvrage projeté qui n'est pas d'une catégorie établie par le présent arrêté.

Temporary works — class established

(2) Temporary works that are required for the construction or placement of works of the class established by subsection (1) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works

(*a*) are in, on, over, under, through or across a navigation channel; or

(*b*) cross more than halfway from one side of the navigable water to the other side.

Catégorie d'ouvrages temporaires

(2) Les ouvrages temporaires exigés pour la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (1) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf dans les cas suivants :

a) ils sont situés dans un chenal de navigation, sur, sous ou à travers celui-ci, ou au-dessus de celui-ci;

b) ils occupent, sur plus de leur moitié, les eaux navigables d'un côté à l'autre.

During construction or placement

(3) During the construction or placement of works of the class established by subsection (1) or (2), the owner of the works must ensure that vessels can navigate safely through or around the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site.

Durant la construction ou l'emplacement

(3) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par les paragraphes (1) ou (2), leur propriétaire veille à ce que les bateaux puissent naviguer de façon sécuritaire à travers le chantier ou autour de celui-ci ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, à ce qu'il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier.

During construction or placement of temporary works

(4) During the construction or placement of works of the class established by subsection (2), the owner of the works must ensure that

(*a*) if the works are on or over a navigable water, the works are marked, from dusk to dawn and during periods of restricted visibility, with yellow flashing lights that are

(i) located on the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located on each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located on each end of the works and at any other location on the works so that the lights are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located on each end of the works and at any other location on the works so that the lights are spaced not more than 30 m apart, if the works are more than 30 m in length; and

(*b*) if the works are in or through a navigable water, the works are marked with cautionary buoys that are lighted from dusk to dawn and during periods of restricted visibility and are

(i) located at the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located at each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 30 m apart, if the works are more than 30 m in length.

Durant la construction ou l'emplacement d'ouvrages temporaires

(4) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (2), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) si les ouvrages sont situés sur les eaux navigables ou au-dessus de celles-ci, ils sont indiqués, du crépuscule à l'aube et durant les périodes de visibilité réduite, par des feux clignotants jaunes qui sont conformes aux exigences suivantes :

(i) ils sont situés sur l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) ils sont situés sur chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m;

b) si les ouvrages sont situés dans les eaux navigables ou à travers le cours de celles-ci, ils sont indiqués par des bouées d'avertissement qui sont illuminées du crépuscule à l'aube et durant les périodes de visibilité réduite et qui sont conformes aux exigences suivantes :

(i) elles sont situées à l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) elles sont situées à chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m.

Removal of temporary works

(5) The owner of works of the class established by subsection (2) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Enlèvement d'ouvrages temporaires

(5) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Restoration of contours

(6) The owner of works of the class established by subsection (1) must, if the contours of the bed of the navigable water were disturbed by either of the following, ensure that the contours are restored to their natural state on completion of the construction or placement of the works:

(*a*) the placement or construction of the works or of works of the class established by subsection (2); or

(*b*) the removal of works of the class established by subsection (2).

Remise en état des contours

(6) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (1) veille à ce que les contours du lit des eaux navigables qui ont été perturbés pour l'une ou l'autre des raisons ci-après soient remis à leur état naturel dès l'achèvement de la construction ou de l'emplacement de ces ouvrages :

a) la construction ou l'emplacement des ouvrages ou d'ouvrages de la catégorie établie par le paragraphe (2);

b) l'enlèvement d'ouvrages de la catégorie établie par le paragraphe (2).

Works in disrepair

(7) If works of the class established by subsection (1) become a danger to navigation because of disrepair, the owner of the works must immediately

(*a*) repair the works so that they are no longer a danger to navigation; or

(*b*) remove the works.

Ouvrages en mauvais état

(7) Si des ouvrages de la catégorie établie par le paragraphe (1) deviennent un danger pour la navigation en raison de leur mauvais état, leur propriétaire est tenu, selon le cas :

a) de les réparer immédiatement pour qu'ils ne constituent plus un danger pour la navigation;

b) de les enlever immédiatement.

Aerial Cables — Power and Telecommunication

Câbles aériens — énergie et télécommunications

Class established

6. (1) Aerial cables that are over or across a navigable water and that are only for power or telecommunication purposes, and the associated structures and equipment, are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the width of the navigable water at the site of the crossing is less than 30 m when measured from the ordinary high-water mark on one side of the navigable water to the ordinary high-water mark on the other side;

(*b*) the works are not over or across a lake or tidal waters;

(*c*) the works are not over or across a canal that is accessible to the public;

(*d*) the works do not include towers or poles within the area between the ordinary high-water marks on each side of the navigable water; and

(*e*) the works meet the requirements of section 5.3.3.2 of *Overhead Systems*, CAN/CSA-C22.3 No. 1-10, as amended from time to time.

Catégorie d'ouvrages

6. (1) Les câbles aériens qui passent au-dessus ou à travers les eaux navigables et qui servent uniquement pour l'énergie ou les télécommunications, ainsi que leurs supports et équipements, sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) la largeur des eaux navigables au lieu de passage, mesurée de la laisse des hautes eaux ordinaires d'un côté des eaux navigables à la laisse des hautes eaux ordinaires de l'autre côté, est inférieure à 30 m;

b) les ouvrages ne passent ni au-dessus d'un lac ou d'eaux à marée ni à travers ceux-ci;

c) ils ne passent ni au-dessus d'un canal accessible au public ni à travers celui-ci;

d) ils ne comprennent ni pylônes ni poteaux situés dans la zone comprise entre la laisse des hautes eaux ordinaires de chaque côté des eaux navigables;

e) ils sont conformes aux exigences de l'article 5.3.3.2 de la norme CAN/CSA-C22.3 nº 1-10, intitulée *Réseaux aériens*, avec ses modifications successives.

Temporary works — class established

(2) Temporary works that are required for the construction or placement of works of the class established by subsection (1) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works are in, on, under, through or across a navigation channel.

Catégorie d'ouvrages temporaires

(2) Les ouvrages temporaires exigés pour la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (1) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf s'ils sont situés dans un chenal de navigation, sur, sous ou à travers celui-ci.

Prior notification of Canadian Coast Guard

(3) If works of the class established by subsection (2) are in a charted navigable water, the owner of the works must, at least 48 hours before the construction or placement of the works starts, in writing notify a Canadian Coast Guard Marine Communications and Traffic Services Centre of the day on which construction or placement of the works is expected to start.

Notification préalable à la Garde côtière canadienne

(3) Si des ouvrages de la catégorie établie par le paragraphe (2) sont situés dans des eaux navigables cartographiées, leur propriétaire notifie par écrit, au moins quarante-huit heures avant le commencement de la construction ou de l'emplacement des ouvrages, à un centre des Services de communications et de trafic maritimes de la Garde côtière canadienne, la date prévue du commencement de la construction ou de l'emplacement des ouvrages.

During construction or placement

(4) During the construction or placement of works of the class established by subsection (1) or (2), the owner of the works must ensure

(*a*) that vessels can navigate safely through or around the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site;

(*b*) in the case of a river, a stream, a creek or similar navigable water, that signs stating "Construction Ahead" and "Travaux de construction" that are legible from at least 50 m are in place 50 m upstream and downstream from the work site; and

(*c*) that any cables that are in, on, over, under, through or across the navigable water are not left unattended or unsupervised unless they meet the requirements referred to in paragraph (1)(*e*) or are lying on the bed of the water.

Durant la construction ou l'emplacement

(4) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par les paragraphes (1) ou (2), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) les bateaux peuvent naviguer de façon sécuritaire à travers le chantier ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier;

b) dans le cas des rivières ou des fleuves, des ruisseaux, des criques ou des eaux navigables semblables, des panneaux portant les mentions « Travaux de construction » et « Construction Ahead », lisibles à une distance d'au moins 50 m, sont en place à 50 m en amont et en aval du chantier;

c) les câbles qui sont dans les eaux navigables, sur, sous ou à travers celles-ci, ou au-dessus de celles-ci ne sont laissés ni sans surveillance ni sans supervision, sauf s'ils sont conformes aux exigences visées à l'alinéa (1)*e*) ou s'ils reposent sur le lit des eaux navigables.

Removal of temporary works

(5) The owner of works of the class established by subsection (2) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Enlèvement d'ouvrages temporaires

(5) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Notification of Canadian Coast Guard on removal

(6) If works of the class established by subsection (2) are in a charted navigable water, on removal of the works the owner of the works must, in writing, notify a Canadian Coast Guard Marine Communications and Traffic Services Centre that the works have been removed.

Notification à la Garde côtière canadienne — dès l'enlèvement

(6) Si des ouvrages de la catégorie établie par le paragraphe (2) sont situés dans des eaux navigables cartographiées, leur propriétaire notifie par écrit, dès leur enlèvement, à un centre des Services de communications et de trafic maritimes de la Garde côtière canadienne, que les ouvrages ont été enlevés.

Notification of Canadian Hydrographic Service on completion

(7) If works of the class established by subsection (1) are over or across a charted navigable water, on completion of the construction or placement of the works the owner of the works must, in writing, notify the Canadian Hydrographic Service that the works have been constructed or placed.

Notification au Service hydrographique du Canada — dès l'achèvement

(7) Si des ouvrages de la catégorie établie par le paragraphe (1) passent au-dessus des eaux navigables cartographiées ou à travers celles-ci, leur propriétaire notifie par écrit, dès l'achèvement de la construction ou du placement des ouvrages, au Service hydrographique du Canada, que les ouvrages ont été construits ou placés.

Maintenance

(8) The owner of works of the class established by subsection (1) must ensure that the works continue to meet the requirements referred to in paragraph (1)(*e*).

Entretien et exploitation

(8) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (1) veille à ce que les ouvrages demeurent conformes aux exigences visées à l'alinéa (1)*e*).

Works in disrepair

(9) If works of the class established by subsection (1) become a danger to navigation because of disrepair, the owner of the works must immediately

(*a*) repair the works so that they are no longer a danger to navigation; or

(*b*) remove the works.

Ouvrages en mauvais état

(9) Si des ouvrages de la catégorie établie par le paragraphe (1) deviennent un danger pour la navigation en raison de leur mauvais état, leur propriétaire est tenu, selon le cas :

a) de les réparer immédiatement pour qu'ils ne constituent plus un danger pour la navigation;

b) de les enlever immédiatement.

Effective date of amendments

(10) An amendment to one language version of section 5.3.3.2 of *Overhead Systems*, CAN/CSA-C22.3 No. 1-10, is not incorporated until the corresponding amendment is made to the other language version.

Date d'entrée en vigueur — modifications

(10) Les modifications apportées dans une seule version linguistique de l'article 5.3.3.2 de la norme CAN/CSA-C22.3 nº 1-10, intitulée *Réseaux aériens*, ne sont pas incorporées tant qu'elles ne sont pas apportées dans l'autre version linguistique.

SUBMARINE CABLES — POWER AND TELECOMMUNICATION

CÂBLES SOUS-MARINS — ÉNERGIE ET TÉLÉCOMMUNICATIONS

Class established

7. (1) Submarine cables that are only for power or telecommunication purposes are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the works lie on or under the bed of the navigable water;

(*b*) the works do not extend vertically above the bed of the navigable water more than

(i) in the case of a navigable water of less than 15 m in depth, when measured from the ordinary high-water mark, 5% of the depth of the water when measured from the ordinary high-water mark, or

(ii) in any other case, 1 m;

(*c*) the works are not across the entrance to any port, including any marina;

(*d*) the works are not in a dredged channel or area with maintained depth; and

(*e*) the works are not in an area that is identified as an anchorage area on a Canadian Hydrographic Service or National Oceanic and Atmospheric Administration chart.

Catégorie d'ouvrages

7. (1) Les câbles sous-marins qui servent uniquement pour l'énergie ou les télécommunications sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) les ouvrages reposent sur le lit des eaux navigables ou sous celui-ci;

b) ils ne s'étendent pas verticalement au-dessus du lit des eaux navigables :

(i) dans le cas d'eaux navigables d'une profondeur de moins de 15 m, mesurée de la laisse des hautes eaux ordinaires, au-delà de 5 % de la profondeur des eaux, mesurée de la laisse des hautes eaux ordinaires,

(ii) dans tous les autres cas, au-delà de 1 m;

c) ils ne traversent pas l'entrée d'un port, y compris toute marina;

d) ils ne sont pas situés dans un chenal ou une zone dragués avec la profondeur entretenue;

e) ils ne sont pas situés dans une zone indiquée comme un mouillage sur une carte du Service hydrographique du Canada ou de la National Oceanic and Atmospheric Administration.

Temporary works — class established

(2) Temporary works that are required for the construction or placement of works of the class established by subsection (1) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works are in, on, over, under, through or across a navigation channel.

Catégorie d'ouvrages temporaires

(2) Les ouvrages temporaires exigés pour la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (1) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf s'ils sont situés dans un chenal de navigation, sur, sous ou à travers celui-ci, ou au-dessus de celui-ci.

Prior notification of Canadian Coast Guard

(3) If works of the class established by subsection (2) are in a charted navigable water, the owner of the works must, at least 48 hours before the construction or placement of the works starts, in writing notify a Canadian Coast Guard Marine Communications and Traffic Services Centre of the day on which construction or placement of the works is expected to start.

Notification préalable à la Garde côtière canadienne

(3) Si des ouvrages de la catégorie établie par le paragraphe (2) sont situés dans des eaux navigables cartographiées, leur propriétaire notifie par écrit, au moins quarante-huit heures avant le commencement de la construction ou de l'emplacement des ouvrages, à un centre des Services de communications et de trafic maritimes de la Garde côtière canadienne, la date prévue du commencement de la construction ou de l'emplacement des ouvrages.

During construction or placement

(4) During the construction or placement of works of the class established by subsection (1) or (2), the owner of the works must ensure that vessels can navigate safely through the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site.

Durant la construction ou l'emplacement

(4) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par les paragraphes (1) ou (2), leur propriétaire veille à ce que les bateaux puissent naviguer de façon sécuritaire à travers le chantier ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, à ce qu'il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier.

During construction or placement of temporary works

(5) During the construction or placement of works of the class established by subsection (2), the owner of the works must ensure, that if the works are in or through a navigable water, the works are marked with cautionary buoys that are lighted from dusk to

Durant la construction ou l'emplacement d'ouvrages temporaires

(5) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (2), leur propriétaire veille à ce que ceux qui sont situés dans les eaux navigables ou à travers le cours de celles-ci soient indiqués par des bouées

dawn and during periods of restricted visibility and are

(*a*) located at the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length;

(*b*) located at each end of the works, if the works are more than 3 m in length but not more than 20 m in length;

(*c*) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length; or

(*d*) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 30 m apart, if the works are more than 30 m in length.

d'avertissement qui sont illuminées du crépuscule à l'aube et durant les périodes de visibilité réduite et qui sont conformes aux exigences suivantes :

a) elles sont situées à l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m;

b) elles sont situées à chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m;

c) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m;

d) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m.

Removal of temporary works

(6) The owner of works of the class established by subsection (2) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Enlèvement d'ouvrages temporaires

(6) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Notification of Canadian Hydrographic Service on completion

(7) If works of the class established by subsection (1) are over or across a charted navigable water, on completion of the construction or placement of the works the owner of the works must, in writing, notify the Canadian Hydrographic Service that the works have been constructed or placed.

Notification au Service hydrographique du Canada — dès l'achèvement

(7) Si des ouvrages de la catégorie établie par le paragraphe (1) passent au-dessus des eaux navigables cartographiées ou à travers celles-ci, leur propriétaire notifie par écrit, dès l'achèvement de la construction ou du placement des ouvrages, au Service hydrographique du Canada, que les ouvrages ont été construits ou placés.

Notification of Canadian Coast Guard on removal

(8) If works of the class established by subsection (2) are in a charted navigable water, on removal of the works the owner of the works must, in writing, notify a Canadian Coast Guard Marine Communications and Traffic Services Centre that the works have been removed.

Notification à la Garde côtière canadienne — dès l'enlèvement

(8) Si des ouvrages de la catégorie établie par le paragraphe (2) sont situés dans des eaux navigables cartographiées, leur propriétaire notifie par écrit, dès leur enlèvement, à un centre des Services de communications et de trafic maritimes de la Garde côtière canadienne, que les ouvrages ont été enlevés.

Restoration of contours

(9) The owner of works of the class established by subsection (1) must, if the contours of the bed of the navigable water were disturbed by either of the following, ensure that the contours are restored to their natural state on completion of the construction or placement of the works:

(*a*) the placement or construction of the works or of works of the class established by subsection (2), or

(*b*) the removal of works of the class established by subsection (2).

Remise en état des contours

(9) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (1) veille à ce que les contours du lit des eaux navigables qui ont été perturbés pour l'une ou l'autre des raisons ci-après soient remis à leur état naturel dès l'achèvement de la construction ou de l'emplacement de ces ouvrages :

a) la construction ou l'emplacement des ouvrages ou d'ouvrages de la catégorie établie par le paragraphe (2);

b) l'enlèvement d'ouvrages de la catégorie établie par le paragraphe (2).

Re-laying works

(10) Subject to subsection (11), if works of the class established by subsection (1) no longer lie on or under the bed of the navigable water, the owner of the works must, as soon as feasible,

(*a*) re-lay the works so that they lie on or under the bed; or

(*b*) remove the works.

Reposer les ouvrages

(10) Sous réserve du paragraphe (11), si des ouvrages de la catégorie établie par le paragraphe (1) ne reposent plus sur ou sous le lit des eaux navigables, leur propriétaire est tenu, selon le cas :

a) de les reposer dès que possible sur ou sous le lit;

b) de les enlever dès que possible.

Dangers to navigation

(11) The owner must immediately take the action referred to in subsection (10) if the works become a danger to navigation because they no longer lie on or under the bed of the navigable water.

Dangers pour la navigation

(11) Le propriétaire prend immédiatement la mesure visée au paragraphe (10) si les ouvrages deviennent un danger pour la navigation parce qu'ils ne reposent plus sur ou sous le lit des eaux navigables.

Pipelines Buried Under the Bed of Navigable Water

Class established

8. (1) Pipelines that are buried under the bed of a navigable water and that are built or placed using a trenched method are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the width of the navigable water at the site of the crossing is less than 50 m when measured from the ordinary high-water mark on one side of the navigable water to the ordinary high-water mark on the other side; and

(*b*) the construction or placement of the works is completed within two weeks after the day on which construction or placement of the works started.

Temporary works — class established

(2) Temporary works that are required for the construction or placement of works of the class established by subsection (1) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works include or consist of cables that do not lie on the bed of the navigable water.

Prior notification of Canadian Coast Guard

(3) If works of the class established by subsection (2) are in a charted navigable water, the owner of the works must, at least 48 hours before the construction or placement of the works starts, in writing notify a Canadian Coast Guard Marine Communications and Traffic Services Centre of the day on which construction or placement of the works is expected to start.

During construction or placement

(4) During the construction or placement of works of the class established by subsection (1) or (2), the owner of the works must ensure

(*a*) that vessels can navigate safely through or around the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site; and

(*b*) if the works are under a river, a stream, a creek or similar navigable water that, when measured from the ordinary high-water mark on one side of the navigable water to the ordinary high-water mark on the other side, is of a width set out in column 1 of the table to this subsection, that signs stating "Construction Ahead" and "Travaux de construction" that are legible from at least 50 m are in place, upstream and downstream from the work site, at the minimum distance set out in column 2.

TABLE

Item	Column 1 Width of Navigable Water	Column 2 Minimum Distance
1.	Less than 10 m	25 m
2.	10 m or more but less than 20 m	50 m
3.	20 m or more but less than 50 m	100 m

Pipelines enfouis sous le lit des eaux navigables

Catégorie d'ouvrages

8. (1) Les pipelines enfouis sous le lit des eaux navigables qui sont construits ou placés selon la méthode de construction avec tranchée sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) la largeur des eaux navigables au lieu de passage, mesurée de la laisse des hautes eaux ordinaires d'un côté des eaux navigables à la laisse des hautes eaux ordinaires de l'autre côté, est inférieure à 50 m;

b) la construction ou l'emplacement des ouvrages sont terminés dans les deux semaines suivant la date où commencent leur construction ou leur emplacement.

Catégorie d'ouvrages temporaires

(2) Les ouvrages temporaires exigés pour la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (1) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf s'ils comprennent des câbles, ou sont constitués de câbles, qui ne reposent pas sur le lit des eaux navigables.

Notification préalable à la Garde côtière canadienne

(3) Si des ouvrages de la catégorie établie par le paragraphe (2) sont situés dans des eaux navigables cartographiées, leur propriétaire notifie par écrit, au moins quarante-huit heures avant le commencement de la construction ou de l'emplacement des ouvrages, à un centre des Services de communications et de trafic maritimes de la Garde côtière canadienne, la date prévue du commencement de la construction ou de l'emplacement des ouvrages.

Durant la construction ou l'emplacement

(4) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par les paragraphes (1) ou (2), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) les bateaux peuvent naviguer de façon sécuritaire à travers le chantier ou autour de celui-ci ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier;

b) si les ouvrages sont situés sous des rivières ou des fleuves, des ruisseaux, des criques ou des eaux navigables semblables qui, lorsqu'ils sont mesurés de la laisse des hautes eaux ordinaires d'un côté des eaux à la laisse des hautes eaux ordinaires de l'autre côté, sont d'une largeur figurant à la colonne 1 du tableau du présent paragraphe, des panneaux portant les mentions « Travaux de construction » et « Construction Ahead », lisibles à une distance d'au moins 50 m, sont en place en amont et en aval du chantier, à la distance minimale figurant à la colonne 2.

TABLEAU

Article	Colonne 1 Largeur des eaux navigables	Colonne 2 Distance minimale
1.	Moins de 10 m	25 m
2.	10 m ou plus mais moins de 20 m	50 m
3.	20 m ou plus mais moins de 50 m	100 m

During construction or placement of temporary works

(5) During the construction or placement of works of the class established by subsection (2), the owner of the works must ensure that

(*a*) if the works are on, over or across a navigable water, the works are marked, from dusk to dawn and during periods of restricted visibility, with yellow flashing lights that are

(i) located on the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located on each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located on each end of the works and at any other location on the works so that the lights are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located on each end of the works and at any other location on the works so that the lights are spaced not more than 30 m apart, if the works are more than 30 m in length; and

(*b*) if the works are in or through a navigable water, the works are marked with cautionary buoys that are lighted from dusk to dawn and during periods of restricted visibility and are

(i) located at the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located at each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 30 m apart, if the works are more than 30 m in length.

Durant la construction ou l'emplacement d'ouvrages temporaires

(5) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (2), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) si les ouvrages sont situés sur les eaux navigables, à travers celles-ci ou au-dessus de celles-ci, ils sont indiqués, du crépuscule à l'aube et durant les périodes de visibilité réduite, par des feux clignotants jaunes qui sont conformes aux exigences suivantes :

(i) ils sont situés sur l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) ils sont situés sur chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m;

b) si les ouvrages sont situés dans les eaux navigables ou à travers le cours de celles-ci, ils sont indiqués par des bouées d'avertissement qui sont illuminées du crépuscule à l'aube et durant les périodes de visibilité réduite et qui sont conformes aux exigences suivantes :

(i) elles sont situées à l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) elles sont situées à chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m.

Removal of temporary works

(6) The owner of works of the class established by subsection (2) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Enlèvement d'ouvrages temporaires

(6) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Notification of Canadian Hydrographic Service on completion

(7) If works of the class established by subsection (1) are under the bed of a charted navigable water, on completion of the construction or placement of the works the owner of the works must, in writing, notify the Canadian Hydrographic Service that the works have been constructed or placed.

Notification au Service hydrographique du Canada — dès l'achèvement

(7) Si des ouvrages de la catégorie établie par le paragraphe (1) sont situés sous le lit d'eaux navigables cartographiées, leur propriétaire notifie par écrit, dès l'achèvement de la construction ou du placement des ouvrages, au Service hydrographique du Canada, que les ouvrages ont été construits ou placés.

Notification of Canadian Coast Guard on removal

(8) If works of the class established by subsection (2) are in a charted navigable water, on removal of the works the owner of the works must, in writing, notify a Canadian Coast Guard Marine Communications and Traffic Services Centre that the works have been removed.

Restoration of contours

(9) The owner of works of the class established by subsection (1) must, if the contours of the bed of the navigable water were disturbed by either of the following, ensure that the contours are restored to their natural state on completion of the construction or placement of the works:

(*a*) the placement or construction of the works or of works of the class established by subsection (2); or

(*b*) the removal of works of the class established by subsection (2).

Re-laying works

(10) Subject to subsection (11), if works of the class established by subsection (1) no longer lie on or under the bed of the navigable water, the owner of the works must, as soon as feasible,

(*a*) re-lay the works so that they lie on or under the bed; or

(*b*) remove the works.

Dangers to navigation

(11) The owner must immediately take the action referred to in subsection (10) if the works become a danger to navigation because they no longer lie on or under the bed of the navigable water.

Notification à la Garde côtière canadienne — dès l'enlèvement

(8) Si des ouvrages de la catégorie établie par le paragraphe (2) sont situés dans des eaux navigables cartographiées, leur propriétaire notifie par écrit, dès leur enlèvement, à un centre des Services de communications et de trafic maritimes de la Garde côtière canadienne, que les ouvrages ont été enlevés.

Remise en état des contours

(9) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (1) veille à ce que les contours du lit des eaux navigables qui ont été perturbés pour l'une ou l'autre des raisons ci-après soient remis à leur état naturel dès l'achèvement de la construction ou de l'emplacement de ces ouvrages :

a) la construction ou l'emplacement des ouvrages ou d'ouvrages de la catégorie établie par le paragraphe (2);

b) l'enlèvement d'ouvrages de la catégorie établie par le paragraphe (2).

Reposer les ouvrages

(10) Sous réserve du paragraphe (11), si des ouvrages de la catégorie établie par le paragraphe (1) ne reposent plus sur ou sous le lit des eaux navigables, leur propriétaire est tenu, selon le cas :

a) de les reposer dès que possible sur ou sous le lit;

b) de les enlever dès que possible.

Dangers pour la navigation

(11) Le propriétaire prend immédiatement la mesure visée au paragraphe (10) si les ouvrages deviennent un danger pour la navigation parce qu'ils ne reposent plus sur ou sous le lit des eaux navigables.

Pipelines and Power or Communication Cables Attached to Existing Works

Class established

9. (1) Pipelines and cables that are attached to an existing work that was approved under the Act or is referred to in subsection 4(1) or (2) or section 8 of the Act, are established as a class of works for the purposes of subsection 5.1(1) of the Act if the works do not increase the interference with navigation caused by the existing work.

Temporary works — class established

(2) Temporary works that are required for the construction or placement of works of the class established by subsection (1) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works are in, on, under, through or across a navigation channel.

During construction or placement

(3) During the construction or placement of works of the class established by subsection (1) or (2), the owner of the works must ensure

(*a*) that vessels can navigate safely through or around the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site;

(*b*) if the works are on, over or across a navigable water, that the works are marked, from dusk to dawn and during periods of restricted visibility, with yellow flashing lights that are

(i) located on the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

Pipelines et câbles — énergie et télécommunications — fixés à des ouvrages existants

Catégorie d'ouvrages

9. (1) Les pipelines et les câbles qui sont fixés à un ouvrage existant qui a été approuvé en vertu de la Loi ou est visé aux paragraphes 4(1) ou (2) ou à l'article 8 de la Loi sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les ouvrages ne gênent pas la navigation plus que le fait l'ouvrage existant.

Catégorie d'ouvrages temporaires

(2) Les ouvrages temporaires exigés pour la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (1) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf s'ils sont situés dans un chenal de navigation, sur, sous ou à travers celui-ci.

Durant la construction ou l'emplacement

(3) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par les paragraphes (1) ou (2), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) les bateaux peuvent naviguer de façon sécuritaire à travers le chantier ou autour de celui-ci ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier;

b) dans le cas des ouvrages qui sont situés sur les eaux navigables, à travers celles-ci ou au-dessus de celles-ci, ils sont indiqués, du crépuscule à l'aube et durant les périodes de visibilité réduite,

(ii) located on each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located on each end of the works and at any other location on the works so that the lights are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located on each end of the works and at any other location on the works so that the lights are spaced not more than 30 m apart, if the works are more than 30 m in length; and

(*c*) in the case of a river, a stream, a creek or similar navigable water, that signs stating "Construction Ahead" and "Travaux de construction" that are legible from at least 50 m are in place 50 m upstream and downstream from the work site.

par des feux clignotants jaunes qui sont conformes aux exigences suivantes :

(i) ils sont situés sur l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) ils sont situés sur chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m;

c) dans le cas des rivières ou des fleuves, des ruisseaux, des criques ou des eaux navigables semblables, des panneaux portant les mentions « Travaux de construction » et « Construction Ahead », lisibles à une distance d'au moins 50 m, sont en place à 50 m en amont et en aval du chantier.

Removal of temporary works

(4) The owner of works of the class established by subsection (2) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Enlèvement d'ouvrages temporaires

(4) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Works in disrepair

(5) If works of the class established by subsection (1) become a danger to navigation because of disrepair, the owner of the works must immediately

(*a*) repair the works so that they are no longer a danger to navigation; or

(*b*) remove the works.

Ouvrages en mauvais état

(5) Si des ouvrages de la catégorie établie par le paragraphe (1) deviennent un danger pour la navigation en raison de leur mauvais état, leur propriétaire est tenu, selon le cas :

a) de les réparer immédiatement pour qu'ils ne constituent plus un danger pour la navigation;

b) de les enlever immédiatement.

Works Within a Boomed-off Area Upstream or Downstream of an Existing Work for Water Control

Ouvrages réalisés dans une section bordée d'une barrière flottante en amont ou en aval d'un ouvrage existant de régularisation des eaux

Class established

10. Works within a boomed-off area upstream or downstream of an existing work for water control are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the existing work for water control was approved under the Act or is referred to in subsection 4(1) or (2) of the Act;

(*b*) the boom was approved under the Act or is referred to in subsection 4(1) or (2) of the Act;

(*c*) the works do not adversely affect the efficacy of the boom;

(*d*) the works do not alter the level or flow of the navigable water;

(*e*) the works are not related to rebuilding or alterations to the boom or the existing work for water control; and

(*f*) the owner of the works is also the owner of the boom or the existing work for water control.

Catégorie d'ouvrages

10. Les ouvrages réalisés dans une section bordée d'une barrière flottante en amont ou en aval d'un ouvrage existant de régularisation des eaux sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) l'ouvrage existant de régularisation des eaux a été approuvé en vertu de la Loi ou est visé aux paragraphes 4(1) ou (2) de la Loi;

b) la barrière flottante est approuvée en vertu de la Loi ou est visée aux paragraphes 4(1) ou (2) de la Loi;

c) les ouvrages ne compromettent pas l'efficacité de la barrière flottante;

d) ils ne modifient ni le niveau ni le débit des eaux navigables;

e) ils ne visent pas à reconstruire ou à modifier la barrière flottante ou l'ouvrage existant de régularisation des eaux;

f) le propriétaire des ouvrages est également le propriétaire de la barrière flottante ou de l'ouvrage existant de régularisation des eaux.

OUTFALLS AND WATER INTAKES

Definitions

11. (1) The following definitions apply in this section.

"crib" « *encoffrement* »
"crib" means pieces of timber affixed together to form bays or cells that are filled with stones or concrete.

"headpond" « *bassin d'amont* »
"headpond" means a reservoir of water created by the construction of a dam or weir.

"outfall" « *émissaire* »
"outfall" does not include a diffuser-type outfall.

"weir" « *déversoir* »
"weir" means a low dam or barrier that raises the level or diverts the flow of a navigable water.

Class established

(2) Outfalls and water intakes are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the works do not include a crib or other outfall or intake structure, such as a fish screen, an anchor, a collar or a weight, that extends vertically above the bed of the navigable water more than

(i) in the case of a navigable water of less than 15 m in depth when measured from the ordinary high-water mark, 5% of the depth of the water when measured from the ordinary high-water mark, or

(ii) in any other case, 1 m;

(*b*) the works do not alter the level or flow of the navigable water;

(*c*) in the case of a charted navigable water, the works are not within 30 m of a navigation channel; and

(*d*) the works are not associated with a dam, weir or headpond, including a proposed dam, weir or headpond.

Temporary works

(3) Temporary works that are required for the construction or placement of works of the class established by subsection (2) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works are in, on, over, under, through or across a navigation channel.

During construction or placement

(4) During the construction or placement of works of the class established by subsection (2) or (3), the owner of the works must ensure

(*a*) that vessels can navigate safely through or around the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site; and

(*b*) that no floating pipes are left unattended or unsupervised.

ÉMISSAIRES ET PRISES D'EAU

Définitions

11. (1) Les définitions qui suivent s'appliquent au présent article.

« bassin d'amont » "*headpond*"
« bassin d'amont » Réservoir d'eau créé par la construction d'un barrage ou d'un déversoir.

« déversoir » "*weir*"
« déversoir » Barrage ou mur peu élevés qui augmentent le niveau des eaux navigables ou en dévient l'écoulement.

« émissaire » "*outfall*"
« émissaire » Sont exclus des émissaires les émissaires de type diffuseur.

« encoffrement » "*crib*"
« encoffrement » Pièces de bois d'œuvre fixées les unes aux autres pour former des baies ou des cellules qui sont remplies de pierres ou de béton.

Catégorie d'ouvrages

(2) Les émissaires et les prises d'eau sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) les ouvrages ne comprennent ni encoffrement ni aucune autre structure d'émissaire ou de prise, comme une claie à poisson, une ancre, un collet, ou un poids, s'étendant verticalement au-dessus du lit des eaux navigables :

(i) dans le cas d'eaux navigables d'une profondeur de moins de 15 m, mesurée de la laisse des hautes eaux ordinaires, au-delà de 5 % de la profondeur des eaux, mesurée de la laisse des hautes eaux ordinaires,

(ii) dans tous les autres cas, au-delà de 1 m;

b) ils ne modifient ni le niveau ni le débit des eaux navigables;

c) dans le cas d'eaux navigables cartographiées, les ouvrages ne sont pas situés à 30 m ou moins d'un chenal de navigation;

d) ils ne sont associés ni à un barrage, ni à un déversoir, ni à un bassin d'amont, y compris un barrage, un déversoir ou un bassin d'amont projetés.

Catégorie d'ouvrages temporaires

(3) Les ouvrages temporaires exigés pour la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (2) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf s'ils sont situés dans un chenal de navigation, sur, sous ou à travers celui-ci, ou au-dessus de celui-ci.

Durant la construction ou l'emplacement

(4) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par les paragraphes (2) ou (3), leur propriétaire veille à ce que les conditions suivantes soient respectées :

a) les bateaux peuvent naviguer de façon sécuritaire à travers le chantier ou autour de celui-ci ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier;

b) les tuyaux flottants ne sont laissés ni sans surveillance ni sans supervision.

Removal of temporary works

(5) The owner of works of the class established by subsection (3) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Enlèvement d'ouvrages temporaires

(5) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (3) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Restoration of contours

(6) The owner of works of the class established by subsection (2) must, if the contours of the bed of the navigable water were disturbed by either of the following, ensure that the contours are restored to their natural state on completion of the construction or placement of the works:

(*a*) the placement or construction of the works or of works of the class established by subsection (3); or

(*b*) the removal of works of the class established by subsection (3).

Remise en état des contours

(6) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que les contours du lit des eaux navigables qui ont été perturbés pour l'une ou l'autre des raisons ci-après soient remis à leur état naturel dès l'achèvement de la construction ou de l'emplacement de ces ouvrages :

a) la construction ou l'emplacement des ouvrages ou d'ouvrages de la catégorie établie par le paragraphe (3);

b) l'enlèvement d'ouvrages de la catégorie établie par le paragraphe (3).

Re-laying piping

(7) Subject to subsection (8), if the piping of works of the class established by subsection (2) no longer lies on the bed of the navigable water, the owner of the works must, as soon as feasible,

(*a*) re-lay the piping so that it lies on the bed; or

(*b*) remove the works.

Reposer la tuyauterie

(7) Sous réserve du paragraphe (8), si la tuyauterie des ouvrages de la catégorie établie par le paragraphe (2) ne repose plus sur le lit des eaux navigables, le propriétaire de ces ouvrages est tenu, selon le cas :

a) de reposer la tuyauterie dès que possible sur le lit;

b) d'enlever les ouvrages dès que possible.

Dangers to navigation

(8) The owner must immediately take the action referred to in subsection (7) if the piping becomes a danger to navigation because it no longer lies on the bed of the navigable water.

Danger pour la navigation

(8) Le propriétaire prend immédiatement la mesure visée au paragraphe (7) si la tuyauterie devient un danger pour la navigation parce qu'elle ne repose plus sur le lit des eaux navigables.

DREDGING

DRAGAGE

Class established

12. (1) Dredging is established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the works are done in order to maintain the width or depth of the navigable water;

(*b*) all dredged materials are disposed of

(i) above the ordinary high-water mark, or

(ii) in water where the disposal is authorized by or under an Act of Parliament;

(*c*) the works do not use any suction dredging that involves the use of floating or submerged pipes;

(*d*) the works have no cables that cross on, over or through any portion of the navigable water; and

(*e*) the works do not include blasting.

Catégorie d'ouvrages

12. (1) Le dragage est établi comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) les ouvrages sont réalisés dans le but de conserver la largeur ou la profondeur des eaux navigables;

b) tous les déblais de dragage sont rejetés, selon le cas :

(i) au-dessus de la laisse des hautes eaux ordinaires,

(ii) dans des eaux où le rejet est autorisé sous le régime d'une loi fédérale;

c) les ouvrages ne font pas appel à du dragage par succion comportant l'utilisation de tuyaux flottants ou submergés;

d) ils ne comportent pas de câbles passant sur une partie des eaux navigables, au-dessus de celle-ci ou à travers le cours de celle-ci;

e) ils ne comportent pas de sautage.

Temporary works — class established

(2) Temporary works that are required for the construction or placement of works of the class established by subsection (1) are established as a class of works for the purposes of subsection 5.1(1) of the Act unless the temporary works are in, on, over, under, through or across a navigation channel marked by the federal government, a provincial government or an agency of one of those governments.

Catégorie d'ouvrages temporaires

(2) Les ouvrages temporaires exigés pour la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (1) sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi, sauf s'ils sont situés dans un chenal de navigation indiqué par le gouvernement fédéral ou un gouvernement provincial ou un organisme d'un de ceux-ci, sur, sous ou à travers celui-ci, ou au-dessus de celui-ci.

Prior notification of Canadian Coast Guard

(3) If works of the class established by subsection (2) are in a charted navigable water, the owner of the works must, at least 48 hours before the construction or placement of the works starts, in writing

Notification préalable à la Garde côtière canadienne

(3) Si des ouvrages de la catégorie établie par le paragraphe (2) sont situés dans des eaux navigables cartographiées, leur propriétaire notifie par écrit, au moins quarante-huit heures avant le commencement

notify a Canadian Coast Guard Marine Communications and Traffic Services Centre of the day on which construction or placement of the works is expected to start.

de la construction ou de l'emplacement des ouvrages, à un centre des Services de communications et de trafic maritimes de la Garde côtière canadienne, la date prévue du commencement de la construction ou de l'emplacement des ouvrages.

During construction or placement

(4) During the construction or placement of works of the class established by subsection (1) or (2), the owner of the works must ensure that vessels can navigate safely through or around the work site or, if navigation is interrupted by any activity related to the construction or placement, that suitable means, such as a portage, exist to allow vessels to resume navigation on the other side of the work site.

(4) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (1) ou (2), leur propriétaire veille à ce que les bateaux puissent naviguer de façon sécuritaire à travers le chantier ou autour de celui-ci ou, si la navigation est interrompue par toute activité liée à la construction ou à l'emplacement, à ce qu'il existe un moyen approprié, comme le portage, pour leur permettre de reprendre la navigation de l'autre côté du chantier.

Durant la construction ou l'emplacement

During construction or placement of temporary works

(5) During the construction or placement of works of the class established by subsection (2), the owner of the works must ensure that

(*a*) if the works are on, over or across a navigable water, the works are marked, from dusk to dawn and during periods of restricted visibility, with yellow flashing lights that are

(i) located on the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located on each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located on each end of the works and at any other location on the works so that the lights are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located on each end of the works and at any other location on the works so that the lights are spaced not more than 30 m apart, if the works are more than 30 m in length; and

(*b*) if the works are in or through a navigable water, the works are marked with cautionary buoys that are lighted from dusk to dawn and during periods of restricted visibility and are

(i) located at the end of the works that is farthest from the nearest bank or shore, if the works are not more than 3 m in length,

(ii) located at each end of the works, if the works are more than 3 m in length but not more than 20 m in length,

(iii) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 20 m apart, if the works are more than 20 m in length but not more than 30 m in length, or

(iv) located at each end of the works and at any other location alongside the works so that the buoys are spaced not more than 30 m apart, if the works are more than 30 m in length.

(5) Durant la construction ou l'emplacement d'ouvrages de la catégorie établie par le paragraphe (2), leur propriétaire veille à ce que les conditions suivantes soient respectées :

Durant la construction ou l'emplacement d'ouvrages temporaires

a) si les ouvrages sont situés sur des eaux navigables, à travers celles-ci ou au-dessus de celles-ci, ils sont indiqués, du crépuscule à l'aube et durant les périodes de visibilité réduite, par des feux clignotants jaunes qui sont conformes aux exigences suivantes :

(i) ils sont situés sur l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) ils sont situés sur chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) ils sont situés sur chacune des extrémités des ouvrages et à tout autre endroit sur ceux-ci de façon à n'être pas espacés de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m;

b) si les ouvrages sont situés dans les eaux navigables ou à travers le cours de celles-ci, ils sont indiqués par des bouées d'avertissement qui sont illuminées du crépuscule à l'aube et durant les périodes de visibilité réduite et qui sont conformes aux exigences suivantes :

(i) elles sont situées à l'extrémité des ouvrages qui est la plus loin de la berge ou de la rive la plus proche, si les ouvrages sont d'une longueur d'au plus 3 m,

(ii) elles sont situées à chacune des extrémités des ouvrages, si les ouvrages sont d'une longueur de plus de 3 m mais d'au plus 20 m,

(iii) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 20 m, si les ouvrages sont d'une longueur de plus de 20 m mais d'au plus 30 m,

(iv) elles sont situées à chacune des extrémités des ouvrages et à tout autre endroit le long de ceux-ci de façon à n'être pas espacées de plus de 30 m, si les ouvrages sont d'une longueur de plus de 30 m.

Removal of temporary works

(6) The owner of works of the class established by subsection (2) must ensure that they are completely removed on completion of the construction or placement of the works for which they were required.

Contouring

(7) The owner of works of the class established by subsection (1) must ensure that the bed of the navigable water is, on completion of the construction or placement of the works, contoured to prevent hazards to navigation.

Notification of Canadian Coast Guard on completion

(8) If works of the class established by subsection (1) or (2) are in a charted navigable water, on completion of the construction or placement of the works the owner of the works must, in writing, notify a Canadian Coast Guard Marine Communications and Traffic Services Centre that the works have been completed.

Enlèvement d'ouvrages temporaires

(6) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (2) veille à ce que ceux-ci soient complètement enlevés dès l'achèvement de la construction ou de l'emplacement des ouvrages pour lesquels ils étaient exigés.

Aménagement des contours

(7) Le propriétaire d'ouvrages de la catégorie établie par le paragraphe (1) veille à ce que les contours du lit des eaux navigables soient aménagés, dès l'achèvement de la construction ou de l'emplacement de ces ouvrages, pour prévenir les dangers pour la navigation.

Notification à la Garde côtière canadienne — dès l'achèvement

(8) Si des ouvrages de la catégorie établie par le paragraphe (1) ou (2) sont situés dans des eaux navigables cartographiées, leur propriétaire notifie par écrit, dès l'achèvement de la construction ou de l'emplacement de ces ouvrages, à un centre des Services de communications et de trafic maritimes de la Garde côtière canadienne, que les ouvrages ont été enlevés.

Mooring Systems

Definitions

13. (1) The following definitions apply in this section.

"length" «*longueur*»

"length" means, in respect of a vessel, the distance between the fore and aft extremities of the vessel.

"mooring system" «*système d'amarrage*»

"mooring system" means a system that is used to secure a vessel and that consists of an anchor that is set in or on the bed of a navigable water, a single anchor line, a single buoy and a mooring line to attach to a vessel.

"swing area" «*aire d'évitage*»

"swing area" means the diameter of a circle created by the swinging of a vessel moored to a mooring system.

Class established

(2) Mooring systems are established as a class of works for the purposes of subsection 5.1(1) of the Act if

(*a*) the swing area of the works is not

(i) within 20 m of a work, other than a pipeline or an aerial or submarine cable, that is not owned by the owner of the works,

(ii) within 20 m of the swing area of another work of the class established by this subsection, or

(iii) within 50 m of a marina, public launch-ramp or navigation channel;

(*b*) the works are not associated with an existing or proposed marina;

(*c*) the width of the navigable water is more than 100 m when measured from the ordinary high-water mark on one side of the water to the ordinary high-water mark on the other side; and

(*d*) the buoy has the following characteristics:

(i) the name, address and telephone number of the owner of the works is displayed on it in a conspicuous location and in a legible manner,

(ii) the part of the buoy that shows above the surface of the water is at least 15.25 cm wide and at least 30.5 cm high,

(iii) the top third of the buoy is orange and the rest of it is white, and

Systèmes d'amarrage

Définitions

13. (1) Les définitions qui suivent s'appliquent au présent article.

«aire d'évitage» *"swing area"*

«aire d'évitage» Le diamètre d'un cercle créé par le mouvement d'un bateau arrimé à un système d'amarrage.

«longueur» *"length"*

«longueur» S'agissant d'un bateau, la distance mesurée entre l'extrémité avant et l'extrémité arrière du bateau.

«système d'amarrage» *"mooring system"*

«système d'amarrage» Système qui est utilisé pour arrimer un bateau et qui consiste en une ancre mouillée dans ou sur le lit d'eaux navigables, une seule ligne d'ancrage, une seule bouée et une ligne d'amarre qui s'attache à un bateau.

Catégorie d'ouvrages

(2) Les systèmes d'amarrage sont établis comme catégorie d'ouvrages pour l'application du paragraphe 5.1(1) de la Loi si les conditions suivantes sont réunies :

a) l'aire d'évitage des ouvrages n'est :

(i) ni à 20 m ou moins d'un ouvrage, autre qu'un pipeline ou un câble aérien ou sous-marin, qui n'appartient pas au propriétaire des ouvrages,

(ii) ni à 20 m ou moins d'une aire d'évitage d'un autre ouvrage de la catégorie établie par le présent paragraphe,

(iii) ni à 50 m ou moins d'une marina, d'une rampe de mise à l'eau publique ou d'un chenal de navigation;

b) les ouvrages ne sont pas associés à une marina existante ou projetée;

c) la largeur des eaux navigables, mesurée de la laisse des hautes eaux ordinaires d'un côté des eaux à la laisse des hautes eaux ordinaires de l'autre côté, est supérieure à 100 m;

d) la bouée possède les caractéristiques suivantes :

(i) elle porte bien en vue une inscription lisible, indiquant les nom, adresse et numéro de téléphone du propriétaire des ouvrages,

(ii) sa partie qui émerge de l'eau mesure au moins 15,25 cm de largeur et au moins 30,5 cm de hauteur,

(iv) the buoy displays, on opposite sides, the capital letters "PRIV", which are in black and are as large as is practicable for the size of the buoy.

Swing area

(3) For the purposes of subparagraphs (2)(*a*)(i) and (ii), the swing area of a vessel is considered to be the area set out in column 1 of the table to this subsection when the navigable water has the depth set out in column 2

(*a*) at the higher high-water mean tidewater level, in the case of tidal waters; or

(*b*) at the 10-year high-water level, in any other case.

TABLE

Item	Column 1 Swing Area	Column 2 Depth of Navigable Water
1.	50 m	6 m or less
2.	70 m	More than 6 m but not more than 10 m
3.	80 m	More than 10 m but not more than 14 m
4.	100 m	More than 14 m

Buoys and anchors

(4) The owner of the works must

(*a*) ensure that

(i) the buoy maintains the characteristics described in paragraph (2)(*d*) during the navigation season, and

(ii) the anchor remains in the position in which it was set in or on the bed of the navigable water; and

(*b*) comply with any order made under section 5 of the *Private Buoy Regulations* in respect of the buoy.

Mooring of vessels and removal of works

(5) The owner of the works

(*a*) must not moor, or permit the mooring of, a vessel that is more than 12 m in length to the works; and

(*b*) must remove the works if

(i) any part of the works is removed, or

(ii) during any two-year period, no vessel has moored to the works.

COMING INTO FORCE

3. This Order comes into force on the day on which it is made.

[16-1-o]

(iii) son tiers supérieur est orange et le reste est blanc,

(iv) elle porte, sur des côtés opposés, les lettres majuscules « PRIV », lesquelles sont en noir et sont aussi grandes que possible, compte tenu des dimensions de la bouée.

Aire d'évitage réputée

(3) Pour l'application des sous-alinéas (2)*a*)(i) et (ii), l'aire d'évitage d'un bateau est réputée être celle figurant à la colonne 1 du tableau du présent paragraphe lorsque les eaux navigables sont d'une profondeur figurant à la colonne 2, dans les cas suivants :

a) dans le cas des eaux à marée, au niveau de la ligne de la pleine mer supérieure de marée moyenne;

b) dans tout autre cas, au niveau d'eau le plus élevé en dix ans.

TABLEAU

Article	Colonne 1 Aire d'évitage	Colonne 2 Profondeur des eaux navigables
1.	50 m	6 m ou moins
2.	70 m	Plus de 6 m mais 10 m ou moins
3.	80 m	Plus de 10 m mais 14 m ou moins
4.	100 m	Plus de 14 m

Bouées et ancres

(4) Le propriétaire des ouvrages est tenu :

a) de veiller à ce que les conditions suivantes soient respectées :

(i) la bouée conserve les caractéristiques figurant à l'alinéa (2)*d*) durant la saison de navigation,

(ii) l'ancre reste où elle a été mouillée dans ou sur le lit des eaux navigables;

b) de se conformer aux ordres donnés en vertu de l'article 5 du *Règlement sur les bouées privées* concernant la bouée.

Amarrage d'un bateau et enlèvement d'ouvrages

(5) Le propriétaire des ouvrages :

a) ne peut ni amarrer, ni permettre d'amarrer, aux ouvrages un bateau d'une longueur de plus de 12 m de longueur;

b) est tenu d'enlever les ouvrages dans les cas suivants :

(i) une partie des ouvrages est enlevée,

(ii) durant une période de deux ans, aucun bateau n'a été amarré aux ouvrages.

ENTRÉE EN VIGUEUR

3. Le présent arrêté entre en vigueur à la date de sa prise.

[16-1-o]

Measures to avoid causing harm to fish and fish habitat including aquatic species at risk

If you are conducting a project near water, it is your responsibility to ensure you avoid causing serious harm to fish in compliance with the Fisheries Act and avoid contravening SARA prohibitions. The following advice will help you avoid causing harm and comply with both Acts.

PLEASE NOTE: This advice applies to all project types and replaces all "Operational Statements" previously produced by DFO for different project types in all regions. Projects near water must also comply with the pollution prevention provisions of the Fisheries Act.

Measures

Project planning

Timing

- Time work in water to respect timing windows to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed.
- Minimize duration of in-water work.
- Conduct instream work during periods of low flow, or at low tide, to further reduce the risk to fish and their habitat or to allow work in water to be isolated from flows.
- Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.

Site selection

- Design and plan activities and works in waterbody such that loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided, and impacts to SARA-listed aquatic species, their residences or critical habitat are avoided.
- Design and construct approaches to the waterbody such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.
- Avoid building structures on meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of the stream bed or the built structures.
- Undertake all instream activities in isolation of open or flowing water to maintain the natural flow of water downstream and avoid introducing sediment into the watercourse.

Contaminant and spill management

- Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals do not enter the watercourse.
- Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.

- Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.

Erosion and sediment control

- Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear. The plan should, where applicable, include:
    - Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.
    - Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.
    - Site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, underwater cable installation).
    - Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.
    - Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction.
    - Repairs to erosion and sediment control measures and structures if damage occurs.
    - Removal of non-biodegradable erosion and sediment control materials once site is stabilized.

Shoreline/bank re-vegetation and stabilization

- Clearing of riparian vegetation should be kept to a minimum: use existing trails, roads or cut lines wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction. When practicable, prune or top the vegetation instead of grubbing/uprooting.
- Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of the waterbody below the ordinary high water mark. If material is removed from the waterbody, set it aside and return it to the original location once construction activities are completed.
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.

- Restore bed and banks of the waterbody to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that does not obstruct fish passage should be restored.
- If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
- Remove all construction materials from site upon project completion.
- Species at Risk Do not remove riparian vegetation if the riparian area is identified as part of critical habitat of an aquatic listed species at risk.

Fish protection

- Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows, or result in the stranding or death of fish.
- Retain a qualified environmental professional to ensure appropriate protocols are applied, and applicable permits for relocating fish are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters. Fish may need to be relocated again, should flooding occur on the site.

SARA-listed aquatic species

Any capture and relocation of an endangered or threatened aquatic species at risk will require approval from DFO. See the protocols for the detection and relocation of certain aquatic species at risk.

- Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.
    - In freshwater, follow these measures for design and installation of intake end of pipe fish screens to protect fish where water is extracted from fish-bearing waters:
        - Screens should be located in areas and depths of water with low concentrations of fish throughout the year.
        - Screens should be located away from natural or artificial structures that may attract fish that are migrating, spawning, or in rearing habitat.
        - The screen face should be oriented in the same direction as the flow.
        - Ensure openings in the guides and seals are less than the opening criteria to make "fish tight".
        - Screens should be located a minimum of 300 mm (12 in.) above the bottom of the watercourse to prevent entrainment of sediment and aquatic organisms associated with the bottom area.
        - Structural support should be provided to the screen panels to prevent sagging and collapse of the screen.

    - Large cylindrical and box-type screens should have a manifold installed in them to ensure even water velocity distribution across the screen surface. The ends of the structure should be made out of solid materials and the end of the manifold capped.
    - Heavier cages or trash racks can be fabricated out of bar or grating to protect the finer fish screen, especially where there is debris loading (woody material, leaves, algae mats, etc.). A 150 mm (6 in.) spacing between bars is typical.
    - Provision should be made for the removal, inspection, and cleaning of screens.
    - Ensure regular maintenance and repair of cleaning apparatus, seals, and screens is carried out to prevent debris-fouling and impingement of fish.
    - Pumps should be shut down when fish screens are removed for inspection and cleaning.
- Avoid using explosives in or near water. Use of explosives in or near water produces shock waves that can damage a fish swim bladder and rupture internal organs. Blasting vibrations may also kill or damage fish eggs or larvae.

Operation of machinery

- Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
- Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody.
- Limit machinery fording of the watercourse to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the watercourse are required, construct a temporary crossing structure.
- Use temporary crossing structures or other practices to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds. For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording.
- Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
- Species at Risk Do not ford, place crossing materials or operate machinery on the bed of a waterbody where SARA-listed shellfish occur, or critical habitat or residences of freshwater SARA-listed aquatic species occur.