

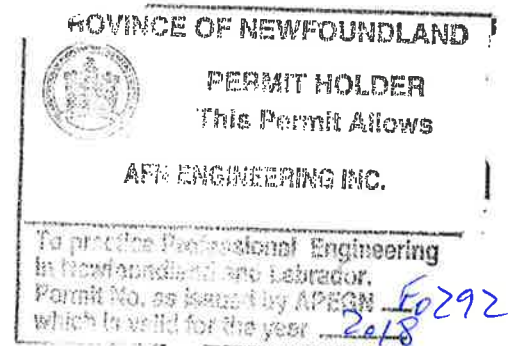
SPECIFICATION
SHORELINE PROTECTION
PARSON'S POND, NL
722613

PREPARED FOR

Fisheries and Oceans Canada

DATE

July 17, 2018
Revision 2



LIST OF DRAWINGS

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DRAWING NO

TITLE

Cover Sheet

C1 of 3

Sounding and Topographic Survey

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New Site Plan

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Sections

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- 1.1 SCOPE .1 The work consists of the furnishing of all plant, labour, equipment and material for shoreline protection at Parson's Pond, NL, in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of the Contract.
- 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 Demolition and removal of old cribwork.
 - .2 Supply and installation of geogrid material as noted on the drawings.
 - .3 Supply and installation of filter stone (400-800kg size).
 - .4 Supply and installation of armour stone (4-6 tonne size). Note that excavation of the existing bottom will be required to "toe-in" the armour stone, as shown on the drawings. Dredge material to be removed from site and disposed of at an approved waste disposal site.
- 1.3 SITE OF WORK .1 Work will be carried out at Parson's Pond, NL, in the location shown on the accompanying drawings.
- 1.4 DATUM .1 Datum used for this project is Lowest Normal Tide (LNT). Confirm a benchmark with the Departmental Representative prior to construction.
- .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.

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- 1.5 FAMILIARIZATION WITH SITE
- .1 Before submitting a bid, Bidders can visit the site and its surroundings at their own expense and schedule, 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.
- .3 Obtain prior permission from the Departmental Representative before carrying out such site inspection.
- 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.

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- .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.

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- .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.

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- 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 MEETINGS
- .1 Departmental Representative will arrange 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

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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

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- .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, 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. This includes provisions of the CEAA documents and other regulatory submission documents which will be provided by the Departmental

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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 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

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position of various services and equipment when required by Departmental Representative.

- 1.21 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.
- 1.22 NOTICE TO SHIPPING/MARINERS .1 Notify the Marine Communications and Traffic Services' Centre, of Fisheries and Oceans Canada, at (709) 772-2083, 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.
- 1.23 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.
- 1.24 WORKS COORDINATION .1 Responsible for coordinating the work of the various trades, where the work of such trades interfaces with each other.

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- .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.

1.25 CONTRACTOR'S
USE OF SITE

- .1 Construction operations, including storage of materials for this contract, not to interfere with the normal activity and/or operations at this work site.
- .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 Exercise care so as not to obstruct or damage public or private property in the area.
- .4 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.

1.26 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.

1.27 FACILITY
SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions.

1.28 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 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
 - .4 Tests requested by Departmental Representative to confirm material specifications when the applicable manufacturer's documentation or test results are unavailable.
 - .5 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
RESPONSIBILITIES

- .1 Provide labour, equipment and facilities 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, where required.
- .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.

- 1.1 SECTION INCLUDES .1 Fire Safety Requirements.
- .2 Hot Work Permit.
- 1.2 RELATED WORK .1 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 National Fire Code - Standard for Construction Operations - latest edition (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/301/page00.shtml).
- .2 National Fire Code - Standard for Welding and Cutting - latest edition (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 Labour Canada Office located at Baine Johnson Centre, 10 Fort William Place, St. John's, NL, A1C 1K4; Telephone 1-800-641-4049; fax 1-709-772-5985.
- 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.
- 1.6 FIRE SAFETY .1 Implement and follow fire safety measures

REQUIREMENTS

during Work. Comply with following:

- .1 National Fire Code, latest edition.
- .2 Fire Protection Standards FCC 301 and FCC 302 - latest edition.
- .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 RELATED WORK .1 Section 01 35 24 - Special Procedures on Fire Safety 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 as directed by the Departmental Representative.
- .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/](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](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 conditions.
 - .5 Potential structural weakness of existing grounds.
 - .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.

- .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.

1.13 HEALTH AND SAFETY PLAN

- .3 Keep documents on site.
- .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 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.

1.19 HAZARDOUS
PRODUCTS

- .2 Submit report in writing.
- .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
ACTUATED DEVICES

- .1 Use powder actuated fastening devices only 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.

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- 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

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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

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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.

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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.

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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.

1.2 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.

1.3 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 Tests as specified within various

sections designated to be carried out by Contractor under the supervision of Departmental Representative.

.4 Additional tests specified in Clause 1.3.2.

- .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.

1.4 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.

1.5 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.

- 1.6 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.
- 1.7 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.

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- 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 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.
- 1.4 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.
- 1.5 WATER SUPPLY .1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.
- 1.6 SCAFFOLDING .1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with CSA797-09.

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

1.7 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.

1.8 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 as required by governing authorities and to approval of Departmental Representative.
- 1.5 ACCESS TO SITE .1 Provide and maintain access to adjacent 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.

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.
- 1.2 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.
- 1.3 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.

1.4 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.

1.5 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.

1.6 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.

1.7 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.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Materials and installation of polypropylene grids, purpose of which is to:
- .1 Separate and prevent mixing of granular materials of different grading and prevent settling of rock into loose sediment.
 - .2 Act as hydraulic filters permitting passage of water while retaining soil strength of granular structure.
- 1.2 RELATED WORK .1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- 1.3 REFERENCES .1 American Society for Testing and Materials (ASTM)
- .1 ASTM D4491-99a(2004)e1, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 - .2 ASTM D4595-05, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
 - .3 ASTM D4716-04, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
 - .4 ASTM D4751-04, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- .2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-4.2-M88, Textile Test Methods.
 - .2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Geomembranes.

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- .1 No.2-M85, Mass per Unit Area.
- .2 No.3-M85, Thickness of Geotextiles.
- .3 No.7.3-92, Grab Tensile Test for Geotextiles.
- .4 No.6.1-93, Bursting Strength of Geotextiles Under No Compressive Load.

- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel.
 - .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.4 SAMPLES

- .1 Submit samples as directed by the Departmental Representative.
- .2 Submit to Departmental Representative the following samples at least 2 weeks prior to commencing work.
 - .1 Minimum length of 1 m of roll width of geotextile.

1.5 MILL CERTIFICATES

- .1 Submit to Departmental Representative a copy of mill test data and certificate at least 2 weeks prior to start of work.

1.6 DELIVERY AND STORAGE

- .1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

PART 2 - PRODUCTS

- 2.1 MATERIAL .1 Polypropylene geogrid as noted on the drawings, to be LP30X, bi-axial geogrid to ASTM D4595 by Layfield Plastics, or approved equal.

PART 3 - EXECUTION

- 3.1 INSTALLATION .1 Place bi-axial geogrid in area shown on drawings.
- .2 Place material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position to approval of Departmental Representative.
- .3 Place material smooth and free of tension stress, folds, wrinkles and creases.
- .4 Place material to manufacturer's written instructions.
- .5 Overlap each successive strip of material minimum of 600 mm over previously laid strip, or as otherwise recommended by manufacturer.
- .6 Join successive strips of material by sewing, or otherwise recommended by manufacturer.
- .7 Protect installed material from displacement, damage or deterioration before, during and after placement of rock material layers.
- .8 Replace damaged or deteriorated material

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to approval of Departmental
Representative.

3.2 PROTECTION

- .1 Vehicular traffic not permitted directly
on geotextile.

PART 1 - GENERAL

- 1.1 DESCRIPTION .1 This specification section includes the requirements for dredging, and disposal of dredged materials.
- .2 That under this contract, DFO will only accept sounding depths done by DFO or PSPC survey crew for final verification of the required grade depth. Any sounding depths shallower than 0.1m of the required grade depth will have to be re-dredged by the Contractor until the proper depth is achieved.
- .3 All dredging is considered Class "B" dredging. Refer to subsection 1.3 for the definition of Class "B" dredging.
- 1.2 INSPECTION OF SITE .1 Contractor to visit site of work and become thoroughly familiar with extent and nature of work and conditions affecting work before bidding. Contractor is to note that this location is very exposed ice, wind and swells and dredging operations will be limited due to weather conditions.
- 1.3 DEFINITIONS .1 Dredging: excavating, transporting and disposing of underwater materials.
- .2 Class A material: solid rock requiring drilling and blasting to loosen, and boulders or rock fragments of individual volumes 6 m³ or more.
- .3 Class B material: loose or shale rock, silt, sand, quick sand, mud, shingle, gravel, clay, sand, gumbo, large boulders, hardpan and debris of individual volumes less than 6 m³.
- .4 Obstructions: material other than Class A, having individual volumes of 6 m³ or more.

- .5 CPM: cubic metres place measurement.
- .6 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials.
- .7 Estimated quantity:
 - .1 Volume of material calculated to be above grade and within specified limits shown on the drawings.
- .8 Chart Datum: permanently established plane from which soundings or tide heights are referenced, usually Lowest Normal Tide (LNT).
- .9 Lowest Normal Tide (LNT): plane so low that tide will seldom fall below it.
- .10 Cleared Area: area of dredging accepted as achieving the required grade and verified by a PWGSC survey.

1.4 REGULATORY REQUIREMENTS

- .1 There are strict environmental procedures that must be followed during the Work.
- .2 Comply with municipal, provincial and national codes and regulations relating to project.

1.5 SCHEDULING

- .1 Submit to Departmental Representative, within 2 weeks after acceptance of bid, schedule of work including time periods during which each operation involved in Work will be undertaken. At time of submission of schedule, meet with Departmental Representative to review schedule.
- .2 Adhere to schedule and take immediate action to correct any slippage by effectively altering operations or mobilizing other equipment. Notify Departmental Representative of corrective action to be

taken.

- 1.6 LOCATION .1 Work comprises dredging of areas as indicated on the drawing. Contractor to become familiar with the distance to the dredging limits, and plan his dredging methodology accordingly. All measures required to achieve the dredge depths and limits shown on the drawing are the responsibility of the Contractor. There will be no temporary dredge roads permitted in the channel/harbour.
- 1.7 INTERFERENCE TO NAVIGATION .1 Be familiar with vessel movements and fishery activities in area affected by dredging operations. Plan and execute Work in manner that will not interfere with fishing operations, marine operations and construction activities at wharf site.
- .2 Departmental Representative will not be responsible for loss of time, equipment, material or any other cost related to interference with moored vessels in channel/harbour or due to other Contractor's operations.
- .3 Keep the Marine Communications and Traffic Services' Centre, Fisheries and Oceans Canada, informed of dredging operations in order that necessary Notices to Mariners will be issued.
- 1.8 DATUM, WATER GAUGES AND TARGETS .1 Elevations used in this specification and contract drawings are in metres referred to Canadian Hydrographic Services Survey datum.
- .2 Areas to be dredged are to be referenced to vertical bench marks for each location of dredging as indicated.
- 1.9 FLOATING PLANT .1 Dredges or other floating plants to be employed on this Work, to be of Canadian

registry, make or manufacture, or, must receive certificate of qualification from Industry Canada, Aerospace, Defence and Marine Branch and this certificate to accompany bid submission.

1.10 SITE
INFORMATION

- .1 Results of most recent soundings and uplands elevations are included on the drawings. This data will be used for all calculations for quantity purposes. If the contractor wishes to perform own survey, a written notice must be submitted to the Departmental Representative (at least 7 days notice) so PWGSC can verify the sounding survey before the commencement of any work.
- .2 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.

1.11 SURVEY
REQUIREMENTS

- .1 Provide, at own expense, survey vessel, equipment and crew to set up and maintain control for location of dredge limits and to sound areas immediately after dredging to verify that grade depth has been attained. Areas are to be sounded to provide sounding printout display of at least 2 x 2 m UTM grid to approval of Departmental Representative.

1.12 SURVEYS AND
ACCEPTANCE OF WORK

- .1 No area will be dredged prior to Departmental Representative and Contractor's mutual acceptance of the existing sounding and topographical survey data included on the drawings.
- .2 A survey will be undertaken by Departmental Representative upon completion of dredging. Survey will confirm if dredging is completed as specified and whether area can be considered cleared area. Survey will be by electronic sweep equipment. Survey plan at

1:250 plotting least of minimum depths obtained in this survey will identify areas requiring reworking to obtain following elevations using least of minimum mode.

- .3 Contractor to re-dredge as necessary to remove all material which is found to be above grade using the least of minimum mode elevations as specified herein.
- .4 One additional survey will be undertaken at Departmental Representative's cost, for those areas not meeting acceptance criteria for dredging. All additional surveys required to clear areas will be undertaken by the Departmental Representative at Contractor's cost.

1.13 MEASUREMENT
FOR PAYMENT

- .1 Dredging: Dredging will be measured in cubic metres, determined from existing seabed elevation established from the current sounding survey down to grade depth elevation within pay limits shown on drawings. Quantities will be determined by the Departmental Representative after dredging survey is completed by using electronic sounding and DPGS positioning equipment. The Departmental Representative will verify that the Contractor has performed dredging to the specified grade depth. No payment will be made for over-dredging. DFO will conduct an interim and final survey. The Contractor will formally request at least seven (7) days in advance that the final after-dredging survey be performed upon completion of dredging. The survey will be dependent on the weather. If the survey and inspection shows that all material has not been removed, the Contractor is to re-dredge to obtain grade depth. The Contractor will perform a sounding survey, using a method approved by the Departmental Representative to verify that the specified dredge depth has been obtained. The

Departmental Representative will then perform a third survey for final verification of dredge depth. This third sounding survey and any subsequent surveys will be at the cost of the Contractor.

- .2 Dredged material to be disposed of at an approved waste site.
- .3 No separate payment will be made for Contractor's survey vessel, equipment and crew or diving services.
- .4 There will be no additional payment for delays and/or downtime for vessel traffic, fishery operations, marine operations, during periods when no dredging is permitted. Contractor should contact the Harbour Authority to determine schedules of operations.
- .5 There will be no additional payment for downtime and for delays caused by vessel traffic or other activities associated with the site operations.
- .6 Removal of infilling material that occurs during dredging operations will be the Contractors responsibility. This will not be measured for payment.
- .7 No separate payment will be made for sweeping.

PART 2 - PRODUCTS

2.1 DREDGING EQUIPMENT

- .1 Contractor to determine required equipment necessary to dredge material specified.

PART 3 - EXECUTION3.1 GENERAL

- .1 Mark floating equipment with lights in accordance with the provisions of the Canada Shipping Act Collision Regulations and Notices to Mariners.
- .2 Place and maintain buoys, markers and lights required to define work and disposal areas.
- .3 Lay out Work from control points and baselines established by Departmental Representative. Be responsible for accuracy of Work relative to established bench marks and baseline. Provide and maintain electronic position fixing and distance measuring equipment, laser transits and such other equipment as normally required for accurate dredging control.
- .4 Establish and maintain water level gauges or tide boards in order that proper depth of dredging can be determined. Locate gauges and tide boards so as to be clearly visible.
- .5 Establish and maintain on-land targets for location and definition of designated dredge area limits. Targets to be suitable for control of dredging operations and locating soundings. Remove targets on completion of Work.
- .6 Dredge area to grade depths indicated on the drawing.
- .7 Dredge side slopes are not measured for payment. The limits shown on the drawings are the toe of the dredge slope.
- .8 Remove materials above specified grade depths within limits indicated. Material removed from below grade depth or outside specified area is not part of Work.

- .9 Remove shoaling which occurs as a result of Work at no expense to Canada.
- .10 Remove material cast-over in surrounding area and dispose of it as dredged material. Do not cast-over material unless authorized by Departmental Representative.
- .11 Remove infilling in dredge areas which occurs prior to acceptance by Departmental Representative.
- .12 Immediately notify Departmental Representative upon encountering object which might be classified as obstruction. By-pass object after clearly marking its location and continue Work.
- .13 Dispose of all dredged material as noted on the drawings.
- .14 All trucks used in the transportation of dredged material to have tail gates with seals in good working order so as to prevent leakage of material or water from the truck. Truck boxes must be covered prior to leaving the site. Any trucks failing to meet these requirements will be rejected.
- .15 Dredged material that is saturated with water must be drain back into the dredged area prior then leaving site for disposal location. Contractor to take appropriate actions to ensure any excess water or saturated material in dump truck boxes is contained.
- .16 Dredged material must not be loaded from any areas on the existing wharf infrastructure.
- .17 If required by the Regulatory agencies, the Contractor to install containment/silt boom around area dredging or the entire site as he completes the dredging.

- .18 Sweep dredged areas on completion of dredging to confirm that grade depth has been achieved.
- .19 Sweeping equipment may consist of heavy steel beam suspended from scow or any necessary equipment to sweep at required grade depth of other approved method. Beam to be capable of adjustment and calibration and approved by Departmental Representative.
- .20 If, as result of incomplete Work, additional verification of depths by sounding or sweeping becomes necessary, additional costs involved shall be paid by Contractor.
- .21 Re-dredge unsatisfactory Work and verify depths with additional sounding or sweeping to approval of Departmental Representative.
- .22 Co-operate with Departmental Representative on inspection of Work and provide assistance requested. On request of Departmental Representative, furnish use of such boats, equipment, labour and materials forming ordinary and usual party of dredging plant as may be reasonably necessary to inspect and supervise Work.

PART 1 - GENERAL

1.1 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.

1.2 SUBMITTALS

- .1 Samples
 - .1 Submit samples as directed by Departmental Representative.
 - .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.

1.3 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

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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.

1.4 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.

1.5 MEASUREMENT FOR PAYMENT

- .1 Filter Stone: Measured in cubic metres of material and supplied and placed (CMPM) in the work within the limits specified on the drawings.
- .2 Armour Stone: Measured in cubic metres of material and supplied and placed (CMPM) in the work within the limits specified on the drawings.
- .3 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.
- .4 There will be no additional payment for delays caused by vessel traffic.

- .5 There will be no additional payment for downtime.
- .6 There will be no payment for any filter stone or armour stone that is washed out, removed, missing or deteriorated by weather or wave action.
- .7 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.
- .8 Construction, maintenance and removal of haul roads will not be measured for payment.
- .9 There will be no additional payment for the geotextile and polypropylene geogrid
- .10 There will be no payment for excavation associated with "toeing in the armour stone", as noted on the drawings.

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 FILTER STONE

- .1 Material for filter stone to be blasted rock or field stones.
- .2 Stone size to be well graded between 400 kg to 800 kg, in categories specified, well graded within each category.
- .3 Greatest dimension of each stone not to exceed two (2) times the least dimension.

2.3 ARMOUR STONE

- .1 Material for armour stone to be blasted rock or field stones.
- .2 Stone sizes to be in the range of 4 to 6 tonnes, in categories specified, well graded within each category.
- .3 Greatest dimension of each stone not to exceed two (2) times least dimension.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Take precautions not to damage existing properties during hauling of rock materials. Damage to existing roads or other private or public properties will be repaired at the Contractor's expense.

3.2 PREPARATION

- .1 Haul roads: construct and maintain haul roads.

3.3 FILTER STONE

- .1 Place filter stone layers to grades, dimensions, profiles and cross sectional elements indicated on the drawings.

- .2 Place filter stone in layers as indicated on the drawings.
- .3 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.
- .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, measurement for payment for this will be included in the cost of the supply and installing the above item.

3.4 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 1.5 horizontal to 1.0 vertical unless otherwise 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. Measurement for payment for this work will be included in the cost of the supply and installing the above item.

3.5 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 work area 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.

3.6 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 Filter stone +/-100 mm.
 - .2 Armour stone +/-300 mm.