Department of Fisheries and Oceans
Small Craft Harbours
SWIMS POINT
SHELBURNE COUNTY
Wavebreak Replacement

Index of Clauses

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List of Drawings

Drawing No.	Title
Sheet 1 of 2	Plan, Section, Elevation and Details
Sheet 2 of 2	Details

1. Documents Required .1 Maintain at job site, one copy each of following:
   .1 Contract drawings
   .2 Specifications
   .3 Addenda
   .4 Reviewed shop drawings/submissions
   .5 Change orders
   .6 Other modifications to Contract
   .7 Field test reports
   .8 Copy of approved work schedule
   .9 Manufacturer's installation and application instructions

2. Work Schedule And Completion Dates .1 Prepare and submit to the *Departmental Representative* within 5 days of notification of Contract award, one copy of the construction schedule in the form of a bar chart showing the dates for commencement and completion of each major activity of the work, including the work of subcontractors; dates for submissions, review and return of shop drawings, etc.; the dates of Substantial and Final Completion; and intended man hours of labour and equipment for each major item of work. If the schedule as submitted is unacceptable in any way, submit without delay a revised schedule satisfactory to the *Departmental Representative*.

.2 The *Departmental Representative* is to notify the Contractor in writing of acceptance of the Construction Schedule. Comply with the Construction Schedule at all times. If, for any reason, the Construction Schedule is not followed, immediately notify the *Departmental Representative* of the change and submit a revised schedule for acceptance. Upon written acceptance by the *Departmental Representative*, this schedule will become the Construction Schedule.

.3 Whenever required, give further written particulars concerning this schedule. The

submission to and acceptance by the *Departmental Representative* of the Contractor's Construction Schedule or the furnishing of details and particulars thereto will not relieve the Contractor of any duties and responsibilities under the Contract.

3. Measurement Responsibilities

.1 Notify *Departmental Representative* sufficiently in advance of operations to permit required measurements for payment purposes.

4. Contractor's Use of Site

.1 Co-operate with users of existing facilities.

.2 Should interference's occur, take directions from *Departmental Representative*.

.3 Do not unreasonably encumber site with materials or equipment.

.4 Move stored products or equipment which interfere with operations of *Departmental Representative* or other Contractors.

.5 Obtain and pay for use of additional storage or work areas needed for operations.

.6 Comply with all regulations and authorities having jurisdiction over the work, whether on land or on water.

.7 Ensure no damage occurs to existing structures as a result of operations. Any said damage will be repaired at Contractor's expense.

.8 Provide temporary barriers and warning signs in location where work is adjacent to areas used by public.

5. Codes and Standards

.1 Perform work in accordance with National Building Code of Canada (NBC) and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements will apply.

.2 Meet or exceed requirements of specified standards, codes and referenced documents. When a standard or code is outdated, the latest edition will supersede the referenced date.

.3 Observe and enforce construction safety measures by Canadian Construction Safety Code and Construction Safety Code of Nova Scotia. In the event of conflict between any provisions of above authorities the most stringent provision will apply.

6. Project Meetings

.1 *Departmental Representative* will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

7. Setting Out of Work

.1 Do all detail surveys necessary for the work, including locating and maintaining working points, and establishing lines and elevations. Perform all layout work, and carefully preserve benchmarks, reference points and stakes.

.2 Provide such masts, scaffolds, batter boards, lines, straight edges, templates and other devices as may be necessary to facilitate layout, construction and inspection of the work. Whenever necessary, suspend work for such reasonable time as may be necessary to permit the *Departmental Representative* to check or inspect any portion of the Work. The Contractor will not be allowed any extra compensation or time for completion because of this suspension of work.

.3 Elevations for the various grades and features of the specified works to be referenced and properly related to a benchmark, which will be approved by the *Departmental Representative*.

.4 Verify all grades, lines, levels, and dimensions shown on the drawings and report any errors or inconsistencies to the *Departmental Representative* before commencing work. Provide and maintain well built batterboards at all points to facilitate the progress of the work. Establish all other grades, lines, levels required to facilitate the work.

8. 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 pedestrian and vehicular traffic.

.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 acceptance from *Departmental Representative* for any shut-down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.

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

9. Contract Documents .1 Contract Drawings:

.1 The drawings for the Work consist of all drawings listed in these "Plans And Specifications" and any additional drawings issued at a later date by the *Departmental Representative*.

.2 *Departmental Representative* may furnish additional drawings to assist in proper execution of work. These drawings will be issued for clarification only. Such drawings will have same meaning and intent as if they were included with plans referred to in Contract Documents.

.3 The drawings indicate the extent and general dimensions of the work. Make all necessary measurements to ensure that the result of the work is in accordance with the intent.

.4 Verify all existing conditions in field prior to proceeding with work.

.2 Contract Specifications:

.1 The general requirements and technical specifications are written solely for the General Contractor. They are organized into the NMS format of separate divisions and sections.

.2 Specification language is of the 'Short Form type' for example, where the word "provide" occurs, interpret it to mean "the Contractor shall furnish all labour, material and equipment necessary to complete the work".

.3 This Specification and accompanying drawings are intended to describe and provide for a finished project. They are intended to be complementary, and what is called for by either will be as binding as if called for by both. The Contractor shall understand that the work herein described will be complete in every detail, notwithstanding that every item necessarily involved is not particularly mentioned, and Contractor will be held to provide all labour,

materials and equipment necessary for the entire completion of the work and will not avail himself of any errors or omissions.

10. Permits and Regulations

.1 Apply for, obtain and pay for all necessary permits, approvals and other authorizations required for the work.

.2 Comply with all by-laws, ordinances and regulations of all authorities having jurisdiction.

.3 Pay for any Municipal permits, per General Conditions as stated in the contract.

11. Cutting, Fitting and Patching

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

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

.3 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work.

.4 Obtain *Departmental Representative*'s approval before cutting, boring or sleeving, or excavating adjacent to load-bearing members.

12. Record of Construction

.1 As work progresses, maintain accurate records to show all deviations from the contract drawings, with particular reference to work which will be concealed. Prior to the inspection of the work for the issuance of the Final Certificate of Completion, provide the *Departmental Representative* with one set of white prints of the drawings with all deviations shown neatly thereon.

.2 Provide "as built" cross sections of any excavation, dredging or fill work.

13. Payment

.1 Payment for all work under this contract to be according to the Contract.

.2 No separate payment will be made for work specified under any sections of Specification under Division 01. The cost of this work is to be considered as overhead and to be included in the lump sum of the Contract.

.3 Dimensional changes as directed by the *Departmental Representative* to suit existing conditions, but not resulting in additional work or materials, will not be considered as extra to the Contract.

14. Site Examination

.1 All parties tendering should visit the site of the work prior to submission of tenders and make themselves thoroughly acquainted with site conditions, conditions of existing objects to be removed, tides, degree of exposure and all information necessary for the proper carrying out of the work covered by the drawings and this Specification. Submission of Tender will be deemed that Contractor is conversant with site conditions.

.2 The *Departmental Representative* will give no consideration whatsoever to any claim by the Contractor resulting from failure to have made all the necessary investigations prior to tendering.

15. Maintenance of Shipping

.1 Liaise with the local port officials to coordinate activities such that any interference is minimized.

16. Cooperation & Assistance to Departmental

Representative .1 Co-operate with *Departmental Representative* on inspection of work.

.2 Provide assistance when requested.

.3 Provide small motor boat with operator and sounding chain for *Departmental Representative*'s use when requested.

17. Datum .1 The datum referred to in this Specification is Chart Datum. Chart Datum is, by International Agreement a plane below which the tide will seldom fall. The Canadian Hydrographic Service has adopted the plane of the lowest normal tide (L.N.T.) as Chart Datum. As the rise, fall, and range of tides varies daily, the Canadian Tide and Current Tables, as issued by the Canadian Hydrographic Service, should be consulted for tidal predictions and other tidal information relating to the work.

18. Contractor's Representative .1 Continuously maintain on the site an authorized representative to whom communication may be addressed and who will be competent to speak for the Contractor in discussing work methods.

19. Workers Compensation .1 Contractor and all sub-contractors must be registered under the Workers Compensation Act and provide evidence of good standing.

.2 At completion of Contract and before final payment is made, the Contractor will present to the *Departmental Representative* a Letter of Certification from the Workers Compensation Board, showing that all required assessments are paid in connection with all trades.

20. Laws, Standards Taxes and Fees .1 Comply with all laws and standards governing all or any part of the work, pay all applicable taxes and pay for all permits and certificates required in respect of the

execution of the work. Where variances exist between the requirements of agencies governing all or any part of the work, the most restrictive will govern, but in no instance will the standards established by the drawings and this Specification, which exceed such requirements, be reduced.

21. Protection and Repair

.1 Repair any damage resulting from operations under this contract.

22. Location of Equipment and Fixtures

.1 Location of equipment, fixtures or any appurtenances indicated are to be considered approximate.

23. Inspection and Testing

.1 The *Departmental Representative* may employ an Inspector and/or Testing Company to ensure work conforms with contract.

24. Disposal of Debris

.1 Debris, including construction materials not incorporated in the work, oil products and containers, and other materials of this nature will be disposed of in suitable locations off the site. This includes costs of disposing of contaminated materials such as creosote treated timber. Disposal is the responsibility of the Contractor.

.2 Material from the work will not be permitted to go adrift or otherwise become a menace to navigation.

25. Relics And Antiquities

.1 Protect relics, antiquities, items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found during course of work.

.2 Give immediate notice to *Departmental Representative* and await written

instructions before proceeding with work in this area.

.3 Relics, antiquities and items of historical or scientific interest remain her Majesty's property.

PROJECT PARTICULARS

1. Description of Work

.1 The work under this contract involves constructing and installing two wavebreaks at Swims Point, Small Craft Harbour (SCH), Shelburne County, Specific locations of installation of wavebreaks will be determined in the field in consultation with the Harbour Authority. Two existing wavebreaks will be identified for removal and disposal. The contractor is responsible for the removal and disposal of the two (2) existing wavebreaks identified for replacement.

PROJECT MEASUREMENT

1. General

.1 This section details the measurement method to be used for payment purposes.

2. Measurement For Payment

.1 The work under this contract will be measured for payment by the lump sum basis. The contractor will be requested to provide a breakdown of the lump sum items for payment purposes.

1. General
.1 Submit to *Departmental Representative*, for review, shop drawings, product data, samples and other information specified.

.2 Until submission is reviewed, work involving relevant product may not proceed.

2. Shop Drawings
.1 Drawings to be originals prepared by Contractor, Subcontractor, Supplier or Distributor, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate Sections.

.2 Identify details by reference to sheet and detail numbers shown on Contract Drawings.

.3 Maximum sheet size 860 X 1120 mm.

.4 Reproductions for submissions: opaque diazo prints.

3. Product Data
.1 Certain Specification Sections specify that manufacturer's standard schematic drawings, catalogue sheets, diagrams schedules, performance charts, illustrations and other standard descriptive data will be accepted in lieu of shop drawings.

4. Samples
.1 Submit samples in sizes and quantities specified.

.2 Construct field samples and mock-ups at locations acceptable to *Departmental Representative*.

.3 Accepted samples will become standards of workmanship and material against which, installed work will be checked on project.

5. Miscellaneous Data
.1 Provide certificates, methodologies, designs and test results as required.

6. Coordination of Submissions

.1 Review shop drawings, product data, samples and miscellaneous data prior to submission.

.2 Verify:
.1 Field Measurements.
.2 Field Construction Criteria.
.3 Catalogue numbers and similar data.

.3 Coordinate each submission with requirements of work and Contract documents. Individual submissions will not be reviewed until all related information is available.

.4 Contractor's responsibility for errors and omissions in submission is not relieved by *Departmental Representative's* review of submissions.

.5 Contractor's responsibility for deviations in submission from requirements in Contract documents is not relieved by *Departmental Representative's* review of submission, unless *Departmental Representative* gives written acceptance of specified deviations.

.6 Notify *Departmental Representative*, in writing at time of submission, of deviations from requirements of Contract documents stating reasons for deviations.

.7 After *Departmental Representative's* review, distribute copies.

7. Submission Requirements

.1 Schedule submissions at least 14 days before dates reviewed submissions will be needed.

.2 Submit number of copies of shop drawings, product data which Contractor requires for distribution, plus 2 copies which will be retained by *Departmental Representative*.

.3 Accompany submissions with transmittal letter, in duplicate, containing:

.1 Date
.2 Project title and number.
.3 Contractor's name and address.
.4 Identification and quantity of each shop drawing, product data and sample submitted.
.5 Other pertinent data.

.4 Submissions shall include:
.1 Date and revision dates.
.2 Project title and number.
.3 Name and address of:
.1 Contractor
.2 Sub-Contractor
.3 Supplier
.4 Manufacturer
.5 Separate detailer when pertinent
.4 Identification of product or material.
.5 Relation to adjacent structure or materials.
.6 Field dimensions, clearly identified as such.
.7 Specification Section Number.
.8 Applicable standards, such as CSA or CGSB numbers.
.9 Contractor's stamp, initialled or signed, certifying review of submission, verification of field measurements and compliance with Contract documents.

8. Shop Drawings Review

.1 The review of shop drawings by Public Works and Government Services Canada or its authorized consultant is for the sole purpose of ascertaining conformance with the general concept. This review shall not mean that Public Works and Government Services Canada approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the construction and contract documents. Without restricting the

generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all sub-trades.

9. Other Reviews .1 As for shop drawings above, other reviews are for the sole purpose of ascertaining conformance with the general concept.

PART 1 - GENERAL

1.1 Section Includes

.1 Fire Safety Requirements

.2 Hot Work Permit

.3 Existing Fire Protection and Alarm Systems

1.2 Related Work

.1 Section 01 35 29: Health and Safety

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

1.3 References

.1 FCC No. 301-June 1982 Standard for Construction Operations.

.2 FCC No. 302-June 1982 Standard for Welding and Cutting.

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, to *Departmental Representative* for review, within 14 calendar days after contract award.

.2 Include sample of Hot Work Permit.

.3 Submit above documents in accordance with the submittal - general requirements specified in section 01 33 00.

1.6 Fire Safety & Hot Work Requirement

.1 Implement and follow fire safety measures during Work. Comply with following:
- .1 National Fire Code, 1995
- .2 Fire Protection Standards FCC 301, Standard for Construction Operations and FCC 302, Standard for Welding and Cutting as issued by the Fire Protection

Services of Human Resources Development Canada.

.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.

.3 FCC standards, noted above, may 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; telephone: (902)-426-6053.

.4 Hot Work Requirements:

.1 Obtain *Departmental Representative*'s written Authorization to Proceed for the performance of Hot Work on site as may be required in the course of Work.

.2 To obtain authorization submit to *Departmental Representative* for review:

.1 Contractor's Hot Work Procedures to be followed on site in accordance with clause 1.8 below.

.2 Type of work and frequency of situations which will require Hot Work.

.3 Upon confirmation that effective fire safety measures will be implemented for hot work, *Departmental Representative* will grant Authorization to Proceed.

.4 In most cases, *Departmental Representative* will issue only one written authorization covering the entire construction

project and duration of work. However in some cases, depending on the nature or phasing of work, the quantity of various trades needing to perform welding and cutting on site, or other deemed situation, *Departmental Representative* might designate certain portions of the work as separate entities, each entity requiring individual written authorization to proceed. Follow *Departmental Representative*'s directives in this regard.

.5 Do not perform any Hot Work until receipt of *Departmental Representative*'s written Authorization to Proceed.

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

1.7 Conformance

.1 Ensure that Hot Work Procedures, as established for project and agreed upon with *Departmental Representative*, are stringently followed. Enforce use and compliance by all workers.

.2 Brief all workers and subcontractors on Hot Work Procedures and Permit system.

.3 Failure to comply with the established hot work 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.

1.8 Hot Work Procedures

.1 Develop Hot Work Procedures, to be followed when Hot Work is required as part

of the work.

.2 Describe safe work practices and sequence of activities to be followed on site by Contractor and workers to minimize the potential occurrence of a fire resulting from Hot Work.

.3 Hot Work Procedures to include:

.1 Requirement to perform hazard assessment of the site or immediate work area, based on type and extent of Hot Work required, in accordance with Hazard Assessment and Safety Plan requirements of section 01 35 29. Carryout hazard assessment for each hot work event.

.2 Use of a Hot Work Permit system, issued by an authorized person in Contractor's employ, for each event when Hot Work is required, granting permission to carryout hot work.

.3 Provision of a designated person(s) to carryout a Fire Safety Watch for a minimum of 30 minutes immediately upon completion of the hot work.

.4 Procedures to comply with fire safety codes and standards specified herein and occupational health and safety regulations specified in section 01 35 29.

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

.6 Include within procedures the step by step process on how to prepare and issue the Hot Work Permit.

.7 Hot Work Procedures to be in typewritten format, listing step by step procedures and worker instructions, clearly establishing and allocating

responsibilities of:
.1 Worker(s),
.2 Designated person authorized to issue the Hot Work Permit,
.3 Fire Safety Watcher,
.4 Subcontractors and Contractor.

1.9 Hot Work Permit

.1 Develop "Hot Work Permit" form in typewritten format.

.2 Hot Work Permit form to include, as a minimum, the following data:
.1 Project name and project number;
.2 Building name, address and specific floor, room or area where hot work will be performed;
.3 Date when permit issued
.4 Description on type of hot work to be carried out;
.5 Special precautions required, including type of fire extinguisher needed;
.6 Name and signature of authorized person, designated by Contractor, to issue the permit.
.7 Name of worker(s) (clearly printed) to which the permit is being issued.
.8 Time duration of permit (not to exceed 8 hours) indicating "Start" time & date and "Completion" time & date when Hot Work permit will be in effect.
.9 Worker signature with date and time when hot work terminated.
.10 Specified period of time requiring Safety Watch.
.11 Name and signature of person designated as Fire Safety Watcher, complete with time & date when safety watch terminated, certifying that the surrounding area was under his continual watch and inspection for the minimum time period specified in Permit and commenced immediately upon the completion of Hot Work.

.3 Industry Standard forms shall only be used

if all data specified above is included on form.

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

1.10 Fire Protection and Alarm Systems

.1 Fire protection and alarm systems shall not be:
- .1 Obstructed.
- .2 Shut-off, unless approved by *Departmental Representative*.
- .3 Left inactive at the end of a working day or shift.

.2 Do not use fire hydrants, standpipes and hose systems for purposes other than fire fighting.

1.11 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.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used.

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used.

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 in accordance with Section 01 33 00.

.2 Submit site-specific Health and Safety Plan prior to commencement of Work.
- .1 Submit within 5 work days of notification of Bid Acceptance. Provide 2 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 Occupational Health and Safety Act for Province of Nova Scotia, and 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: http://laws-lois.justice.gc.ca/eng/

.2 COSH can be viewed at: http://laws-lois.justice.gc.ca/eng/regulations/SOR-86-304/index.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 Treasury Board of Canada Secretariat (TBS):

.1 Treasury Board, Fire Protection Standard April 1, 2010 www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&section=text

.4 Canadian Standards Association (CSA):

.1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

.5 Observe construction safety measures of:

.1 Part 8 of National Building Code

.2 Municipal by-laws and ordinances.

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

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

.8 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 on site 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.

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 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, 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 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.

1.12 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, marshalling 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 PWGSC 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.

1.1 References

.1 Canada Shipping Act, Transport Canada, 2001, amended 2013-12-01

.2 Canadian Coast Guard Regulations, Fisheries and Oceans Canada

.3 Canadian Environmental Assessment Act, 2012, amended 2013-11-25

.4 Canadian Environmental Protection Act, 1999, amended on 2014-03-28

.5 Fisheries Act, 1985, Fisheries and Oceans Canada, amended 2013-11-25

.6 Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, 1998

.7 Migratory Birds Convention Act, 1994, Environment Canada, amended 2010-12-10

.8 Navigation Protection Act, 1985. Transport Canada, amended 2014-04-01

.9 Nova Scotia – Environment Act

.10 Species at Risk Act, 2002, amended 2013-03-08

.11 The Federal Policy on Wetland Conservation, 1991, Environment Canada

.12 Transportation of Dangerous Goods Act, 1992, Transport Canada, amended 2009-06-16

.13 Workplace Hazardous Materials Information System, Health Canada.

1.2 Definitions

.1 Archaeological Resources: All tangible evidence of human activity that is of historical, cultural or scientific interest. Examples include features, structures,

archaeological objects or remains at or from an archaeological site, or an object recorded as an isolated archaeological find.

.2 Buffer zone: a vegetated land that protects watercourses from adjacent land uses. It refers to the land adjacent to watercourses, such as streams, rivers, lakes, ponds, oceans, and wetlands, including the floodplain and the transitional lands between the watercourse and the drier upland areas.

.3 Deleterious substance: (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter of form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.

.4 Fish habitat: spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes.

.5 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.

.6 Invasive or alien species: refers to a species or subspecies introduced outside its normal distribution whose establishment and spread threaten ecosystems, habitats or species with economic or environmental harm.

.7 Navigable water: a canal and any other body of water created or altered as a result of the construction of any work.

.8 Surface watercourse: refers to the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.

.9 Wetlands: land where the water table is at, near or above the surface or which is saturated for a long enough period to promote such features as wet-altered soils and water tolerant vegetation. Wetlands include organic wetlands or "peatlands," and mineral wetlands or mineral soil areas that are influenced by excess water but produce little or no peat.

1.3 Transportation

.1 Transport hazardous materials and hazardous waste in compliance with the Transportation of Dangerous Goods Act.

.2 Eliminate free board spillage when excavating, loading and hauling material.

.3 Trucks transporting excavated material will have watertight boxes.

.4 Do not overload trucks when hauling excavated material.

.5 Maintain trucks clean and free of mud, dirt and other foreign matter.

.6 Secure contents against spillage. Avoid potential release of contents and of any foreign matter onto highways, roads and access routes used for the work. Immediately clean any ground spills and soils to extent as directed by authority having jurisdiction.

.7 Prior to commencement of work, advise and seek approval from the *Departmental Representative* of the existing roads and temporary routes / roads proposed to be used to access work areas and to haul material to and from the site, including roads to the dredge material disposal site.

.8 Construction material and debris is not to become waterborne.

.9 Any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in navigable water are not to remain in place after the completion of the project.

.10 Vessels are to be permitted safe access through the worksite at all times, and assisted as necessary.

.11 All materials and equipment used in construction must be marked in accordance with the Collision Regulations of the *Canada Shipping Act, 2001* when located on the waterway.

.12 Advise the Canadian Coast Guard, Marine Communication and Traffic Services (MCTS) at (902)564-7751 or toll free at 1-800-686-8676 sufficiently in advance of commencement of work or when deploying or removing site markings in order to allow for appropriate Notices to Shipping/Mariners action.

.13 Work activities must comply with all / any conditions of the Navigation Protection Act (NPA) permit issued by Transport Canada.

1.4 Operation of Machinery

.1 Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.

.2 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 water body.

.3 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.

1.5 Containment and Spill Management

.1 Comply with Federal (CEPA *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*) and Provincial regulations, codes, standards and guidelines for the storage of fuel and allied petroleum products on site.

.2 Do not dump petroleum products or any other deleterious substances on ground or in the water.

.3 Be diligent and take all necessary precautions to avoid spills that contaminate the soil and water (both surface and subsurface) when handling petroleum products on site and during fueling and servicing of vehicles and equipment.

.4 Maintain on site appropriate emergency spill response equipment consisting of at least one 250-litre (55 gallon) overpack spill kit for containment and cleanup of spills.

.5 Maintain vehicles and equipment in good working order to prevent leaks on site.

.6 In the event of a petroleum spill, immediately notify the *Departmental Representative* and the Canadian Coast Guard (CCG) at 1-800-565-1633 (24 hour report line). Preform cleanup in accordance with all regulations and procedures stipulated by authority having jurisdiction.

.7 Materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, or other chemicals are not to enter the watercourse.

.8 Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance.

1.6 Hazardous Material handling

.1 Store and handle hazardous materials in accordance with applicable federal and provincial regulations, codes, standards and guidelines. Store in location that will prevent spillage into the environment.

.2 Label containers to WHMIS requirements and keep MSDS data sheets on site for all hazardous materials.

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

.4 Store and handle flammable and combustible materials in accordance with National Fire Code.

1.7 Disposal of Wastes

.1 Do not bury rubbish, construction and demolition debris (i.e., concrete, creosote

timbers, steel, impacted soil materials etc.) and waste materials on site.

.2 Dispose and recycle construction and demolition debris and waste materials in accordance with Provincial Waste Management Regulations and the project waste management requirements specified in sections 02 41 23 – Demolition and Removals

.3 Do not dispose of hazardous waste, volatile materials (such as mineral spirits, paints, thinners etc.) and petroleum products into waterways, storm or sanitary sewers or in waste landfill sites.

.4 Dispose of hazardous waste in accordance with applicable federal and provincial, regulations, codes, standards and guidelines.

.5 Concrete waste:

.1 Do not discharge residual or rejected concrete on site.
.2 Immediately clean any accidental release of concrete on site prior to solidification.
.3 Do not wash and clean concrete vehicles on site.
.4 Perform dumping of residual material and truck cleaning operations only at the concrete plant. Follow environmental regulations and good practices as approved by the Provincial Department of the environment and other authorities having jurisdiction.

1.8 Water Quality

.1 Conduct excavation of watercourse in such a manner to limit turbidity and reduce sediment suspension in the water to an absolute minimum at all times.

.2 Where work may affect the water quality adjacent to water intake lines used by

lobster holding facilities, fish processing facilities and other harbour users, schedule work in cooperation with the Harbour Authority as directed by *Departmental Representative* to minimize interference and impact to harbour users.

.3 Do not wash down equipment within a 30 meter buffer zone of a wetland, watercourse or other identified environmentally sensitive area.

.4 Water contamination by preservative treated wood:

.1 Preservative treated lumber and timber, whether plant or site treated, shall be cured for a minimum of 30 days from date of the treatment application before their installation in areas which will be in contact with the water.

.2 Do not cut treated wood lumber over the surface of a watercourse or wetland.

.3 Do not use liquid applied preservative products over the surface of a watercourse of wetland.

.4 Wood treated with Chromate Copper Arsenate (CCA) or Ammoniac Copper Zinc Arsenate (ACZA) must be CSA or American Wood Preserver Association (AWPA) approved.

.5 Do not use timber or lumber treated with creosote, petroleum and pentachlorophenol for nay part of the work.

1.9 Socioeconomic Restrictions

.1 Abide by municipal and provincial regulations for any restrictions on work performed during the night time and on flood lighting of the site. Obtain applicable permits.

.2 Place flood lights in opposite direction of adjacent residential and business areas.

.3 Work equipment and machinery must be equipped with purposely designed mufflers to reduce noise on site to lowest possible level. Maintain mufflers in good operating condition at all times.

1.10 Bird and Bird Habitat

.1 Become knowledgeable with and abide by the Migratory Birds Convention Act (MBCA) in regards to the protection of migratory birds, their eggs, nests and their young encountered on site and in the vicinity.

.2 Minimize disturbance to all birds on site and adjacent areas during the entire course of the Work.

.3 Do not approach concentrations of seabirds, waterfowl and shorebirds when anchoring equipment, accessing wharves or ferrying supplies.

.4 No Night work during migratory bird nesting season (April 1 to August 31).

.5 Do not use beaches, dunes and other natural previously undisturbed areas of the site to conduct work unless specifically approved by the *Departmental Representative*.

.6 Should nests of migratory birds 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.

.7 Do not disturb Barn Swallow nests:

.1 Establish barriers outside of nesting season to deter establishment of Barn Swallow nests within project area.
.2 Survey the west wharf and surrounding buildings for the presence of active nests prior to commencement of work.
.3 If a Barn Swallow nest does become active within the project area do not disturb the nest site until nesting is complete. Minimize work immediately adjacent to such areas until nesting is complete. The Contractor shall ensure that if a nest or chick of a Barn Swallow is detected within the project area, work in the area shall be halted and the Department Representative shall be notified.

1.11 Fish Protection

.1 Avoid wet, windy and rainy periods that may increase erosion and sedimentation.

.2 Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.

.3 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.

.4 Be aware of the risk for contamination of the fish habitat at the site as a result of alien species being introduced in the water.

.5 To minimize the possibility of fish habitat contamination and the spread of aquatic invasive (alien species), all construction equipment which will be immersed into the water of a watercourse, or has the possibility of coming into contact with such water during the course of the work, must be cleaned and washed to ensure that they are free of marine growth and alien species.

.1 Equipment shall include boats, barges, cranes, excavators, haul trucks, pumps, pipe lines and other all miscellaneous tools and equipment previously used in a marine environment.

.6 Cleaning and washing of equipment shall be performed immediately upon their arrival at the site and before use in or over the body of water.

.7 Conduct cleaning and washing operations as follows:

.1 Scrape and remove heavy accumulation of mud and dispose appropriately.
.2 Wash all surfaces of equipment by use of a pressurized fresh water supply.
.3 Immediately follow with application of a heavy sprayed coating of undiluted vinegar or other environmentally approved cleaning agent to thoroughly remove all plant matter, animals and sediments.
.4 Check and remove all plant, animal and sediment matter from the all bilges and filters.
.5 Drain standing water from equipment and let fully dry before use.
.6 Upon removal from the water, drain standing water from equipment and let fully dry before removal off the site.

.8 Do not perform cleaning and washdown within a 30 metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.

.9 Record of Assurance Logbook:

.1 Maintain an on-going log of past and present usage and washdowns of all equipment to illustrate mitigation measures undertaken against fish habitat contamination by alien species.

.2 Write data in a hard cover bound logbook to include the following:

.1 Date and location where equipment was previously used in a watercourse or wetland;

.2 Type of work performed.

.3 Dates of wash down for each piece of equipment;

.4 Cleaning method and cleaning agent(s) used.

.10 Keep Record of Assurance Logbook updated from project to project. Upon request, submit logbook to *Departmental Representative* for review.

.11 Abide by requirements and recommendations from Fisheries and Oceans Canada – Fisheries Protection Program in cleaning and wash down of equipment.

.12 Work activities must comply with all/any conditions of the Fisheries Act Authorization issued by Fisheries and Oceans Canada.

1.12 Air Quality

.1 Keep airborne dust and dirt resulting from the work on site to an absolute minimum.

.2 Dust suppression by the application of water must be employed, when required. Apply dust control measures to roads, parking lots and work areas. The *Departmental Representative*

shall determine locations where water is to be applied, the amount of water to be applied, and the times at which it shall be applied. Waste oil must not to be used for dust control under any circumstances.

.3 Spray surfaces with water or other environmentally approved product. Use purposely suited equipment or machinery and apply in sufficient quantity and frequency to provide effective result and continued dust control during the entire course of the work.

.4 Do not use oil or any other petroleum products for dust control.

1.13 Fires

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

1.14 Archaeological

.1 All construction personnel are responsible for reporting any unusual materials unearthed during construction to the construction supervisor. If the find is believed to be an archaeological resource, the Construction Supervisor will immediately stop work in the vicinity of the find and notify the PSPC Project Manager.

.2 If an archaeological and / or historically significant item is discovered during the work activities, work in the area will be stopped immediately and the Departmental representative will be contacted as well as the provincial Archaeological Services unit.

Nova Scotia – NS Department of Communities, Culture and Heritage, Special Places Program, telephone: (902) 424-6475

.3 Work can only resume in the vicinity of the find when authorized by the PWGSC Project Manager and Construction Supervisor, after approval has been granted by the Nova Scotia

Department of Communities, Culture and Heritage.

.4 In the event of the discovery of human remains of evidence of burials, excavation work will immediately cease and nearest law enforcement agency will be contacted immediately by the PSPC Project Manager and/or the Construction Supervisor.

1. General

.1 Use new material and equipment unless otherwise specified.

.2 Submit following information for any or all materials and products proposed for supply within 7 days of request by *Departmental Representative*:
- .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.

.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.

2. Manufacturers Instructions

.1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.

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

3. Fastenings-General

.1 All fastenings are to be the sizes indicated on the contract plans and are to be hot dipped galvanized to CSA-G164 Latest Edition unless otherwise noted.

4. Delivery and Storage

.1 Deliver, store and maintain packaged material and equipment with manufacturer's seal and labels intact.

.2 Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site.

.3 Store material and equipment in accordance with supplier's instructions.

5. Conformance

.1 When material or equipment is specified by standard or performance specifications, upon request of *Departmental Representative*, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.

6. Substitution

.1 Proposals for substitution may be submitted only after award of Contract. Such requests must include statements of respective costs of items originally specified and proposed substitutions.

.2 Proposals will be considered by *Departmental Representative* if:

.1 Products selected by tenderer from those specified, are not available, or
.2 Delivery date of products from those specified would unduly delay completion of Contract, or
.3 Alternative products to those specified, which are brought to attention of, and considered by *Departmental Representative* as equivalent to those specified and will result in a credit to Contract amount.

.3 Should proposed substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on project. Pay for design or drawing changes required as result of substitution.

.4 Amounts of all credits arising from approval of substitutions will be determined by

Departmental Representative and Contract price will be reduced accordingly. No substitutions will be permitted without prior written approval of *Departmental Representative*.

.5 Owner reserves the right for acceptance or rejection of substitution of materials.

7. 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.

8. Damaged and Rejected Materials

.1 Immediately replace, repair or otherwise make good any material damaged, broken or defaced during construction to the satisfaction of *Departmental Representative*.

.2 Remove rejected materials from site.

1. Record Drawings

.1 *Departmental Representative* will provide two sets of white prints for record drawing purposes.

.2 Maintain project record drawings and accurately record deviations from contract documents caused by site conditions and changes ordered by *Departmental Representative*.

.3 Mark changes in red coloured ink.

.4 Record following information:

.1 Elevations of various elements in relation to Chart Datum.
.2 Field changes in dimensions and details.
.3 Changes made by Change Order.

.5 At completion of project and prior to final inspection, neatly transfer notations to second set and submit both sets to *Departmental Representative*.

1. General

.1 Conduct cleaning and disposal operations to comply with ordinances and antipollution laws.

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

.3 Prevent accumulation of waste which create hazardous conditions.

2. Cleaning During Construction

.1 Maintain the work, at least on a daily basis free from accumulations of waste material and debris.

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

.3 Remove waste materials, and debris from site.

.4 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet concrete or newly painted surfaces.

3. Final Cleaning

.1 In preparation for acceptance of the project on an interim or final certificate of completion perform final cleaning.

.2 Remove grease, dust, dirt, stains, and other foreign materials from finished surfaces.

PART 1 - GENERAL

1.1 Related Work

.1 Refer to other Specification Sections for related information.

.2 Refer to **Section 01 33 00** for Shop Drawing/Submissions requirements.

1.2 Reference Standards

.1 Do concrete formwork and falsework in accordance with CSA standard A23.1-94 (or latest edition), Concrete Materials and Methods of Concrete Construction, except where stricter standards specify otherwise.

.2 CSA S269.1-1975 (or latest edition), Falsework for Construction Purposes

1.3 Submissions

.1 Shop Drawings:

.1 **Upon request**, submit to *Departmental Representative* for review four (4) sets of formwork and falsework shop drawings, in accordance with **Section 01 33 00**, at least four (4) weeks prior to erection. All such drawings to be stamped and signed by a Professional Engineer registered in the Province of Nova Scotia.

.2 Clearly indicate method and schedule of construction, materials, arrangement of joints, ties, shores, liners, and locations of temporary embedded parts. Comply with CSA S269.1 for falsework drawings.

.2 Product Data/Samples:

.1 Provide product data and samples for form ties.

.3 Provide submissions in accordance with **Section 01 33 00.**

1.4 Measurement for Payment

.1 This item will not be measured separately.

PART 2 - PRODUCTS

2.1 Materials

.1 Formwork lumber: plywood and wood formwork materials to CSA A23.1

.2 Falsework materials: to CSA S269.1

.3 Form stripping agent: colourless mineral oil, free of kerosene, with viscosity between 70 and 110 s Saybolt Universal, 15 to 14 mm2/s at 40DC, flash-point minimum 150DC, open cup.

.4 Form ties: removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm diameter in concrete surface. **When forms are removed, no metal will be less than 75 mm from the surface of the concrete.**

PART 3 - EXECUTION

3.1 Erection

.1 Verify lines and levels before proceeding with formwork and ensure dimensions agree with drawings.

.2 Construct forms to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA A23.1

.3 Line forms with material only as approved by *Departmental Representative*.

.4 Construct falsework in accordance with CSA S269.1

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

.6 **Use 25 mm chamfer strips on external corners.**

.7 Clean formwork in accordance with CSA A23.1, before placing concrete.

.8 Leave formwork in place for at least seven days, exclusive for days when temperature falls below 5C, unless otherwise directed by *Departmental Representative*.

.9 Re-use of formwork and falsework subject to requirements of CSA A23.1

.10 All holes from form ties and rods to be plugged with mortar to requirements of CSA A23.1. **When forms are removed, no metal will be less than 75 mm from the surface of the concrete.**

PART 1 - GENERAL

1.1 Related Work

.1 Refer to other Specification Sections for related information.

.2 Refer to **Section 01 33 00** for Shop Drawing/Submission requirements.

1.2 Reference Standards

.1 Do concrete reinforcement work in accordance with CSA standard A23.1-94 (or latest edition), Concrete Materials and Methods of Concrete Construction, except where stricter standards specify otherwise.

.2 Reinforcing Steel Manual of Standard Practice (Second Edition - 1995) (or latest edition) by Reinforcing Steel Institute of Ontario.

.3 CSA G30.18 (or latest edition), Billet-Steel Bars for Concrete Reinforcement.

.4 CSA G30.3-M1983 (R1991) (or latest edition), Cold-Drawn Steel Wire for Concrete Reinforcement.

1.3 Source Sampling

.1 **Upon request,** provide *Departmental Representative* with certified copy of mill test of steel supplied showing physical and chemical analysis not less than 2 weeks prior to commencement of work.

1.4 Submissions

.1 Shop Drawings:
- .1 Clearly indicate bar sizes, spacing, location and quantities of reinforcement, mesh, chairs, spacers and hangers with identifying code marks to permit correct placement without reference to structural drawings; to Reinforcing Steel Manual of Standard Practice.
- .2 Detail placement of reinforcing where special conditions occur.
- .3 Design and detail lap lengths and bar development lengths to CSA standard

A23.1, unless otherwise specified on drawings.

.2 Product Data/Samples:
.1 Provide product data for supports and spacers.

.3 Test Results:
.1 Provide Mill Test Certificates cross referenced to the product supplied to the site.

.4 Provide submissions in accordance with **Section 01 33 00.**

1.5 Storage

.1 Store reinforcing steel on racks or sills that will permit easy access for identification and handling and prevent it from becoming coated with material which would adversely affect bond.

.2 Do not store reinforcing steel in direct contact with the ground.

1.6 Measurement for Payment

.1 This item will not be measured separately.

.2 Wire ties and spacers to be considered incidental to supply and placing of reinforcement.

PART 2 - PRODUCTS

2.1 Materials

.1 Reinforcing steel: to CSA G30.18; billet steel grade 400 deformed bars.

.2 Wire ties: to CSA G30.3 plain, cold drawn annealed steel wire.

.3 Spacers: PVC, Fabricated to suit site dimensions.

2.2 Reinforcing Steel Fabrication

.1 Fabricate reinforcing to CSA standard A23.1

.2 Fabrication tolerances for reinforcing steel to Reinforcing Steel Manual of Standard Practice.

.3 Obtain *Departmental Representative's* acceptance for locations of reinforcement splices other than shown on steel placing drawings.

.4 Ship bundles of bar reinforcement, clearly identified in accordance with bar list.

.5 Do not weld reinforcing steel.

PART 3 - EXECUTION

3.1 Placing

.1 Accurately place reinforcing in positions indicated and hold firmly during placing, compacting and setting of concrete.

.2 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.

3.2 Field Bending

.1 Do not field bend reinforcement except where indicated or authorized by *Departmental Representative*.

.2 When authorized, bend reinforcement without heat, by applying slow and steady pressure.

.3 Replace bars which develop cracks or splits.

3.3 Cleaning

.1 Clean reinforcing before placing concrete.

3.4 Inspection

.1 Do not place concrete until *Departmental Representative* has inspected and accepted reinforcement work in place.

3.5 Surface Conditions

.1 Reinforcement, at time concrete is placed, to be free from mud, oil or other nonmetallic coatings that adversely affect bonding capacity.

.2 Reinforcement, with rust, mill scale, or combination of both to be considered as satisfactory, provided minimum dimensions, including height of deformations, and mass of hand wire brushed test specimen are not less than specified requirements in applicable CSA Standards.

PART 1 - GENERAL

1.1 Reference Standards

.1 CAN/CSA-G40.21-M92 (or latest edition), Structural Quality Steels.

.2 CSA W59-M1989 (or latest edition), Welded Steel Construction (Metal Arc Welding).

.3 ASTM A307-94 (or latest edition), Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.

.4 CAN/CSA-G164-M92 (or latest edition) - Hot Dip Galvanizing of Irregularly Shaped Articles.

.5 CAN/CGSB-1.181-92 (or latest edition), Ready-Mixed Organic Zinc-Rich Coating.

.5 CAN/CSA-S16.1-94 (or latest edition), Limit States Design of Steel Structures.

1.2 Shop Drawings

.1 Submit shop drawings in accordance with **Section 01 33 00**.

.2 Indicate materials, core thicknesses, finishes, connections, joint, method of anchorage, number of anchors, supports, reinforcement, details and accessories.

1.3 Measurement for Payment

.1 Measurement for payment will be in accordance with **Section 01 29 00.**

PART 2 - PRODUCTS

2.1 Materials

.1 Steel Sections: to CAN3-G40.21, Grade 350W.

.2 Steel plate and angles: to CAN3-G40.21, Grade 350W.

.3 Welding materials: to CSA W59.

.4 Bolts and anchor bolts: to ASTM A307.

.5 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m^2 to CSA G164.

.6 Zinc primer: Zinc rich, ready mix to CGSB 1-GP-181.

2.2 Fabrication

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

.2 Fabricate items from steel unless otherwise noted.

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

.4 Ensure exposed welds are continuous for length.

2.3 Miscellaneous Metal Work Items

.1 Miscellaneous anchors, bolts and inserts:

.1 Where size, spacing and the like are not indicated, provide as necessary for the purpose.

.2 Galvanize all miscellaneous anchors, bolts and inserts.

.2 Miscellaneous Steel:

.1 Provide miscellaneous steel as required for guide units and the like to the shape, size and details required.

.2 Galvanize all miscellaneous steel items.

.3 Provide 80 Grade Hard Chain.

PART 3 - EXECUTION

3.1 Erection

.1 Install metalwork square, plumb, straight and true, accurately fitted, with tight joints and intersections.

.2 Make field connections with bolts to CAN/CSA-S16.1, or weld.

.3 Touch-up bolts and scratched surfaces after completion of erection with zinc primer.

PART 1 - GENERAL

1.1 Description of Work

This Section includes but is not limited to the the following:

.1 All normal removals as required to complete the work. All items to be verified by a site visit prior to submission of a tender.

1.2 Related Work

.1 Refer to other specification sections for related information.

.2 Refer to **Section 01 33 00** for Shop Drawing/Submission requirements.

1.3 Submissions

.1 Methodology:
.1 When requested provide methodology for carrying out the work

.2 Provide submission in accordance with **Section 01 33 00.**

1.4 Protection

.1 Prevent debris from going adrift and becoming a menace to navigation.

.3 All damage to existing structures, roadways, pipelines, electrical systems not specified for removal to be repaired at the Contractor's cost to the satisfaction of the *Departmental Representative*.

1.5 Measurement for Payment

.1 Removals will be measured in accordance with **Section 01 29 00.**

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.1 Preparation

.1 Inspect site and verify with *Departmental Representative* items designated for removal and items to be preserved.

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

.3 Provide temporary power and lighting as shown on the plan or as required by the *Departmental Representative*.

.4 Existing fill and vent pipes, oil waste tanks and underground storage tanks to be protected from any damages. All repairs to damages as a result of Contractor's operations to be at his cost and to the satisfaction of the *Departmental Representative*.

3.2 Removal

.1 Remove items indicated.

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

.3 At end of each day's work, leave work in safe condition so no part is in danger of toppling or falling.

3.3 Disposal of Material

.1 Disposal of materials not designated for salvage or re-use in work, will be the contractor's responsibility, and must be disposed of off-site.

.2 The material to be disposed is to be transported and disposed of in an environmentally acceptable manner to the satisfaction of the *Departmental Representative*, and in accordance with any local, Municipal, Provincial and Federal restrictions and regulations.

3.4 Restoration

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

.2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work. Match condition of adjacent, undisturbed areas.

PART 1 - GENERAL

1.1 Related Work

.1 Refer to other Specification Sections for related information on aggregates, mattress, and miscellaneous items.

.2 Refer to **Section 01 33 00** for Shop Drawing/Submissions requirements.

1.2 Reference Standards

.1 CAN/CSA-080 Series M89 (or latest edition)- Wood Preservation (including CSA preliminary standard 080.31-M1989).

.2 AWPA P7-85 (or latest edition)- Creosote for Brush or Spray Treatment for Field Cuts (American Wood Preservers Association).

.3 NLGA standard grading rules for Canadian Lumber 1980 edition or most recent edition at time of tendering.

.4 CAN/CSA-G164-M92 (or latest edition) - Hot Dip Galvanizing of Irregularly Shaped Articles.

.5 ASTM A307-94 (or latest edition), Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.

.6 ASTM B111-1974 (or latest edition), Wire Nails, Spikes and Staples.

.7 CSA 086.1-94 (or latest edition), Engineering Design in Wood (Limit States Design)

.8 ASTM D4637-96 (or latest edition), EPDM Sheet Used In Single-Ply Roof Membrane.

1.3 Submissions

.1 At least two weeks prior to finalizing timber order, submit drawings, clearly indicating assembly of timber pieces for construction of timber wavebreak. Show splice locations, splice details, fastening arrangements.

.2 Submit detailed methodology for field treatment.

.3 Provide submissions, in accordance with **Section 01 33 00.**

1.4 Measurement for Payment

.1 Timber wavebreaks will be measured in accordance with **Section 01 29 00.**

PART 2 - PRODUCTS

2.1 Materials

.1 Softwood Timber: Graded and stamped to National Lumber Grading Authority (NLGA) No. 1 Structural. Eastern Hemlock, Western Hemlock or Douglas Fir Species, only, will be used.

.2 Timber Treatment:

.1 Preservative treatment to CAN/CSA-080 Series - M89 for Marine Construction Coastal Waters. Where assay retentions are not indicated, they are to be taken as 1.5 times the indicated gauge retention. Use one type and color of treatment throughout unless otherwise indicated.

.2 Make arrangements for timber testing by:

.1 Plant Inspection: Provide treatment plant identification, date of treatment, list of various pieces in the charge, charge number, plant assay testing results, concentration and type of preservative used, duration of treatment, gauge retention, species of wood; and make arrangements with the treatment plant to locate bundles, move bundles, break open bundles and carry out other measures to facilitate the inspection.

.2 Field Inspection: Providing same information as above and facilitating the inspection in the field.

.3 Filling in and submitting a preprinted form, agreed to by the

Engineer, containing the above information.

.3 The *Engineer* may test in the plant or in the field or may choose to not test some charges at either the plant or the field.

.4 Timber will be protected during handling, shipping, offloading and field handling, by use of suitable equipment and procedures. Use rope or fabric strap slings on site for moving bundles or individual timbers, rather than metal grabs, chains or cables.

.3 Miscellaneous Hardware

Hardware must meet the following specifications:

.1 Machine bolts, anchor bolts, nuts, round plate washers: to ASTM A307.

.2 Hot dip galvanized hardware, bolts, nuts, and washers to CSA G164, with minimum zinc coating of 600 g/m^2,.

.3 All hardware will be galvanized unless otherwise shown on plans.

PART 3 - EXECUTION

3.1 Wavebreak Construction

.1 Timber supplied to be precut to required length, per reviewed drawings prior to preservative treatment.

.2 Boreholes for machine bolts to be same diameter as bolts.

.3 Splices: Provide at locations and per details shown on plans or reviewed drawings, if changed.

3.2 Handling Treated Timber

.1 Handle treated material to avoid damage causing Timber alteration in original treatment.

.2 Treat in field boreholes, plugged holes, cuts and any damage to treated material, using Copper naphthenate, as specified herein, regardless of plant treatment type.

.3 Provide methodology pertaining to heating and application. Apply to dry surfaces for maximum benefit.

.4 Treat boreholes, using a pressurized container with an extension rod, to produce a fine spray in the holes with one application. Alternately a cylindrical brush may be used.

.5 Treat field cuts and any abrasions with minimum of two liberal applications, using either spray or brush.

.6 In addition, field cuts and underwater damaged areas will receive a coating of plastic compound, capped with lead flashing secured with galvanized roofing nails. Plastic compound not to be water soluble and is subject to approval.

.7 Environmental Concern: Ensure no spillage or excess application of field preservative. Provide workmen with sufficient training and protective gear to properly and safely handle the treated materials and to apply field treatment, so as to prevent undue hazard to themselves, others, or the environment.

.8 **Contain all debris and leachates (films on water surface) within the area of the work by using containment facilities such as floating booms or screens.**

3.6 Buoyancy Billets	.1	Wavebreak billets formed from expanded Polystyrene Type II foam.
	.2	Billets to be coated with Poly Urethane Plastic Coating 1.27 (50mil) thickness.