

**DIVISION 8****GENERAL ENVIRONMENTAL REQUIREMENTS****INDEX**

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## **SECTION 801**

### **OWNER'S POLICY**

To ensure protection of the environment, the work at all times shall be subject to inspection by the staff of relevant municipal, provincial and federal agencies. Normally, all inspections other than by the Owner's Representative will be arranged in advance through the Owner's representative. Any specific matters relating to environmental protection will be dealt with between the Contractor and the Owner's representative.

Any violations of environmental permits or authorizations or any environmental related incidents which are observed by inspectors representing regulatory agencies are to be reported by them prior to leaving the site to the Owner's representative. Except in emergency situations, environmental protection measures required by other agencies must be approved by the Owner's Representative prior to implementation by the Contractor.

## SECTION 805

### CONTRACTOR'S RESPONSIBILITIES - REGULATORY AGENCIES

The Contractor shall ensure that its employees, Sub-contractors and their employees, machinery and equipment operators, and truckers comply with the conditions of the contract and with all applicable environmental laws, regulations, permits, and requirements of federal, provincial and municipal authorities, and such other rules and regulations as the Owner may establish.

Contractors, Subcontractors and their personnel shall not harass wildlife or waterfowl or unduly disturb fish. Any contravention of environmental requirements, including employee actions accidental or otherwise, resulting in environmental damage shall be reported to the Owner's representative without delay.

The Contractor may be required to obtain all or some of the following permits where such are required:

#### MAJOR REGULATORY APPROVALS BY TYPE AND AGENCY

TYPE OF PERMIT	AGENCY
1. Stream Crossing Authorizations	Fisheries and Oceans Canada Water Resources Division, Department of Environment and Climate Change
2. Wood Cutting/Clearing	Forestry Division, Department of Fisheries, Forestry and Agriculture
3. Burning Permit	Forestry Division, Department of Fisheries, Forestry and Agriculture
4. Fuel Storage/ Handling	Government Services Center, Digital Government & Services NL
5. Water Supply/ Sewage Disposal	Government Services Center, Digital Government & Services NL
6. Asphalt Plants	Government Services Center, Digital Government & Services NL

7. Solid Waste Disposal	Local Municipal Authority
8. Quarry or Pit Operations	Mineral Lands Division, Industry, Energy & Technology
9. Structures at Navigable Waters	Canadian Coast Guard, Transport Canada
10. Herbicide Application	Pesticide Control Branch, Department of Environment and Climate Change
11. Stream Crossings (Designed by the Contractor)	Water Resources Division, Department of Environment and Climate Change

The Contractor shall obtain all other permits and approvals which may be necessary to comply with government laws and regulations. Prior to the commencement of specific work elements, the Contractor shall immediately provide the Owner's representative with two copies of all permits.

Contractor's failure to comply with the regulations of any authority having jurisdiction over the works, or part thereof, or any aspect of the performance of the work and the manner of carrying out the work, will entitle and result in the Owner appointing such engineer, engineers, compliance officer or officers as may be necessary to more fully cause compliance by the Contractor with the requirements of the relevant regulatory authority.

The Owner may thereafter, and for so long as the Owner may keep such engineer, engineers, compliance officer or officers, on the site of the works, deduct from the progress payments otherwise due to the Contractor the costs including but not limited to payroll, payroll burdens, accommodations, meals, and transportation costs associated with the work of such engineer, engineers, compliance officer or officers as the case may be. The Contractor shall have no right to dispute the Owner's right to appoint such engineer, engineers, compliance officer or officers, the reasonableness of the deduction of such costs or the amount thereof and the Engineer's certificate of the amount of such costs shall be final and binding upon the Contractor and the Owner.

## SECTION 806

### CONTRACTOR ENVIRONMENTAL MITIGATION PLAN (CEMP)

A Contractor Environmental Mitigation Plan (CEMP) shall be required for all structures with spans greater than 3.0m, or where specified as a requirement in the contract documents.

Prior to the commencement of construction, the Contractor shall submit to the Department for review and acceptance a CEMP. The CEMP is required to show understanding and mitigations for any planned activities that may interact with a valued ecosystem component.

The Contractor shall abide by restrictions provided by the Water Resources Management Division, Provincial Department of Environment and Climate Change on any in-stream activity or alteration to a body of water. The Contractor shall apply for approvals and comply with requirements of "Guidelines for Applying to Alter a Body of Water" and conditions of the Blanker Permit No: ALT12989-2023 (or latest version thereof).

<https://www.gov.nl.ca/ecc/waterres/permits-licenses/appforms/>

[https://www.gov.nl.ca/ecc/files/ALT12989-2023\\_Various-Waterbodies-Maintenance-Works-Projects-2023-2025-Blanket-Permit.pdf](https://www.gov.nl.ca/ecc/files/ALT12989-2023_Various-Waterbodies-Maintenance-Works-Projects-2023-2025-Blanket-Permit.pdf)

Any environmental protection measures outlined in Division 8 of the Department's Specifications Book shall be incorporated into the CEMP.

The CEMP shall include:

- Pre-construction planning, including the identification of project-environmental interactions (e.g., wildlife, habitat, plants, resource users, waste management, etc.);
- Detailed environmental mitigation measures for planned activities to avoid negative or irreversible environmental impacts;
- Contingency plans for unplanned events;
- Scheduling of a Contractor environmental awareness and training session (with DTI participation);
- List of DTI and Contractor contacts and reporting numbers; and
- Decommissioning Plan that includes site rehabilitation measures.

The CEMP shall follow the template requirements outlined below:

## **CEMP TEMPLATE**

All submissions should be presented in report style manner with proper formatting including a cover page and a table of contents. The cover page should state the project number, project description and company name with contact information.

### **Section 1: Project Location and Description**

- This section should clearly identify the exact project location identifying all project limits (a map would be recommended for clarification).
- The project description should summarize the tendered scope of work

#### **Section 1.1 Job Procedure and Schedule.**

- A step by step process is preferred to ensure order of tasks are clearly understood.
- For those projects with separate parts, it is recommended to provide a separate step by step process for each part.
- A schedule indicating proposed start date and length of each task, thereby, identifying the critical path for the project and estimated completion date.

### **Section 2: Potential Environmental Sensitivities and Impacts**

- This section should clearly state the relevant construction activity and the potential environmental impact that those activities will have on the Valuable Ecosystem Components (VEC's). A clear understanding of the project VEC's would come from the 'Project Environmental Interaction' section in the Environmental Protection Plan (EPP) and the supplementary general condition. This should include potential effects from clearing and grubbing, site set-up, storage of product, sanitary facilities, etc.
- For clarity and formatting it is suggested this section be presented in a table format.

### **Section 3: Mitigation Strategies**

- This section should identify and explain the proposed mitigation strategies that would be used throughout the entirety of the project including the correct procedures to follow for any unplanned events. Hydrocarbon spill procedures, dust control, etc. should also be addressed.
- This section should include a drawing/legible sketch showing a detailed plan view of the proposed worksite highlighting the mitigation strategies (settling ponds, pump placement, hose discharge location, silt fence and/or hay bales, check dam

sediment traps, coffer dams, etc.) This could be included as an Appendix if so desired.

#### **Section 4: Permits & Authorizations**

- Identify any required permits, authorizations and approvals required to carry out the scope of work.

#### **Section 5: Monitoring & Reporting**

- Explain how the contractor plans to ensure that the worksite is abiding by the CEMP
- An explanation of the reporting process showing a clear chart indicating the appropriate reporting process complete with specific names and contact information

#### **Section 6: Communication & Document Control**

- Training session for environmental awareness explaining how the CEMP will be communicated to all those involved in site activities and documentation indicating this training occurred at a preconstruction meeting and any time it is required.

#### **Section 7: Decommissioning**

- This section should include a clear & concise plan on all measures that will be taken to ensure proper rehabilitation of the construction site once the scope of work has been completed.

#### **Suggested Appendices:**

- Map of Project Location (referenced in Section 1)
- Drawings or sketch(es) of Mitigation Strategies
- DTI Environmental Protection Plan
- DTI Highways Specifications Book - Division 8: General Environmental

#### **Requirements**

- Permits & Approvals: As identified/explained in Section 2
- Any relevant sections and templates from the contractor Site Specific Safety Manual (ex. Job procedures related to any environmental considerations, incident/accident/near miss reporting, emergency response procedure with appropriate contacts)

The Contractor shall comply with conditions outlined in a Letter C (formerly called 'Letter of Advice') that is issued by Fisheries and Oceans Canada (DFO) for this project. This

letter will be provided by Owner's Representative, or assigned staff, and should be kept on site at all times during construction and decommissioning activities.

The Contractor shall be advised that any serious violations of the Contractor's Environmental Mitigation Plan or of the environmental requirements of the project contract documents will be investigated by the Department and the costs associated with such assessment(s) and required mitigations/remediation/cleanup shall be charged to the Contractor.

All equipment, labour and materials required to implement all Environmental measures outlined in the CEMP or applicable regulatory agency requirement shall be considered incidental to the project.

## SECTION 810

### USE OF HERBICIDES FOR BRUSH CONTROL OPERATIONS

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##### **810.01 SCOPE**

This specification covers the supply and application of herbicide to broadleaf brush and trees.

Specific locations to be sprayed, and areas to be omitted, shall be designated by the Owner's representative.

### **810.01.01 General**

The Contractor and Subcontractor(s) are required to comply with environmental protection measures contained in this section and all applicable environmental protection regulations of Federal, Provincial, and Municipal Authorities.

No pesticides or other products shall be used without prior approval of the owner and the Department of Environment and Climate Change. Each pesticide to be used, its application rate, and area of use, shall be subject to regulations under the Environmental Protection Act, 2002 and the Pesticide Control Regulations, 2003. A copy of the Material Safety Data Sheet (MSDS) and Pesticide Label Information shall be supplied to the Owner's representative 5 days prior to any use by the Contractor. Two copies of any approval issued to the Contractor for chemical usage under these Regulations shall be provided to the Owner's representative. As part of the Contractors Hazard Assessment prior to the start of contract work an emergency/contingency plan shall be developed in case of a spill and provide a copy of this plan to the Owner's representative.

### **810.02 MATERIALS**

The herbicide to be used to execute the work of this contract shall be as specified in the contract documents and shall be accepted on the Pesticide Operator Licence issued to the pesticide operator by the Department of Environment and Climate Change.

All herbicide brought onto site for the execution of the contract shall be contained in sealed containers and will be inspected by the owner to ensure that such herbicides are properly registered under the Pesticides Control Act RSN 1990, and accepted by the Newfoundland Department of Environment and Climate Change and are of the type, strength and quality specified therein. Any herbicide not meeting these requirements shall be rejected. "BLAZON" dye shall be used as colouring agent at the manufacturer's recommended concentration.

### **810.03 HERBICIDE STORAGE & HANDLING PROCEDURES**

Contractor shall ensure that herbicides are handled only by personnel who are licensed, trained and qualified in handling these materials in accordance with manufacturers' instructions and government regulations (Section 13 of the Pesticides Control Regulations). The Contractor will be required to verify personnel qualifications as they pertain to this item and provide written confirmation of same to the Owner's representative. The Contractor shall supply a copy of the product safety data sheet to the Owner's representative of all herbicides or hazardous substances which will be used during the course of the contract. Tank refilling operations shall be supervised at all times.

Under no circumstances shall any tank refilling procedure be left unattended by the operator.

Handling and tank filling/transferring procedures shall be carried out to prevent the contamination of soil or water. Tank filling or servicing of mobile equipment shall not be allowed within 100 m of a watercourse, water body, or designated wetlands. Herbicides and other chemicals shall be stored at least 100m (horizontal distance) from any water course, water body, or designated wetland unless otherwise accepted by the Owner's representative and/or the Department of Environment and Climate Change.

Any pesticide storage sites must meet the requirements of the Pesticides Control Regulations, 2012 as follows:

- a) A source of water must be kept in an area in or adjacent to the storage area;
- b) Accepted safety equipment as required which is properly maintained, functional and available at all times for personnel handling and working with pesticides;
- c) Flooring in a storage area shall not contain a floor drain or catch basin which is directly or indirectly connected to a private or municipal sewage system or public water course;
- d) Flooring shall be capable of being cleaned and decontaminated of pesticides stored within;
- e) Adequate ventilation by either natural or mechanical means so as to prevent the accumulation of toxic and/or flammable vapours;
- f) "Danger Stored Pesticide" sign posted on all entrances which is printed in block letters 5 centimeters or more in height;
- g) Cleanup procedures, materials, and equipment available to cleanup spills or leakage;
- h) Security procedures consistent with the instructions of the Minister or persons designated by the Minister.

In addition to these storage requirements each pesticide storage site shall have prominently displayed on all entrances contact telephone numbers for the operator and the Department of Environment and Climate Change, Pesticides Control Section, and indicated accordingly.

All entrances to the storage sites must be locked when the owner or an employee of the owner is not present.

Pesticides shall be stored in their original container or a substitute container accepted by the manufacturer. Substitute containers shall be labelled appropriately with labels provided by the manufacturer.

Concentrated pesticides transported in a vehicle during spray operations shall be contained in a locked box, secure area or compartment which must be locked while unattended. Pesticides shall not be transported in the passenger compartment of any vehicle.

#### **810.04 EQUIPMENT**

Prior to acceptance of the tender, the Contractor shall provide proof that the spray equipment, auxiliary mixing and storage equipment, and associated equipment that is intended to be used meets the requirements of the manufacturer of the herbicide. Equipment shall be in good working condition with tanks secured properly, have hoses of good integrity (not cracked) and all pumps seals and joins tight with no leaks.

All equipment applying liquid herbicide solution shall be capable of ensuring that all active ingredients are contained in the target area.

The Contractor shall provide all material, construction plant and personnel necessary for the continued operation of application equipment. All vehicles used in the application of pesticides shall have a copy of the contingency plan located within the vehicle.

#### **810.05 GENERAL APPLICATION REQUIREMENTS**

Herbicides shall be applied by low volume broadcast spray ground application in all areas to be treated utilizing a spray delivery system (such as the Radiarc sprayer or accepted equivalent) which offers effective drift control. Aerial spraying from planes and helicopters will not be permitted. The spray system utilized must be acceptable to both the herbicide manufacturer the Owner's representative assigned to monitoring the herbicide application and Pesticides Control Section of the Department of Environment and Climate Change.

The Contractor is required to obtain a Pesticide Operator's License from the Pesticide Control Section, Department of Environment and Climate Change.

Prior to the commencement of specific work elements, the Contractor shall immediately provide the Owner's representative with two copies of all permits.

Any contravention of environmental requirements, including employee actions accidental or otherwise, resulting in environmental damage shall be reported to the Owner's representative without delay.

Contractor shall be responsible for clean-up, reclamation and/or restorative measures as may be directed by the Owner's representative, or by provincial or federal agencies through the Owner's representative.

#### **810.05.01 Spray Conditions and Restrictions**

The Contractor shall provide proof satisfactory to the Owner's representative that the strength of spray solution and the method of application meet the requirements of the manufacturer supplying the herbicide as specified on the product label. A supervisor from the Department will be appointed to monitor the Contractor at all times when they are working with the herbicide and shall be supervised by Department personnel trained in the application of pesticides.

Contractors are advised that, notwithstanding the stipulations included with the Contractor's Pesticide Operators License issued by the Pesticide Control Section of the Department of Environment and Climate Change the Contractor will ensure that:

- a) The herbicide shall be applied only to the highway right-of-way which has been previously cut, and subsequently designated for treatment.
- b) The Contractor shall be aware that some watercourses may be in close proximity to the designated spray area. Due care and caution shall be taken to ensure that herbicide spraying operations do not impact on any watercourses or water bodies and meet accepted buffer zone requirements of the Department of Environment and Climate Change and the manufacturer. The contractor shall be responsible for laying out the buffer zones and ensuring the buffers are respected.
- c) Ground based spraying is permitted only when: wind speeds are between 2 and 15km/h, air temperatures are below 25°C, the relative humidity is above 50%, it is not raining, and rain is not anticipated over the next two hour period.
- d) The Owner's representative in consultation with the Contractor and officials of the nearest weather office shall determine daily the suitability of weather conditions to undertake the application of herbicide. The Owner's representative has the authority to stop the spraying of herbicide at any time based on local conditions and weather measurements. The site supervisor for the Department of Transportation & Infrastructure shall be given access to an anemometer on site to determine the wind speed, temperature and humidity at the site.

- e) There shall be no herbicide application within densely populated areas. Spray areas within commercial or residential developments, house or cottage areas are to be determined in the field by the Owner's representative. A 50 m buffer shall be maintained.
- f) Areas designated by the Owner's representative, in consultation with the Department of Environment and Climate Change as areas to be omitted from spraying, shall not be sprayed.
- g) The Contractor shall take due care and caution when applying herbicide in close proximity to land used for agricultural purposes. Drifting of spray onto land utilized for agricultural purposes shall not be permitted.
- h) Equipment is not permitted to operate in any watercourse or ditch containing or which may contain water which enters a watercourse.

#### **810.05.02 Daily Logs and Written Report**

Contractors are advised that reports and records are required by the provincial Department of Environment and Climate Change. Their use is of the utmost importance to any right-of-way management program and they shall form an important part of this contract. The Contractor shall ensure that all logs, records and reports are completed fully, are legible, and are signed by authorized personnel. The submission of appropriate documentation as may be required shall be a requirement to the satisfactory completion of this contract.

#### **810.05.03 Safety**

The Contractor shall be responsible for the proper handling and safe use of all herbicides.

The Contractor shall be responsible for the safety of its employees in the application of herbicides and for the supply and use of all recognized safety equipment.

The Contractor shall have with each crew, a minimum of one person who is qualified in First Aid. This person(s) shall also be in possession of a valid Standard First Aid Certificate.

In addition to standard First Aid Kits, Contractor shall, at its own expense, have on site with each of its crews adequate first aid supplies that are unique to accidental herbicide exposure.

The Contractor shall rinse empty herbicide containers three times and use the rinse in the spray mixture. If the rinsed containers are not to be returned for refilling with herbicide then the rinsed containers shall be punctured several times to ensure they will not be used for filling with other substances and then disposed of in a manner accepted by the Department of Environment and Climate Change.

The Contractor shall ensure the safety of all individuals including pedestrians, residents, vehicular passengers and operators or others as may be encountered during spray operations.

#### **810.05.04 Clean Up**

Upon completion of herbicide application, the Contractor shall remove all of their rubbish, debris, surplus materials and equipment from the site.

The Contractor shall place rubbish and refuse in proper containers and shall dispose of same at an accepted waste disposal site with permission of the waste disposal site owner/operator.

The Contractor shall not wash equipment or containers, nor dump herbicides in or near any fresh or salt water bodies, or at any location where the herbicide may enter a body of water.

#### **810.05.05 Spills**

The Contractor shall maintain on site with each crew engaged in the mixing and application of the herbicide mixture, an accepted supply of absorbent materials as part of the overall spill cleanup kit.

Absorbent materials shall consist of activated charcoal, sawdust, peat moss or other materials in quantities as may be required by appropriate authority and the Owner's representative.

In the occurrence of spillage or leakage, the Contractor shall undertake prompt action to minimize the extent of damage through the application of absorbent materials or other procedures as may be required.

Any soils or other materials contaminated as a result of spillage, leakage or inappropriate actions taken by applicators shall be removed and the affected areas subsequently rehabilitated at the Contractor's expense.

Disposal of contaminated soils and other materials shall be the responsibility of the Contractor subject to approval by the appropriate authority, the Owner's representative and the Pesticide Control Section.

All spills involving greater than 10 litres of mixed formulation or the equivalent of unmixed formulation shall be reported immediately to the Pesticides Control Section as described below. All spills involving mixed or unmixed pesticide in or within 500m of water bodies, wells or areas frequented by people, shall be reported immediately to the Pesticides Control Section, St. John's (Ph: 729-2556) and Environment Canada (EPS) St. John's (Ph: 772-2083).

The Contractor shall submit a corresponding written report within two (2) days of occurrence to the project supervisor who will in turn forward the report to the Director of Highway Design and Construction. The report shall identify cause, actions taken to clean up area, actions taken to prevent a recurrence, actions taken to dispose of contaminated material and any environmental damage.

#### **810.05.06    Newspaper Notice**

The Contractor shall advise the public of the purpose and scope of the project by means of newspaper notices. The Contractor shall place the notices in at least one newspaper with circulation in the municipalities whose boundaries encompass treatment areas. The newspaper ad will appear in any issue at least one week prior to commencing the program. The ad will state the area that is proposed for treatment over the next 21 calendar days at the end of which another ad is to be placed until the program is completed. The ad will contain a phone number at which the Contractor may be contacted for information regarding the spraying operation and the Department of Environment Pesticides Control Section 729-2556.

#### **810.05.07    Signs**

The Contractor shall provide and erect signs indicating that the right-of-way has been treated with herbicide. These signs shall be posted at the time of treatment and indicate the type of herbicide (name of formulation) used, PCP Act Registration Number, Date of Application, Company Name carrying out the application of herbicide and phone number for additional information, Department of Environment and Climate Change phone number 1-709-729-2556 and the locations treated as stipulated in the Pesticide Operator's Licence Terms and Conditions issued by the Department of Environment and Climate Change.

### **810.05.08 Notices to Adjacent Property Owners**

The Contractor shall make every reasonable attempt to verbally notify adjacent property owners, prior to the spray program. In the event this cannot be done, the Contractor shall use written notification to all dwellings to the satisfaction of the Owner's representative and the Pesticides Control Section of the Department of Environment and Climate Change.

### **810.05.09 Guarantee**

The Contractor shall achieve a 95% brush kill in the target area. The brush kill is to be inspected near the end of the warranty period in the growing season following the treatment application. If spot checks, after the herbicide treatment is completed, reveals that the 95% brush kill was not achieved at the end of the warranty period, then the Contractor will be required, at his own expense, to retreat these areas to obtain the 95% brush kill in the target area.

## **810.06 MEASUREMENT FOR PAYMENT**

Measurement will be made of the horizontal area actually sprayed with herbicide within the area indicated to be sprayed or as staked out by the Owner's representative. These measurements shall be computed to obtain the area in hectares, measured to three decimal places.

Spraying of areas beyond the limits as designated by Owner's representative will not be measured for payment.

## **810.07 BASIS OF PAYMENT**

Payment at the contract price for supply and application of herbicide shall be compensation in full for all labour, materials and equipment use to carry out the work indicated in these specifications, and shall include all costs involved in: placing newspaper notices, providing signs, and obtaining and conforming to the conditions of required permits, together with the removal of any debris (containers, absorbent, etc.) including obtaining an accepted waste disposal area and hauling away and disposing of the debris in the waste disposal area, if required.

Full payment shall not be made until the final acceptance of the work on satisfactory completion at the end of the warranty period. A holdback in the amount of 15% of the total payment for herbicide treatment shall be retained for the warranty period and until checking the achievement of the 95% brush kill the following growing season as per Section 810.05.09 of this specification.

## SECTION 815

### PROTECTION OF WATERCOURSES AND WATER BODIES

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- 815.02 LEGISLATIVE REQUIREMENTS**
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- 815.09 REMOVAL OF STRUCTURAL STEEL PROTECTIVE COATINGS**

#### **815.01 SCOPE**

This specification covers the environmental requirements for work being carried out at watercourses and water bodies. It includes references to Federal and Provincial Legislation and prescribed methods and procedures to employ when carrying out such work as culvert or bridge installations, stream diversions, fording, fill placement at water bodies, and any other work which may alter or impact any watercourse or water body, or the quality of the water therein.

#### **815.02 LEGISLATIVE REQUIREMENTS**

The Contractor shall be aware of all Federal and Provincial Legislation governing the protection of watercourses and water bodies and all revisions and amendments to this legislation.

## 815.02.01 PROTECTION OF INLAND FISHERIES ENVIRONMENT

All permanent or temporary works or undertakings which are proposed for watercourses or water bodies constituting fish habitat require authorization from the Department of Fisheries and Oceans Canada at least two weeks prior to the commencement of any work. The Contractor is required to obtain approval for all temporary stream crossings and provide the Owner's representative with two copies prior to any work.

Application forms for authorization for works or undertakings affecting fish habitat are available at Department of Fisheries and Oceans Canada office located at St. John's.

Contractors are referred to the Department of Fisheries and Oceans Canada publication entitled "Resource Road Construction - Environmental Guidelines and Design Criteria", latest edition, (and to other technical information). The DFO "fact sheets" contain recommended guidelines for culvert installations, road and bridge construction, and other works. They include mitigation measures and procedures intended to assist Contractors in minimizing impacts on fish and fish habitat.

Contractors are advised that Environmental and Fisheries regulations require that any work done in or near a watercourse, deemed to be viable fish habitat, must be restricted to the minimum of disturbance. The establishment of temporary and permanent buffer zones are required. (Reference, Standard Drawing No.1237). Great care must be taken during construction not to harmfully alter, disrupt, or destroy fish habitat or to deposit any substance which may be harmful to fish habitat in or near any watercourse where it may enter the watercourse. Culvert pipes must be constructed, according to the requirements of the applicable permits, to allow free movement of fish.

Contractors are advised to refer to the Fisheries Act with particular attention to:

- a) Section 35 - Outlines required authorization for work or undertaking which may affect fish habitat.
- b) Section 36 - Prohibits the deposit of a harmful substance of any type into water frequented by fish.
- c) Section 37 - Powers of the Minister for the provision of information such as plans, specifications, studies, etc., and to require any modifications to such plans and/or related information.
- d) Section 38 - Powers of a Ministerial Inspection.
- e) Sections 40-42 - Enforcement and Penalties.

## **815.02.02 THE ENVIRONMENTAL CONTROL (WATER AND SEWAGE) REGULATIONS**

Contractors shall maintain compliance with the Environmental Control (Water and Sewage) Regulations, 2003 or latest edition. This legislation is administered by the Water Resources Division of the Digital Government and Service NL.

No person shall discharge into a body of water any sewage or effluent.

## **815.02.03 THE WATER RESOURCES ACT DEPARTMENT OF ENVIRONMENT**

Where the Contractor must carry out any alteration of a body of water which is not required specifically as part of the contractual work with the Department of Transportation and Infrastructure, the Contractor must obtain a Permit from the Department of Environment and Climate Change before carrying out the work. Alterations to watercourses and water bodies such as culvert installations, bridges, stream diversions, rock fill placement in water bodies, etc., which are typically required as part of the contractual work are authorized and administered by TI and do not require separate approval from the Department of Environment and Climate Change. All such alterations to bodies of water must be carried out according to established procedures of the regulatory agencies so as to prevent pollution or damage to the environment.

The Contractor is referred to the following Environmental Guidelines of the NL Department of Environment and Climate Change, Water Resources Division, regarding construction procedures at watercourses:

Chapter	Title	Chapter	Title
3	WATERCOURSE CROSSINGS	7	DIVERSIONS, NEW CHANNELS, AND MAJOR ALTERATIONS
4	BRIDGES	9	PIPE CROSSINGS
5	CULVERTS	13	GENERAL CONSTRUCTION PRACTICES
6	FORDING		

## **815.03 FORDING OF WATERCOURSES**

The use of equipment or machinery in a watercourse or water body is generally not permitted. Should it be necessary for equipment to ford a watercourse, then the approval of the Owner's representative is required for the specified equipment only and at a designated location. The same crossing point shall be used each time that a fording is required. When extensive or frequent crossing of a watercourse is necessary, a temporary culvert or bridge installation may be required instead of fording. The

Contractor is referred to the NL Environmental Guidelines Chapter 6, "Fording" of the Dept. of Environment and Climate Change, regarding the selection, site preparation, and use of fording sites.

Transportation and Infrastructure discourages fording unless absolutely necessary and assessed by the Owner's representative. The Contractor shall discuss all proposed fording sites with TI a minimum of 5 working days before any fording activity. Site selection require the written approval of the Owner's representative.

#### **815.04 CLEARING AND/OR GRUBBING ADJACENT TO WATERCOURSES**

The Owner's representative shall mark limits for clearing and grubbing adjacent to watercourses. Buffer zones of undisturbed vegetation shall be maintained at watercourse crossings as marked in the field. (Reference, Standard Drawing No.1237, Typical Temporary and Permanent Buffer Zones at Stream Crossings.) A permanent buffer zone shall be maintained both sides of the construction zone at watercourse crossings, wherein, no disturbance or cutting of vegetation is to take place. A temporary ungrubbed buffer zone shall be maintained on both sides of the watercourse, unless otherwise directed by the Owner's representative, within the construction zone at watercourse crossings until such time as the installation of the crossing is to be carried out. The Contractor shall use appropriate mitigation measures such as the use of silt fencing, sedimentation basins and take-off ditches to control sediment laden runoff from entering watercourses.

#### **815.05 GENERAL PROCEDURES FOR INSTALLING WATERCOURSE CROSSINGS**

The Contractor shall present to the Owner's Representative for approval, a plan for the construction of unwatering systems including diversion systems, pumping systems, settling and/or filtration systems, a minimum of 3 working days prior to the start of any work at the site.

A pre-construction meeting shall be convened on-site between the Contractor and the Owner's representative to review environmental protection measures and associated contract details pertaining to the watercourse crossing, prior to any work being carried out at the proposed crossing site. All work carried out at watercourses shall be performed in the dry and with due care and caution so as to prevent unnecessary disturbance or impact on adjacent land or downstream areas.

To avoid impacts on fish in Newfoundland & Labrador, do not carry out in-water work:

in estuaries and main stems of scheduled salmon rivers from May 1 to September 30 (migrating period) in tributaries and headwaters of scheduled salmon rivers on the island of Newfoundland from October 1 to May 31 (spawning, incubating and hatching period) in tributaries and headwaters of scheduled salmon rivers in Labrador from September 15 to June 15 (spawning, incubating and hatching period)

Scheduled salmon rivers and brown trout rivers are listed in the NL Angler's Guide or in the Newfoundland & Labrador Fishery Regulations.

The Contractor shall carry out all work in and around watercourses in accordance with all Federal and Provincial permits and requirements, the relevant sections of the TI Specifications Book, and the contract drawings.

The Contractor shall give 3 working days' notice prior to any in stream or near stream grubbing or excavation.

Buffer zones shall be established and maintained as described in Section 815.04.

An accepted cofferdam shall be installed at the low end of the construction zone to collect all site water which is to be disposed of in an accepted manner. (See Section 815.07 Treatment of Silted Water).

The operation of heavy equipment shall be confined to dry stable areas in order to prevent the generation of mud and silted water. All flow shall be diverted or pumped around or through the work area, by a means acceptable to the Owner's representative, so as to maintain flow in the watercourse immediately below the site, prevent erosion, and maintain acceptable water quality. The flow diversion system shall have sufficient freeboard to be capable of accommodating rain events or provision shall be made to safely discharge elevated flows without causing washouts of constructed works, erosion, or siltation in downstream areas. The discharge location of the pumping or diversion system shall be stabilized to prevent erosion. All unwatering operations shall be constantly monitored by the Contractor.

Work should be carried out from the downstream section of the work area and progress to the upstream.

The Contractor shall ensure that fish are not left stranded in the work area at the time the diversion system is made operational. All stranded fish shall be removed by appropriate means and quickly returned to the watercourse below the construction area to prevent mortalities. An impermeable cofferdam of non-erodible material, such as sandbags and

sheet plastic, shall be constructed at the outlet area of the construction zone to prevent any silted water from entering downstream areas and to assist in unwatering operations.

The location, size, construction, and operation of sedimentation basins shall be carried out according to Department specifications or as directed by the Owner's representative and so as to achieve adequate settling parameters within the basins and ensure that discharged water from the basins, which is entering any watercourse, meets the water quality standards set forth in the Environmental Control (Water and Sewage) Regulations, (See Section 815.02.02).

Operation of the sedimentation basins shall be continuously monitored by the Contractor to ensure proper functioning and maintenance.

Excavation shall be carried out to the limits marked in the field by the Owner's representative. All excavations shall be carried out using a tracked excavator which will operate within the limits of the work area or as directed by the Owner's representative.

Excavated material shall be removed from the site and stockpiled at an accepted location where it will not enter any watercourse.

When corrugated steel pipes are installed, impervious material shall be placed under the invert of the pipe and around the haunches of the pipe at the inlet area so as to ensure that all flow is confined within the pipe, particularly during low flow conditions, and not lost into the porous fill zones outside the pipe.

All sections of newly constructed channel and pipe inlet and outlet areas shall be adequately stabilized so as to prevent destabilization, erosion, or scouring of the channel and fill embankments. Rip-rap on road slopes shall be placed concurrently with backfilling operations on the pipe so that inlet and outlet areas are protected immediately from erosion.

Any disturbed areas or exposed soils within the high water zone of the watercourse shall be stabilized by such means as placing rip-rap or well staked sodding within 48 hours of completion of backfilling operations. Other adjacent disturbed areas shall be rehabilitated by sodding or seeding, or as directed by the Owner's representative.

Upon completion of the work, flow shall be introduced slowly into the new channel or watercourse crossing. Any silted water generated as a result shall be prevented from entering downstream areas of the watercourse, and pumped or treated as required.

Where baffles are required as part of a culvert installation all activities associated with the baffle pipe installation including the diversion of all water flow from the natural watercourse into the baffled pipe, abandonment of any temporary stream diversion system and rehabilitation of the surrounding disturbed area shall be carried out efficiently without delay so as to not interfere with fish migration.

All construction related waste materials shall be removed from the work site(s).

Sedimentation basins shall be pumped dry and backfilled with the original excavated material and compacted. Hand seeding, hydroseeding and/or sodding of disturbed areas shall be carried out as directed by the Owner's representative. Additional rehabilitation may be required by the Owner's representative.

#### **815.06 USE OF FRESH CONCRETE IN OR NEAR BODIES OF WATER**

When concrete is placed in or adjacent to a watercourse or water body, all necessary precautions shall be taken to prevent the concrete from adversely affecting water quality. Whenever possible, fresh concrete shall not come in contact directly with the waters of a watercourse. Standing water zones shall be drawn down prior to placing fresh concrete. All form work shall be well secured and made tight to prevent leakage of fresh concrete into any adjacent waters. Where tremmie concrete is required, the work shall be carried out under the specific directions of the Owner's representative. The washing of concrete delivery trucks or chutes is not permitted within 100 m of any watercourse or water body. All necessary precautions shall be taken when handling related substances such as form coatings and concrete admixtures to prevent any spill or leakage of these substances.

#### **815.07 CONTROL AND TREATMENT OF SILTED WATER**

Silted or muddy water is not permitted to be released into any watercourse or water body or into any ditch or area that leads directly to a watercourse or water body. Runoff from adjacent areas shall be channeled, piped, diverted, or confined to prevent the water from entering construction zones and becoming polluted. Where due to rain events, runoff from construction zones and areas of exposed soils contains mud or silt, appropriate measures shall be taken by the Contractor to confine, settle, or channel such water so that adjacent watercourses or water bodies are not adversely affected. Such measures may include the provision of mud basins, settling basins, ditch blocks, silt fencing, temporary ditching, or other means necessary to prevent pollution. Silted runoff water or water released or pumped from construction zones may be discharged to an accepted vegetated area where ground absorption will occur or to an accepted settling area or to a settling basin constructed in accordance with contract drawings or as directed by the Owner's representative.

**815.08 FILL PLACEMENT AT WATER BODIES**

Fill material placed in or at water bodies shall be clean blasted rock. Where in the opinion of the Owner's representative, significant silty bottom sediments will disperse with potential of creating water quality problems, the fill zone shall be isolated from the remainder of the water body by such means as a silt curtain as accepted by the Owner's representative. Rock shall be placed into the water zone so as to create the least amount of disturbance of bottom sediments. Rock shall be placed along the outer edge of the fill zone to close off and isolate the fill zone from the rest of the water body. Fill placement shall proceed with runs of rock along the inside of the first outer run of fill. Successive runs of rock fill shall be placed in this manner until the zone is filled back to the inner fill limits. Height of the placed rock fill shall be maintained a minimum of 300 millimetres above water level during fill operations. Equipment shall not operate in standing water zones. Removal of displaced sediments and/or bog shall be carried out as directed by the owner. Pumping of water from the fill zone to a designated area may be required by the owner to reduce water levels in the fill zone and prevent movement of silted water through the rock fill back into the water body.

**815.09 REMOVAL OF STRUCTURAL STEEL PROTECTIVE COATINGS**

Solid waste produced by the removal of steel protective coatings is not permitted to be released into any watercourse or water body or into any ditch or area that leads directly to a watercourse or water body. The specifications in **825.03** are intended to provide guidance to individuals involved in the removal of structural steel protective coatings with respect to the minimum acceptable control measures and the appropriate disposal procedures for the generated solid waste.

## SECTION 816

### SILT FENCE

#### INDEX

- 816.01      SCOPE**
- 816.02      MATERIALS**
- 816.03      CONSTRUCTION**
- 816.04      MAINTENANCE AND CLEAN OUT**
- 816.05      REMOVAL**
- 816.06      MEASUREMENT FOR PAYMENT**
- 816.07      BASIS OF PAYMENT**

#### **816.01      SCOPE**

This specification deals with the requirements for the provision, maintenance, and eventual removal of silt fence. Silt Fences are intended for reducing the amount of silt present in run off from highway projects during the construction process.

#### **816.02      MATERIALS**

The silt fence shall consist of a filter fabric fence held in place by posts. The filter fabric shall be of a weight of at least 200g/m<sup>2</sup>. The fabric shall be at least 900 millimetres wide. The fence posts shall be of sufficient length to support the fabric, be sturdy and be of dimensions of at least 50 millimetres square. The staples shall be sufficiently sturdy to support the fabric for the required life of the fence.

#### **816.03      CONSTRUCTION**

The silt fence shall be constructed as shown on Form 1238 "Typical Silt Fence", and placed at the location, or locations, as required by the Owner's representative.

At the location required by the Owner's Representative, the Contractor shall excavate a trench in a crescent shape across the projected flow path with ends pointing up slope. The trench shall have a width of approximately 100 millimetres, and a depth of approximately 100 millimetres.

The posts shall be secured at 3 metre intervals on the immediate down slope side of the trench.

The filter fabric shall be taken from a continuous roll, and cut to the required length. The filter fabric shall be stapled to the upstream side of the stakes, with 200 millimetres of fabric extending into the trench and spread over the trench bottom.

The trench shall be backfilled and compacted to secure the fabric in the ground. The silt fence shall be properly constructed to ensure continuous protection along its perimeter. Under no circumstances are silt fences to be installed in a watercourse or waterbody.

#### **816.04 MAINTENANCE AND CLEAN OUT**

The Contractor shall maintain the silt fence, until such times as the Owner's Representative requires that the silt fence be removed.

The Contractor shall carry out such silt and debris clean out, as required, in order that the silt fence continues to perform its function of reducing the amount of silt present in the run-off. Should the fabric become clogged, and rendered useless, then the Contractor shall replace the fabric with new fabric at their expense.

#### **816.05 REMOVAL**

The Contractor shall remove the silt fence, when required to do so by the Owner's Representative. The posts shall be taken out of the ground and the site cleaned up. Waste materials shall be disposed of in an accepted waste disposal area, provided by the Contractor.

#### **816.06 MEASUREMENT FOR PAYMENT**

Measurement for payment will be made on the basis of the required length of fence installed, computed in metres and rounded to one decimal place.

#### **816.07 BASIS OF PAYMENT**

Payment at the contract unit price for silt fence shall be compensation in full for all materials, labour and use of equipment: to supply the filter fabric, posts and staples, to excavate the trench, to install the posts, to secure the fabric to the posts, to backfill and compact the trench, to maintain and clean out the fence, to replace any worn out filter fabric with new fabric provided by the Contractor at their expense, to remove the silt fence and posts, dispose of waste materials and clean up the site.

## SECTION 817

### CHECK DAM SEDIMENT TRAP

#### INDEX

- 817.01 SCOPE**
- 817.02 MATERIALS**
- 817.03 CONSTRUCTION**
- 817.04 MAINTENANCE AND CLEAN OUT**
- 817.05 DISPOSAL**
- 817.06 MEASUREMENT FOR PAYMENT**
- 817.07 BASIS OF PAYMENT**

#### **817.01 SCOPE**

This specification deals with the requirements for the provision, maintenance, and eventual disposal of a check dam sediment trap. Check dam sediment traps are intended for reducing the amount of silt present in run off from highway cuts during the construction process.

#### **817.02 MATERIALS**

The check dam sediment trap shall consist of rock fill with the upstream face covered in a layer of small shot rock.

The rock fill shall be clean rock, with rock fragments sized between 100 millimetres and 150 millimetres.

The small shot rock shall be clean rock, with fragments no larger than 120 millimetres.

#### **817.03 CONSTRUCTION**

The check dam sediment trap shall be constructed as shown on Form 1239 "Typical Check Dam Sediment Trap". The silty water storage area shall be excavated, and the check dam constructed, at the location as required by the owner's representative.

#### **817.04 MAINTENANCE AND CLEAN OUT**

The Contractor shall maintain the check dam, until such time as the owner's representative requires that the check dam be removed.

The Contractor shall carry out such silt and debris clean outs as are required, in order that the check dam continue to perform its function of reducing the amount of silt present in the run-off.

### **817.05 DISPOSAL**

The Contractor shall remove the check dam sediment trap, when required to do so by the Owner's Representative.

On removal of the check dam, the materials shall be disposed of in an accepted disposal area provided by the Contractor. The ditch shall be cleaned up and graded to the required ditch cross section.

### **817.06 MEASUREMENT FOR PAYMENT**

Measurement for payment will be based on the number of required check dam sediment traps constructed.

### **817.07 BASIS OF PAYMENT**

Payment at the contract unit price for each check dam sediment trap shall be compensation in full for all labour, materials and use of equipment to: excavate the silty water storage area, load the rock fill and small shot rock at the source and haul to the check dam site, construct the check dam as required, maintain and clean out the check dam sediment trap as required, and finally remove the check dam, dispose of the waste materials, clean up and grade the site.

The rock fill and small shot rock shall be paid for under: "Excavation hauled 1km or under - Solid Rock", "Excavation hauled 1km or under - Ditching Solid Rock", or "Excavation hauled 1km or under - Quarried Rock", as applicable. However, any additional hand work required to sort the rock fill and the small shot rock to obtain the required size of fragments, and to grade the rock to the required check dam dimensions, shall be included in the payment for the check dam sediment trap.

## SECTION 818

### FLOATING SILT CURTAIN/TURBIDITY BARRIER

#### INDEX

##### **818.01 SCOPE**

###### **818.01.01 General**

##### **818.02 MEASUREMENT FOR PAYMENT**

##### **818.03 BASIS OF PAYMENT**

##### **818.01 SCOPE**

This specification covers the supply, installation, and operation of a floating silt curtain or turbidity barrier.

Specific locations the Silt Curtain is to be used shall be designated by the Owner's Representative.

###### **818.01.01 General**

The Contractor and Subcontractor(s) are required to comply with environmental protection measures contained in this section and all applicable environmental protection regulations of Federal, Provincial, and Municipal Authorities.

This specification is to be used in applications where a floating silt curtain/turbidity barrier is specified to be used around the leading edge of the advancing fill for construction operations to control any silt that may be generated from the bottom of the fill or other materials that may be used in construction of the road or other structure in a submerged portion of a water body. The turbidity barrier is to be a floating silt curtain (such as Brockton Equipment/Spilldam, Inc. Siltdam Type I) meeting the requirements of the Federal Department of Fisheries and Oceans. This item may be designed locally but must adequately control and prevent the migration of silt or other deleterious substances from the work area to the main water body. The turbidity barrier system must be accepted with shop drawings/literature stamped by a professional engineer registered in the province of Newfoundland and Labrador submitted prior to its use.

The turbidity curtain is to consist of the following elements or accepted equivalents: 304 millimetre diameter flotation, 22oz polyvinylchloride (PVC) float cover, 8 millimetres PVC coated top tension cable, silt film skirt to required depth to reach from water surface to the water body bottom, 9.5 millimetres galvanized ballast chain, polyplate/lacing grommets (ends).

The turbidity barrier is to be anchored at 15 metres intervals. The anchoring system will consist of Mushroom style anchors or other suitable type anchors for the bottom condition present, yellow inflatable cautionary mooring buoys, and nylon mooring line or accepted equivalents. Where navigation conditions are present in the area of the turbidity curtain the cautionary buoys shall be lighted and a plan will be required to be submitted for approval showing where the buoys are to be located.

The turbidity barrier shall be a minimum of 100 metres in length but may be otherwise specified in the Unit Price Table. The barrier will form a long arc extending from the shoreline approximately 35 metres, across the work zone (parallel to the shore) approximately 30 metres, and back to the shoreline for approximately 35 metres. The barrier is to be installed to reach the bottom of the water body from the water surface. Installation plan can be seen on the drawing titled "Silt and Bubble Curtain", as shown on Form 1223 of the Specifications.

As the leading edge of the fill advances, and the work site changes, the turbidity barrier will have to be moved and reinstalled. Movement of the turbidity barrier shall be considered incidental to the work and should be included in the price for the turbidity barrier.

In addition to these requirements for use of the turbidity curtain for permanent works in the contract the contractor will be required to use a turbidity barrier for any temporary works requiring installation or removal of fill in the construction in the water body. The contractor may reuse the turbidity barrier required for use for the permanent works installation in the water body for a contract, but at all times during installation or removal of fill in the water a turbidity barrier may be required to be used.

## **818.02 MEASUREMENT FOR PAYMENT**

Measurement will be based on a per contract basis for the Floating Silt Curtain/Turbidity Barrier by the Owner's Representative. Fifty percent of the total of the item will be paid on the progress estimate after which the silt curtain has been deployed for its intended use, and fifty percent will be paid on the last progress estimate where the in water body construction operation has been completed.

## **818.03 BASIS OF PAYMENT**

Payment for the turbidity barrier will be lump sum. Payment shall be for compensation in full for engineering, design, transportation to site, installation, removal, reinstallation, equipment, labour, and all other materials necessary to complete the above, at the locations indicated to be used on the contract.

## SECTION 820

### STORAGE AND HANDLING OF FUELS AND OTHER HAZARDOUS, TOXIC, OR DANGEROUS MATERIAL

#### INDEX

- 820.01     STORAGE TANK REGISTRATION, INSPECTION, AND REMOVAL**
- 820.02     SPILL REPORTING & CLEANUP PROCEDURES**
- 820.03     FUEL STORAGE & HANDLING PROCEDURES**
- 820.04     EQUIPMENT SERVICING PROCEDURES**
- 820.05     USE OF HAZARDOUS TOXIC OR DANGEROUS MATERIAL**
- 820.06     REMOVAL OF STRUCTURAL STEEL PROTECTIVE COATINGS**

#### **820.01     STORAGE TANK REGISTRATION, INSPECTION, AND REMOVAL**

All storage tank systems must be registered under and in compliance with Newfoundland Regulation 58/03, The Storage and Handling of Gasoline and Associated Products Regulations, 2003 before commencing operation. Registration does not apply to storage tank systems of a capacity less than 2500 litres that are connected to a heating appliance. Contractors shall supply verification of storage tank registration to the Owner's representative prior to the commencement of work.

Storage tank systems shall be operated as per Section 18 of Newfoundland Regulation 58/03 Storage and Handling of Gasoline and Associated Products. This involves, but is not limited to, gauging or dipping, reconciliation of records and the proper maintenance of reconciliation records for a period of two years. Records shall be maintained for inspection by the Owner's representative and/or Government Service Centre Inspectors.

The operator of a storage tank system shall, within 30 days of known abandonment, empty the system of all products, remove the tank and associated piping from the ground, remove any contaminated soil, clean the area and restore the site to the satisfaction of the Owner's representative and in accordance with the criteria of the Government Services Centre.

#### **820.02     SPILL REPORTING & CLEANUP PROCEDURES**

The Contractor, Subcontractors, and their personnel shall take all necessary precautions to prevent the spillage, misplacement, or loss of fuels and other hazardous material.

The Contractor and Subcontractors shall abide by the following measures in the event of the detection of a fuel or hazardous material spill of 70 litres or more:

- a) make every effort to stop leakage and contain contaminant flow;
- b) immediately upon detection, report spill location and size to the Canadian Coast Guard spill report number 772-2083, Pesticides Control Section 729-3395 and to the Owner; follow up with a full written report containing information on the cause of the spill, remedial action taken, damage or contamination estimate, and any further action to be taken;
- c) remove contaminant from spill site by absorbent, pumping, burning, or whatever method is appropriate and acceptable to Owner. Clean-up the affected area in accordance with the requirements of the Government Services Centre and then dispose of contaminated debris at an accepted waste disposal site.
- d) take all necessary action to ensure the incident does not recur.

The Contractor shall apply the following criteria in reaching decisions on contaminant and clean-up procedures:

- a) minimize danger to persons;
- b) minimize pollution to watercourses and wetlands;
- c) minimize the size of the area affected by a spill; and
- d) minimize the degree of disturbance to the area and watercourses during clean-up and reported promptly to the Owner's representative.

The Contractor shall dispose of any soil contaminated by small leaks of oil or lubricating fluids from equipment in a manner accepted by the Owner's representative and in accordance with the criteria of the Government Services Centre. The Contractor shall have on site a suitable quantity of absorbent material such as "Oclansorb" or similar product which can be accessed quickly and effectively in the event of any hydrocarbon spill. The contractor shall advise fuel handling staff of its location and application.

### **820.03 FUEL STORAGE & HANDLING PROCEDURES**

Contractor shall ensure that fuels and hazardous materials are handled only by personnel who are trained and qualified in handling these materials in accordance with manufacturers' instructions and government regulations. The Contractor will be required to verify personnel qualifications as they pertain to this item and provide written confirmation of same to the Owner's representative. The Contractor shall supply a copy of the product safety data sheet to the Owner's representative of all hazardous, toxic or dangerous materials or substances which will be used during the course of the contract.

Refueling operations shall be supervised at all times. Under no circumstances shall any refueling procedure be left unattended by the operator.

Handling and fueling procedures shall be carried out to prevent the contamination of soil or water. Smoking shall be prohibited within 10 m of a fuel storage area or during refueling operations. Fueling or servicing of mobile equipment shall not be allowed within 100 m of a watercourse, water body, or designated wetlands. Oils, greases, gasoline, diesel, hydraulic and transmission fluids or other fuels shall be stored at least 100m (horizontal distance) from any water course, water body, or designated wetland unless otherwise accepted by the Owner's representative.

Any above ground fuel containers, with the exception of those exempted under Newfoundland Regulation 58/03, shall be self dyked units that are in compliance with the terms and conditions of the approval of the Government Services Center. Fuel storage areas and non-portable transfer lines shall be clearly marked or barricaded to ensure that they are not damaged by moving vehicles. The markers shall be visible under all weather conditions. The storage, handling and disposal of used oils shall be in accordance with the Used Oil Control Regulations (82-02) under the NL Environmental Protection Act.

#### **820.04 EQUIPMENT SERVICING PROCEDURES**

All heavy equipment maintenance shall be carried out by using suitable fluid collection equipment and in a manner which ensures all waste material is collected and suitably disposed of. The Contractor shall ensure that all equipment is mechanically sound to avoid leaks of grease, oil, diesel, gasoline, and hydraulic and transmission fluids. The Contractor shall ensure that no servicing or washing of heavy equipment occurs adjacent to watercourses and designated wetlands. Fueling, servicing or washing of equipment shall not be allowed within 100 m of a watercourse except within a refueling site accepted by the Owner's representative where conditions allow for containment of accidentally spilled fuels. The Contractor shall remove from the work area and properly dispose of all waste oil, filters, containers or other such debris at an accepted waste disposal site.

#### **820.05 USE OF HAZARDOUS TOXIC OR DANGEROUS MATERIAL**

Toxic construction material e.g., creosote treated timber, shall be stored at least 100 m away from all areas where drainage is directed into any watercourse or wetlands.

Toxic or dangerous substances such as form release agents, fuels, concrete additives (including superplasticisers), and other such substances, shall be transported, stored, and handled with all necessary precautions so as to prevent any spillage from occurring. Drip pans shall be used at locations where such liquids are being drawn off in order to contain any minor spills, and as a safety measure for containment of a significant spillage.

## **820.06        REMOVAL OF STRUCTURAL STEEL PROTECTIVE COATINGS**

Solid waste produced by the removal of steel protective coatings is not permitted to be released into any watercourse or water body or into any ditch or area that leads directly to a watercourse or water body. The specifications in **825.03** are intended to provide guidance to individuals involved in the removal of structural steel protective coatings with respect to the minimum acceptable control measures and the appropriate disposal procedures for the generated solid waste.

## SECTION 825

### WASTE MANAGEMENT

#### INDEX

- 825.01 SOLID WASTE DISPOSAL**
- 825.02 SANITARY FACILITIES/ SEWAGE DISPOSAL**
- 825.03 REMOVAL OF STRUCTURAL STEEL COATINGS**

#### **825.01 SOLID WASTE DISPOSAL**

The Contractor shall collect and dispose of all waste produced by its employees and those of its Subcontractors in a manner accepted by the Owner's representative, and in accordance with the Newfoundland and Labrador Environmental Protection Act, 2002. Through the placement of suitable containers at the site, the Contractor shall collect and dispose of rubbish and domestic garbage generated by employees. During the progress of the work, the Contractor shall keep the areas occupied by it and access to such areas in a neat, clean, and safe condition, and free from the accumulation of all waste materials including crating materials, rubbish, drink containers, cigarette cartons, and all other waste. All solid waste shall be removed from the job site and recycled or disposed of at an accepted Waste Disposal Site, with the permission of the municipal authority. No waste material shall be deposited in any watercourse or wetland.

Upon completion of the work the Contractor shall, at its own expense, and to the satisfaction of the owners representative, dispose of or remove from the job site all construction plant, rubbish, unused material, including concrete forms, filter fabric material, sediment fencing, sand bags, and other equipment and materials belonging to it or used under its direction during the performance of the work. The site shall be left in a neat and clean condition.

In the event of the Contractor's failure to comply with any of the foregoing, the same may be accomplished by the owner within 30 days of the completion of the work and the cost of same may be deducted from any money due or owing to the Contractor whether under this or any other contract.

#### **825.02 SANITARY FACILITIES/ SEWAGE DISPOSAL**

The Contractor shall maintain portable latrines on site or systems accepted by the Government Services Center. The sanitary facilities shall be used by all Contractor employees and those of subcontractors. The Contractor shall transport the waste from these units, using a collection company (whenever possible) licensed by Government

Services Center. Otherwise, transportation and disposal shall be by a means and at a facility or location as accepted by the Government Services Center.

#### 825.03 **REMOVAL OF STRUCTURAL STEEL COATINGS**

Prior to the disposal of used sand/grit, representative sampling (one composite sample would be sufficient) shall be collected from the stockpile by a qualified person. Please note, all stockpiles of sand/grit shall be contained and covered during storage on site. The samples shall be forwarded to a certified laboratory for analysis. The results shall be compared to the relevant provincial guidelines for heavy metals (CCME) soil quality guidelines for industrial sites. If the guidelines are exceeded for any parameter(s), then leachate testing using the TCLP protocol shall be undertaken for the parameter.

If the laboratory results exceed the limits outlined in schedule 2, Cross Border Regulations under CEPA. <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2021-25/page-1.html> the material is considered hazardous and shall be transported to Waste Dangerous Goods/Hazardous Waste (WDG/HW) facility for disposal out of the province. If the results are below these limits the waste is permitted for disposal to an approved landfill within the province. The Department reserves the right to require additional sampling in the future.

A copy of the lab report along with a summary shall be forwarded to [joanhann@gov.nl.ca](mailto:joanhann@gov.nl.ca). The department will review and provide a response via email to the proponent.

## SECTION 830

### **MARSHALING YARDS & TEMPORARY WORK CAMPS**

Equipment or material storage yards and temporary work camps shall be located at least 100 metres from any watercourse or designated wetland.

The Contractor is responsible for obtaining all appropriate permits from government agencies with legislation and regulations relevant to camp facilities. These permits include, but are not necessarily limited to, those related to: solid and liquid waste disposal, water supply, sewage treatment, development control, Crown Lands, and any Municipal Authority having jurisdiction over the area.

Any site proposed for a marshaling yard or work camp should be of low value with respect to its potential for other uses when compared to other lands in the area. Abandoned gravel pits, abandoned commercial enterprises, or other previously disturbed areas are preferred locations. Any site must be located so as to minimize potential traffic hazards. Incoming and outgoing vehicles should be able to merge safely with other traffic. Prior to the commencement of construction the Contractor will submit a list of candidate sites, which will be reviewed and accepted by the Owner's Representative and any other relevant agency.

## **SECTION 835**

### **FOREST FIRE PREVENTION**

The Contractor shall obtain a burning permit as may be required by the Forestry Division of the Department of Fisheries, Forestry, and Agriculture, where burning is to be conducted, and shall abide by the terms and conditions of the permit.

The Contractor shall take all precautions necessary to prevent fire hazards when working at the job site and shall keep the job site free of all flammable waste.

Fires shall be located a minimum of 10m from the existing tree line or adjacent piles of slash. Fires and slash piles will be kept to small manageable sizes to prevent igniting or scorching of adjacent vegetation.

The Contractor shall have available, in proper operating condition, sufficient firefighting equipment, as recommended by the Forestry Division of the Department of Fisheries, Forestry, and Agriculture, to suit its location, labour force, and construction plant. Such equipment shall comply with the standards of, and have approvals of, Underwriters Laboratories of Canada Limited and shall be maintained in accordance with National Fire Prevention Association Codes.

The Contractor shall ensure that specific employees are assigned to and trained in the use of firefighting equipment. A list of these personnel shall be available on request by the Owner.

Rubber tires, waste oil, or similar material shall not be used to ignite slash or used to maintain the burning operation.

## **SECTION 840**

### **DUST CONTROL**

The Contractor shall ensure that dust does not become a problem for adjacent property Owners or construction site personnel or a hazard to vehicular traffic. When required, or as directed by the Owner's representative, water or an acceptable dust suppressant such as calcium chloride shall be used by the Contractor on haul routes or other locations on the project to control dust. All costs related to the implementation of dust control measures shall be considered incidental to the project, no additional payment will be made to the Contractor.

## SECTION 845

### EQUIPMENT OPERATION AND PREVENTION OF EROSION AND SILTATION

#### INDEX

- 845.01 STORM WATER MANAGEMENT**
- 845.02 TEMPORARY TRAVEL ROUTES**
- 845.03 EROSION & SILT CONTROL MEASURES**
  - 845.03.01 GENERAL PROTECTION MEASURES**
- 845.04 LIMITATION OF OPERATION**

#### **845.01 STORM WATER AND SURFACE RUNOFF MANAGEMENT**

The Contractor is responsible for the control of all storm water, surface runoff and drainage management throughout the project for the duration of the contract. This includes the collection, channeling, containment, settling, discharge and any other mitigative measures required to effectively control runoff and prevent problems of erosion or siltation of adjacent or downstream areas. (See Section 815.07 Control and Treatment of Silted Water).

#### **845.02 TEMPORARY TRAVEL ROUTES**

Linear travel along the right of way by vehicles and equipment shall be restricted to one track or travel route, particularly during the early stages of opening access along the route, unless otherwise accepted by the Owner's Representative. The route shall be maintained by the Contractor free of standing water. Surface drainage will not be permitted to run along the travel route which can generate extensive mud and silt, and adversely affect materials to be excavated such as grubbing, unsuitable material, and other materials. Surface drainage shall be channelled off the route at frequent intervals. Where drainage courses are encountered, and frequent crossings are required, temporary culverts or bridges shall be installed to permit passage of equipment and vehicles in the dry, without causing erosion and siltation. At certain locations fording may be permitted by the Owner's Representative. (See Section 815.03 Fording of Watercourses).

#### **845.03 EROSION & SILT CONTROL MEASURES**

##### **845.03.01 GENERAL PROTECTION MEASURES**

The Contractor shall minimize terrain disturbance and erosion resulting from its activities. The Contractor shall, as part of its work, implement erosion and silt control measures where its activities result in a blockage of natural drainage, the diversion of natural

drainage, or the exposure of soil or subsoil to potential erosion. Particular measures which may be required include:

- a) using an erosion control blanket.
- b) using an appropriate hydraulic mulch.
- c) spreading hay over exposed soils.
- d) spreading a thin layer of brush or slash over disturbed areas.
- e) the installation of baffles or sediment traps at appropriate intervals within the area of disturbance.
- f) the installation of drainage collectors across the disturbed area to channel drainage into vegetated areas.
- g) the re-routing of disturbed drainage courses back into the natural course.
- h) the stabilization of exposed soils at drainage locations with appropriate riprap.
- i) where so directed by the Owner's Representative, to construct check dams to confine mud or slurry at such locations as un-sodded ditch lines, catch-basins and culvert inlets.
- j) the pumping of silted water to settling or designated vegetated areas.
- k) the installation of sedimentation basins of adequate size at run-off locations from exposed areas to contain heavy silt and mud as directed by the Owner's Representative.

#### **845.04 LIMITATION OF OPERATION**

During periods of heavy rain or significant runoff, where in the opinion of the Owner's Representative, previously completed or ongoing work on the project gives rise to excessive siltation, erosion, or any potential to impact watercourses or adjacent land, the Contractor will be required to suspend operations and undertake mitigative measures immediately to address the issues. Work shall not resume until such time as the issues are properly mitigated and are no longer causing concern.

The Department will not accept any claims relating to delays or costs resulting from addressing excessive siltation, erosion or other environmental issues, however the Department will consider extending the Contract Time for such reasonable time as the Owner may decide in consultation with the Contractor.

## SECTION 850

### PROTECTION OF VEGETATION AND WETLANDS

#### INDEX

- 850.01 MAINTAIN NATURAL DRAINAGE PATTERN**
- 850.02 PROTECTION OF TREES & SHRUBS**
- 850.03 OFF RIGHT OF WAY TRAVEL**
- 850.04 BOGS AND WETLANDS**

#### **850.01 MAINTAIN NATURAL DRAINAGE PATTERN**

Drainage is to be maintained in its natural state wherever possible, with provision being made for spring flooding. Where existing drainage patterns cannot be maintained, alternate drainage will be installed to approximate normal conditions with the approval of the Owner's representative.

#### **850.02 PROTECTION OF TREES & SHRUBS**

Some trees, shrubs and plants within the clearing limits may be required for use by the Owner or other groups. Where necessary, and as directed by the Owner's representative, such trees, shrubs and plants shall be flagged for removal. Also see Section 855.02 (Planting of Trees and Shrubs).

Where branches of trees are to be removed as a result of damage or where roots 2.5 cm in diameter or larger are exposed as a result of contractors excavation work, the stumps shall be cut cleanly using a saw or lopping tool. The roots shall be cut back level to the surface of the cut slope within 24 hours following their exposure.

The Contractor shall adhere to the following protection measures:

- a) No unnecessary cutting of trees is to be conducted. Care will be taken during construction to prevent damage to trees and shrubs adjacent to the flagged clearing limits which are to remain after construction.
- b) Care shall be taken when sloping embankments not to expose roots of trees, or put the soil at the base of such trees in danger of future erosion or extensive downslope drainage.
- c) The Contractor shall not use living trees as survey marks and shall not cut blazes or otherwise mark live trees except with removable surveyor's tape and/or tags.
- d) Where cutting is necessitated, the Contractor shall stockpile and remove all merchantable timber not required by the Owner. Other wood waste and slash

remaining near the uncut zone shall be disposed of by chipping, burning, or removal, as acceptable to the Owner's representative.

#### **850.03 OFF RIGHT OF WAY TRAVEL**

The Contractor shall limit equipment travel to the surveyed right-of-way and existing municipal and provincial roads. Use of equipment of any type is not permitted outside the clearing limits of the right of way without prior approval. To obtain approval for additional or new travel routes, the Contractor shall notify the Owner's representative a minimum of five working days in advance of such requirements and not commence work until written approval is given by the Owner's representative.

#### **850.04 BOGS AND WETLANDS**

Bogs and wetlands are considered sensitive terrain because of their high disturbance potential. Travel by machinery across bogs and wetlands shall be avoided whenever possible. When such travel is necessary, it shall be carried out as directed by the Owner's representative. Bog excavation shall conform with good construction practices and be carried out in accordance with other relevant sections of these specifications.

## SECTION 855

### REVEGETATION

#### INDEX

##### **855.01 REVEGETATION FOR SURFACE STABILIZATION**

##### **855.02 PLANTING OF TREES AND SHRUBS**

###### **855.02.01 GENERAL INSTRUCTIONS**

###### **855.02.02 PLANTING METHODS AND MAINTENANCE**

###### **855.02.03 PAYMENT AND WARRANTY**

##### **855.01 REVEGETATION FOR SURFACE STABILIZATION**

Immediately following and during some construction activities, the Owner's representative will identify areas requiring seeding/sodding or stabilization by a method to prevent erosion. These will include:

- a) Extensive cuts in overburden material. These areas shall be hydro seeded within three calendar days of a cut being prepared and the work shall be carried out as directed by the Owner's representative;
- b) Stream crossing sites. Topsoil placement, sodding, and shrub or tree plantings may be required as directed by the Owner's representative.
- c) All remaining disturbed areas, designated, will be hydro seeded or sodded as soon as possible in accordance with the TI Specification Book - Section 632- Hydroseeding, Section 634 - Soil for Hydroseeding, Section 635- Lime for Hydroseeding, and Section 633- Sodding.

Where the potential for erosion exists, as on steep slopes, long slopes, or soft erodible type material, an appropriate erosion control material shall be applied to the surface. This can be in the form of an erosion control fabric or a sprayed on erosion control product which is accepted by the Owner's representative and which will be in addition to hydroseeding as indicated in the contract documents or as directed by the Owner's representative. Also see Section 845.03 (Erosion and Silt Control Measures).

The Owner's representative will inspect all revegetated areas periodically to ensure that adequate results have been achieved. During adverse dry conditions watering of revegetated areas shall be carried out as directed by the Owner's representative. Additional revegetation work will be undertaken upon direction from the Owner's representative if the desired results are not achieved.

## 855.02 PLANTING OF TREES AND SHRUBS

### 855.02.01 GENERAL INSTRUCTIONS

The planting of trees will be carried out in those areas identified in the contract documents. The types of species, quantity, size, and exact location will be specified in the contract documents or otherwise the Contractor will be advised by the Owner's representative. Nursery stock, (purchased trees and shrubs in pots), or site stock, (trees and shrubs removed from a site and held over or planted out directly), may be used as specified in the contract documents or as directed by the Owner's representative.

Native species of trees and shrubs are generally preferred, however, non-native species may be specified where, for example, a faster growing species or a disease resistant species or variety is needed.

The following species of trees are recommended:

SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME	COMMON NAME
PICEA	SPRUCE	ACER SPICATUM	MOUNTAIN MAPLE
ABIES BALSAMEA	FIR	ACER RUBRUM	RED MAPLE
BETULA PAPYRIFERA	BIRCH	ACER PLATANOIDES	NORWEGIAN MAPLE
SORBUS	DOG BERRY	SALIX DISCOLOR	WILLOW
LARIX LARICINA	LARCH, JUNIPER	SALIX BEBBIANA	WILLOW
LARIX KAEMPFERI	JAPANESE LARCH	POPULUS TREMULOIDES	TREMBLING ASPEN, POPLAR, APS
PRUNUS PENSylvANICA	PIN CHERRY	POPULUS BALSAMEA	COTTONWOOD, BALSAM POPLAR

The following species of large shrubs are recommended:

SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME	COMMON NAME
AMELANCHIER	CHUCKLE PEAR	CORYLUS CORNUTA	HAZELNUT
VIBURNUM CASSINOIDES	NORTHERN WILD RAISON	ARONIA MELANOCARPA	EASTERN CHOKEBERRY, CHOKECHERRY
ALNUS CRISPA	ALDER	ARONIA PRUNIFOLIA	EASTERN CHOKEBERRY, CHOKECHERRY
CORNUS STOLONIFERA	RED OSIER DOGWOOD		

The following species of small shrubs are recommended:

SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME	COMMON NAME
MYRICA GALE	SWEET GALE, BOG MYRTLE	SAMBucus PATENS	RED ELDERBERRY
RHODODENDRON CANADENSE	RODORA	ROSA NITIDA	WILD ROSE

NEMOPANTHUS MUCRONATA	MOUNTAIN HOLLY	ROSA VIRGINIANA	WILD ROSE
VIBERNUM EDULE	SQUASHBERRY	RUBUS IDAEUS	RED RASPBERRY
CHAMAEDAPHNE CALICULATA	LEATHERLEAF	SPIRAEA LATIFOLIA	MEADOWSWEET

### **855.02.02 PLANTING METHODS AND MAINTENANCE**

The Contractor is referred to the Manual for Native Plant Material Recovery, available from the Department of Transportation and Infrastructure, for general information and recommended practices for the removal of trees and shrubs for either planting out directly or holding over for subsequent planting, and other aspects of care and maintenance.

All trees and shrubs do best when planted in early spring prior to the buds opening, but may also be successfully planted in late fall during their dormancy period. While it is possible to plant trees and shrubs at any time of the year, a regular watering program prepared by the Contractor and accepted by the Owner's representative to reduce or prevent mortalities is required during the active growing period. A watering program is required for all planted stock (nursery stock or site stock) in the first year. This should commence as soon as active growth begins, and as determined by the prevailing weather conditions and dryness of the soil throughout the growth season. Watering and other necessary maintenance such as the provision of staking or supports, pruning, mulching, etc. is the responsibility of the Contractor and no extra compensation will be paid for these items.

### **855.02.03 PAYMENT AND WARRANTY**

Measurement for payment shall be by the number of individual trees of the specified species and size planted. The Contractor is responsible for preventing mortalities in planted stock. Trees and shrubs which die within 18 months of being planted shall be replaced by the Contractor at no additional cost to the Owner.

## SECTION 860

### PROTECTION OF HISTORIC RESOURCES

The Contractor shall be aware that the Historic Resources Act (1985) requires the protection of archaeological sites and artifacts, and sets forth procedures that shall be followed in the event that either are found. The Contractor shall be aware of the following sections of the Act:

- a) Section 10(1) - A person who discovers an archaeological object in, on, or forming part of the land within the province shall report the discovery forthwith to the Minister stating the nature of the object, the location where it was discovered and the date of the discovery.
- b) Section 10(2) - No person, other than the one to whom a permit has been issued under this Act, who discovers an archaeological object shall move, destroy, damage, deface or obliterate, alter, add to, mark or in any other way interfere with, remove or cause to be removed from the province that object.
- c) Section 11(1) - The property in all archaeological objects found in, on or taken from the land within the province, whether or not these objects are in the possession of Her Majesty is vested in Her Majesty.

Should any archaeological remains be encountered, such as stone, bone or iron tools, concentrations of bone, fireplaces, house pits and/or foundations, work in the area of the find shall cease immediately. The Contractor shall immediately notify the Owner's representative immediately upon discovery

## SECTION 865

### OTHER ENVIRONMENTAL REQUIREMENTS

The Contractor shall be aware that other environmental requirements are contained in other sections. The attention of the Contractor is directed to:

- SECTION 180 UNWATERING INCIDENTAL TO WORK
- SECTION 201 CLEARING AND GRUBBING
- SECTION 202 CLEARING
- SECTION 203 GRUBBING
- SECTION 204 GRADING OF FILL
- SECTION 207 BORROW
- SECTION 208 EXCAVATION OF DITCHES
- SECTION 305 APPLICATION OF CALCIUM CHLORIDE
- SECTION 310 USE OF PITS, QUARRIES, AND STOCKPILES FOR PRODUCTION OF MATERIALS SUPPLIED BY CONTRACTOR
- SECTION 317 WINTER SAND
- SECTION 320 TACK COAT
- SECTION 330 HOT MIX ASPHALTIC CONCRETE
- SECTION 401 DITCHING FOR STREAMS
- SECTION 402 PERMANENT DIVERSION OF STREAMS
- SECTION 403 EXCAVATION FOR FOUNDATIONS
- SECTION 405 TEMPORARY DIVERSION OF STREAMS
- SECTION 421 INSTALLATION OF PIPE CULVERTS
- SECTION 423 SUPPLY AND INSTALLATION OF STRUCTURAL PLATE PIPE
- SECTION 424 SUPPLY AND INSTALLATION OF STRUCTURAL PLATE ARCH
- SECTION 426 DESIGN, SUPPLY, AND INSTALLATION OF LONG SPAN STRUCTURAL PLATE ARCH
- SECTION 520 STORAGE OR DISPOSAL OF OLD ASPHALTIC PAVEMENT
- SECTION 521 DEMOLITION AND REMOVAL OF SIDEWALKS, CURB AND GUTTER, MANHOLES, CATCH BASINS, DITCH INLETS, FENCES, GUIDE RAIL AND GUIDE POSTS

- SECTION 522 DISPOSAL OR SALVAGE OF CULVERT OR PIPE
- SECTION 634 SOIL FOR HYDROSEEDING
- SECTION 635 LIME FOR HYDROSEEDING
- SECTION 632 HYDROSEEDING
- SECTION 901 REMOVAL OF EXISTING STRUCTURE
- SECTION 902 EXCAVATION FOR FOUNDATION, UNWATERING AND EXTRA BACKFILL FOR STRUCTURES
- SECTION 914 BRIDGE DECK WATERPROOFING
- SECTION 919 REHABILITATION OF CONCRETE STRUCTURES