

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 01 – General information.
- .2 Section 01 35 43 – Environmental protection.
- .3 Section 01 74 21 – Construction waste management and elimination
- .4 Section 02 41 16 – Construction demolition.

1.2 REFERENCES

- .1 Documentation from the Canadian Council of Ministers of the Environment (CCME).
- .2 *Soil Protection and Contaminated Sites Rehabilitation Policy* from the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC), the *Action Guide — Soil Protection and Contaminated Sites Rehabilitation* (MDDELCC, 2016) and technical sampling guides if required.

1.3 DEFINITIONS

- .1 The definition of “dry demolition materials” is as found in the *Regulation respecting solid waste* (R.R.Q, 1981, CQ-2, r.14): “non-fermentable, shredded residues free of hazardous materials, cut wood, debris and rubble, fragments of concrete, masonry and asphalt.”

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 REMOVAL OF SOLID WASTE AND DRY MATERIALS

- .1 Do not bury or burn solid waste or dry materials on the construction site.
- .2 The Contractor must hire, at their own expense, an Expert Environmental Consultant (“Environmental Consultant”) to **develop and implement** an environmental protection plan for the construction site that includes management plans for at least the following: contaminated soils, waste, construction site cleaning (before, during and after), demolition and excavation work. This environmental protection program must include but is not limited to the following:

- .1 Method for removing soils contaminated above the MDDELCC's class C criteria.
 - .2 Means of temporary storage and drying and treatment methods for water from dewatered soil, if required. The Contractor must provide plans for the storage sites and structures used for dewatering contaminated soils and processing the resulting water, if required.
 - .3 Means of transportation, types of vehicle and roads used (traffic plan).
 - .4 A plan showing contaminated areas. If temporary storage or piling areas are used, the Contractor must provide location and management plans for these areas.
 - .5 The name and address of disposal sites for class C, B-C, A-B and <A contaminated soils.
 - .6 The name of the engineered landfill used to dispose of scrap from the construction site.
 - .7 Certificates of authorization issued by the MDDELCC for all disposal sites used for contaminated soils, scrap and waste. If these sites are located outside of Quebec, the Contractor must obtain authorization from the province and the disposal site and provide the letters and/or certificates of authorization to the Departmental Representative.
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- .3 Do not dispose of solid waste or dry materials in streams or watercourses. Water that has been in contact with contaminated soils or waste may not be released directly into the environment without undergoing analysis to verify that it meets the MDDELCC's disposal standards (Protection criteria for aquatic life in marine areas).
 - .4 The Contractor must remove dry materials and soil (fill) resulting from demolition. These materials are not to be reused.
 - .5 Unrecovered dry demolition materials and fill must be disposed of at sites authorized by Quebec's MDDELCC. If the disposal site is in another province, the site must be approved by that province.
 - .6 The Contractor must provide the Departmental Representative with a copy of the authorizations and permits from the owners or managers of the engineered landfills or disposal sites for contaminated soils before the Departmental Representative can allow the dry materials to be taken offsite. The MDDELCC can provide information about extant sites upon request. If the site is outside of the province, the Contractor must provide the province's authorization to receive dry materials and/or backfill if necessary. The Contractor must also provide the certificate authorizing the site to operate.
 - .7 If the Contractor wishes to dispose of dry materials and backfill (below the MDDELCC's class A, crushed concrete) at a site other than an engineered landfill site authorized by the MDDELCC, they must obtain authorization from the municipality where the site is located and from the MDDELCC. They must provide the Departmental Representative with authorizations from the site in question (site owner), the municipality and the MDDELCC. They must do so in order to comply with municipal and provincial regulations.

To obtain the aforementioned authorizations, the Contractor must prove that they understand the environmental characteristics of their chosen disposal site. If the Contractor wishes to dispose of dry materials and/or backfill in an unevaluated (or uncertified) site of their choice, they must, at their own expense, perform a soil characterization for this site and obtain the Departmental Representative's authorization before using it.

Note: Soil characterization involves collecting and analyzing soil samples to determine their metal content (lead, copper, zinc, cadmium, chrome, arsenic, nickel, mercury), polycyclic aromatic hydrocarbons (PAHs) content and other contaminant content. (Ref.: MDDELCC soil characterization guides). All environmental characterizations must comply with the regulations and methods described in the guides and sampling notebooks so that the MDDELCC can use them for environmental analysis purposes.

- .8 As part of the riprapping project, the Department is also planning to decontaminate the wharf and entry cells. The goal is to reduce copper contamination of the fill on a commercial/industrial level, i.e. below MDDELCC class C.

The quality of the fill in cells (1 to 4) of the wharf was evaluated in July 2016. This evaluation found primarily copper contamination above MDDELCC class C at a depth of 500 mm. The estimated volume is 370 m³. However, there is little information on the quality of the fill below the first 500 mm. Once this layer has been removed, the Contractor, through their Environmental Consultant, must characterize the fill in each cell to determine the soil quality. A composite sample will be collected from each cell. Within 24 hours after sampling, the samples should be analyzed for C₁₀–C₅₀ and the six (6) following metals: arsenic (As), cadmium (Cd), copper (Cu), nickel (Ni), lead (Pb) and zinc (Zn). If possible, the samples should also be analyzed for PAHs within 24 hours after sampling. Another 500 mm layer should be removed from every cell containing a copper or C₁₀–C₅₀ contamination above MDDELCC class C. This procedure should be repeated for each cell until a concentration below class C is obtained or until the proportion of fine particles (sand, silt, clay) is too low to continue analyses.

The fill in the entry is contaminated with copper above class C. According to various soil characterizations, the layer 350 mm under the concrete slab between the wharf and the fence is contaminated above class C. This layer, an estimated 700 m³ of fill, must be removed and disposed of in a site authorized by the MDDELCC or the province that is receiving the fill. Once this 350 mm layer has been removed, the Contractor, through their Environmental Consultant, must sample the surface fill every 25 metres. The samples must be analyzed for six (6) metals (As, Cd, Cu, Ni, Pb, Zn) within 24 hours. Fill contaminated with copper above class C must be excavated to a depth of 500 mm and re-sampled until the copper concentration drops below class C.

The only area affected by C₁₀–C₅₀ hydrocarbons is located in the entrance, close to where the wharf begins. It is the result of a hydrocarbon spill from a pipeline that had been left in place. Xstrata has dismantled the pipe and decontaminated the spill area between chainage 0 + 320 and 0 + 280 m metres, as illustrated on the plans. The bottom of the excavated area could not be characterized during work as it was located at chart datum and the tide was rising. The excavated area was filled without being characterized. As a result, the area is considered to be potentially contaminated with C₁₀–C₅₀ hydrocarbons over an area of approximately 240 m². The Contractor's Environmental Consultant must propose a sampling and process plan to determine the quality of fill in this area. The plan must be submitted to and approved by the Departmental Representative. The Contractor must take

steps to avoid dispersing exposed soils during the sampling period and while awaiting analysis results. They must collect samples and have C₁₀–C₅₀ and PAH content analyzed within 24 hours. If the fill is contaminated above class C, it must be excavated to a depth of 500 mm and sent to an MDDELCC-authorized site. New samples must then be collected to determine the quality of the bottom layer of fill. If rocks are contaminated by heavy hydrocarbons (“bunker fuel” attached to the rocks), they must be removed from the area and sent to an MDDELCC-authorized site.

The soil excavated from this sector (chainage 0 + 320 and 0 + 280 m), as well as all material excavated in the water, must be dried before being sent to the final disposal site. The Contractor must include a soil drying pond in their plans. Soil management in these drying ponds must account for contamination levels of the excavated material. Contaminated soils and/or soils with different levels of contamination should not be mixed. Water resulting from dewatered soil must be analyzed in order to determine its contamination levels. In order to be pumped back out to sea, the water must comply with the MDDELCC’s protection criteria for aquatic life in marine areas. The parameters to be analyzed are the same as those for the soil: copper in the wharf and entry cells, PAH and C₁₀–C₅₀ in the aforementioned area (chainage 0 + 320 and 0 + 280 m), suspended material fewer than 25 mg/L and any other necessary parameters. If water from dewatering is contaminated above the criteria, it must be sent to a treatment facility or treated onsite before being sent out to sea in order to comply with disposal criteria.

See tables in Appendix B — Locating surveys and analytic results.

- .9 The Contractor’s Environmental Consultant must account for this information when preparing their disposal plan.
- .10 The laboratory used by the Contractor must be accredited by the MDDELCC and approved by the Departmental Representative.
- .11 Soils will be managed according to their level of contamination, in compliance with the MDDELCC’s *Action Guide — Soil Protection and Contaminated Sites Rehabilitation*:
 - .1 Contaminated soil, less than A
 - .2 Contaminated soil, class A-B
 - .3 Contaminated soil, class B-C
 - .4 Contaminated soil, greater than C
- .12 Depending on the results for each of the parameters, the Contractor must collect and transport the soil to
- .13 The Contractor must provide the Departmental Representative with a copy of the analysis results, transport sheets, weight tickets, authorizations and permits from the relevant authorities.
- .14 If there is debris on the access roads, the Contractor must remove it immediately and process it according to its level of contamination as needed. If necessary, the debris must be covered with a moisture barrier and stored in a designated area that has been approved by the Departmental Representative. It must then be transported to an appropriate offsite treatment area.

- .15 At any time before, during or after the work, the Departmental Representative can take or ask the Contractor to collect soil samples from access roads and other areas that were not contaminated before work began, whether already in place or built for the project. Clean soil that may have been contaminated by the Contractor's activities must be excavated and disposed of at an MDDELCC-authorized site at no extra cost to the Department.

3.2 RECOVERABLE MATERIALS

- .1 Untreated wood in good condition, concrete, steel and stone (except for stone that is to be reused under section 02 41 16 – Construction demolition) from demolition activities are considered to be recoverable.
- .1 Creosote-treated wood must be stored in a designated, MDDELCC-approved area.
- .2 If creosote-treated wood needs to be stored onsite, it must be kept inside an airtight container in an area that has been pre-approved by the Departmental Representative. Creosote-treated wood must be kept inside this container, and the container must be transported to a designated, MDDELCC-approved area. The Contractor must provide the Departmental Representative with certificates of authorization issued by the MDDELCC. If the site is outside of the province, the Contractor must provide the province's authorization to receive this material alongside the disposal site's certificate of authorization, if required.
- .2 The Contractor is solely responsible for determining which materials can be recovered.
- .3 With the exception of contaminated soils, the separation of reusable materials at the source and their storage is not subject to any applicable federal or provincial laws. However, the Contractor must follow all regulations and obtain and have authorization from the municipality.
- .4 Dry, recoverable demolition materials can be removed from the site as long as the Contractor
- .1 Provides a written statement that the owner and operator of the site where the materials deemed recoverable by the Contractor are to be stored will indemnify and hold harmless Her Majesty in right of Canada for all claims, demands, losses, costs, damages, actions, suits or proceedings by any third party, brought or prosecuted and in any manner based upon, arising out of, related to, occasioned by or attributable to the storage of these materials on this site by the Contractor, their employees, agents or subcontractors or the subsequent use of these materials;
- .2 provides a document, signed by the owner and operator of the site, authorizing the Contractor to store materials that they deem recoverable on the site; and
- .3 provides a document signed by the owner and operator of the site that indemnifies and holds harmless Her Majesty in right of Canada for all claims resulting from the deposit of materials deemed reclaimable by the Contractor or the subsequent use of said materials.
- This document must:
- .1 Be in duplicate if the owner of the site is not the operator (i.e. one copy for the owner of the site and one copy for the operator of the site).
- .2 Indicate the cadastre numbers and owner name of the lots in the repository site for recoverable materials.
- .3 Contain the following paragraph:

“ _____ ” (enter the name of the company using the site or the site owner) shall indemnify and hold Her Majesty harmless from and against all claims, demands, losses, costs, damages, actions, suits or proceedings by whomever made, brought or prosecuted and in any matter based upon, arising out of, related to, occasioned by or attributable to the storage by “ _____ ” (enter the Contractor’s name), their employees, agents or sub-contractors, on the lot(s) bearing the number(s) _____ in the cadastre of _____, of materials from _____, (enter the structure to be demolished) deemed recoverable by “ _____ ” (enter the Contractor’s name), or to the subsequent use of these materials”

- .4 Provide a document duly issued by the RCM or the municipality where the site is located, authorizing the site owner and operator to use the site to store reusable material from the demolition site.
- .5 Obtain prior written approval from the Departmental Representative.

3.3 DECONTAMINATION REPORT

- .1 Once decontamination has been completed, the Contractor’s Environmental Consultant must produce a report on the decontamination operations for the site, including environmental monitoring of the construction site. This report must include but is not limited to the following:
- summary in French.
 - context and project goals, summarizing the situation before decontamination.
 - list of environmental monitoring operations referring to, among others, the elements of this brief and the environmental impact assessment.
 - section indicating the quality of the fill before operations began
 - daily progress reports on the work. The progress report should detail the work, environmental monitoring and characterization operations performed each day.
 - a description of field work, methods, sampling program, analysis program, quality control program, sampling locations (latitude and longitude), etc..
 - a location plan for the soil sampling stations (with at least the volume and number of samples required by environmental monitoring sampling guides and notebooks; this number can be raised for improved management of the fill or bottom of the excavation).
 - the list of soil samples, as a table (**including sampling station coordinates, visual and olfactory description, observations, etc.**).
 - for soil samples: results as a table as specified in the MDDELCC’s *Action Guide — Soil Protection and Contaminated Sites Rehabilitation* and referring to the *Canadian Environmental Quality Guidelines* and the CCME’s commercial and industrial criteria.
 - indicators showing contaminated areas left behind, by contamination class: <A, A-B, B-C, (and >C, but in theory there should be nothing left in that class).
 - volume of contaminated soil disposed of by disposal site.
 - volume of scrap by category (stone, concrete, wood, steel, etc.) and disposal sites.
 - quality control interpretation of soil results.

- interpret soil results according to the criteria in the MDDELCC's *Action Guide — Soil Protection and Contaminated Sites Rehabilitation*. estimate the surface area and volume of contaminated areas left behind, by contamination class: <A, A-B, B-C, (and >C, but in theory there should be nothing left in that class).
- conclusion.
- photographs of the site during work.
- work monitoring journal (with dates, description of work, volumes disposed of, samples taken, etc.).
- photocopies of the transport sheets and weight tickets;
- analysis certificates.
- any other information needed to understand the report.

In an appendix, attach the daily environmental monitoring reports (tables filled out by the worksite supervisor).

END OF SECTION