SOIL MANAGEMENT PLAN

GUIDELINES FOR MANAGING ‘CHANCE-FINDS’ OF SUSPECT CONTAMINATED SOIL DURING HIGHWAY CONSTRUCTION

May 2017
1.0 SOIL MANAGEMENT PLAN

This soil management plan (SMP) provides guidelines relating to soil management and procedures to safeguard the health and safety of workers during Ministry of Transportation and Infrastructure (the ‘Ministry’) construction activities, and properly manage suspect contaminated soil according to the Environmental Management Act (EMA), the BC Contaminated Sites Regulation CSR) and the Hazardous Waste Regulation (HWR).

The construction contractor (Contractor) must hire a Qualified Environmental Professional (QEP) to address the chance-find of suspect contaminated soil, including overseeing or performing the sampling design, sample acquisition, evaluation of analytical results, submission of any required notifications to the BC Ministry of Environment (MOE), and records management.

This SMP incorporates the Stage 10 ('Omnibus') amendments to the CSR. The amendments were issued on October 28, 2016, and following a 12-month transition period, these changes will come into effect on November 1, 2017.

1.1 SOIL MANAGEMENT PROCEDURES

1.1.1 Field Screening and Management and Sampling of ‘Suspect Material’

Areas of soil contamination or debris may be encountered during construction activities. In order to manage suspect materials at the Site, field assessment of suspect soil or material should occur. Field screening includes visual and olfactory observations for evidence of contamination during all excavation activities. Examples of evidence of contamination may include the presence of free product, sheen, staining, debris and/or petroleum hydrocarbon odours. If field observations of suspect contamination are identified, a QEP should be retained to further classify the material, complete field screening, which may include collection of Combustible Headspace Readings (CHRs), direct stockpiling activities, soil sampling for characterization and disposal purposes, and estimating stockpile volumes.

1.1.2 Stockpiling ‘Suspect Material’

If suspect soils or materials are encountered during construction activities, this material should be stockpiled according to the following procedures.

As suspect soils or materials are excavated from the construction area, they should be segregated and stockpiled according to the anticipated soil contaminants and suspected waste classification (i.e., degree of contamination), with guidance from the QEP. Stockpile areas and volumes will be dependent on the type(s) and amount of suspect material encountered during construction, if any.
The time required to stockpile the suspect material depends on site conditions, including the accessibility of the suspect material. For example, a total of 1 working day is provided by the Ministry for a Contractor to stockpile an accessible 250 m$^3$ of suspect material.

A pre-determined stockpile area should be selected prior to the start of construction to prevent potentially contaminated soil or water runoff, or particulates in air from the stockpile(s) coming in contact with the surface water, or public walkways and recreation areas. The stockpile area should be located away from any storm drains. Durable polyethylene or vinyl tarp material should be available on-Site during the construction activities and laid out underneath and overtop of any stockpiles established, with sandbags or other heavy items to sufficiently weigh down the tarps and prevent blow-away. Soil berms and swales should be constructed around the stockpile area to intercept and divert any surface water on the up-gradient side, and to intercept and contain any silt and potentially contaminated runoff from the stockpile area on the down-gradient side. Intercepted water down-gradient of the stockpile area should be passed through filter cloth material to provide spot filtration of silt and sediments before being discharged back to the Site. If free product or petroleum hydrocarbon sheen is observed in the stockpiled soils or intercepted water, absorbent pads and/or booms should be placed in the down-gradient containment swales, and disposed of accordingly.

The Contractor should plan to maintain and monitor any stockpiles until laboratory analytical results from stockpile samples are available and a stockpile disposal strategy is determined by the QEP and the Ministry. Any excavated area(s) remaining open while awaiting stockpile sample or confirmatory sample results should be barricaded to prevent access.

1.1.3 Characterization of Suspect Stockpiles

Soil sampling and characterization of suspect stockpiles should be completed by the QEP pursuant to BC Ministry of Environment Technical Guidance 1 (TG1). Laboratory analysis of potential contaminants of concern (PCOCs) from stockpile samples will depend on the nature of the suspect material encountered during construction, including visual and olfactory observations and CHRs.

The time required to characterize suspect material depends on the size of the stockpile(s). For example, a total of 8 working days are provided by the Ministry for a QEP to characterize a 250 m$^3$ suspect Industrial Quality Material stockpile. This includes 1 day for sample collection, 5 days for the laboratory to analyze the samples/report the results, and 2 days for the QEP to evaluate the analytical data.

Once the analytical data is evaluated, and the stockpile is characterized, the Contractor must notify the Ministry within 1 working day to determine next steps. For stockpiles characterized as waste or hazardous waste quality, off site disposal strategy and the requirement for additional remediation shall be determined through consultation with the Ministry and the Contractors QEP.
1.1.4 Tracking and Record Keeping

Tracking and record keeping of contaminated soil from the Site should be followed to demonstrate that the movement of soil has followed appropriate procedures each day following the excavation of contaminated soils and the characterization of all suspected material (if any). This task should be completed by the Contractor or QEP.

For waste quality soils leaving the Site, a soil tracking and record keeping system should be developed and implemented to document the source location of all excavated waste quality soils and/or debris that leaves the Site each day, including the date of excavation, estimated tonnage, date of hauling, and receiving facility. Copies of shipping documents and receipts of delivery should be kept as part of tracking and record keeping and submitted to the Ministry Representative. Formal soil manifests are not required for non-hazardous waste soils.

Should any hazardous waste soils be identified at the Site, a hazardous waste generator number will need to be issued to MOTI by the BC MOE, and carbon-copy soil tracking manifests issued. The hazardous waste generator number will be obtained by the QEP (preferred) or Ministry. A manifest for each truck load of hazardous waste soil would need to be completed, with one copy of the manifest kept at the site while the truck driver maintains two copies. Upon delivery of the soil to the receiving facility, the truck driver will provide the disposal facility operator with the two manifest copies. The facility operator will record the scaled weight and keep one copy of the manifest on file and forward the second copy of the manifest to the construction contractor, QEP (preferred) or Ministry.

1.2 Health and Safety

A site-specific health and safety plan (HASP) should be prepared which addresses the potential health and safety risks and precautionary measures associated with excavation of contaminated soils. The HASP should specifically include risks and precautionary measures related to exposure to contaminated or suspect soil and groundwater, and potentially vapour.

The risks to workers associated with contaminated soil and groundwater, and potentially vapour, are exposure via inhalation, ingestion and absorption of toxic or potentially toxic materials into the body. While known areas of contamination have been remediated, areas of unforeseen contamination may exist and the HASP should consider the potential for encountering additional contaminants.

Precautionary measures should include, but are not limited to, details for eliminating or mitigating exposure to contaminants, details on excavation procedures and potential confined spaces, provisions for adequate personal protective equipment (PPE), provisions for first aid personnel and supplies, and an emergency response plan.
This plan can serve as a supplement to any site-specific HASP, but it does not supersede any local, provincial or federal regulations with respect to worker health and safety.

1.3 **REGULATORY REQUIREMENTS AND FRAMEWORK**

1.3.1 **Notifications of Independent Remediation**

Section 54 (2) of the *Environmental Management Act* (EMA) requires anyone undertaking independent remediation to notify the Director of Waste Management in writing promptly on initiating remediation and within 90 days of completing it. A Notice of Independent Remediation (NIR) form must be submitted to the MOE at initiation and at completion of any remedial excavation activities performed within the project area, as outlined in Protocol 17, Contaminated Sites, Forms for Notifications of Independent Remediation and Migration.

Following receipt and confirmation of the laboratory analytical results, and characterization of the suspect material is completed, 2 working days are provided by the Ministry for the Contractor's QEP to complete an NIR and submit to the BC MOE.

1.3.2 **Site Risk Classification Report**

A Site Risk Classification Report (SRCR) must also be completed and submitted with an NIR initiation form, as outlined in Protocol 12, Contaminated Sites, Site Risk Classification, Reclassification and Reporting. Additional MOE reporting requirements are applicable for high risk sites undergoing independent remediation, as outlined in Protocol 12, Table 3. Note that MOE reporting requirements are more onerous if high risk conditions are left in place longer than 90 days beyond initial notification. If the site is identified as high risk, the Contractor’s QEP should identify and complete the required MOE reporting and be involved with any additional investigation, remediation and reporting that may be needed in consultation with the Ministry Representative. It is noted that submission of a SRCR is not required if the total quantity of soil to be transported off-site to a licensed facility does not exceed five cubic metres ($m^3$) in volume during the entire course of remediation at the site, per Section 5.3.3 of Protocol 12.

The SRCR is completed in conjunction with the NIR.

1.3.3 **Contaminated Soil Relocations Agreements**

The following sub-sections outline the triggers for Contaminated Soil Relocation Agreements (CSRAs), before and after the Stage 10 CSR amendments on November 1, 2017. If it is determined that a CSRA is required, the Contractor shall not pursue a CSRA, but shall arrange off-site disposal at a facility authorized under the EMA.
1.3.3.1 **Triggers for Soil Relocation Agreements prior to Nov 1, 2017**

Until November 1, 2017, CSR Schedule 7 provides numerical soil standards that trigger the need to obtain a Contaminated Soil Relocation Agreement (CSRA) when relocating contaminated soil to either of two land types (i.e. agricultural and non-agricultural land) or when disposing of contaminated soil as a waste in the absence of an authorization (e.g., a permit under the EMA).

A CSRA is not required if:

- Soil will be relocated within the same site on which the soil originates.
- The volume of soil removed from the site does not exceed 5 m³ (per Section 41 of the CSR).
- The area and substances in soil are the subject of an approved wide area remediation plan.
- You are transferring soils from a contaminated site to a federal property or to a site outside BC.
- You are transferring soil to a facility authorized under the EMA to accept contaminated soil.
- You are transferring soil that is deemed contaminated only because of the presence of the local background concentration of a substance.

1.3.3.2 **Triggers for Soil Relocation Agreements after Nov 1, 2017**

With the repeal of the existing CSR Schedule 7 under the Stage 10 amendments coming into effect on November 1, 2017, the provisions of EMA sections 55 and 63 and CSR Part 8 have been revised to allow the use of the new standards provided in Schedules 3.1 (numerical soil standards) and 3.3 (numerical vapour standards) in determining when a CSRA is required to relocate soil to a receiving site. Our current understanding of the process for determining if a CSRA is required is outlined below.

Omnibus changes to the CSR introduced in October 2016 proposed a repeal of CSR Schedule 7, and Part 8 (Contaminated Soil Relocation) being amended to allow the use of land-use specific standards as applicable to the receiving Site when determining if a CSRA is required. The standards that will apply when relocating contaminated soil include:

- Generic, risk-based, and/or site-specific soil and soil vapour numerical standards.
- Local background concentrations of the substance(s) in question at the receiving site.
- Interim standards for soil and soil vapour.
- Generic, risk-based, and/or site-specific water quality standards that would apply to leachable substances from the contaminated soil.

A CSRA is not required if:

- The quality of the soil to be relocated meets the Omnibus standards at the receiving site.
• The volume of soil removed from the site does not exceed 5 m³ (per Section 41 of the CSR).
• The contaminated soil is the result of a spill that has been reported under the Spill Reporting Regulation (see below).

1.3.4 Other Regulatory Considerations

When assessing, remediating, or relocating contaminated soil, on-site substance concentrations may be compared against background levels. When the concentrations of substances at a site do not exceed local background levels, the CSR can provide a release as a contaminated site. Further information on this procedure is provided in the CSR’s Protocol 4 For Contaminated Sites - Determining Background Soil Quality.

If soil contamination is identified during construction activities, a Notification of Likely or Actual Migration (NOM) may be required if contamination extends or likely extends onto adjacent properties not owned by MOTI and the contamination appears to be sourced from MOTI lands.

If a NOM is required as determined by the Contractor’s QEP, the Contractor must notify the Ministry within 1 working day. The QEP must complete the NOM and submit to the BC MOE within 2 days of notifying the Ministry.
2.0 REFERENCES


British Columbia Ministry of Environment, Protocol 4 for Contaminated Sites, Determining Background Soil Quality, October 2010.
