Excess Soil Guidance for Aggregate Producers

ONTARIO STONE, SAND & GRAVEL ASSOCIATION (OSSGA)

OSSGA

ONTARIO STONE, SAND
& GRAVEL ASSOCIATION

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PREFACE

Ontario's Ministry of Environment, Conservation and Parks, (MECP) regulation that governs Excess Soil Reuse came into effect in January 2021. This document is meant to serve aggregate producers as a navigation guide for the current regulation and in some cases for expected changes to the regulation as they have been publicly communicated by the MECP and best management practices for the management of excess soils.

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GLOSSARY

"Acceptable Excess Soil"	is excess soil that can be accepted at a Reuse Site based on the excess soil reuse standards applicable to the site. Excess soil reuse standards are either stipulated in the instrument issued for the Reuse Site or standards outlined in the document entitled "Part II: Excess Soil Quality Standards", published by the Ministry and dated December 8, 2020, available on a website of the Government of Ontario as Part II of the document entitled "Rules for Soil Management and Excess Soil Quality Standards".
"APEC"	is an Area of Potential Environmental Concern. As defined in Ontario Regulation 153/04, means the area on, in or under a Source Site where one or more contaminants are potentially present, as determined through the Phase One Environmental Site Assessment, including through, a. identification of past or present uses on, in or under the phase one property, and b. identification of potentially contaminating activity;
"ARA"	means the Aggregate Resource Act.
"Class 1 Soil Management Site"	is a soil bank storage site or a soil processing site. Soil Bank storage site means a waste disposal site where excess soil is managed on a temporary basis and that is operated by a person who is not the project leader. Soil Processing Site means a site where excess soil is managed on a temporary basis that is operated for the primary purposes of processing excess soil to reduce contaminants. Class 1 Soil Management Sites, are approved under Environmental Compliance Approval (ECA).
"Class 2 Soil Management Site"	is a waste disposal site, other than a Class 1 site, at which excess soil is managed on a temporary basis and is a) located on a property owned by a public body or by the project leader for the project; or b) operated by the project leader for the project.
"Conceptual Site Model"	is a written and/or illustrative representation of the conditions and the physical, chemical and biological processes that control the transport, migration and potential impacts of contamination (in soil, air, ground water, surface water and/or sediments) to human and/or ecological receptors.
"COPCs"	is contaminants of potential concern and means one or more contaminants found on, in or under a Source Site at a concentration that exceeds the applicable site condition standards for the property.

"Enhanced Investigation Area"	means a source project area used, for an industrial use, as an automotive garage (or equivalent), as a bulk liquid dispensing facility, including a gasoline outlet, or for the operation of dry cleaning equipment.
"Environmentally Sensitive Site"	as defined in Section A of the Excess Soil Reuse Rules.
"EPA"	means the Environmental Protection Act, R.S.O. 1990, c.E.19, as may be amended.
"Excess Soil Reuse Rules"	is the Rules for Soil Management and Excess Soil Standards published by the Ministry of Environment, Conservation and Parks (MECP) and dated December 8, 2020. This document is referenced in the Excess Soil Reuse Regulation.
"Excess Soil Reuse Regulation"	is O.Reg.406/19 (On-Site and Excess Soil Management) made under the Environmental Protection Act, R.S.O 1990, c.E.19 (EPA).
"Excess Soil Reuse Standards"	is excess soil quality standards presented in the Excess Soil Reuse Rules.
"Instrument"	is a Permit or Approval issued by the Provincial or Municipal government, including: i. A permit that is issued under a by-law passed under section 142 of the Municipal Act, 2001 or section 105 of the City of Toronto Act, 2006. ii. Provisions of a by-law passed under section 142 of the Municipal Act, 2001 or section 105 of the City of Toronto Act, 2006. iii. A licence or permit issued under the Aggregate Resources Act. iv. An approval under the Planning Act. v. A certificate of property use issued under section 168.6 of the Act. vi. Any other site-specific instrument under an Act of Ontario or Canada that may regulate the quality or quantity of soil that may be deposited for final placement at the Reuse Site.

"Leachate Analysis[1]"	is the leachate extraction to be completed using the modified Synthetic Precipitate Leachate Procedure (mSPLP) – E90031. The intent of this testing is to determine whether the COPC readily leaches using a prescribed fluid in representative soil samples.
"MNRF"	means the Ontario Ministry of Natural Resources and Forestry.
"MECP"	means the Ontario Ministry of the Environment Conservation and Parks. Prior to July 2018, the MECP was the Ministry of Environment and Climate Change (MOECC). Prior to July 2014, the MOECC was the Ministry of Environment (MOE). For simplicity, the MOE and MOECC means the MECP.
"Natural Water Table"	is the water table condition that would occur if no man-made influences such as pit/quarry dewatering were occurring
"Ontario Regulation 153/04"	is the Record of Site Condition (RSC) regulation and sometimes referred to as the Brownfield Regulation under the Environmental Protection Act, R.S.O 1990, c.E.19 (EPA).
"PCA"	means Potentially Contaminating Activity and is a use or activity set out in Column A of Table 2 of Schedule D of Ontario Regulation 153/04 that is occurring or has occurred in on or in proximity to the Source Site;
"Project"	means excavation of soil that includes: i) any form of site alteration; ii) construction, reconstruction, erecting or placing of a building or structure of any kind; iii) the establishment, replacement, alteration or extension of infrastructure; iv) any removal of liquid soil or sediment from a surface body
"Project Leader or Operator"	is defined as the person or persons who are ultimately responsible for making decisions relating to the planning and implementation of the project (i.e., excavation of soil).
"Project Area"	in respect of a project means a single or adjoining properties on which the project is carried out (i.e., soil excavation area on the Source Site)

1 In December 2020, the MECP issued amendments to the Excess Soil Reuse Regulation to remove the Toxicity Characteristic Leaching Procedure (TCLP) and the Synthetic Precipitation Leachate Procedure (SPLP) as approved analytical methods for leachate analysis. The mSPLP comes into effect January 1, 2022.

"Qualified Person"	means a Qualified Person (QP) as defined in O. Reg. 153/04, Environmental Protection Act, as may be amended. More specifically, it is a professional geoscientist or professional engineer experienced in environmental site assessment and peer review. The QP prepares or oversees development of, or applies site-specific excess soil quality standards for the Reuse Site and sampling analysis plan, soil characterization report, assessment of past uses, and soil destination report for the Source Site.
"Reuse Site"	is the location at which the acceptable Excess Soil is placed for a beneficial purpose and does not include a waste disposal site.
"Soil"	means the natural materials commonly known as earth, topsoil, loam, subsoil, clay, sand or gravel.
"Source Site"	is the location from which *Acceptable Excess Soil* originates.
"Topsoil"	as defined in c. 25, s. 142 (1) of the Municipal Act, 2001, as may be amended, to mean: those horizons in a soil profile, commonly known as the "O" and the "A" horizons, containing organic material and includes deposits of partially decomposed organic matter such as peat.

1. INTRODUCTION

This guidance document has been prepared by the Ontario Stone, Sand, and Gravel Association "OSSGA" to assist aggregate producers with the management of excess soil that is either moved off or brought onto their properties. In December 2019, the Ministry of Environment Conservation and Parks (MECP) released changes to regulations under the Environmental Protection Act relating to excess soil – known as the On Site and Excess Soil Management Regulation (O.Reg. 406/19). In October 2020, there were proposed amendments to the Excess Soil Reuse Regulation. The Excess Soil Reuse Regulation and the proposed amendments were approved in December 2020 (O. Reg, 775/20). On January 1, 2021, some sections of the Excess Soil Reuse Regulation came into effect. The portions of the Excess Soil Reuse Regulation that came into effect include: the Excess Soil Reuse Rules; the Excess Soil Reuse Standards; and the waste designation of excess soil.

Although, the planning requirements and tracking requirements of the Excess Soil Reuse Regulation come into effect on January 1, 2022, it is anticipated that these requirements will likely be requested in advance of this by excess soil Reuse Site operators as part of their investment in an excess soil program for their site.

In December 2020, Ontario amended O. Reg. 406/19, the On-Site and Excess Soil Management Regulation, to require that the Registry to be used for filing of notices under the Excess Soil Use Regulation is the Registry operated by the Resource Productivity and Recovery Authority (the Authority) under section 50 of the Resource Recovery and Circular Economy Act, 2016 (RRCEA). When the MECP regulated registry is operational, sites generating excess soil and reuse sites accepting more than 10,000 m3 of excess soil will need to comply with the registration requirements.

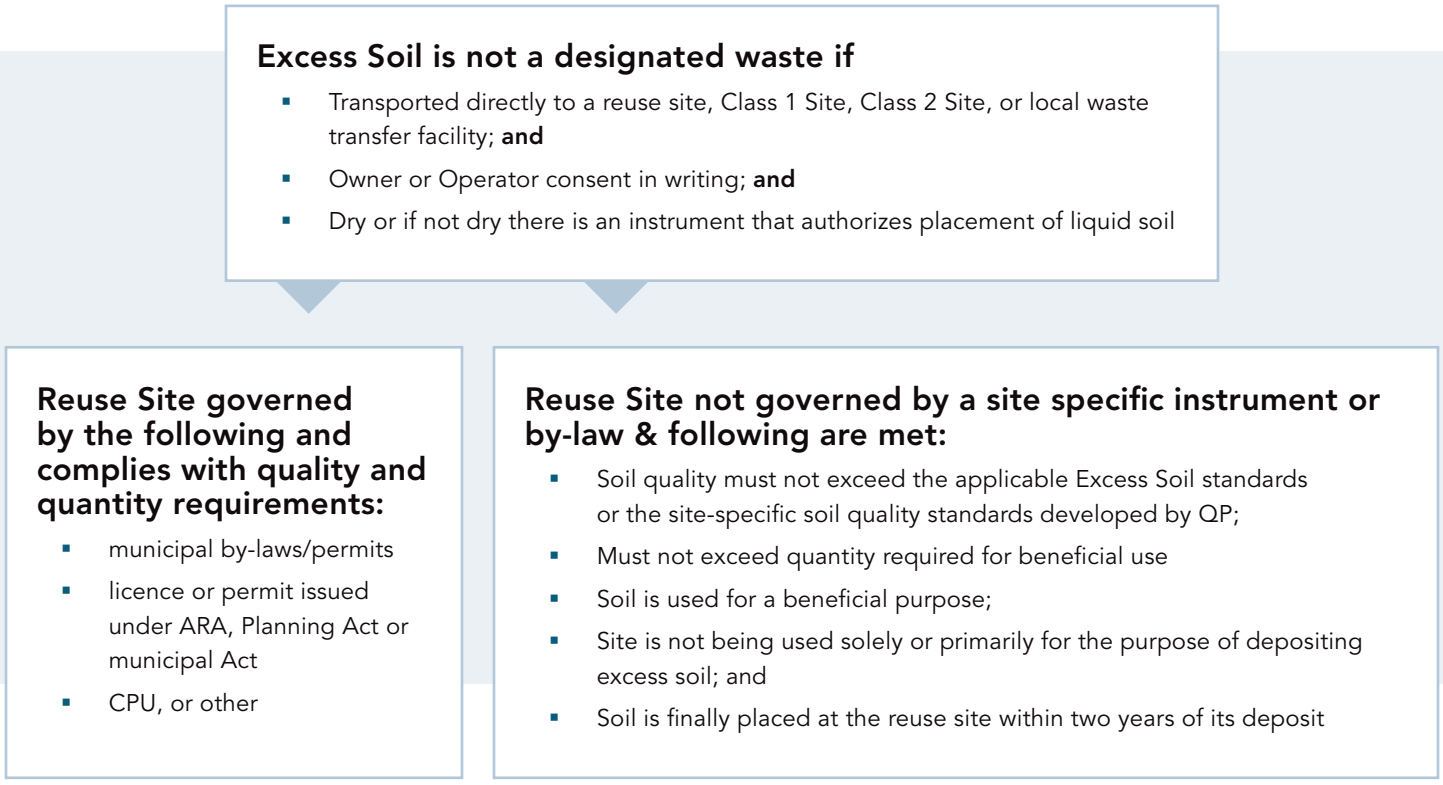
Simply, the Excess Soil Reuse Regulation applies to excess soil, including soil mixed with rock, that is excavated at a project area and leaves the project area. All excess soils are considered to be a waste unless the following are satisfied:

- The excess soil is transported directly to a Reuse Site, Class 1 Site, Class 2 Site, or local waste transfer facility;
- The Owner or Operator of the re-use site or receiving site consents in writing;
- The excess soil is dry, or if not dry, there is an instrument that authorizes placement of liquid soil;
- The Reuse Site is governed by an instrument such as municipal bylaws/ permits/or other approvals, licence or permit issued under the Aggregate Resources Act, Certificate of Property Use under the Brownfield legislation or other that has quality and quantity requirements stipulated in the instrument; and

- If the Reuse Site is not governed by a site specific instrument or by-law, the following are met:
  - The soil quality must not exceed the applicable Excess Soil Standards or the site-specific soil quality standards developed by a Qualified Person (QP);
  - If applicable, leachate analysis confirms that the potential for compounds to leach from the soil meet the Leachate Screening Levels that are associated with the Excess Soil Standards;
  - The soil is used for a beneficial purpose;
  - The quantity of soil must not exceed the quantity required for beneficial use;
  - The Reuse Site is not being used solely or primarily for the purpose of depositing excess soil; and
  - The soil is finally placed at the Reuse Site within two years of its initial deposit.

When excess soil is not a waste is summarized on **Figure 1**.

Figure 1 When is Excess Soil Not a Waste?



In addition to this regulation, planning legislation such as the Niagara Escarpment Plan, Greenbelt Plan, Oak Ridges Moraine Conservation Plan, municipal official plan, zoning by-law, other municipal by-laws, and the Conservation Authorities Act should be reviewed when identifying local requirements for the management of excess soils. It is important to note that the most recent version of the Provincial Policy Statement (PPS 2020), recognizes that "Planning authorities should support, where feasible, on-site and local reuse of excess soil through planning and development approvals while protecting human health and the environment." (3.2.3).

This guidance document only focuses on those aspects of the Excess Soil Reuse Regulation that are relevant to the aggregate producer and the reader should review the Excess Soil Reuse Regulation in its entirety to understand the other requirements of the Regulation.

2. WHEN DOES THE REGULATION APPLY?

In December 2020, the MECP issued amendments to the Excess Soil Reuse Regulation. The amendments clarify that the exemption in Section 2 pertains to any material leaving the aggregate operations and it does not apply to excess soil imported to rehabilitate the site or to be used for other beneficial reuse purposes.

For pits and quarries, the Excess Soil Reuse Regulation applies to the importation of excess soil to pits and quarries for the purposes of rehabilitation and all material leaving a pit and quarry is exempt from the Excess Soil Reuse Regulation.

However, the quality and quantity of excess soil imported is regulated by the Ministry of Natural Resources and Forestry (MNRF) through the ARA. It should also be noted that in the context of a pit or quarry licensed under the MNRF, topsoil removal from a site is a specifically regulated action and is often prohibited under the license.

If you have a property or an operation that is not within an MNRF regulated pit or quarry, then all aspects of the Excess Soil Reuse Regulation and Rules would apply if excess soils leave your property or are brought to your property.

3. THE REGULATION

3.1 Overview

The Excess Soil Reuse Regulation primarily pertains to a Source Site that generates excess soil. As indicated in the previous section all material leaving a pit and quarry is exempt from the Excess Soil Reuse Regulation. However, the section of the Excess Soil Reuse Regulation on Large Reuse sites will pertain to aggregate producers if more than 10,000 m^3 of excess soil are imported.

The main components of the Excess Soil Reuse Regulation, however, are briefly discussed in the following sections, for background for the aggregate producer:

- As some documentation will be provided from the Source Site to the aggregate producer and it is important to understand what is required to be in those documents; and
- If you have a property or an operation that is not within an MNRF regulated pit or quarry, then all aspects of the Excess Soil Reuse Regulation and Rules would apply if excess soils leave your property or is brought to your property.

The main requirements of the Excess Soil Reuse Regulation can be grouped as follows:

1. Registry;
2. Planning Documentation for Source Site prepared by a QP;
    - Assessment of Past Uses;
    - Sampling and Analysis Plan;
    - Soil Characterization Report; and
    - Excess Soil Destination Assessment.
3. Tracking; and
4. Record Keeping.

The Excess Reuse Soil Regulation references the Excess Soil Reuse Rules. The Excess Soil Reuse Rules define key terms and provide:

- requirements for the preparation of the planning documentation referenced above;
- requirements for soil management;

- requirements associated with specific rules for Reuse Sites including rules for specific types of soil, types of Reuse Sites, use of the Beneficial Reuse Assessment Tool (BRAT) and risk assessments (RA), and;
- direction on determining the applicable generic excess soil quality standards at a Reuse Site.

Both the Excess Soil Reuse Regulation and the Excess Soil Reuse Rules need to be reviewed to fully understand the Excess Soil Use Regulation.

3.2 Roles and Responsibilities

The site generating the excess soils (Source Site) is where the primary responsibility for adhering to the Excess Reuse Soil Regulation and the Rules is managed. The Project Leader or the Operator that manages the excess soil is responsible for adhering to the regulatory requirements. It can be the property owner, construction manager, or quarry or pit operator. Ultimately, the owner of the Project is accountable. Therefore, roles and responsibilities need to be clearly defined upfront in contracts or agreements involving third parties.

3.3 Definitions

Key definitions are provided in the glossary at the beginning of this guidance document.

3.4 Key Components of Regulation

The key components of the Excess Soil Reuse Regulation referenced above are discussed in the following sections.

3.4.1 Registry

The Registry is intended as a tracking device/information repository for the movement of excess soil from a Source Site to the reuse location. The Source Site generating the excess soil is required to file in the Registry Notice unless they are exempt. Exemptions for filing in the Registry Notice are provided in Schedule 2 of the Excess Soil Reuse Regulation and are summarized on **Figure 2** below. If your activity is not exempt, then there is a requirement to register, prepare planning documentation, implement a tracking procedure for the excess soils, and retain records. As discussed in Section 1, this aspect of the regulation comes into effect **January 1, 2022**. Schedule 2 exemptions to participating in the registry are summarized are here as follows:

Figure 2 On-Line Registry (Exemptions – Schedule 2)

1

1. Project area is not an enhanced investigation project area
2. Not a soil remediation program
3. <2,000 m^3

2

1. 100 m^3 or less
2. Excess soil is transported to a waste disposal site that is not a Class 2 site

3

One of the following applies to the excess

1. Danger to health or safety
2. Impairment or serious risk
3. Injury, damage, or serious risk
4. EPA duty
5. Order
6. Maintaining infrastructure in a fit state of repair (except SWM pond)

4

1. Topsoil
2. Topsoil is directly transported to a reuse site from project area for use as topsoil at the reuse site
3. Project area is not an enhanced investigation project area
4. Not a soil remediation program

5

REVOKED (O. Reg. 775/20)

6

1. Undertaking related to infrastructure
2. Project leader intends after removing the soil from the project area to finally place it at a reuse site that is part of another infrastructure undertaking owned by:
    - Project Leader; or
    - Public body

7

1. Soil to go to a local waste transfer facility
2. 100 m^3 or less

Schedule 1 of the Excess Soil Reuse Regulation sets out information required to be filed in the Registry Notice. The Registry Notice is to be filed prior to removal of soil from the Source Site, if all of the following are satisfied:

- Preparation of Sampling and Analysis Plan (SAP) not practicable.
- The excess soil is transported to a local waste transfer facility or Class 2 Site where sampling is done promptly.
- Filing on registry occurs before soil leaves local waste transfer facility or Class 2 Site and transported to Reuse Site, Class 1 Site or waste disposal site.

Notice on the Registry is also required for all soil movements if the Reuse Site is accepting more than 10,000 m^3 of soil for their overall project. If the soil is arriving from multiple Source Sites and the volume of soil is less than 10,000 m^3 from each Source Site but the overall volume intended to be received is more than 10,000 m^3, then Notice on the Registry is also required. Therefore, when accepting imported soil the overall volume of soil required must be known prior to and throughout the lifetime of the project. It is recognized that the movement of excess soil is fluid and updates to the Registry will likely be required to reflect:

- Commencement of excess soil excavation activities;

- Amount of soil removed and date last load of soil removed (i.e., within 30 days after soil removed); or
- Any changes in the amount of soil removed and receiving locations (i.e., within 30 days of change)

The Registry is currently being developed by the MECP (expected timeline for implementation is January 1, 2022). At this point the registry format is not known, but the following information has been communicated by the MECP as a minimum requirement:

- Description of project;
- Location of excess soil;
- Contact information of Project Leader;
- Estimate of quantity of excess soil;
- Name of person or firm responsible for transport of excess soil;
- Name and location of Reuse Site including description type of property use and undertaken for which excess soil is to be used, acceptable soil reuse quality standards; and
- Name of Qualified Person preparing the supporting documentation and declaration.

3.4.2 Planning Documentation

If you are required to file Notice on the Registry for the movement of excess soils from your site (Source Site), then the preparation of planning documentation is required by the Source Site. For Reuse Sites, the review of the planning documents from the Source Site is required prior to soils coming to your site. The planning documents are described in Sections 11 to 13 of the Excess Soil Reuse Regulation. Before soil is removed from the Source Site, the reports discussed in the following sections are required to be prepared by or overseen by a QP.

The planning documentation described below is not required if:

- Soil is from a site characterized as agricultural land use (only) (i.e. no other Potentially Contaminating Activity (PCA)/Areas of Potential Environmental Concern (APEC)s have been determined by QP at the Source Site); or
- Soil is from a site characterized as parkland, residential or institutional use or a combination thereof and soil will not be transported to a site that is used for agricultural land (i.e. no other PCA/APECs as determined by QP at the Source Site)

3.4.2.1 Assessment of Past Uses

The objectives of the Assessment of Past Uses is to:

- Determine if one or more potential contaminants are present that may affect the quality of excess soil to be excavated;
- Identify any APECs within the project area and to determine if the excess soil could be affected by a PCA; and
- Identify the COPCs associated with the APECs.

The assessment of past uses must have the following components:

- A records review from publicly available sources or from the property owner; (A commercial source widely used to obtain such historical environmental information is EcoLog ERIS [site report][2]);
- Interviews with someone knowledgeable with the history of the site, unless the Qualified Person determines it is not necessary;
- Site reconnaissance;
- A review and evaluation of the information gathered from the Source Site records review; including interviews and site reconnaissance and the preparation of a conceptual site model (CSM); and
- The preparation of an Assessment of Past Uses Report.

The information gathered is used to develop a sampling and analysis plan (SAP) to assess the presence/absence of contaminants and determine what analysis is required for the soil samples collected from the excess soils at the Source Site.

An Assessment of Past Uses Report is not required if the excess soil is originating from a stormwater pond or where a Phase One Environmental Site Assessment (ESA) was previously completed and is considered acceptable for use by a QP (i.e., adequately covers the information requirements outlined above).

3.4.2.2 Sampling and Analysis Plan

The Excess Soil Reuse Rules provide guidance on the frequency of sample collection needed to support the characterization of the excess soil. These standards are drawn from the Brownfields legislation (Reg 153/04/19). The frequency of sampling considers if the excess soil will be reused on the Source Site (with or without processing), placement at another Reuse Site or deposited at a Class 1 site or at a landfill or dump.

2 https://www.erisinfo.com/

There are specific minimum requirements for sampling provided in the Excess Soil Reuse Rules that is to include, at a minimum:

- pH (must be a sufficient number of soil samples)[3]
- Petroleum Hydrocarbons (PHCs)/ Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)
- Metals and hydride-forming metals (including arsenic) (refer to O.Reg. 153/04 standards)
- Sodium Adsorption Ratio (SAR)/Electrical Conductance (EC)[4]
- Other required COPC identified in the Assessment of Past Land Uses Report
- Leachate analysis for COPCs identified in the Assessment of Past Uses Report (leaching potential of COPCs)[5]

Once the plan has been prepared, then field activities are undertaken to collect soil samples and submit them to a laboratory for analysis. If contaminants are detected during the investigations, then the lateral and vertical extent of the contaminant(s) needs to be delineated and included in the Soil Characterization Report described below. This will prevent mixing of soils destined to MECP licence facilities as waste and excess soil acceptable for beneficial reuse.

The minimum frequency of soil samples to be collected for the characterization of the excess soil is presented in **Tables 1 and 2**. The requirements for the leachate analysis is described in the Excess Soil Reuse Rules and December 2020 amendments[5] and are summarized in **Table 3** below. It is up to the QP to satisfy themselves that the sampling is adequate to characterize the soil and support its reuse based on the applicable excess soil standards.

Table 1 In-Situ Soil Sampling (Soil Rules)

Soil Volume	# Samples
< 600 m^3	Minimum 3
> 600 m^3 and < 10,000 m^3	1 for every 200 m^3 of soil volume
> 10,000 m^3	1 sample for each additional 450 m^3 after first 10,000 m^3
> 40,000 m^3	1 sample every additional 2,000 m^3 after first 40,000 m^3

3 Typically two to four samples for each soil deposit identified for removal - a sample near surface and 1 metre below ground surface is collected at each soil sampling location. MECP verbal communication.

4 Primarily resulting from salt used for de-icing.

5 The December 2020 amendments clarify leachate requirements in the Soil Management Rules Part 1, Section B, subsection 2 (5) that leachate analysis is not required for background quality soils (i.e., soil with soil analysis results that meet background concentration).

Table 2 Stockpile Soil Sampling (Table 2 – Schedule E of O. Reg. 153/04 - Updated Dec 2019)

Item	Stockpile Volume (m3)	Minimum Number of Samples
1	≤130	3
2	>130 to 220	4
3	>220 to 320	5
4	>320 to 430	6
5	>430 to 550	7
6	>550 to 670	8
7	>670 to 800	9
8	>800 to 950	10
9	>950 to 1100	11
10	>1100 to 1250	12
11	>1250 to 1400	13
12	>1400 to 1550	14
13	>1550 to 1700	15
14	>1700 to 1850	16
15	>1850 to 2050	17
16	>2050 to 2200	18
17	>2200 to 2350	19
18	>2350 to 2500	20
19	>2500 to 2700	21
20	>2700 to 2900	22
21	>2900 to 3100	23
22	>3100 to 3300	24
23	>3300 to 3500	25
24	>3501 to 3700	26
25	>3700 to 3900	27
26	>3900 to 4100	28
27	>4100 to 4300	29
28	>4300 to 4500	30
29	>4500 to 4700	31
30	>4700 to 5000	32
31	>5000	N=32+(V−5000)÷300

Table 3 Leachate Analysis Collection Frequency

In-Situ Soil Sampling	Stockpile Soil Sampling
Minimum 3 samples if less than 600 m^3 of soil	Minimum 3 samples plus 10% of the required number of soil samples detailed in Table 2 of Schedule E of O.Reg. 153/04
Leachate samples shall be representative of worst-case samples (max concentration samples	SPLP or TCLP (depending on type of intended reuse site)
10 % of number of soil samples required > 600 m^3 unless QP can provide rationale it is not necessary	
SPLP or TCLP (depending on type of intended reuse site)	

3.4.2.3 Soil Characterization Report

Upon collection of the information from the Assessment of Past Uses and the Sampling and Analysis Plan, a report is prepared that presents the quality of the excess soil at the Source Site. This report should include cross-sections, figures, tables and narrative descriptions with respect to each area where excavations are planned. A detailed description of what is required in this report is presented in the Excess Soil Reuse Rules (see Section B).

The information provided in a Soil Characterization Report will be similar to the information provided in a Phase Two ESA report prepared under the Record of Site Condition (RSC) regulation[6]. However, the objectives of these reports are very different. The objective of the Soil Characterization Report is to characterize the quality of the in situ or ex-situ excess soil at the source site whereas the objective of the Phase Two ESA is to characterize the soil quality in the areas of APECs identified for a given site. The data in a Phase Two ESA report will not necessarily provide information on the quality of excess soil. The soil standards may also differ (i.e., brownfield soil quality standards versus excess soil quality standards).

3.4.2.4 Excess Soil Destination Report

The excess soil destination report summarizes the Source Site information: the estimated volume and quality of soil to be removed from the Source Site, approximate date that excess soil will commence leaving the project area, intended receiving/Reuse Site information, and contingency measures.

6 Sometimes referred to as the Brownfield Regulation.

If the soil is intended to be placed at a Reuse Site, then the following information will need to be obtained from the reuse site to confirm that the soil is acceptable for placement:

- Characteristics of the Reuse Site that may affect the applicable excess standards such as adjacent environmental sensitive features, water bodies, depth to the natural groundwater table, etc.
- The applicable excess soil quality standards (generic or site-specific) established for the Reuse Site or referenced in the instrument issued to the site; and
- Property use and location of the Reuse Site.

3.4.2.5 Qualified Person Declaration

A QP involved in the preparation of the above referenced documentation is required to sign a declaration indicating that the documents have been prepared in accordance with the Regulation and Rules and are complete and accurate. Contents of the declaration are discussed in the Excess Soil Reuse Rules (see Section B(6) of the Rules).

3.4.3 Tracking

Implementation of a tracking system is required to document movement of each load of the excess soil from the point of excavation to management to transportation to placement at the receiving site. The method and procedures of the tracking system must be in place prior to transport to track each load of excess soil during its transportation and final placement at the receiving site. The tracking system may be a paper or paperless (electronic). The information on this documentation should include:

- The owner of the Source site location and name of person at the Source site responsible for overseeing the loading of the excess soil for transportation;
- Source Site location;
- The quality and quantity of the load of excess soil being removed from the project area;
- The name of the hauling company;
- License plate number and truck identifier of the hauler (if one exists);
- The date and time of the soil leaving the source location and date and time of arrival at the Reuse site;
- The name, contact information and signature of an authorized representative of the site receiving the excess soil; and
- Confirmation that the excess soil and the volume of soil received at the site where the excess soil was deposited is the same vehicle as that which left the Source Site area.

When receiving soils, a bill of lading or electronic verification should be provided prior to any truck(s) entering your site. The gatekeeper should cross-reference the information on the bill of lading or electronic documentation with the master list that should include truck ticket numbers issued according to the Source Site). Untested and/or undocumented loads or loads without a bill of lading or electronic verification should not be accepted under any circumstances. Paper backup may be required if electronic verification/documentation is not available.

If the Source Site implements a tracking system and maintains the hauling records, then the receiving site should request copies of the hauling records from the Source Site in advance of any soils being brought to the receiving property. A system should be established such that a listing of approved loads/trucks from the Source Site are provided to your site prior to their arrival and this listing cross checked at the gate. Loads/trucks without appropriate documentation are not to be accepted.

3.4.4 Record Keeping

There is a requirement in the Excess Soil Reuse Regulation to retain all records for seven (7) years for the Project Leader of the Source Site and for the Operator of a temporary soil storage site, a soil bank storage site, a soil processing site, or a landfill or a Reuse Site (including any contracts for management of excess soil).

There is also a seven (7) year requirement for record retention for the hauler transporting excess soil.

A system should be established by both the Source Site and the Reuse Site to ensure that records are retained.

3.5 Large Reuse Sites

If there is no reference to quality or quantity requirements on the site-specific instrument issued for the Reuse Site, then the owner or operator of the reuse would need to follow the Excess Soil Reuse Rules and Regulation.

The importation of excess soil to pits and quarries for rehabilitation is governed by the licence issued to the site under the ARA. The quality and quantity requirements issued under this licence will prevail over those dictated in the Excess Soil Use Regulation.

However, the owner or operator of the Reuse Site, in this case the pit or quarry, will still need to follow any other requirements in the Excess Soil Reuse Regulation and Rules that are not specified in the instrument.

In the Excess Soil Reuse Regulation, there is a requirement for sites that are importing more than 10,000 m^3 of soil for their project to file a Notice on the Registry. For pits and quarries, this may apply if more than 10,000 m^3 is required to be imported for their rehabilitation plans. There is also a requirement to inspect every load of soil that enters the site, although there are no specific details on how that inspection is to be done.

The inspection can be undertaken by the owner or site operator and does not necessarily require the involvement of a QP.

This registration and inspection of every load requirement will apply to aggregate producers who are permitted by their license to import soil for the purpose of rehabilitation. It is important to understand the total volume of soil required for fulfilling the rehabilitation requirement, the quality of soil that is permitted to be imported under the license conditions, and where the excess soil is to be placed. A Notice on Registry, if accepting at least 10,000 m^3, is to include location, description of undertaking, name and address of owner, estimated quantity, soil quality standards, instrument issued (if any), first/final loads, and source locations.

Before the soil is received, Notice must be filed on the Registry and procedures are developed and implemented to inspect every load of excess soil.

Upon completion of importation of excess soil from each Source Site, a declaration must be provided by the owner or operator of the Reuse Site to the Source Site, stating that every load of excess soil has been received, inspected and accepted for final placement and if soil is temporarily stored at the site, measures are in placed to ensure it does not cause an adverse effect.

3.6 Class 2 Soil Management Sites

Unless indicated otherwise in the site plans and licence issued for the pit or quarry, a pit or quarry operator could import excess soil for temporary storage. If a pit or quarry operator (who is also the project leader for their project) is considering the importation of excess soil for temporary storage (no more than two years) from another one of their sites or from another project where the final reuse destination is known, the following criteria must be met (Section 21 of the Excess Soil Reuse Regulation):

- No more than 10,000 m^3 storage, each stockpile <2,500 m^3;
- Soil must be placed at Reuse Site no later than 2 years after excess soil is first deposited for storage;
- Excess soil from different projects is to remain segregated during the temporary storage; and
- Measures are undertaken to prevent adverse effects (noise, dust, erosion control, impact to groundwater table, odour), and contact with vegetation.

If the soil is to be processed for treatment of contaminants, the following low risk treatment activities can be undertaken:

- Passive aeration for the purpose of in situ bioremediation or other treatment;
- Mixing, if the soil being mixed is of similar quality and the mixing and not for diluting;
- Soil turning; and
- Particle size-based sorting of soil (e.g., screens), and/or sorting of soil for the purpose of removing debris.

3.7 Landfills

On January 1, 2025, there will be new restrictions on the quality of excess soils that can be placed in landfills (Section 22 of Excess Soil Reuse Regulation). These restrictions are expected to include:

- No placement of excess soil unless for daily cover or if a QP has indicated that it is unsafe to place the excess soil at a Reuse Site; and
- Excess soil (e.g., concentrations meet Table 2.1 standards in the Soil Rules) that is allowed to be reused at for residential, parkland and institutional cannot be deposited at landfill (Soil Rules).

The purpose of Section 22 of the Excess Soil Reuse Regulation is to limit the amount of 'clean' excess soil that is placed at landfills and that can be otherwise reused for a beneficial purpose.

3.8 Topsoil

As indicated previously, in accordance with the ARA, licenced pits or quarries are not permitted to remove topsoil from their site.

4. EXCESS SOIL REUSE RULES

The Excess Soil Reuse Rules are divided into two parts: Part I presents the rules for the reuse of excess soils and Part II presents the Excess Soil Reuse Standards. Part I is further subdivided into four sections that provides the definitions of key terms, provides details on what is to be included in the planning documentation, and soil management requirements and reuse rules for specific circumstances. The following section focuses on the aspects of the Excess Soil Reuse Rules that may be relevant to aggregate producers.

4.1 Soil Quality Standards

4.1.1 What are the Generic Standards?

Current MNRF policy A.R. 6.00.03 – Importation of Inert Fill for the Purpose of Rehabilitation permits the placement of soils meeting the Table 1 Background standards in pits and quarries for rehabilitation purposes, so long as this activity is permitted by the approved Site Plan for the Licensed site. In order to place excess soil that does not meet the condition of "Inert fill/ Table 1" permission is required from the MNRF.

It is anticipated the MNRF will update their policy for the quality of soil imported for rehabilitation to align with the Excess Soil Reuse Regulation. The following discussion is based on this premise. Consult with the MNRF on any changes to that policy or potential amendments to the licence issued. In particular, after January 1, 2021 and again after January 1, 2022 when specific legislation requirements come into force on both dates.

The MECP has developed generic excess soil re-use standards that are presented in Part II of the Excess Soil Reuse Rules. These generic standards were developed using the same model that was used to develop the standards presented in *Soil, Ground Water and Sediment Standards made under Part XV.1 of the EPA* and referenced in Ontario Regulation 153/04, as amended – Record of Site Condition (RSC). The generic excess soil reuse tables are based on the same land uses, groundwater uses, distance to waterbody, depth to bedrock and soil texture as presented in the tables referenced in Ontario Regulation 153/04. The application of the generic standards are shown on **Figure 3 and Table 4.** In summary:

- If soil criteria meet Table 1 (Background), the excess soils be reused at any site
- If the volume of excess soil is less than 350 m^3, the standards for coarse-textured soil presented in Soil, Ground Water and Sediment Standards made under Part XV.1 of the EPA are used (Tables 2 to 9);
- If the volume of excess soil is more than 350 m^3, the Independent Volume (Tables 2.1 to 9.1) presented in Part II of the Excess Soil Reuse Rules are used; and
- Leachate analysis is required for contaminants for which soil to ground water component values are not derived (e.g., metals and hydride-forming metals), and

for contaminants with analytical limitations. The leachate screening levels are presented in Tables 1 and 2.1 to 9.1 of Appendix 2 of Part II of Excess Soil Reuse Rules.

Figure 3 Reuse Standards

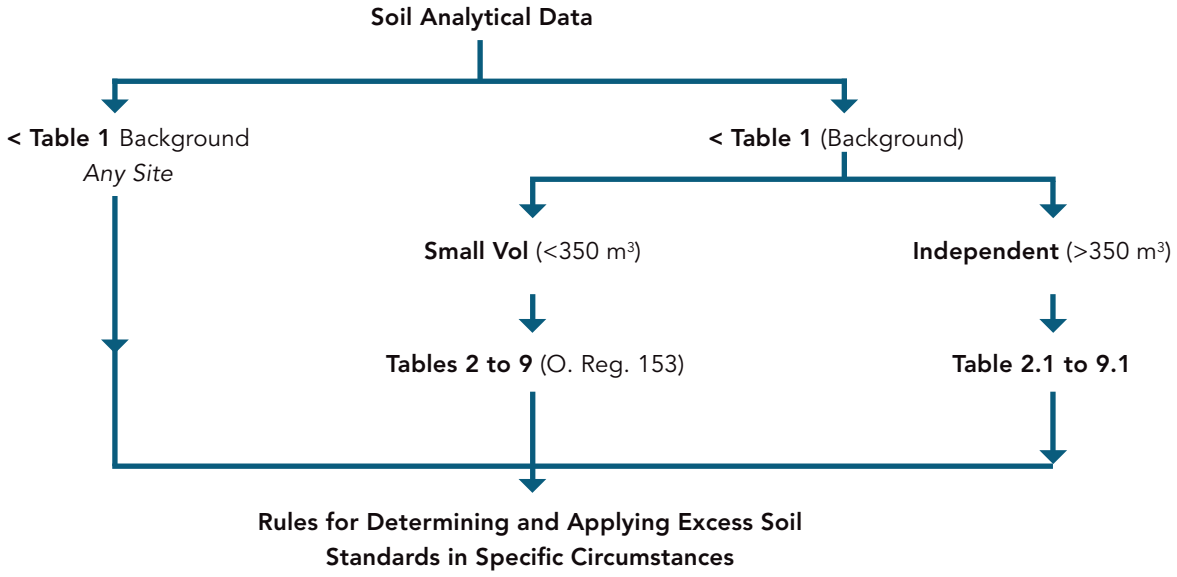


Table 4 Generic Excess Soil Quality Reuse Standards[7] – July 1, 2020[8]

Table Description	Small Volume O.Reg. 153/04 (up to 350 m^3)	Volume Independent (350 m^3 +)
Full Depth, Background	Table 1	Table 1
Full Depth, Potable	Table 2	Table 2.1
Full Depth, Non-Potable	Table 3	Table 3.1
Stratified, Potable	Table 4	Table 4.1
Stratified, Non-Potable	Table 5	Table 5.1
Full Depth, Shallow Soil, Potable	Table 6	Table 6.1
Full Depth, Shallow Soil, Non-Potable	Table 7	Table 7.1
Full Depth, Within 30 m of a Water Body, Potable	Table 8	Table 8.1
Full Depth, Within 30 m of a Water Body, Non-Potable	Table 9	Table 9.1

7 Updated version (Dec 04, 2020) can be found in the found in the following link https://www.ontario.ca/page/rules-soil-management-and-excess-soil-quality-standards

8 Source: Excess Soil Regulation and Brownfields Amendments, Webinar with Municipalities and Qualified Persons,February 5, 2020. Ministry of the Environment Conservation and Parks.

Table 5 shows a screening matrix for the application of the appropriate generic standard to be used. Knowledge of the following is required to ensure the appropriate generic standard is used:

- *The volume of soil to be imported* – For most pits and quarries it is expected that more than 350 m^3 will be required for rehabilitation and in most cases the generic Independent Volume standards will apply.
- *Land Use* – In Ontario Regulation 153/04, pits and quarries are identified as industrial use. Landowners should consider the intended post-rehabilitated/ post- licensed so that the soil quality standards meet these requirements. The rehabilitation plan under the license may not align with the land owner's intended end use of the aggregate site once the site has reached its end of life and the license is removed.
- Presence of potable groundwater wells in the area of the pit or quarry – This includes private residential wells and municipally supplied areas where the municipality obtains the water from groundwater. Consult with your local municipality to determine if your site is located within a source water protection zone. To date, the MECP has not indicated how Reuse Sites are to be evaluated under the threats assessment. The issue is whether future land use prohibitions could come into play for this type of site activity.
- Location of nearby water courses – Is the pit or quarry adjacent to a natural waterbody feature (i.e., stream, creek, etc.) or does the water course traverse a portion of the pit/quarry?
- Depth to bedrock – This applies to quarries where the overburden has been stripped and excess soil is being placed on the bedrock.
- Depth to natural groundwater table – The generic standards only apply to soils placed above the water table and therefore it is imported to understand at what elevation the static natural groundwater table is at, especially in a post rehabilitated context. This is discussed in more detail in the following sections.

The generic standards presented in the Excess Soil Reuse Rules are based on inputs into a model that may not be representative of aggregate site conditions. The assumptions or inputs into the model are generally conservative. These assumptions are discussed in Section A (1) of Part II and Appendix 1 of the Excess Soil Reuse Rules. It may be necessary for the owner or operator of a Reuse Site to consider the retention of a QP to undertake this assessment. Very broadly, factors to consider are texture of soil placed, shallow preferential pathways for vapour migration such as fractures in shallow bedrock, buildings that may be constructed on the excess soil placed, acidity/ alkalinity of soils and location of nearby surface water bodies.

Table 5 Screening Matrix of Key Site Conditions to Select Standards – July 1, 2020[9]

Site Condition	Table 1	Table 2/2.1	Table 3/3.1	Table 4/4.1	Table 5/5.1	Table 6/6.1	Table 7/7.1	Table 8/8.1	Table 9/9.1
Property is an Environmentally Sensitive Area.	√	x	x	x	x	x	x	x	x
Groundwater use condition is potable.	√	√	x	√	x	√	x	√	x
Land use is Agricultural or Other.	√	√	x	x	x	√	x	√	x
Overburden thickness is unknown or is less than 2m.	√	x	x	x	x	√	√	x	x
Depth to groundwater is unknown, is less than 3 m below ground surface or the capillary fringe is <0.8 m from the base of the gravel crush of any existing/ future building foundation*.	√	x	x	x	x	√	√	x	x
Nearest water body is unknown or less than 30 m from the property.	√	x	x	x	x	x	x	√	√
Excess soil may be placed at any depth.	√	√	√	x**	x**	√	√	√	√
Stratified site conditions must be maintained to ensure the surface soil and subsurface soil meets the applicable stratified conditions standards.	√	x	x	√	√	x	x	x	x

(Rules for Soil Management and Excess Soil Quality Standards and Rationale Documents for Development of Excess Soil Quality Standards, MECP December 2020).

Notes: X this table may not be appropriate. √ This table may be acceptable, see Section Part II of the Excess Soil Rules for other considerations.

* This site condition is applied to volatile chemicals only. ** Standards for subsurface soil in Tables 4/4.1 & 5/5.1 must be applied only for soil placed at 1.5 m below ground surface or deeper.

4.1.2 Leachate Standards

There are also other requirements such as leachate analysis for specific parameters such as metals. Leachate analysis and meeting the applicable leachate screening levels, if required, are considered a mandatory component of meeting the excess soil quality standards. Generic Leachate Screening Levels for Excess Soil Reuse are presented in Appendix 2 of Excess Soil Reuse Rules.

9 Source: Excess Soil Regulation and Brownfields Amendments, Webinar with Municipalities and Qualified Persons, February 5, 2020. Ministry of the Environment Conservation and Parks.

4.1.3 Stratified Generic Standards

Tables 4.1 and 5.1 may be used to place fill above the water table and below 1.5 m of the surface when Stratified Conditions, as long as the Rules specified in subsection 2 (5) of Section D in Part I of the Excess Soil Reuse Rules are met. Specifically, the following conditions would need to be satisfied:

- Final placement of the excess soil must achieve a stratified condition such that soil that meets the stratified standards is placed at a depth of 1.5 metres or greater below the soil surface and the soil place within 1.5 metres of final ground surface meets the applicable full-depth generic excess soil quality standards;
- The Reuse Site is not an agricultural or other property use, is not a shallow soil property, and the final placement is not within 30 metres of a water body;
- The stratified condition will be maintained into the foreseeable future; and
- The Reuse Site owner, occupier, or person who has charge, management or control of the Reuse Site must ensure that the stratified condition is established and maintained. This responsibility should be communicated to subsequent property owners.

Based on the above, if the aggregate producer is contemplating the above stratified approach, communication to adjacent neighbours may be required.

4.1.4 Data Assessment

There is flexibility to use statistical approaches in accordance with the Excess Soil Reuse Rules to assess the soil quality data. Producers should refer to the Excess Soil Reuse Rules on these accepted approaches.

The data can be assessed to the generic standards presented in the Excess Soil Reuse Rules or the standards referenced in the site-specific instrument issued for the site or the specific standards developed for the site using the beneficial reuse assessment tool (BRAT).

A QP needs to be involved in the review of or the undertaking of statistical approaches for the assessment of the data.

4.1.5 Site Specific Excess Soil Reuse Standards

The MECP has developed an Excel-based spreadsheet model referred to Beneficial Assessment Reuse Tool (BRAT) that uses the same models and algorithms used in the development of the volume independent excess soil quality standards. The BRAT can be used to develop site-specific excess soil quality standards for a Reuse Site, by allowing for certain model input parameters to be modified from the default values. The MECP has prepared a user guide for the BRAT to generate site-specific excess soil quality standards.

A QP must be involved in the use or oversight of the use of the BRAT and must review and understand all requirements in the guidance document before using the BRAT.

4.1.6 Background Standards

There is an option to develop background standards if there is parameter in the excess soil that is naturally occurring in the area of the Reuse site. A QP can consider this to have met the excess soil standard, if both conditions are met:

- the excess soil contains a parameter that is naturally occurring at the Reuse site and it does not exceed the naturally occurring range of concentrations typically found within the area of the Reuse Site.
- documented evidence of the naturally occurring parameter concentrations is provided to the Reuse Site owner or operator and retained by the Reuse Site owner and QP.

A QP must be engaged for assessment of naturally occurring background concentrations for your site.

4.1.7 Placement of Excess Soils within Environmentally Sensitive Area

Only excess soil and required leachate analysis that meets Table 1 can be placed at an environmentally sensitive site. Environmentally sensitive sites are defined in Section A of the Excess Soil Reuse Rules. Knowledge of these features within or adjacent to pits or quarries need to be understood for the placement of excess soils. Review your site plan, Conservation Authority or Municipal website or consult with the local Conservation Authority on sensitive environmental features that may be present within or adjacent to your pit or quarry.

4.1.8 Placement of Excess Soils Below the Natural Groundwater Table

The model used to develop the generic excess soil standards is based on the placement of excess soil above the groundwater table and there is a known infiltration rate for any leachate that may be generated from the excess soil.

For pits or quarries where extraction is below the natural water table, generic and site-specific excess soil standards may not be protective of groundwater downgradient of pits and quarries. Therefore, it is important to understand the groundwater levels prior to dewatering activities for placement of soils meeting the generic Excess Soil Reuse Standards above the water table. This is especially true for the final rehabilitation and post license water table conditions. Material placement may need to consider the long term/re-established stable water table condition after dewatering pumps have shutdown and site closure to determine the appropriate Excess Soil Quality standard for the soils to be imported.

At the time of the preparation of this guidance documentation, the MECP has not provided guidance on acceptable excess soil standards for the placement of soils below the natural water table. At this time, the importation of Table 1 (background) soils or Tables 6.1 and 7.1 (Shallow Soil)[10] are considered suitable.

A QP could also be engaged to develop standards suitable for the placement of soils below the natural water table using the existing model or an alternative model.

The following should be considered if excess soils are to be placed below the natural water table:

- Increased turbidity of the groundwater from the soil placed below the water table; or
- Potential direct contamination to potable groundwater wells in the immediate vicinity of the pit/quarry.

4.1.9 Importation of Soils Exceeding Sodium Adsorption Ratio or Electrical Conductivity Criteria

A soil that is shown to exceed criteria for sodium adsorption ratio and electrical conductivity is generally referred to as a "salt impacted soil".

Current MNRF policy A.R. 6.00.03 – Importation of Inert Fill for the Purpose of Rehabilitation permits the placement of salt impacted soils at pits and quarries for the purpose of rehabilitation provide a salt impacted soil to be placed at least 1.5 metres below ground surface. The Excess Soil Reuse Rules [Section D (3)] also indicate exceptions for placement of salt impacted soils at Reuse Sites. Salt impacted soils may be placed at a Reuse Site:

- Where soil will be similarly impacted as a result of continued application of a substance for the safety of vehicular or pedestrian traffic under conditions of snow or ice (eg. road salt); or
- The re-use site is an industrial or commercial property to which non-potable standards apply; or
- The soils are to be placed at least 1.5 metres below the surface of the soil.

Regardless of the above exemptions, salt impacted excess soils cannot be placed:

- Within 30 metres of a waterbody;
- Within 100 metres of a potable water well; or
- On property that will be used for growing crops or pasturing livestock unless placed 1.5 metres below the soil surface.

10 Tables 6.1 and 7.1 can be appropriate options for placement of soil below the water table due to their incorporation of more conservative groundwater-related component values.

4.2 Liquid Soils

In accordance with Section 3 (3) of the Excess Soil Use Regulation, excess soil is dry soil and must remain dry until its final placement at the Reuse site, or, if the soil is not dry, there needs to be a regulatory instrument attached to the Reuse site that authorizes the placement of liquid soil. Liquid soil should not be placed at pits or quarries as part of the rehabilitation program unless there is a regulatory instrument issued for the pit or quarry that authorizes the placement of liquid soil and the approved site plans permits the importation of this material for the purposes of rehabilitation.

There is flexibility in the Excess Soil Reuse Regulation to dewater and solidify excess soil prior to transport to a Reuse Site. This is discussed in Section 6 (4) of the Excess Soil Reuse Regulation and Section C of Part I of the Excess Soil Reuse Rules.

4.3 Summary

In summary, if the MNRF updates the policy as expected to align with the Excess Soil Reuse Regulation, the following will be required for importation of excess soil to a pit or quarry:

- Placement of Excess Soil in areas that could be below the water table after the pit or quarry have ceased operation – Table 1 or Tables 6.1 and 7.1 (Shallow Soil) is required for soil placement in these areas;
- Stratified Condition tables can apply as long as the Soil Rules are followed;
- Placement of salt impacted soils permissible as long as the Soil Rules are followed;
- Placement of liquid soil is not permitted unless there is an ECA in place at the Reuse Site that provides approval for placement of the liquid soil;
- Only Table 1 soils placed within environmentally sensitive sites – considerations for placement of soils adjacent to sensitive sites; and
- BRAT or risk assessment or background approach can be used to generate site- specific excess soil quality standards.

5. TIMING AND PHASING OF THE REGULATION

The MECP is proposing to phase in the Excess Soil Use Regulation to allow owners, contractors, site operators and qualified persons time to familiarize themselves with the regulation and understand the regulation, transition of projects, and to prepare educational tools such as fact sheets, guidance documents, etc. Timing and phasing in of the Excess Soil Use Regulation is as follows:

- **January 1, 2021** – Reuse rules and waste designation, excess soil reuse standards, low risk soil management activities.
- **January 1, 2022** – Planning requirements (sampling/reporting), tracking and registration, hauling record, larger Reuse Site registration.
- **January 1, 2025** – restrictions on landfilling of soil.
- **January 1 2021 to January 1, 2026** – Grandfathering period for contracts entered into before January 1, 2021.

Although, the Excess Soil Standards come into effect prior to the planning documentation/registration requirements, it is expected that Reuse Sites will require characterization of excess soils at Source Site to demonstrate that the soil always meet the quality standards for the Reuse Site.

6. Practical Guidance and Best Management Practice

The previous sections provided the regulatory requirements and rules for management of excess soils. The following section suggests best management practices for exportation or importation of excess soils at a licensed pit or quarry.

6.1 Reuse Site

The quality and quantity of excess soil to be imported will be done in accordance with conditions on the licence or the site plan approvals. Excess soil imported to an unlicenced pit or quarry is typically in accordance with the planning approval or permit issued under a by-law (i.e., Site Alteration or fill by-law or planning approval such as a Plan of Subdivision or development agreement) by the municipality. Operators will need to consult with the local municipality as to the requirements for soil importation. If none of these instruments references the Excess Soil Use Regulation or Rules, operators will still have to follow the regulatory process.

Sections 6.1.1 to 6.1.6 are best management practices to consider **prior** to the importation of soil to the site.

Sections 6.1.7 to 6.1.11 are best management practices to consider **during** the importation of soil to the site.

6.1.1 Establish an Excess Soil Leader or Committee

It is suggested that an Excess Soil Committee (consisting of leads from respective groups within an organization) or an Excess Soil Leader be established within the producer organization. The objective of this committee will be to:

- Develop internal policies, procedures and protocols for the management of excess soils;
- Communicate policies and regulatory changes or updates to employees;
- Act as the main point for questions and queries pertaining to management of excess soils; and
- Be involved in the planning and decision-making process on how excess soils are managed at subsidiary facilities or within different groups in an organization. This will ensure consistency on how excess soils are managed. It will also allow organizations to plan effectively for licensed operations and post-license aggregate operations.

6.1.2 What is the Acceptable Excess Soil Quality and Volume?

6.1.2.1 Quality

Prior to importation of excess soil to a site, the excess soil standards established or accepted for the site need to be well communicated to those responsible for managing the excess soil. For licenced pits or quarries this will be stipulated on the licence issued by the MNRF for the site or a permit/approval issued by a municipality for pits or quarries where the licence has been surrendered. Current MNRF policy[11] is Table 1 (background) soils; however, that policy may be changed or be replaced to be consistent with the Excess Soil Use Regulation. Producers should consult with the MNRF on any changes to that policy or potential amendments to the licence issued.

In addition to the quality properties of the excess soil that will be imported, the physical properties also need to be considered. The 2008 MNRF Policy and some site plans for pits and quarries reference the importation of inert fill for rehabilitation. In Ontario Regulation 347/90, inert fill was previously defined *as means earth or rock fill or waste of a similar nature that contains no putrescible materials or soluble or decomposable chemical substances.* The latter portion of this definition is broad and can include other substances other than soil or rock[12]. There was some confusion as to whether the material to be imported into pits and quarries was only soil and rock or other materials that could be considered inert (e.g., concrete). For clarity, the MECP has amended Ontario Regulation 347/90 to be consistent with the Excess Soil Reuse Regulation, including the definition of inert fill as follows: *Earth or rock fill or waste of a similar nature that contains no putrescible materials or soluble or decomposable chemical substances but does not include excess soil.* With this amended definition, excess soil is not inert fill and it is as defined in the Excess Soil Reuse Regulation. It is likely that the MNRF will discontinue the use of the term inert fill and adopt the excess soil terminology. Given the above, it is suggested that any soil importation strategy for a pit or quarry also indicate that the soil does not contain:

- Any putrescible materials.
- Drums and containers.
- Stained or discoloured earth in contrast with adjoining soil.
- Fill material containing debris.
- Trash/garbage or waste.
- Suspected odours that emanate when the earth is disturbed.
- Oily residue intermixed with earth.
- Sheens, films or discolorations on groundwater.

11 MNRF policy A.R. 6.00.03 – Importation of Inert Fill for the Purpose of Rehabilitation, April 14, 2008.

12 Note: In the proposed October amendment, which was approved in December 2020, the MECP has included crushed rock from activities such as tunneling in the Excess Soil Reuse Regulation.

- Concrete / glass / metal items/fines or equivalent.
- Cinders/ash or other combustion by-products, like ash.
- Free of termites and invasive species.

Other considerations:

a. **Land Ownership** – If the lands are leased, there may conditions in the lease agreement regarding the quality of the soil that can be accepted on the leased property. Furthermore, the legislation change will require that the Owner of the lands will need to consent to any and all shipments of excess soil materials that are placed on their property.

b. **End Property Use** – in some situations there may an agreement to convey the pit or quarry upon closure to another entity such as a conservation authority or municipality. The conditions of the agreement may stipulate what soil quality is acceptable upon conveyance. If the conveyance involves the use of the property to a more sensitive land use (e.g., park), then a filing of an RSC may be triggered. The final land use needs to be understood as this will impact the quality of soil permitted to be imported to the property and any additional sampling requirements. This needs to be considered and it is suggested that it be incorporated into your soil importation strategy. This should be considered early in the process of soil importation to your site. If this is not considered until after soil importation has been completed, or initiated, then additional sampling, involving the mobilization of drill rigs, may be required to characterize the soils placed and potentially the completion of a risk assessment for MECP review.

6.1.3 Communication

Internal policies, procedures and protocols for the management of excess soils should be developed by the Excess Soil Team Leader or Committee. The excess soil policy should be communicated to staff, groups or management within your firm on a regular basis. This can be executed through:

- Regular corporate wide communication;
- Regularly scheduled (typically weekly) team meetings or conference calls;
- Issued memorandums, e-mails;
- Seminars; and
- Educational presentations internal or external.

6.1.4 Review of Planning Documentation Provided by the Source Site

If any of the planning documentation is required to characterize excess soil or if reports to support placement of excess soil have been provided, contact your company's

environmental representative to obtain guidance on how to proceed or to determine the protocol for the review of this documentation.

Reuse sites should request and review background documentation from the Source Site. Background documentation should include:

- Soil Characterization Report of the Excess Soil including the sampling and analysis plan;
- Assessment of Past Uses of the Source Site; and
- Letter from Source Site Qualified Person on the acceptability of the Excess Soil for reuse at your site.

All documentation should be reviewed and comments provided by the Excess Soil Leader/Committee or by a QP assigned by the Leader/Committee. If you are provided a copy of a Phase Two ESA report, this report may not characterize the excess soil to be imported to your site as the objective of this type of investigation is to characterize the soil quality in the area of APECs identified for the Source Site. Although, the APECs identified through the Assessment of Past Land Uses and those identified in the Phase Two ESA for a Source Site may be the same, the sampling depths may not cover the depth profile for the planned excavation cut and the COPCs to be considered for the characterization of the excess soil.

Some key considerations during the review of the reports are:

- Were the reports prepared by a QP or completed under the oversight of a QP?
- How old are the reports? Reports older than 18 months should not be accepted as site conditions at the Source Site may have changed. If the reports are older than 18 months but site conditions have reportedly not changed, then a letter should be provided by the Source Site QP indicating the conditions have not changed and the reports provided represent the quality of the excess soil.
- Frequency of samples collected? Were the number of samples collected consistent with the Excess Soil Reuse Rules? Are the number of samples collected consistent with the volume of soil to be imported? Three samples does not adequately characterize 10,000 m^3 of soil to be imported.
- Were the sample parameter analysis consistent with the COPCs identified for the excess soils at the Source Site? Was the minimum standard adhered to for the evaluation undertaken?.
- Were the soil samples collected at the location where the excess soil is to be generated and appropriate depths for the excavation cuts?

In summary, producers need to be assured that the documentation reviewed provides a reasonable characterization of the excess soil to be imported to the site. If the

documentation provided does not achieve this then the options for the producer are to either reject the Source Site or request additional data to provide acceptable documentation required to characterize the excess soil.

The Excess Soil Committee at the Reuse Site has the responsibility of developing an acceptable soil acceptance protocol from any Source Site, the standards outlined above reflect the minimum standards.

In some instances, the Reuse Site may decide to collect independent soil samples at the Source Site. Cost and accessibility to the site needs to be considered if the Reuse Site decides to collect the samples.

Finally, the Excess Soil Committee needs to review or be aware of its own documentation needs for the Reuse Site's closure and transfer. These requirements could demand other elements not considered in the Excess Soil Reuse Regulation, such as property ownership and conveyance of lands to a third party for a specific final end use.

6.1.5 Acceptance of Excess Soil

Upon acceptance of the excess soil from the Source Site, it is suggested that the Source Site be visited to confirm where on the property the excess soil is being excavated and that it is consistent with the reports provided. This is important if there are other areas at the Source Site that are impacted. If impacts are present, the limits of the impacted area need to be well defined by the Source Site to prevent inadvertent shipment of compromised soils. Periodic site visits should be undertaken to verify where the soil is being excavated if it represents a significant volume of excess soil is coming from a single site.

As indicated in the Excess Soil Reuse Regulation, a declaration will be required from the owner or operator of the Reuse Site indicating that every load has been received, inspected and finally placed at the site.

6.1.6 Determination of Tracking Requirements

It should be established prior to the soil being received at your site, as to who will be responsible for implementation of the tracking protocols, methodology and system (Source Site or Reuse Site?). Under the Excess Soil Use Regulation, the Source Site is responsible for implementation of a tracking system as the excess soils are originating from their site. Prior to importation of the excess soil, the Source Site should provide you with:

- The tracking system to be used – electronic or paper;
- Details of the information that will be included in the tracking system. This should be consistent with the Excess Soil Reuse Regulation;
- Details on how the tracking records will be provided;

- Details of a Global Positioning System (GPS), if there is one; and
- Name of company transporting the excess soil.

Details of the trucks leaving the Source site should be provided to you before the trucks arrive at your site so that you can cross reference these records with the records from the driver to confirm that this is the same truck that left the Source Site.

A bill of lading or electronic verification should be presented before any truck(s) can enter your site. These should be cross-referenced with the information on the bill of lading or electronic documentation against the master list which should include truck ticket numbers issued by Source Site. Untested and/or undocumented loads or loads with no bill of lading or electronic verification should not be accepted under any circumstances.

6.1.7 Inspection of Excess Soils at the Reuse Site

The Excess Soil Reuse Regulation is not specific on where and how the excess soils should be inspected at the Reuse Site. Typically, the inspection will be visual and olfactory. The soils can be inspected at the gate and/or as they are placed. A cursory inspection can be done at the gate to confirm that there are no deleterious materials or suspicious odours associated with the soil. Inspection at the gate only provides a visual observation at the top of the truck bed.

The Excess Soil Committee should establish the protocols to be followed at the gate inspection and the documentation to be handled. Digital recording of the top of the truck bed could be established as a backup to the visual inspection.

A more detailed inspection should also be undertaken as the soil is placed as more of the soil will be exposed and visible as it is unloaded from the truck. This inspection should also be done for every load to be consistent with the Excess Soil Reuse Regulation.

As the soil is unloaded from the truck, it is suggested that grab soil samples be collected for field screening using a device such as a photoionization detector to detect undifferentiated volatile organic compounds or combustible gas meters. This field screening may detect volatile organic compounds that may not be detected by visual or olfactory means.

6.1.8 Records of Soil Placed from Separate Source Sites

If excess soil is being imported to your site from several sources sites at the same time, the following best management practices are suggested:

- Fill from each Source Site should be placed in a separate designated location or a set delivery schedule may need to be enforced.
- Depending on the volume of soil from the source location or site operations, the designated location may be the final placement location or a temporary location.

- Inspection, field screening and collection of confirmatory samples for laboratory analysis should be undertaken for each Source Site. A temporary storage location for each Source Site may be required to avoid congestion of the main receiving area.
- Grading of soils should not be undertaken until all loads from the Source Site have been inspected and field screened and receipt of confirmatory/audit analytical results. There should be written confirmation from the QP that the soils can be graded.
- If soils are temporarily stockpiled, they should be relocated to the final location upon written notification from QP – Note that in accordance with the Excess Soil Use Regulation the excess soil must be finally placed no later than two years after it is deposited at the Reuse Site.
- The fill placement location should be tracked, both by source and geographic area within the site. The location of the fill placement should be surveyed and recorded daily using Global Positioning Survey (GPS) system.

The intent of the above approach is to facilitate locating soils from an individual Source Site in the event that there are concerns or issues that arise in the future with respect to potential post placement COCs detection(s) and the ability to correlate an impact to a specific Source Site.

6.1.9 Collection of Audit Soil Samples

It is suggested that audit soil samples also be collected under the supervision of a QP for quality control purposes as the soil is placed but before it is graded in with the other soils placed at the site. General industry practice and best management practice is to:

- Collect the audit soil samples from each separate Source Site; and
- Collect samples, for example at a frequency of one sample for every 2,000 m^3, imported to the Site.

As a minimum, audit soil samples should be submitted to an accredited laboratory for the analysis of the following that is consistent with the Excess Soil Reuse Rules:

- Petroleum hydrocarbons (PHC) F1 to F4 including benzene, toluene, ethylbenzene, and xylene (BTEX);
- Metals;
- Sodium Adsorption Ratio (SAR) and electrical conductivity (EC); and
- Leachate analysis where required; and
- Any other COPCs identified in the documentation provided by the Source Site.

The frequency of sample collection during the audit process may vary. For example, low risk source locations (i.e., greenfield sites) may be screened less frequently than those from brownfield sites, industrial properties, etc.

6.1.10 What are Unacceptable Soils?

Unacceptable excess soils are:

- Soils that arrive at your site without proper documentation;
- There is visual or olfactory evidence of contamination during the inspection at the gate and/or as the soil is placed;
- Confirmatory/audit soil analytical results indicates the soil quality does not meet the soil quality standard accepted for the site; and
- Other factors/standards as determined by the Excess Soil Committee.

6.1.11 What happens if unacceptable soils arrive at your site?

Should excess soil of unacceptable quality be discovered at your site (either at the gate, during or after placement), the following actions or best management practices are suggested:

1. All unacceptable excess soil should be located, recovered and stockpiled separately for further inspection, sample collection and laboratory analysis under the oversight of the Excess Soil Committee or Lead.
2. Based on the inspection and analytical results:
    a. If the quantity of unacceptable excess soil is minimal (e.g., <10% of load) it could be hand sorted and disposed of off-Site.
    b. If the quantity is excessive, the entire load should be isolated and removed from site.
3. The rejected excess soil should be returned to either the Source Site or disposed of at an MECP approved waste disposal site. If the excess soil is transported to an approved waste disposal site, then further characterization and Notice on Registry may be required. Also, it is suggested that you obtain documentation from the MECP approved facility indicating name and location of receiving site, copy of Environmental Compliance Approval, and confirmation that the facility has reviewed and accepted the excess soil. An agreement may be required with each Source Site that includes a clause that any rejected loads (at the sole discretion of the Owner) will be removed from the Reuse Site at their cost.
4. Importation of the excess soil from the Source Site should cease until it has been confirmed that the excess soil is acceptable for receipt at the Site. The QP should review the analytical results of the imported fill on a more frequent basis to determine if there is an issue with the excess soil from a particular Source Site/project or it is an isolated occurrence (i.e., an individual load that is not representative of the larger soil volume). The Excess Soil Committee can employ policies such as a standard "three strike" rule

(or equivalent) to address these situations. At each non-compliance stage increased scrutiny could be imposed until the Excess Soil Committee is convinced that the issue was isolated and not a reoccurring trend.

6.1.12 Daily Summary Log

A daily summary log should be maintained at the site by the pit/quarry operator and/or representative of the QP that should include:

- Date;
- Total number of trucks entering the property;
- Total number of trucks accepted;
- Total number of trucks rejected (and reasons for rejection); and
- For each Source Location:
  - Identification number for each Bill of Lading received on that date.
  - Location of where soil was placed on your site or GPS coordinates of fill placed.

All applications and related reports, bills of lading, logs of material accepted at the site, records of material approved for acceptance at the site, etc. should be retained by the pit/quarry operator.

Operators should recognize that depending upon the volume of material imported a full time position is likely required to conduct the field screening, tracking, inspection, placement and reporting requirement.

6.1.13 Excess Soil Acceptance

As indicated in the Excess Soil Reuse Regulation, a declaration will be required from the owner or operator of the Reuse Site indicating that every load has been received, inspected and finally placed at the site. This declaration is to be provided to the Source Site. General practice has been to use the Ontario Provincial Specification Standard (OPSS) form 180 for soil acceptance. This form has not been updated to reflect the Excess Soil Reuse Regulation and the requirements in the Excess Soil Reuse Regulation should be followed.

6.1.14 End of Rehabilitation and Mining Activities

It is recommended that all records related to the importation of excess soil be retained for the seven years or longer after activities have been completed as indicated in the Excess Soil Reuse Regulation. For site closure purposes and in addressing RSC requirements for the future land use these records will need to be retained until the RSC has been acknowledged which could represent longer periods in a progressive rehabilitation program.

At the end of the pit or quarry rehabilitation activities, the final land use may or may not be known. Some sites may remain dormant for years and the land use remains the same. For other sites, there may be an agreement to convey the lands to a third party (i.e., municipality or conservation authority) for a more sensitive land use such as a park or it is sold for development. If the lands are conveyed, there may be a condition in the agreement that an RSC be filed by the Reuse Site owner prior to conveyance. For these situations, the documentation and data collected during the filling activities can be used in support of the filing of the RSC as noted above. If the data collected is inaccurate, inconsistent or unreliable then additional data collection will be required and depending on the results, a risk-based approach or remediation may be required to manage the contaminants that may be present.

For those situations where the property is sold, the data collected during the filling activities can be used to support the sale. The filing of the RSC is typically the responsibility of the purchaser as they are redeveloping the property to another use.

6.1.15 Other Considerations

There may be conditions in the licence issued for the pit and quarry that include activities such as groundwater monitoring, dust and mud control, noise control, etc. These requirements would be for overall operation of the site including the importation of excess soil for rehabilitation. Groundwater monitoring programs for pit and quarry extraction are typically undertaken to determine potential water quantity impacts to the surrounding water resources and groundwater users. It may or may not involve water quality monitoring. For site filling activities, the groundwater monitoring program may need to be modified to include:

- Groundwater sample collection and analysis for the COPCs identified with the excess soil imported to the site; and
- Installation of monitoring wells within the footprint of filling activities to determine potential leaching of contaminants at the location of placement of the fill – this will provide early warning of potential leaching of contaminants from the fill. However, this then imposes a more rigorous and comprehensive monitoring program which has cost implications.

6.2 Filling After Licence Surrendered

After the licence is surrendered, there may be a decision to import soils to the inactive pit or quarry to improve the rehabilitated after use of the site (i.e., agricultural) or return the site to grade for redevelopment purposes (e.g. residential or industrial use). For these situations, where the licence has been surrendered, or the site is a legacy pit or quarry, then an approval from the municipality is required. If the property falls within a regulated area, then approvals from the Conservation Authority are also required. This approval may be in the form of a planning approval or permit through a by-law such as a Site Alteration By-law. The local municipality should be contacted to

determine what are the specific requirements. Typically, municipalities have asked for the following studies in support of these permits:

- Hydrogeologic study including residential well surveys
- Traffic Analysis and Impact Assessment
- Noise Impact Assessment
- Road Impact Analysis
- Stormwater Management Plan
- Site Control Plans
- Dust and Mud Control Plan
- Risk Management Plan
- Planning Conformity
- Public Consultation

The above studies are typically included in an overall fill management plan that describes the approach and methodology for the importation and on-site management of the excess soil. There is a trend toward more comprehensive submissions, especially where operations could extend the site life for decades. Some of the site alteration permits include annual renewal of the permit.

6.3 Source Sites

As discussed previously all material leaving a pit or quarry is exempt from the Excess Soil Reuse Regulation. However, there may be circumstances where an aggregate producer may have other operations that are outside of the pit or quarry operations or that is not within an ARA licenced area that may involve the generation of excess soil. Activities where excess soil could be generated include grading activities, building additions/expansions, underground storage tank removal and remedial activities. In this situation, the following regulatory requirements apply if the excess soil needs to be moved off-site:

- On-Line Registry
- Planning Documentation
- Tracking and Record Keeping
- Record Retention

These were discussed in detail in Section 3.0 of this guidance document. The following present best management practices in addition to the regulatory requirements.

6.3.1 Who is the Project Leader and QP?

As discussed in Section 3.0, the site generating the excess soils (Source Site) is primarily responsible for adhering to the Excess Soil Reuse Regulation. The Project Leader or the Operator that is in care and control of the excess soil is responsible for adhering to the regulatory requirements. It can be property owner, construction manager, contractor, quarry or pit operator. Therefore, roles and responsibilities need to be clearly defined upfront in contracts involving third parties.

If a third-party contractor is retained to remove an underground storage tank, for example, then it needs to be clearly defined in the contract as to who will be responsible for the management of excess soil in accordance with the Excess Soil Reuse Regulation. Furthermore, it needs to be clearly understood as to which party will retain a QP to oversee or prepare the planning documentation.

6.3.2 Characterization of Excess Soils

A QP will need to be retained to oversee or prepare the planning documentation (Past Uses, soil sampling plan and Soil characterization reports). The QP will oversee the investigations to collect the soil samples for laboratory analysis and assess the acceptability of the soil for reuse either on-site or off-site. The analytical results will be assessed to the soil quality standards presented Excess Soil Reuse Rules and the QP will determine what quantity of soil is acceptable for reuse.

The management of excess soil can be downloaded to a Contractor including the characterization of the soils for reuse or disposal in a contractual agreement. For these types of contracts, avoid use of language such as 'clean', 'contaminated' or 'inert' soils unless it is defined in the specification. Using this type of language presents several challenges and risks:

- Inadequate or no characterization of soils prior to tender can lead to future claims and insufficient information for the contractor to base their pricing
- Insufficient information to evaluate claims as their assumptions at time of bid are not known
- High bid prices as a mechanism for the contractor to manage their risk
- Potential risk of orders from MECP being issued to contractor and project owner if contractor mismanages the soil.

There are significant benefits to characterization of excess soils by the owner or pit/quarry operator and then providing this information to the contractor:

- Quality and quantity of excess soil is known and the contractor has a basis for the assumptions during the development of their costs
- Lower number of claims

- Assumptions, etc are known at the time of bid which can be used to assess claims
- Reasonable bid prices as quality and quantity of soil are known
- Lower risk of orders from MECP to the project owner

6.3.3 Excess Soil Destination

A QP will need to be retained to oversee or prepare the Excess Soil Destination report. The contents and specifics for the preparation of this report was previously presented in Section 3.0. In addition to the preparation of this report, it suggested that the following also be undertaken:

- If a site-specific instrument is attached to the Reuse Site, obtain a copy of the instrument to identify quality and quantity of soil that can be accepted at that site and a copy of the fill management plan, if one has been prepared.
- Inspection of the Reuse Site to confirm location and property use and that the following are not present:
    - Sensitive sites adjacent or within the Reuse Site.
    - Agricultural land use within the Reuse Site.
- Confirmation that the Reuse Site has retained a QP and has reviewed the documentation provided.

6.3.4 Who Registers the Excess Soils?

The site generating the excess soils files Notice on the Registry. The Project Leader or the Operator or contractor that is responsible for the planning and movement of the excess soil is responsible for adhering to the regulatory requirements with respect to the management of the soils and therefore should register the soils. If the contractor or Project Leader is registering the soils, it is strongly encouraged that you confirm that they have done this.

6.3.5 Inspection of Excess Soils During Excavation

Characterization of the excess soils is typically done using drill rigs, excavators to excavate test pits or grab samples from open excavation walls or soil stockpiles. With all methods, only a small portion of the excess soil is sampled and is exposed for visual observations. It is good practice to inspect the excess soils as it is being excavated for transport off-site to:

- Confirm soil properties;
- Visually inspect the soil for field evidence of contamination; and

- Collect soil samples for field screening using a using a device such as a photoionization detector to detect undifferentiated volatile organic compounds or combustible gas meters.

It is suggested that an inspection protocol be established to evaluate every load prior to loading onto to trucks for transport off-site for reuse. Where practical this inspection protocol should be documented and retained for future reference purposes.

6.3.6 What happens if Soil of Unacceptable Quality is Discovered?

If during the excavation activities, soils exhibiting field evidence of contamination are discovered, the soils should be stockpiled separately and not loaded onto the trucks. Additional excavations may be required to delineate the lateral and vertical extent of the contamination. This should continue until there is no further evidence of contamination. Soil samples should be collected from the stockpile for laboratory analysis. The laboratory analysis will depend on the contaminants of concern identified at the site and the field evidence of contamination. Samples should be collected at the minimum stockpile frequency specified in Table 2 of Schedule E, to O. Reg. 153/04, Minimum Stockpile Sampling Frequency. If the results from the sampling activities indicate that the soil is not acceptable for reuse, then they should be excavated or disposed of at a MECP licenced facility.

Also, it is suggested that soil samples be collected from the sidewalls and base of the excavation for laboratory analysis to confirm that all the impacted soil has been removed.

A QP should be involved to undertake or oversee the above activities.

6.3.7 Tracking

As discussed previously, the Source Site is responsible to implement the tracking procedure for the excess soils and to retain records. The method and procedures of the tracking system must be in place prior to transport to track each load of excess soil during its transportation and deposit at a Reuse Site. The tracking system may be a paper or paperless (electronic). Implementation of the tracking procedure should be discussed with your Environmental Committee or QP. Details of information to be included in the tracking records is discussed in Section 3.0 and copies of the tracking records need to be provided to Reuse Site in accordance with the Excess Soil Reuse Regulation.

In some situations, the Reuse Site may implement the tracking procedure. For this situation, obtain a copy of the tracking records from the Reuse Site.

6.3.8 Record Keeping

Retain all records including tracking records, transport company documentation, documentation sign-off from the Reuse Site, daily records, soil analytical data. This should be retained for a minimum of seven years.

Retention of such remedial documentation is important to the eventual RSC if required at site closure. Appropriate record keeping retention needs to be considered even if the future use is questionable since closure plans may change and access to such data becomes invaluable.

6.3.9 Acceptance of Excess Soil from Reuse Site

In accordance with the Excess Soil Reuse Regulation, documentation from the Reuse site is required for acceptance of the excess soil. It is suggested that general policy documents such as the Ontario Provincial Standard Specification (OPSS) 180 document for Site Selection Notification for Material Managed as Disposal Fill not be used as these documents have not, as yet, been updated to reflect the Excess Soil Reuse Regulation. Specifically, the acceptance from the Reuse Site should include as a minimum:

- Name and location of the site
- Acknowledgment of the documentation reviewed prepared by the QP at the Source Site
- Acknowledgement that the following steps were undertaken:
  - Procedures are developed and applied to account for every load of excess soil to be deposited at the Reuse Site for final placement in respect of an undertaking.
  - Procedures are developed and applied to ensure that the storage of excess soil for final placement in respect of an undertaking at the Reuse Site does not cause an adverse effect.
- Declaration of the acceptance of the quantity and quality of excess soils accepted on the date(s).

7. WHAT ARE THE RISKS?

There are risks if there is:

- No sampling plan
- No tracking procedure or record
- No understanding of the soil quality and environmental conditions at the Source Site
- No or minimal soil quality data from the Source Site
- No experience/ professional oversight

In addition to the potential orders and fines from the MECP, there are additional cost implications such as higher bid prices, potential for claims from contractors, and schedule delays during construction activities. As discussed previously there are potential risks if all soil management activities are downloaded to a contractor.

If the soil is not managed in accordance with the Excess Reuse Soil Regulation, the orders from MECP will not only include the contractor(s) but will likely include the owner of the project. Pit and quarry owners will need to have some involvement and understanding of the Excess Reuse Soil Regulation to minimize risk.

Fines, orders, and cost implications associated with non-compliance are discussed in the following sections.

7.1 Offence

On-site and excess soil management is now required by the Excess Soil Reuse Regulation as portions of which come into effect in January 2021. Compliance is no longer voluntary, if the regulation applies to activities on your site. Aggregate operators now need to determine whether the regulation applies to any activity on their site.

If any activity on an aggregate site is regulated under the Excess Soil Reuse Regulation, failure to comply with any aspect of the regulation, such as not keeping proper records, not hiring a QP when required and not having a sampling plan when required, is an offence under section 186 of the Environmental Protection Act. The fines can be quite large. For example:

a. an individual can be fined up to $50,000 for a first offence;

b. an individual can be fined up to $100,000 for each part of a day the offence takes place or one year in jail, or both for second and subsequent offences;

c. a corporation can be fined up to $250,000 for a first offence;

d. a corporation can be fined up to $500,000 for each part of a day the offence takes place for second and subsequent conviction.

It is important to remember that employees, officers and directors can be prosecuted along with a corporation.

7.2 Orders

Failure to comply with the Excess Reuse Soil Regulation can also result in the MECP issuing an order to comply. Orders can be issued to everyone involved so it is important to ensure that others with whom operators are working are in compliance. An order can be expensive to comply with especially if it requires recovering excess soil that has been deposited improperly on a Reuse Site.

7.3 Cost Implications of Non-Compliance

In addition to fines and orders there are other potential costs for non-compliance. If the site is a source of excess soil that is being disposed of off-site, failure to comply with the requirements could lead to claims by contractors and owners of the Reuse Site if the excess soil does not meet the requirements for the Reuse Site. Construction schedules can be delayed.

The most significant cost to an aggregate site operator probably arises from receiving excess soil that has not been handled and documented in accordance with the Excess Reuse Soil Regulation. This can result in importation of soil of unacceptable quality that may have to be removed in the future. It can lead to soil or groundwater contamination that requires remediation. If the end land use proposed is a more sensitive land use, a RSC will be required. Obtaining the RSC can be much more expensive if there is no data from when excess soils were imported or soil needs to be excavated or treated to obtain the record of site condition.

To minimize these risks, pit and quarry owners need to understand the Excess Reuse Soil Regulation and monitor compliance for all excess soils being exported or imported to a site.

8. EXCESS SOIL FLOWCHARTS

Navigating through a new regulation can be confusing and complicated. To assist producers through this process, several tools have been prepared including flowcharts for sites accepting soils (for rehabilitation) and sites generating excess soils. These flowcharts are presented on **Figures 4 and 5**. Checklists for receiving and generating excess soils are also presented in **Appendix A**.

Figure 4 Receiving Excess Soils at Aggregate Operations

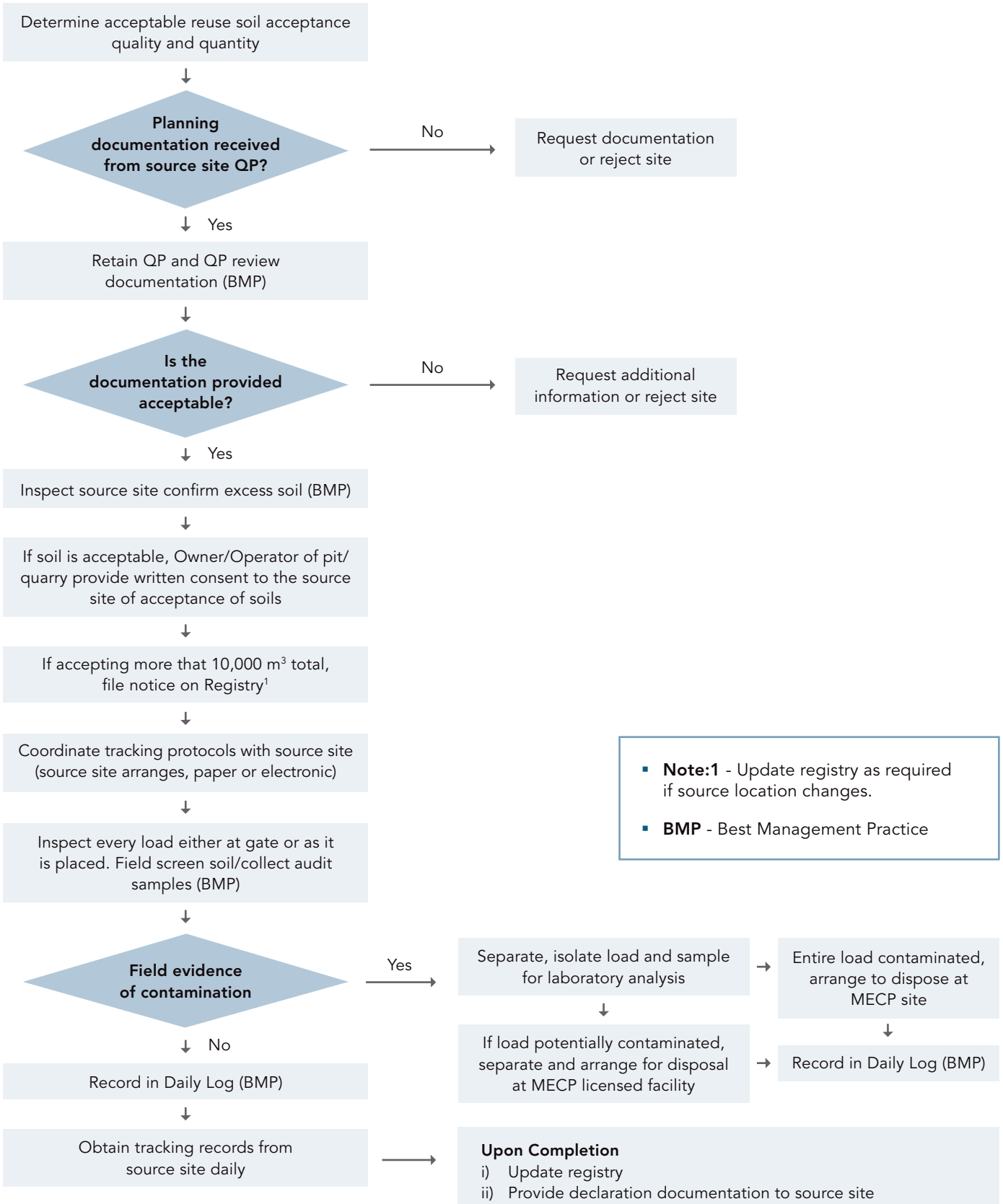
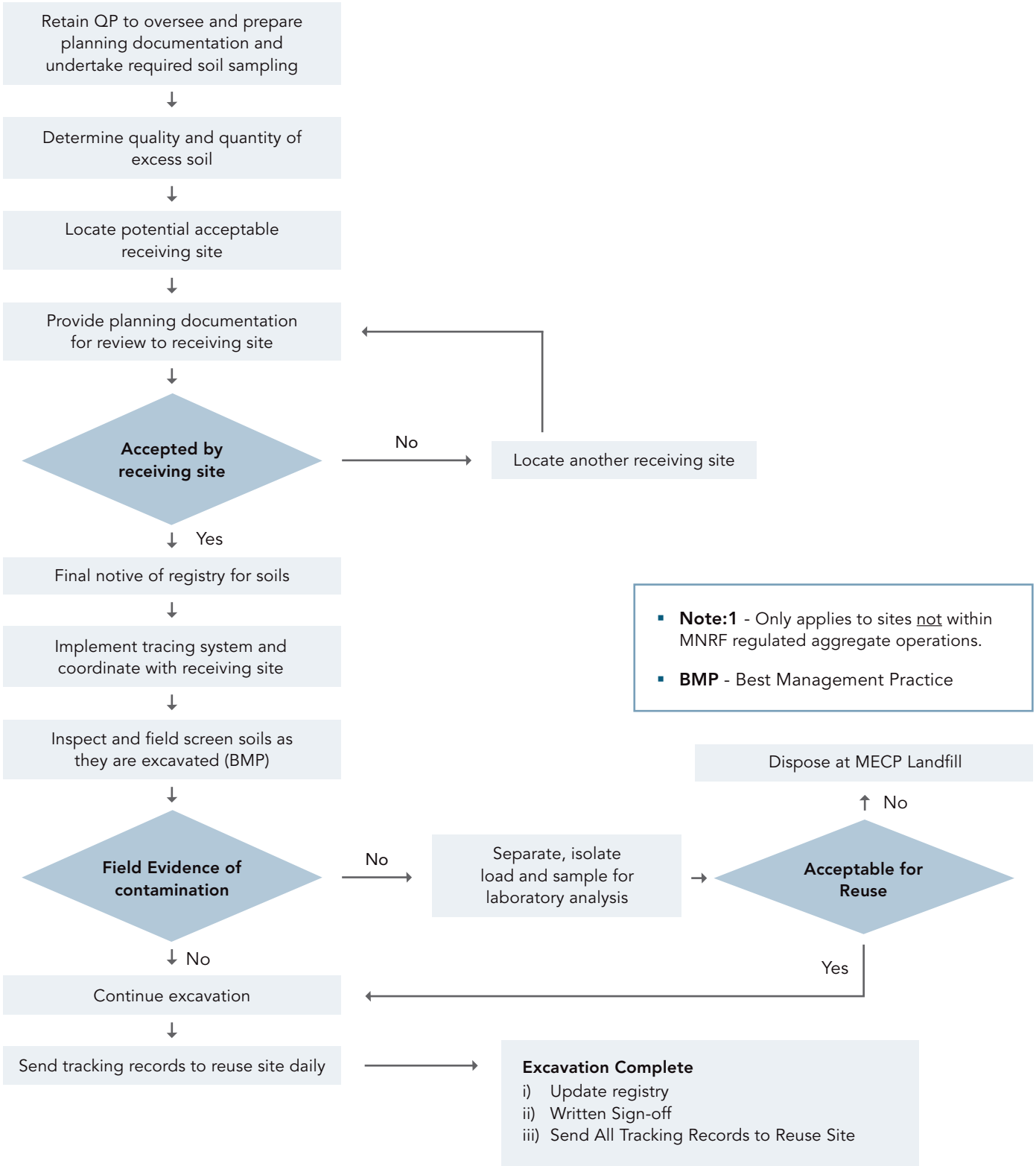


Figure 5 – Generating Excess Soil (Source Site[1])



9. OTHER RESOURCES

The following are other resources that are publicly available on the management of excess soils and best management practices.

1. Ontario Ministry of Environment Conservation and Parks
    a. Handling Excess Soil in Ontario. Handling excess soil | Ontario.ca.
    b. Rules for soil management and excess soil quality standards. Rules for soil management and excess soil quality standards | Ontario.ca.
    c. Management of Excess Soil - A Guide for Best Management Practices. Management of Excess Soil - A Guide for Best Management Practices | Ontario.ca.
2. E-Laws. O. Reg. 406/19: ON-SITE AND EXCESS SOIL MANAGEMENT (ontario.ca)
3. Ontario Regulation 347- General Waste Management. R.R.O. 1990, Reg. 347: GENERAL - WASTE MANAGEMENT (ontario.ca).
4. Ministry of Agriculture, Food and Rural Affairs. Importation of Soil onto Agriculture Lands. Importation of Soil onto Agricultural Land (gov.on.ca).
5. Ontario Environment and Industry Association. Excess Soil Best Practices. Ontario Environment Industry Association - Excess Soils Best Practices (oneia.ca).
6. Canadian Urban Institute. Excess Soil By-Law Tool – Canadian Urban Institute (canurb.org).
7. Residential and Civil Construction Alliance of Ontario. RCCAO
8. OSPE.
    a. Best Management Practices for Aggregate Pit and Quarry Rehabilitation in Ontario

       https://ospe.on.ca/wp-content/uploads/2021/04/Best-Management-Practices-for-Aggregate-Pit-and-Quarry-Rehab-in-Ont..pdf
    b. Beneficial Reuse of Excess Soil at Aggregate Pits and Quarries (Scientific Report)

       https://ospe.on.ca/wp-content/uploads/2021/04/April-19-2021-Scientific-Report-for-MECP.pdf

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Appendix A

Excess Soil Checklists

Checklist for Importation of Soil for Pit/Quarry Rehabilitation

(to completed for each Source Site)

	Activity	*Yes* [1]	*No*	*Comments*
1.	**Background**			
a.	Has the quality and quantity of soil for acceptance been determined for your site? (this may be indicated on the site plans or licence issued for your site)	☐	☐	
b.	Has a fill committee or environmental coordinator been established?	☐	☐	
c.	Has a Qualified Person (QP) been retained for your site?	☐	☐	
d.	Do you know where excess soil is to be placed at the Site or has a fill management plan been prepared indicating where and how soils are to be placed?	☐	☐	
2.	**Planning (Prior to acceptance of excess soil)**			
	Background Soil Characterization Documentation			
a.	Has there been initial contact and coordination with the Source Site of the excess soils?	☐	☐	
b.	Has background documentation on the excess soils to be imported been provided or requested? If the response is no, please request this information.	☐	☐	
c.	Has the following documentation been provided or requested from the Source Site?:	☐	☐	
	i. Assessment of Past Uses of the Source Site	☐	☐	
	ii. Sampling and Analysis Plan	☐	☐	
	iii. Soil Characterization Report	☐	☐	
	iv. Soil Destination Report	☐	☐	
d.	Has a member of the Fill Committee or QP reviewed the background documentation and provided written acceptance of the excess soil? Some key items that should be reviewed for consistency with the Excess Soil Rules (see Excess Soil Rules for details) include:	☐	☐	
	▪ Does the Assessment of Past Uses provide a determination the one or more contaminants may have affected the excess soil? ▪ Does the Assessment of Past Uses identify areas of potential environmental concern (APECs)? ▪ Is a figure provided showing location and depth of excess soil on the Source Site and the distribution of contaminants? ▪ Have soil samples been collected within the area where excess soil is to be generated? ▪ Frequency of samples analyzed based on volume of soil to be imported consistent with Regulation? ▪ Is the analysis of the samples consistent with the contaminants of concern and areas of environmental concern identified in the Assessment of Past Uses ▪ Have the reports been prepared or overseen by a QP? ▪ Is the sampling plan and characterization of the excess soil consistent with the requirements of the Regulation? ▪ What standards have the soil analytical results been assessed to? Do the results met the quality standards determined for your site? ▪ Characterization of the distribution of contaminants in soil stockpiles? ▪ Does the sampling program satisfy the minimum sampling requirements in the Regulation? ▪ Has mandatory leachate analysis been undertaken?			
e.	Has the Source Site been inspected by someone from the Fill Committee or QP to provide assurance that the requirements are met? *(BMP)*	☐	☐	
f.	Has Fill Committee or environmental coordinator been notified of acceptance excess soil? Have they acknowledged acceptance of soils?	☐	☐	
	Tracking System			
g.	Has a tracking system for the excess soil been coordinated with the Source Site? (i.e., paper or electronic)	☐	☐	
h.	Has the Source Site provided details on implementation of the tracking system?	☐	☐	
i.	Has Source Site provided details on how tracking records will be provided per truck and daily?	☐	☐	
j.	Has the Fill Committee or Environmental Representative or QP reviewed and accepted the proposed tracking system?	☐	☐	
	Documentation Control			
k.	Is a system is place to store and maintain records for the soil importation? *(BMP)*	☐	☐	
3.	**Registry Notice (comes into effect January 2022)**			
a.	If more that 10,000 m^3 in total is to be imported for entire project, has notice been filed on Registry by you or someone from the Fill Committee **prior** to the importation of any soil from each Source Site?	☐	☐	
b.	Have you or someone from the Fill Committee updated the Registry to indicate amount of soil removed and date last load of soil removed? (i.e., must be done within 30 days after soil removed)	☐	☐	
c.	Has the Registry been updated to indicate any changes in the amount of soil recieved and/or the Source Site location? (i.e., must be done within 30 days of change)	☐	☐	
4.	**Acceptance of Excess Soil**			
a.	Has written consent been provided to the Source Site for the acceptance of the excess soil?	☐	☐	
b.	Has the QP for the source site provided written declaration that was involved in the preparation of the planning documentation that the reports prepared are complete and accurate ? Contents of the declaration are discussed in the Excess Soil Reuse Rules (see Section B(6) of the Rules).	☐	☐	
5.	**Importation and Placement of Excess Soil**			
a.[3]	A system must be in place to inspect **each** truck load prior entering the site. Has every truck load been inspected at the gate prior to the truck entering the site? Under any circumstances, excess soil in any truck shall not contain any of the following and shall not be permitted to enter the site:	☐	☐	
	▪ Any putrescible materials except for small amounts of vegetation. ▪ Drums and containers. ▪ Stained or discoloured earth in contrast with adjoining soil. ▪ Excess soil containing debris. ▪ Trash/garbage or waste. ▪ Suspected odours that emanate when the earth is disturbed. ▪ Oily residue intermixed with earth. ▪ Sheens, films or discolorations on soil. ▪ Concrete. Concrete, crushed concrete or concrete product fines/sludges. ▪ Cinders/ash or other combustion by products, like ash. ▪ Free of termites and invasive species. ▪ The excess soil shall be dry and shall pass a slump test as outlined in the General Waste Management Regulation (O. Reg. 347 pursuant to the EPA), as may be amended.			
	Note: If the excess soil contains any of the above, the load should be rejected immediately and the Environmental Committee or representative contacted immediately for guidance.			

b.	For **each** truck load, has the driver provided appropriate copies of the tracking documentation for their vehicle and is this documentation consistent with the records provided by the Source Site?	☐	☐	
d.	For **each** truck load, is the soil being placed in accordance with site plans for rehabilitation?	☐	☐	
e.	Is a daily summary log maintained at the Site during the placement of the fill ? As minimum it should include: ▪ Date. ▪ Total number of trucks entering the property. ▪ Total number of trucks accepted. ▪ Total number of trucks rejected (and reasons for rejection). ▪ For each Source Location: ▪ Identification number for each Bill of Lading received on that date.	☐	☐	
f.	*Best Management Practices (BMP). These are optional*			
i.	Placement of fill in designated areas by Source Site?	☐	☐	
ii.	Collection of audit confirmatory soil samples to confirm soil quality? This should be under the supervision of a QP and typically done at a frequency of one sample per 2,000 m^3.	☐	☐	
iii.(3)	Inspection of fill as it is placed? Under no circumstances shall the soil contain any of the materials indicated in Item 4a. The preference is to inspect the soils both at the gate and as it is being placed.	☐	☐	
iv.	Field screening of soil with a Photoionization detector or similar device as it is being placed?	☐	☐	
	If inspection, field screening and audit sampling results are acceptable, has excess soil for that specific Source Site been graded or moved to final placement location?	☐	☐	
v.	Survey of the final location for the fill from each specific Source Site using GPS?	☐	☐	
6.	**Closeout Documentation and Notification**			
a.	Have you or someone from the Fill Committee provided a declaration to the Source Site, stating that every load of excess soil has been received, inspected and accepted for final placement and if soil is temporarily stored at the site, measures are in placed to ensure it does not cause an adverse effect?.	☐	☐	
b.	Has the Environmental Committee or Environmental manager been notified of the completion of the filling activities from each Source Site?	☐	☐	
c.	Is a system in place to ensure records from Source Site and the trucking company are retained for seven years?	☐	☐	

Notes:

(1) Responses to all of the above should be yes. If there is a no response, contact your environmental manager or committee immediately for guidance on next steps.

(2) *BMP* - Best Management Practice

(3) Should excess soil of unacceptable quality be discovered at the Site (either at the gate or during placement), the following will be undertaken:

i. All unacceptable excess soil shall be located and recovered and stockpiled for further inspection sample collection and laboratory analysis by the Qualified Person.

ii. Based on the inspection and analytical results:

1. If the quantity of unacceptable excess soil is minimal (e.g., <10% of load) it can be hand sorted and disposed of off Site.
2. If the quantity is excessive, the entire load is to be isolated and removed from Site.

iii. The rejected excess soil shall be removed to either the Source Site or disposed of at a MECP approved waste disposal site. If the excess soil is transported to an approved waste disposal site, obtain documentation from the MECP approved facility indicating name and location of receiving site, copy of Environmental Compliance Approval, and confirmation that the facility has reviewed and accepted the excess soil. The cost of the management and disposal of the rejected excess soil shall be at the cost of the Source Site.

iv. Importation of the excess soil from the Source Site shall cease until it has been confirmed that the excess soil is acceptable for receipt at the Site.

Checklist for Excess Soil Leaving a Site that is not within a Pit/Quarry Operation

	Activity	*Yes* [1]	*No*	*Comments*
1.	**Background**			
a.	Has an environmental coordinator been established?	☐	☐	
b.	Has a Qualified Person (QP) been retained for your site to oversee or prepare planning documentation	☐	☐	
c.	Will the excess soil be transported off site?	☐	☐	
d.	Is there a requirement to file notice on Registry? See Schedule 2 of O.Reg 406/19 for exemptions. If the response is yes to both 1b and 1c, then complete 2 to 5 below.	☐	☐	
2.	**Planning (Prior to excess soil leaving site)**			
	Background Soil Characterization Documentation			
a.	Is the soil dry? If the soils are wet, passive dewatering may be able to be undertaken before it leaves the site in accordance with Section 6(3) of O. Reg. 406/19 or it would have to be managed as waste and disposed of at a facilitythat has an Environmental Compliance Approval (ECA)	☐	☐	
b.	Is there field evidence of contamination such as debris present in soil or diesel/gasoline odours or sheen on soil? If the response is yes, then a i) reporting to the MECP may be required under Part X of the EPA and ii) QP would need to be retained to collect samples to characterize or oversee characterization of soils for disposal at facility with ECA.	☐	☐	
c.	If there is no field evidence of contamination, has the following documentation been prepared by or overseen by a QP characterizing the quality and quantity of excess soil ?:	☐	☐	
	i. Assessment of Past Uses of the Source Site	☐	☐	
	ii. Sampling and Analysis Plan	☐	☐	
	iii. Soil Characterization Report	☐	☐	
	iv. Soil Destination Report	☐	☐	
	If the response is no, then these documents need to be prepared.			
d.	Based on the documentation prepared, has a potential Source Site been located for acceptance of soils? This is for both soils acceptable for reuse or soils destined to facilities with ECAs	☐	☐	
e.	Has the documentation above been provided to the Resuse Site or site with ECA? If the soil is going to a site with an ECA, there may be specific requirements in the ECA attached to the site for the documentation required.	☐	☐	
f.	Has Fill Committee or environmental coordinator been notified of acceptance excess soil? Have they acknowledged acceptance of soils for placement at reuse site or disposal at site with ECA?	☐	☐	
	Tracking System			
g.	Has the source site provided written consent for the excess soils to be placed at their site? Consent must be provided by the owner or operator of the site.	☐	☐	
h.	Has a tracking system for the excess soil been established? (i.e., paper or electronic)	☐	☐	
i.	Have the details on implementation of the tracking system been provided to the Reuse Site or site with ECA?	☐	☐	
j.	Have details been provided on how tracking records will be provided per truck and daily to the Reuse Site or site with ECA?	☐	☐	
k.	Has the Environmental Coordinator or QP reviewed and accepted the proposed tracking system?	☐	☐	
	Documentation Control			
l.	Is a system is place to store and maintain records for the soil leaving the site? *(BMP)*	☐	☐	
3.	**Registry Notice (comes into effect January 2022)**			
a.	Has notice been filed on Registry by you or someone from the Environmental Committee**prior** to the soil leaving the site?	☐	☐	
b.	Have you or the Environmental Coordinator updated the Registry to indicate the amount of soil removed and date last load of soil removed? (i.e., must be done within 30 days after soil removed)	☐	☐	
c.	Has the Registry been updated to indicate any changes in the amount of soil leaving the site? (i.e., must be donewithin 30 days of change)	☐	☐	
4.	**Excess Soil leaving the Site**			
a.	Are the soils being inspected as they are excavated. Under any circumstances, excess soil destined for a Reuse Site shall not contain:	☐	☐	
	▪ Any putrescible materials. ▪ Drums and containers. ▪ Stained or discoloured earth in contrast with adjoining soil. ▪ Excess soil material containing debris(2). ▪ Trash/garbage or waste(2). ▪ Suspected odours that emanate when the earth is disturbed. ▪ Oily residue intermixed with earth. ▪ Sheens, films or discolorations on groundwater or soil. ▪ Concrete. Concrete, crushed concrete or concrete product fines/sludges(2). ▪ Cinders/ash or other combustion by products, like ash(2). ▪ Free of termites and invasive species. ▪ The excess soil shall be dry and it shall pass a slump test as outlined in the General Waste Management			
	Note: If the excess soil contains any of the above, it should be managed as waste and disposed of at a site with an Environmental Compliance Approval.			
b.	For **each** truck load, has the driver been provided appropriate copies of the tracking documentation for their vehicle and copies provided to the Reuse Site or site with ECA ?	☐	☐	
e.	Is a daily summary log maintained at the Site documenting soil leaving the site ? As minimum it should include: ▪ Date. ▪ Total number of trucks leaving the property. ▪ Total number of trucks accepted. ▪ Total number of trucks rejected (and reasons for rejection). ▪ For each Source Location, Identification number for each Bill of Lading .	☐	☐	
5.	**Closeout Documentation and Notification**			
a.	Have you or the Environmental Coordinator provided written sign off to the Reuse Site?	☐	☐	
b.	Has the Environmental Coordinator been notified of the completion of the soil removal activities	☐	☐	
c.	Is a system in place to ensure records from your site and the trucking company are retained for seven years?	☐	☐	

Notes: (1) Responses to all of the above should be yes. If there is a no response, contact your environmental manager or committee immediately for guidance on next steps.

(2) Depending on the quantity of material present in the soil, removal of debris in accordance with Section 6(3) of O Reg. 406/19 could be undertaken before moving the soil off-site. NOTE: evidence of significant amounts of waste/debris could also indicate former illegal waste disposal activities which may require approval if the waste is to be left in the ground.

(3) Depending on the circumstances, dewatering in accordance with Section 6(3) of O. Reg. 406/19 could be undertaken before moving the soil off-site.