



Ministry of Environment

Information Sheet

on

Cobble Hill Holdings/ South Island Aggregates

Lot 21 Surficial Soil Sampling, May 2015



This Information Sheet provides a summary of the Ministry of Environment's (MOE) limited surficial soil sampling on Lot 21, a portion of which is regulated under a *Mines Act* Permit issued to South Island Aggregates Ltd. for operation of the rock quarry. The sampling was conducted as part of the MOE's effort to evaluate the quality of soils on Lot 21,

and if possible determine if the soil deposited on the site was done in accordance with requirements in the *Mines Act* Permit and the Contaminated Sites Regulation (CSR), which prescribes the quality of soils that can be received and deposited on a given parcel of land, depending on the land use.

What are the requirements that must be met?

- For the portion of Lot 21 which lies inside the *Mines Act* permit boundary, deposited soil must meet the CSR standards (listed in Schedules 4 & 5) to protect human and environmental health for residential land use because this is the land use prescribed in the permit.
- For other portions of Lot 21, deposited soil must meet the CSR standards (Schedules 4 & 5) to protect human and environmental health for industrial land use because this is the current land use of the lot.
- For all of Lot 21, soils being transported to this site must either meet CSR Schedule 7 or have a valid Contaminated Soil Relocation Agreement (CSRA).

How were assessments performed to determine if the requirements were met?

- Surficial soil samples were collected from Lot 21 by MOE staff on May 13, 2015, in accordance with MOE soil sampling protocols.
- The study design was as follows:
 - Lot 21 was divided into 36, 50 x 50 m grids (i.e. sample blocks).
 - Surficial soil samples were obtained from six sample blocks representing areas where soil had been deposited. The six blocks were located along the northern and eastern boundaries of the lot and on neighboring properties. Two "background" sample blocks representing native undisturbed soil were also sampled.
 - For each sample block, two or three sub-sampling locations were randomly selected, and a surficial (0.0 - 0.1m) and shallow sub-surficial (0.4 – 0.5m depth) sample was taken.
 - A total of 32 deposited soil samples and four background soil samples were collected.
- The samples were analyzed for a broad suite of substances including: pH, metals, petroleum hydrocarbons, volatile organic compounds, chlorinated aliphatics and polycyclic aromatic

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hydrocarbons. The suite of substances represents the most common contaminating substances seen at contaminated sites in B.C.

- All analytical results met or surpassed ministry quality assurance/quality control requirements.
- The results were compared to CSR soil standards to determine the quality of deposited soil, and background native surficial soil at Lot 21.
- The analytical results for the samples were compared to the CSR Schedules 4 & 5 residential and industrial soil standards and to CSR Schedule 7 soil standards.

Who was involved in conducting the assessments?

- MOE staff from the Land Remediation Section prepared the study design, conducted the soil sampling, and reviewed and interpreted the results.
- Cowichan Valley Regional District (CVRD) staff provided input into the study design, and a CVRD bylaw staff person was present in the field when the sampling was performed.
- Chemical analysis of the soil was completed by ALS Environmental Ltd. under contract to MOE.

What were the findings of the May 13, 2015 sampling?

1. No exceedances of CSR Schedules 4, 5 or 7 standards were found in surficial or shallow sub-surficial soil at background sampling locations.
2. At sampling locations that represent deposited soil:
 - a. When comparing the sample data to CSR Schedules 4 & 5 residential and industrial standards, there was only one exceedance (benzo[b]fluroanthene 1.08 ug/g) of the CSR Schedule 4 residential standard (1.0 ug/g) but this single exceedance was within the allowed 10% normal acceptable error used in assessing compliance with the CSR standards and is therefore not a concern. Furthermore, this sample was collected from outside the mine permitted area, so the applicable standard is actually the industrial standard (10 ug/g).
 - b. Single exceedances of CSR Schedule 7 standards were also observed for benzo[b]fluroanthene (1.08 ug/g vs. standard of 1.0 ug/g), lead (168 ug/g vs. standard of 100 ug/g) and zinc (227 ug/g vs. standard of 150 ug/g).
3. Based on these results, MOE staff have concluded:
 - a. There may be isolated and infrequent instances where soils may marginally exceed the CSR soil relocation standards for lead and zinc. Therefore it is recommended that soil to be transported off of Lot 21 in the future be assessed for compliance with the CSR Schedule 7 soil relocation standards for metals.
 - b. The limited surficial and shallow sub-surface soil sampling indicates that for the most common contaminating substances seen at contaminated sites within B.C, **Lot 21 are within applicable CSR residential standards for protection of human and environmental health.**
 - c. Based on the limited surficial and shallow sub-surficial soil sampling conducted to date, Lot 21 is considered to be compliant with the soil quality requirements specified in the Ministry of Energy and Mines permit (Permit G—8-331) issued for the site.

Next Steps?

Further investigation of soil quality at Lot 21 does not appear to be warranted, and is not recommended at this time. If in the future soil from Lot 21 is to be transported to another site, consideration should be given to determining if the soil meets the applicable CSR standards for relocation and the receiving site.