

- Invasive species identified in the soil placement area will be eradicated in accordance with The CVRD strategy for invasive plant management (CVRD, 2019b).

## **6 Groundwater Impact Assessment**

The application area is within 100 m of Aquifer 203 and approximately 100 m from Aquifer 208, both high vulnerability. As requested by the CVRD, a Ground Water Impact Assessment was prepared by a Registered Professional. The assessment is provided in Appendix 4. The assessment concluded that the soil deposit activity would not pose a threat to the local aquifer quality or quantity.

## **7 Site Remediation**

The following subsections describe the remediation plans that will occur subsequent to completion of the soil deposit activities.

### **7.1 Landscaping**

Consistent with the proposed equestrian use, the following landscaping measures are planned:

1. Level grades will be finished with a layer of crushed rock and/or a layer of mulch. These are porous materials that will promote diffuse drainage, and will cover deposited soils to mitigate erosion. Some areas will also be strategically landscaped with vegetation to promote soil stabilization and aesthetic interest.
2. Slopes will be vegetated with a combination of seed (e.g. native grasses, wildflowers), trees, and/or shrubs. This will promote slope stabilization, and erosion protection. Appropriate native seed/plant/tree species will be used where practical for re-vegetation and landscaping.

### **7.2 Stormwater Management**

Stormwater will be managed using the following principles, so as not to create erosion or other adverse effects of the landscape:

- Natural drainage patterns on the property will be retained where feasible.
- Land areas will be sloped to collection ditches/swales, settling ponds, and natural vegetated areas to minimize sediment transport and turbidity.
- The majority of land surface will be landscaped with permeable materials to allow for diffuse infiltration into the ground.
- Bare soils on sloped surfaces will be vegetated to slow runoff and mitigate erosion.

### **7.3 Noxious Weeds and Invasive Species**

Site remediation will be completed in a manner that will minimize colonization and spread of noxious weeds. As stated in Section 5.7, the most significant invasive plant species documented in the CVRD include Scotch broom, Canada Thistle, Himalayan Blackberry, St. Johns' Wort, Oxeye Daisy, Bull Thistle, Common Tansy, Japanese knotweed, Yellow Iris, Tansey Ragwort and Curled Dock (Cowichan Valley

Environment Commission's State of Environmental Reporting Subcommittee [CVECSERS], 2014). Specific priority management species identified for the CVRD are identified in Table 1.

The following measures will be implemented to mitigate the spread and establishment of invasive plant species:

- The site will be landscaped as described in Section 6.1 to discourage the establishment of invasive species. The seeds and plants used for revegetation will also be free of invasive species.
- The site will be monitored following soil placement to identify the establishment of invasive species.
- Invasive species identified in the soil placement area will be eradicated in accordance with The CVRD strategy for invasive plant management (CVRD, 2019b).

## 8 Site Monitoring

A site inspection was conducted on May 26, 2020 to review soil depositing environmental practices. Observations from the inspection included:

1. Construction of terraces near the base of the slope was halted in the fall 2019 once the fill materials became saturated (see photo below). Soil was being temporary stockpiled away from steeply sloped areas until the ground conditions dry out to allow final soil placement and terracing to safely recommence.





2. Runoff managed by directing to settling/detention areas (see photo below). All watercourses were clear on the day of the site visit.



3. Vegetated riparian buffers were being maintained. Soil depositing was not occurring within these zones.
4. There were no obvious odours or visual evidence of contamination or equipment leaks.

## 9 References

CVRD. 2019. Depositing Soil on your Property Brochure. Available at:

<https://www.cvrld.bc.ca/DocumentCenter/View/93052/Depositing-soil-on-your-property-brochure>.

Accessed July 22, 2019.

CVRD. 2019b. Invasive Species. Available at: <https://www.cvrld.bc.ca/2283/Invasive-Species>. Accessed August 9, 2019.

Cowichan Valley Regional District. 2010. 2010 State of the Environment Report. Section 2.4 Invasive Species. Available at: <https://www.cvrld.bc.ca/2102/Our-Natural-Environment>. Accessed July 12, 2019.

Cowichan Valley Environment Commission's State of Environmental Reporting Subcommittee (CVECSERS). 2014. Cowichan Region State of the Environment Report Update 2014. Available at: <https://www.cvrld.bc.ca/DocumentCenter/View/83155/SOER-2014-Invasive-Species-technical-report?bidId=>. Accessed July 12, 2019.

Fisheries and Oceans Canada (DFO). 1993. Land Development Guidelines for the Protection of Aquatic Habitat. Available at: <http://www.dfo-mpo.gc.ca/Library/165353.pdf>. Accessed; July 12, 2019.