



October 8, 2015

Mr. Ray Lallier  
Darrahdi Holdings Ltd.  
206 First Avenue  
Cultus Lake, BC V2R 4Y5

Dear Sir:

**Re: Performance Verification Plan for Certificate of Compliance at  
8400 River Road, Delta, BC (Parcels A, B and C)  
Keystone Environmental Project No. 12537-105**

Keystone Environmental Ltd. (Keystone Environmental) has prepared this Performance Verification Plan (PVP) in support of an application for a risk-based Certificate of Compliance (CofC) for the property located at the 8400 River Road, Delta, BC (herein referred to as the "Site").

The PVP presents the principal risk management measures (i.e., the Schedule B key risk management controls) that apply and must remain in place at the Site to ensure that the Site CofC remains valid. The PVP was prepared in accordance with BC Ministry of Environment (MOE) Administrative Guidance 14: Performance Verification Plans, Contingency Plans, and Operations and Maintenance Plans (MoE, 2014). The PVP was based on the findings of the Keystone Environmental report (2015) titled *Report of Findings – Human Health and Ecological Risk Assessment 8400 River Road, Delta, BC*.

#### **DETERMINATION OF REMEDIATION TYPE**

Based on the risk management measures for the Site, the Remediation Type applicable at the Site is considered to be Type 2 (Case 2). Remediation Type 2 Sites may require the use of engineering and institutional controls to mitigate/eliminate risks at the Site, but in the event that controls were either not implemented or were implemented but were rendered ineffective, there is a lack of imminent risks.

Under a Remediation Type 2 (Case 2) scenario, MOE (2014) indicates that a PVP is required and that an operations and maintenance plan may be required. A contingency plan is not required.

## REQUIRED RISK CONTROLS

The principal risk controls which must be maintained at the Site include the following items:

### Parcels A, B, C

- Site groundwater must not be used as drinking water.
- Future buildings must be surface oriented with concrete slab, without basements.
- Deep-rooting plants are not to be planted.

### Parcel C only

- Areas with shallow groundwater contamination (<1 metres below ground surface) must remain paved, covered by buildings or un-vegetated, except during construction or utility maintenance activities. This area includes the following metes and bounds:

Starting at southeast corner of reference plan of statutory right-of-way over a portion of Parcel "G" (Plan in Absolute Fees Parcels Book 11/734/3038F), except:

Firstly: Part on reference plan 11347 and road;

Secondly: Parcel "E" plan 22258;

Thirdly: Part subdivided by plan 76221;

Fourthly: Parts dedicated road on plan LMP 44472;

Fifthly: Part dedicated road on Plan EPP 119; District lot 131, Group 2,  
New Westminster District:

Thence 89° 30' 54" for 52.554 metres;  
To the point of commencement.

Thence 325° 05' 50" for 82.490 metres;  
Thence 61° 17' 26" for 191.251 metres;  
Thence 173° 03' 35" for 68.121 metres;  
Thence 179° 45' 50" for 20.568 metres;  
Thence 217° 13' 20" for 26.513 metres;  
Thence 183° 24' 00" for 49.377 metres;  
Thence 269° 30' 54" for 109.895 metres;

Returning to the point of commencement.

- Should construction or underground utility maintenance activities that may intersect with groundwater contamination be needed, a health and safety plan must be prepared to meet the qualifications set out by WorkSafeBC. This health and safety plan should mitigate incidental groundwater dermal contact by workers.

## REQUIRED ACTIONS TO IMPLEMENT THE REQUIRED RISK CONTROLS

The following actions are required to implement the risk controls:

### Parcels A, B and C

- Mandatory notification provided to the operator of the Site that no drinking water wells are to be developed.
- Communication by the Site owner/operator with building designers to ensure that the construction of future enclosed buildings at the Site will be strictly limited to surface oriented, with no basements.
- Mandatory notification to the operator of the Site that plants with roots that could intersect with contaminated groundwater are not to be planted.

### Parcel C only

- Mandatory notification to the operator of the Site that health and safety plans are to be prepared by a qualified professional prior to trench or excavation work at the Site that intersects with the groundwater. Health and safety plans detailing the mitigation measures used to prevent risk should be made available upon request.
- Mandatory notification to site operator that the ground surface within the metes and bounds described above must remain covered by pavement, building floors, or un-vegetated, except during construction or utility maintenance activities.

Records of these actions should be maintained by the Site owner and submitted to the MOE if requested. Other reporting requirements include the following:

- The Director must be notified promptly by the person(s) responsible for the Site if performance verification actions indicate that any of the required risk controls are not being met. The following information must be submitted to the Director with the notification, or as soon as practicable thereafter:
  - The time period over which risk controls were not in place or implemented
  - The nature of the excursion(s)
  - The temporary or permanent corrective measures implemented or to be implemented
  - An implementation schedule
  - Supporting documentation
- If requested by the Director, a report signed by an Approved Professional must be submitted for review to the Director and must include the following:
  - An evaluation of the performance of the institutional and engineering controls;
  - Recommendations for modification of any plans referenced above, along with supporting rationale;
  - Interpretation of current and cumulative results of the performance verification actions undertaken; and
  - Supporting documentation.

## **SUMMARY RATIONALE AND CONCLUSION**

The HHERA identified risks for Utility Workers and Construction Workers from exposure to substances in groundwater via dermal contact in Parcel C. Health and safety plan development was recommended to mitigate health risk to these workers in the event that their work could intersect contamination in groundwater.

Groundwater contamination exceeding the CSR Schedule 6 drinking water standards remains on-Site. A drinking water use preclusion on Site groundwater is needed to prevent human consumption and risk.

The DSI assumed the potential for a future surface oriented building when investigating the Site for vapour contamination. In order to maintain consistency with this assumption, future buildings must be surface oriented, with no basements.

Potential exposures by terrestrial ecological receptors to shallow groundwater (<1m depth) contamination on Parcel C were ruled out due to the presence of pavement. To ensure future terrestrial ecological risks are mitigated on Parcel C, the ground surface above the shallow groundwater contamination must remain paved, covered by buildings, or unvegetated.

The risk assessment did not evaluate the risks of deep groundwater contamination (>1m depth) on terrestrial ecological receptors due to the absence of vegetation within zones of contamination or the absence of vegetation with sufficiently long roots to intersect contaminated groundwater. In order to maintain consistency with this condition, plants that could intersect with deep groundwater contamination (>1m depth) should not be planted on the Site.

## **CONCLUSION**

It is our opinion that the actions identified above are sufficient to ensure performance verification of the risk controls required for this Site.

## **GENERAL LIMITATIONS AND CONFIDENTIALITY**

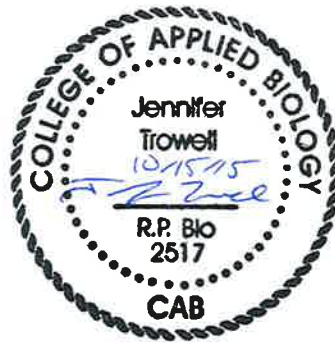
Findings presented in this report are based upon the Keystone Environmental (2015) Stage 1 Update and DSI and a site reconnaissance to identify and characterize ecological habitat at and near the Site. The Human Health and Ecological Risk Assessment was completed in a manner consistent with that level of care and skill normally exercised by other environmental professionals practicing under similar circumstances in the area at the time of the performance of the work.

This report has been prepared solely for the internal use of Darrahdi Holdings Ltd. and for review by the BC MOE, the Contaminated Sites Approved Professionals (CSAP) Society, and Mr. Scott Steer, R.P.Bio., pursuant to the agreement between Keystone Environmental Ltd. and Darrahdi Holdings Ltd. By using this report, Darrahdi Holdings Ltd., BC MOE, CSAP, and Mr. Steer agree that they will review and use the report in its entirety. Any use which other parties make of this report, or any reliance on or decisions made based on it, are the responsibility of such parties. Keystone Environmental Ltd. accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report.

If you should have any questions, please do not hesitate to contact the signatory below.

Sincerely,

**Keystone Environmental Ltd.**



Jennifer Trowell, M.ET., R.P.Bio.  
Risk Assessor

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**ATTACHMENT:**

- References



## REFERENCES

## REFERENCES

- Keystone Environmental Ltd. (2015). Report of Findings – Preliminary Site Investigation – Stage 1 Update and Detailed Site Investigation, 8400 River Road River Road, Delta, BC. Burnaby, BC: Keystone Environmental Ltd. October 8, 2015
- Keystone Environmental Ltd. 2015 Report of Findings – Human Health and Ecological Risk Assessment 8400 River Road, Delta, BC. Burnaby, BC: Keystone Environmental Ltd. October 8, 2015