

FORM 1

Riparian Areas Regulation - Qualified Environmental Professional - Assessment Report

Riparian Areas Regulation: Assessment Report

Please refer to submission instructions and assessment report guidelines when completing this report.

Date

December 9, 2010

I. Primary QEP Information

First Name	Dave	Middle Name	
Last Name	Williamson		
Designation	A.Sc.T	Company	Cascade Environmental Resource Group Ltd.
Registration #	24935	Email	dwilliamson@cerg.ca
Address	3-1005 Alpha Lake road		
City	Whistler	Postal/Zip	V0N1B1
Prov/state	BC	Country	Canada
		Phone #	(604) 938-1949

II. Secondary QEP Information (use Form 2 for other QEPs)

First Name	Lindsay	Middle Name	
Last Name	Rear		
Designation	R.P.Bio.	Company	Cascade Environmental Resource Group Ltd.
Registration #	2195	Email	lrear@cerg.ca
Address	3-1005 Alpha Lake road		
City	Whistler	Postal/Zip	V0N1B1
Prov/state	BC	Country	Canada
		Phone #	(604) 938-1949

III. Developer Information

First Name	Alex	Middle Name	
Last Name	Bunbury		
Company	Bunbury and Associates		
Phone #	604-898-5953	Email	acburn@telus.net
Address	203-1080 Millar Creek Road		
City	Whistler	Postal/Zip	V0N 1B1
Prov/state	BC	Country	Canada

IV. Development Information

Development Type	Rezoning to Subdivision –5 single family lots		
Area of Development (ha)	4.22	Riparian Length (m)	220
Lot Area (ha)	4.22	Nature of Development	Rezoning for new development
Proposed Start Date	Dec 15, 2010 Initiate rezoning application	Proposed End Date	Dec 15, 2025

V. Location of Proposed Development

Street Address (or nearest town)	2501 Gondola Way		
Local Government	Resort Municipality of Whistler	City	Whistler
Stream Name	Tributary to Writeoff Creek, flowing into Alpha Lake		
Legal Description (PID)	DL 2291, Plan 19602, Group 1, except Plan 15473 (PID 006-984-801)	Region	2 – Lower Mainland
Stream/River Type	Stream	DFO Area	Fraser
Watershed Code	Alpha Lake (900-097600-12900-53800)		
Latitude	50	5	14.2
Longitude	122	59	34.6

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Completion of Database Information includes the Form 2 for the Additional QEPs, if needed.
Insert that form immediately after this page.

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Section 1. Description of Fisheries Resources Values and a Description of the Development proposal

This RAR application is required for Resort Municipality of Whistler (RMOW) rezoning purposes to subdivide the existing lot; no new building construction is proposed by the proponent. Future development will be subject to a new RAR assessment and must be filed prior to issuance of a development permit or building permit. The proposed subdivision will include five single family lots, parkland and road easements. The rezoning application will be submitted December 15, 2010, and subdivision and sale of lots will proceed pending approval. Development of individual lots will be both redevelopment and new as land is currently occupied by three houses on the western portion of the property, at the discretion of the future purchaser (Photo 1).

The tributary flows into Writeoff Creek via a steep waterfall; Writeoff is a fish-bearing watercourse connected to Alpha Lake (900-097600-12900-53800). Writeoff Creek is accessible to Alpha Lake fish populations from Cheakamus Way to Alpha Lake. According to the FISS database, Alpha Lake supports populations of rainbow trout (*Oncorhynchus mykiss*), kokanee salmon (*Oncorhynchus nerka*), and an unidentifiable trout (Fish Wizard website, GeoBC).

It is unlikely that the tributary is naturally fish bearing, as the confluence of the tributary to Writeoff Creek includes a steep waterfall, a barrier to fish passage. The tributary itself has a step pool morphology, with a mean gradient of 40% and a mean bankfull width of 2.7 meters.

Current riparian vegetation consists of several tree and shrub species including: western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), western yew (*Taxus brevifolia*), amabilis fir (*Abies amabilis*), black cottonwood (*Populus trichocarpa*), vaccinium species, red huckleberry (*Vaccinium parvifolium*), thimbleberry (*Rubus parviflorus*), red alder (*Alnus rubra*), falsebox (*Pachistima myrsinites*), devil's club (*Oplopanax horridus*), vine maple (*Acer circinatum*), and willow species (*Salix*) (Photos 2 – 6).

2. Results of Detailed Riparian Assessment

Refer to Chapter 3 of Assessment Methodology

Date: Nov, 2010

Description of Water bodies involved (number, type)

Tributary to Writeoff Creek, flowing into Alpha Lake
--

Stream	<input checked="" type="checkbox"/>
Wetland	<input type="checkbox"/>
Lake	<input type="checkbox"/>
Ditch	<input type="checkbox"/>
Number of reaches	1
Reach #	1

Channel width and slope and Channel Type (use only if water body is a stream or a ditch, and only provide widths if a ditch)

	Channel Width(m)	Gradient (%)	
starting point	1.6		I, <u>Dave Williamson</u> (<i>name of qualified environmental professional</i>), hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i> ; b) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (<i>name of developer</i>); c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.
upstream	2.9	35	
	1.5 low		
	3.0		
	2.8		
downstream	2.1	45	
	3.0		
	3.3 high		
	3.2		
	2.6		
	3.1		
Total: minus high /low mean	24.3		
	2.7	40	
Channel Type	R/P <input checked="" type="checkbox"/> C/P <input type="checkbox"/> S/P <input type="checkbox"/>		

Site Potential Vegetation Type (SPVT)

	Yes	No	
SPVT Polygons	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tick yes only if multiple polygons, if No then fill in one set of SPVT data boxes I, <u>Dave Williamson</u> (<i>name of qualified environmental professional</i>), hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i> ; b) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (<i>name of developer</i>); c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.

Polygon No:	1			
	LC	SH	TR	
SPVT Type	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Method employed if other than TR

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Zone of Sensitivity (ZOS) and resultant SPEA

Segment No:	Left Bank	If two sides of a stream involved, each side is a separate segment. For all water bodies multiple segments occur where there are multiple SPVT polygons					
LWD, Bank and Channel Stability ZOS (m)	10 m						
Litter fall and insect drop ZOS (m)	10 m						
Shade ZOS (m) max	8.1 m	South bank	Yes	X	No		
SPEA maximum	10	(For ditch use table3-7)					

Segment No:	Right Bank	If two sides of a stream involved, each side is a separate segment. For all water bodies multiple segments occur where there are multiple SPVT polygons					
LWD, Bank and Channel Stability ZOS (m)	10 m						
Litter fall and insect drop ZOS (m)	10 m						
Shade ZOS (m) max	8.1 m	South bank	Yes		No		
SPEA maximum	10	(For ditch use table3-7)					

I, Dave Williamson (*name of qualified environmental professional*), hereby certify that:

a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the *Fish Protection Act*;

b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Alex Bunbury (*name of developer*);

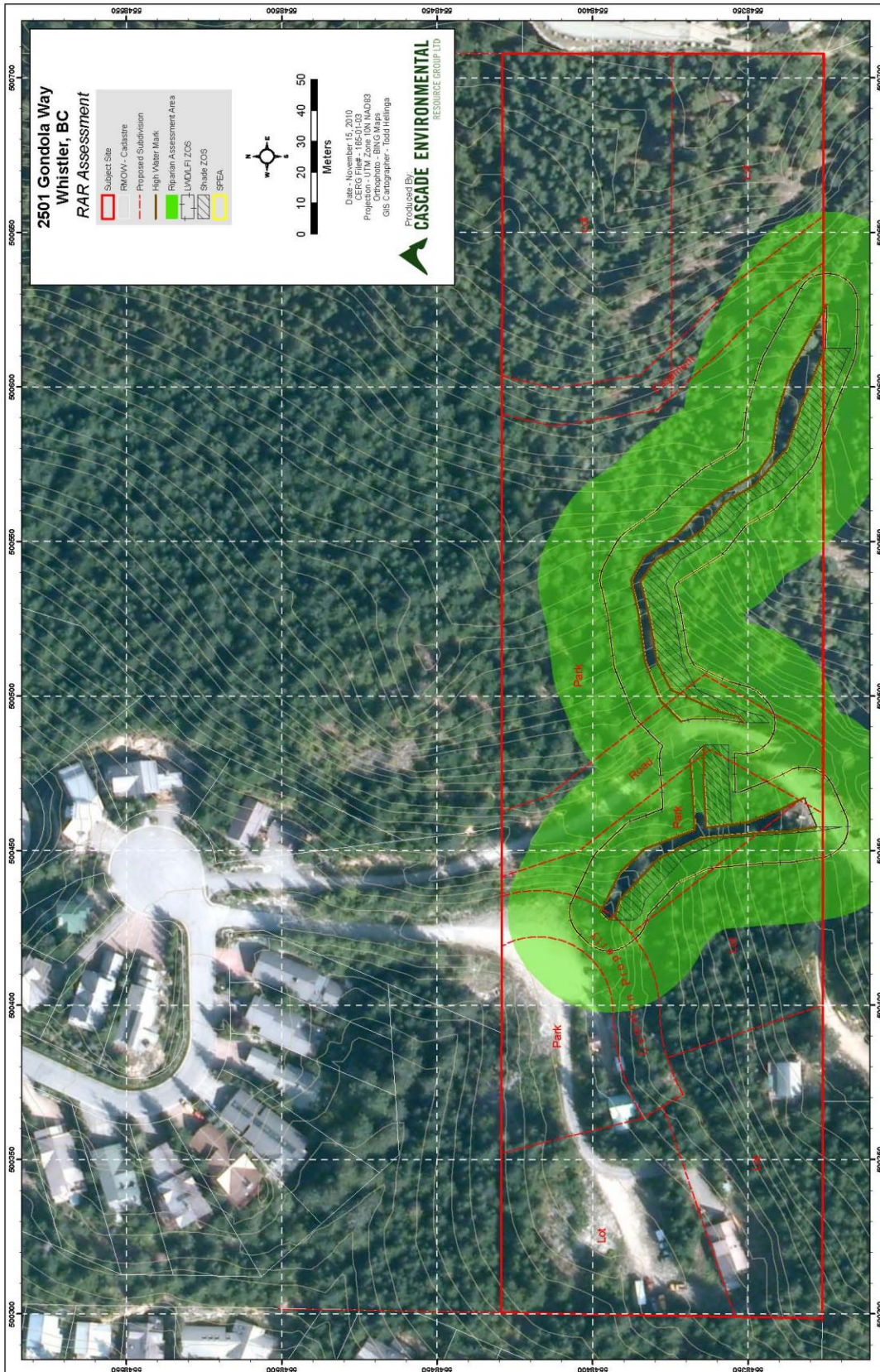
c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and

d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.

Comments

The tributary to Writeoff Creek flows east to west across the property through two road crossing culverts (access driveways). Downstream of the first culvert crossing a second watercourse with similar gradient and vegetation joins the tributary to flow through the second culvert crossing. This additional inflow was regarded as the same reach as the main tributary, due to similar physical features and habitat.

Section 3. Site Plan



Section 4. Measures to Protect and Maintain the SPEA

This section is required for detailed assessments. Attach text or document files, as need, for each element discussed in chapter 1.1.3 of Assessment Methodology. It is suggested that documents be converted to PDF before inserting into the assessment report. Use your “return” button on your keyboard after each line. You must address and sign off each measure. If a specific measure is not being recommended a justification must be provided.

<p>1. Danger Trees</p>	<p>There may be danger tree hazards on the site. If any trees are proposed for removal within the SPEA as danger trees, it is recommended to the client that a danger tree and windthrow assessment be undertaken by a QEP certified danger tree assessor.</p>
<p>I, <u>Dave Williamson</u> (name of qualified environmental professional), hereby certify that:</p> <p>e) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>;</p> <p>f) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (name of developer) ;</p> <p>g) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation</p>	
<p>2. Windthrow</p>	<p>There may be windthrow hazards on the site. If any trees are proposed for removal within the SPEA as danger trees, it is recommended to the client that a windthrow assessment be undertaken by a QEP certified danger tree assessor.</p>
<p>I, <u>Dave Williamson</u> (name of qualified environmental professional), hereby certify that:</p> <p>a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>;</p> <p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (name of developer) ;</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation</p>	
<p>3. Slope Stability</p>	<p>Curved red alder tree trunks, field indicators of slope instability, were observed during the field visit (Photo 4). If construction is proposed it is recommended to the client that the stability of the site be assessed by a geotechnical engineer.</p>
<p>I, <u>Dave Williamson</u> (name of qualified environmental professional), hereby certify that:</p> <p>a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>;</p> <p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (name of developer) ;</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation</p>	
<p>4. Protection of Trees</p>	<p>A silt/snow fencing along the SPEA boundary must be maintained throughout any construction to prevent accidental intrusion and vegetation removal within the SPEA. Any damaged areas in the SPEA following construction must be replanted with native vegetation.</p>
<p>I, <u>Dave Williamson</u> (name of qualified environmental professional), hereby certify that:</p> <p>a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>;</p> <p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (name of developer) ;</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation</p>	

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<p>5. Encroachment</p>	<p>Development will be undertaken by the purchasers of the rezoned individual lots. Future development will be subject to a new fileable RAR assessment and must be filed prior to issuance of a building permit.</p> <p>Prevention of encroachment into the SPEA during construction can be achieved by placement of construction fence hoarding on the SPEA boundary. No intrusion or disturbance shall take place within the SPEA during construction. The setback from the highwater mark must be legally surveyed to determine fence location.</p>
<p>I, <u>Dave Williamson</u> (<i>name of qualified environmental professional</i>), hereby certify that:</p> <p>a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>;</p> <p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (<i>name of developer</i>);</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation</p>	
<p>6. Sediment and Erosion Control</p>	<p>To prevent the loss of soil from the development area and to prevent sedimentation during construction, the following mitigation measures are recommended:</p> <ul style="list-style-type: none"> • Installation and ongoing maintenance of a silt fence along the perimeter of the SPEA; • Covering any stockpiles soils (including topsoil, sand etc.) with plastic or geotextile; • Landscaping (i.e. native planting and seeding) of exposed areas immediately after the completion of development.
<p>I, <u>Dave Williamson</u> (<i>name of qualified environmental professional</i>), hereby certify that:</p> <p>a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>;</p> <p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (<i>name of developer</i>);</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation</p>	
<p>7. Stormwater Management</p>	<p>The proposed development may result in an increase in the total impervious area of the property from surfaces such as roof tops and driveways, as well as concerns related to land clearing, grubbing, and construction. Individual lot construction drainage plans should adhere to the <u>Land Development Guidelines for the protection of Aquatic Habitat</u>. Minimizing the impervious area of the development (i.e. permeable driveways, maintaining greenspace and vegetated swales) will effectively decrease the stormwater impacts.</p>
<p>I, <u>Dave Williamson</u> (<i>name of qualified environmental professional</i>), hereby certify that:</p> <p>a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>;</p> <p>b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (<i>name of developer</i>);</p> <p>c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation</p>	

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8. Floodplain Concerns (highly mobile channel)	No indicators of flooding outside of the SPEA zone was observed during the site visit.
<p>I, <u>Dave Williamson</u> (<i>name of qualified environmental professional</i>), hereby certify that:</p> <ul style="list-style-type: none">a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>;b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Alex Bunbury</u> (<i>name of developer</i>);c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	

Section 5. Environmental Monitoring

Attach text or document files explaining the monitoring regimen Use your "return" button on your keyboard after each line. It is suggested that all document be converted to PDF *before* inserting into the PDF version of the assessment report. Include actions required, monitoring schedule, communications plan, and requirement for a post development report.

The monitoring schedule for construction development must include a site visit prior to commencement of the construction phase of the project to implement necessary measures (silt fencing, construction fencing), and to ensure the Developer is aware of the RAR obligations.

Additional site visits are required to be made by the Qualified Environmental Professional (QEP) periodically throughout construction to ensure that the measures to protect the SPEA are implemented and maintained, and that there are no construction impacts to the SPEA.

It is the responsibility of the client to notify the QEP prior to commencement of construction and upon completion of construction. The developer is responsible for hiring a QEP to submit a report to the RAR notification system after construction is completed.

Section 6. Photos



Photo 1. Current housing at 2501 Gondola Way. October 26, 2010.



Photo 2. Tributary flowing southeast to northwest through the second culvert crossing at the driveway entrance. October 26, 2010.



Photo 3. Tributary exiting the property at northwest corner of lot. June 10, 2008.



Photo 4. Typical step-pool stream morphology located on the eastern portion of the property. November 10, 2010.

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Photo 5. Typical step-pool stream morphology.
June 10, 2008.



Photo 6. Typical step-pool stream morphology.
June 10, 2008.

Section 7. Professional Opinion**Assessment Report Professional Opinion on the Development Proposal's riparian area.**Date

December 9, 2010

1. I/We Dave Williamson

Please list name(s) of qualified environmental professional(s) and their professional designation that are involved in assessment.)

hereby certify that:

- a) I am/We are qualified environmental professional(s), as defined in the Riparian Areas Regulation made under the *Fish Protection Act*;
- b) I am/We are qualified to carry out the assessment of the proposal made by the developer Alex Bunbury (name of developer), which proposal is described in section 3 of this Assessment Report (the "development proposal");
- c) I have/We have carried out an assessment of the development proposal and my/our assessment is set out in this Assessment Report; and
- d) In carrying out my/our assessment of the development proposal, I have/We have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation; AND

2. As qualified environmental professional(s), I/we hereby provide my/our professional opinion that:

- a) if the development is implemented as proposed by the development proposal there will be no harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes in the riparian assessment area in which the development is proposed, **OR**
(Note: include local government flex letter, DFO Letter of Advice, or description of how DFO local variance protocol is being addressed)
- b) if the streamside protection and enhancement areas identified in this Assessment Report are protected from the development proposed by the development proposal and the measures identified in this Assessment Report as necessary to protect the integrity of those areas from the effects of the development are implemented by the developer, there will be no harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes in the riparian assessment area in which the development is proposed.

[NOTE: "qualified environmental professional" means an applied scientist or technologist, acting alone or together with another qualified environmental professional, if

- (a) the individual is registered and in good standing in British Columbia with an appropriate professional organization constituted under an Act, acting under that association's code of ethics and subject to disciplinary action by that association,
- (b) the individual's area of expertise is recognized in the assessment methods as one that is acceptable for the purpose of providing all or part of an assessment report in respect of that development proposal, and
- (c) the individual is acting within that individual's area of expertise.]