Strathcona
REGIONAL DISTRICT

STAFF REPORT

DATE: April 18, 2023

FILE: 0550-04 Board

TO: Chair and Directors,
Regional Board

FROM: David Leitch
Chief Administrative Officer

RE: ESA DEVELOPMENT PERMIT – DP 1D 23 (ANDERSON)

PURPOSE/PROBLEM

To consider an environmentally sensitive areas development permit for a property adjacent to Upper Campbell Lake that is located at Lot 8, Gold River Highway in Electoral Area D which would allow the construction of a single-family dwelling and art studio outside the identified Streamside Protection and Enhancement Area (SPEA).

EXECUTIVE SUMMARY

The attached report concerning an application for an environmentally sensitive areas development permit was reviewed at the April 12, 2023 meeting of the Electoral Areas Services Committee at which time the Committee passed the following resolution:

> Rice/Mawhinney: EASC 90/23
>
> THAT the Committee recommend that the environmentally sensitive area development permit DP 1D 23 (Anderson), as attached in staff report dated April 12, 2023 be approved; and
>
> THAT the Corporate Officer be authorized to issue the permit.

The actions outlined below are offered in support of the Committee's recommendation.

> *Note: Schedule 'B' to the permit [Riparian Area Assessment prepared by Jess Newman, BPBio] was inadvertently omitted from the Committee report but is attached hereto.*

RECOMMENDATIONS

1. THAT the report from the Chief Administrative Officer be received.

2. THAT environmentally sensitive area development permit DP 1D 23 (Anderson), as attached in the April 12, 2023 report from the Chief Administrative Officer be approved, and

   THAT the Corporate Officer be authorized to issue the permit.

Respectfully:

David Leitch
Chief Administrative Officer

Prepared by: *E. Watson, Manager, Corporate Operations*

Attachment: April 12, 2023 Report to Electoral Areas Services Committee

Environmentally Sensitive
Areas Development Permit

FILE: 3060-20/ DP 1D 23

TO: Linda Sams and Brad Anderson (the "Applicants")

1. This development permit (DP 1D 23) is issued subject to compliance with all the bylaws of the regional district applicable thereto, except as specifically varied or supplemented by this permit for the construction of ***a single family dwelling and art studio outside the identified SPEA on the property.***

2. This development permit applies to only those lands within the regional district on the property described below:

Legal Description:	Lot 8, Block 846, Comox District, Plan 15452		
Parcel Identifier (PID):	004-136-314	**Folio:**	772 05069.000
Civic Address:	Lot 8, Gold River Hwy., Campbell River BC		

3. The land described herein shall be developed strictly in accordance with the following terms and conditions and provisions of this permit, including Schedule A and Schedule B:

a) All future development activities shall take place in accordance with the site plan shown as Schedule A and the recommendations contained within Schedule B - Riparian Area Assessment (RAA), prepared by Jess Newman, RPBio., dated March 3, 2022. These recommendations include, but are not limited to:

i) The 15-metre SPEA boundary, extended to the top of the riparian bank as shown in the Site Plan, must be determined by a BC Land Surveyor and marked in the field prior to any clearing. The reservoir critical water level (222 metres) should be used as a reference to apply the setback.

ii) There is to be no disturbance of vegetation, trees or soils with the SPEA.

iii) If, following assessment by a certified assessor, trees within the SPEA are removed due to potential hazard, tree stumps and root systems are to be left in place, and trees must be replaced according to the MoE Tree Replacement Criteria.

iv) Prior to construction, a temporary barrier such as snow fencing must be established to mark the SPEA boundary. The barrier must be situated outside the SPEA and root zone of the trees. A Qualified Environmental Professional should verify the location of the barrier prior to work beginning on site. No machinery is permitted to enter the SPEA boundary.

v) Activities requiring extensive excavation or soil movement should be scheduled for periods of dry weather. No site drainage during or after construction is to be directed towards the SPEA or Upper Campbell Lake.

vi) Once construction is complete, all exposed soils should be stabilized using mulch, native grass mix, or other native plant species. A permanent barrier such as a split-rail fence should be installed to prevent future encroachment into the SPEA.

b) As per Section 5 ‘Environmental Monitoring’ of the RAA, a follow-up report prepared by a Qualified Environmental Professional (QEP) shall be submitted verifying that the requirements stated within the RAA have been met during the development project.

4. This development permit (DP 1D 23) shall lapse if development is not substantially commenced within **two (2)** years of the issue date of this permit (see below). Lapsed permits cannot be renewed; therefore, application for a new development permit must be made, and permit granted by the Strathcona Regional District board, in order to complete the remainder of the work.

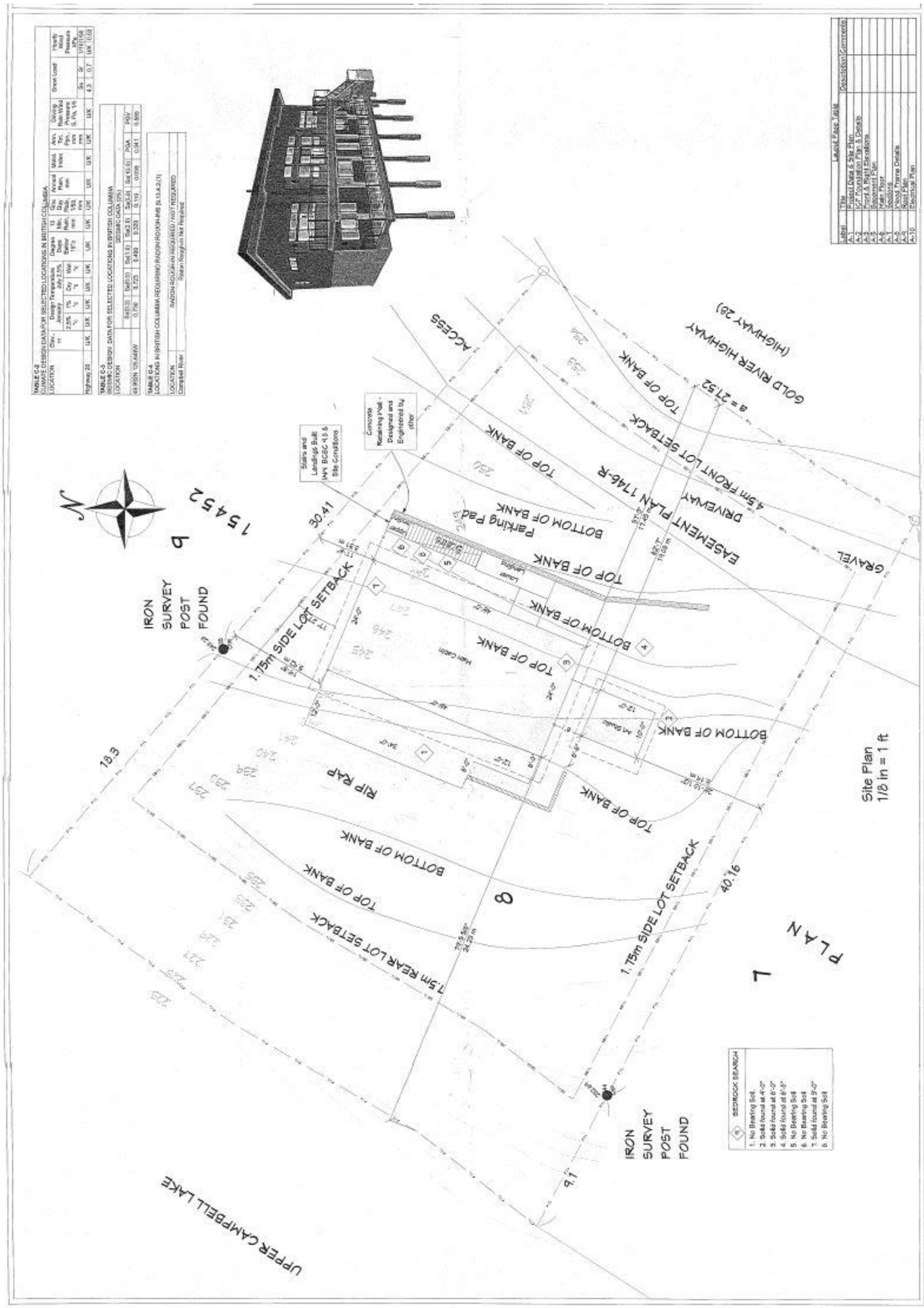
5. This permit is ***NOT*** a building permit.

DEVELOPMENT PERMIT DP 1D 23 issued the ____th day of _________________ 2023.

____
Corporate Officer

Date: ______________________________

Schedule A



Site Plan

Schedule B

Riparian Area Assessment prepared by Jess Newman, BPBio

RIPARIAN AREA ASSESSMENT
LOT 8, UPPER CAMPBELL LAKE
STRATHCONA REGIONAL DISTRICT, AREA D
MARCH 2022

PREPARED FOR:

LINDA SAMS & BRAD ANDERSON
521 S. ALDER ST.
CAMPBELL RIVER, BC V9W 5V2

PREPARED BY:

JESS NEWMAN, RPBIO

COLLEGE OF APPLIED BIOLOGY
Jessica
Newman
R.P. Bio
2891
CAB

MAINSTREAM
Biological Consulting
250·287·2462
www.mainstreambio.ca

Riparian Areas Protection Regulation: Assessment Report

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

Date: March 3, 2022

I. Primary QEP Information

First Name	Jess	Middle Name	
Last Name	Newman		
Designation	RPBio	Company	Mainstream Biological Consulting
Registration #	2891	Email	jess@mainstreambio.ca
Address	1310 Marwalk Crescent		
City	Campbell River	Postal/Zip	V9W 5X1
Phone #	250-287-2462		
Prov/state	BC	Country	Canada

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

First Name		Middle Name	
Last Name			
Designation		Company	
Registration #		Email	
Address			
City		Postal/Zip	
Phone #			
Prov/state		Country	

III. Developer Information

First Name	Linda	Middle Name	
Last Name	Sams		
Company			
Phone #	250-201-0048	Email	Linda.Sams@cermaq.com
Address	521 S. Alder Street		
City	Campbell River	Postal/Zip	V9W 5V2
Prov/state	BC	Country	Canada

IV. Development Information

Development Type	Construction: Single Family Residential		
Area of Development (ha)	0.016	Riparian Length (m)	39
Lot Area (ha)	0.17	Nature of Development	New
Proposed Start Date	2022-03-28	Proposed End Date	2023-03-28

V. Location of Proposed Development

Street Address (or nearest town)	Lot 8		
Local Government	Strathcona Regional District	City	Campbell River
Stream Name	Upper Campbell Lake		
Legal Description (PID)	004-136-438	Region	Vancouver Island
Stream/River Type	Lake	DFO Area	South Coast
Watershed Code	920-627900		
Latitude	49 55 17.5	Longitude	125 38 45.6

RAPR Assessment Report Summary

Identified RAPR Drainages and SPEAs (Sections 1, 2 and 3)

RAPR Drainages	Type	SPEA
Upper Campbell Lake	Lake	15 m

Development Activities Considered for this Report (Section 1):

- Construction of single-family home and detached studio.
- Installation of parking pad and concrete retaining wall outside the riparian assessment area.

Protection Measures (Section 4):

- The SPEA boundaries extending to the top of the riparian bank must be located and marked by a BC Land Surveyor prior to the start of any development activities (including vegetation clearing, earth works or construction).
- A temporary barrier must be erected on the SPEA boundaries and remain in place during all development activities.
- A more permanent barrier such as a low rail fence or row of boulders should be placed on the SPEA boundaries at the completion of all construction and development activities.
- No disturbance is permitted within the SPEA boundaries and all native vegetation within the SPEAs must be retained.

Environmental Monitoring Requirements (Section 5):

If the QEP is not retained to carry out the field reviews and environmental monitoring, the QEP may not be able to provide assurance that the prescribed protection measures were implemented or that the work was completed to an acceptable standard.

An environmental monitor must be contacted if / when:

- Before work begins, to confirm the location of the marked SPEA and document protection measures.
- Heavy rainfall occurs during excavation or construction activities with the potential to cause erosion on the property or transport sediment towards the SPEA.
- Accidental encroachment into the SPEAs occurs.
- Construction and implementation of protection measures has been completed, to complete a post-development assessment.

Additional QEP Assessment Requirements (Sections 4 and 5):

- If any changes are made to the proposed development activities as outlined in Sections 1 and 3 (summarized above), additional assessment by a QEP is required to ensure that the SPEAs determined during this assessment and the prescribed measures are still appropriate for the proposed development activities.
- Stormwater management features are not permitted within the SPEAs. If a stormwater management plan is prepared for the property, review of the plan by a QEP is required to ensure no impacts to the designated SPEAs and RAPR drainages.

Required Reports (Sections 4 and 5):

- Post-development Assessment Report

Table of Contents

Introduction

This report describes the results of the Riparian Areas Assessment completed for the proposed construction of a single-family residential home at Lot 8 Upper Campbell Lake (PID: 004-136-438), in Area D of the Strathcona Regional District, BC. The lakefront property is located along the Gold River Highway (Highway 28), on the east side of Upper Campbell Lake, approximately 340 m south of Cedar Creek Road (Figure 1). Proposed development within 30 m of the lake triggered the requirement for a RAPR assessment and an Environmental Development Permit as outlined in the SRD Official Community Plan[1].

This report documents the current conditions of the property as observed during the site assessment completed on September 30, 2021, at the request of the property owners Linda Sams and Brad Anderson. The shoreline of Upper Campbell Lake adjacent to the property consists of a steep bedrock ledge (Photo 1). Approximately the lower third of the property adjacent to the lake is a naturally vegetated riparian bank with a gradient between 80 and 95% (Photo 2). The two thirds of the property upslope from the riparian bank have been previously cleared, and the proposed development location is within this cleared area (Photo 3). An approximately 4 m by 4 m wooden platform and stairway risers have been constructed near the southern property boundary in the middle portion of the lot (Photo 4). No other permanent structures were present on the property at the time of the assessment. Access to the lot is via a shared gravel easement from Highway 28 (Photo 5).

This document presents the "Streamside Protection and Enhancement Area" (SPEA) requirements for the portion of Upper Campbell Lake that borders the western edge of the property, determined according to the *Riparian Areas Protection Regulation* (*RAPR*) "Detailed" assessment methodology. Measures to protect the features and function of the retained SPEA are identified in Section 4.0.

A summary of the qualifications of the primary Qualified Environmental Professional (QEP) that completed this assessment is provided in Appendix A.

[1] Strathcona Regional District Oyster Bay – Buttle Lake Official Community Plan Bylaw, 1996

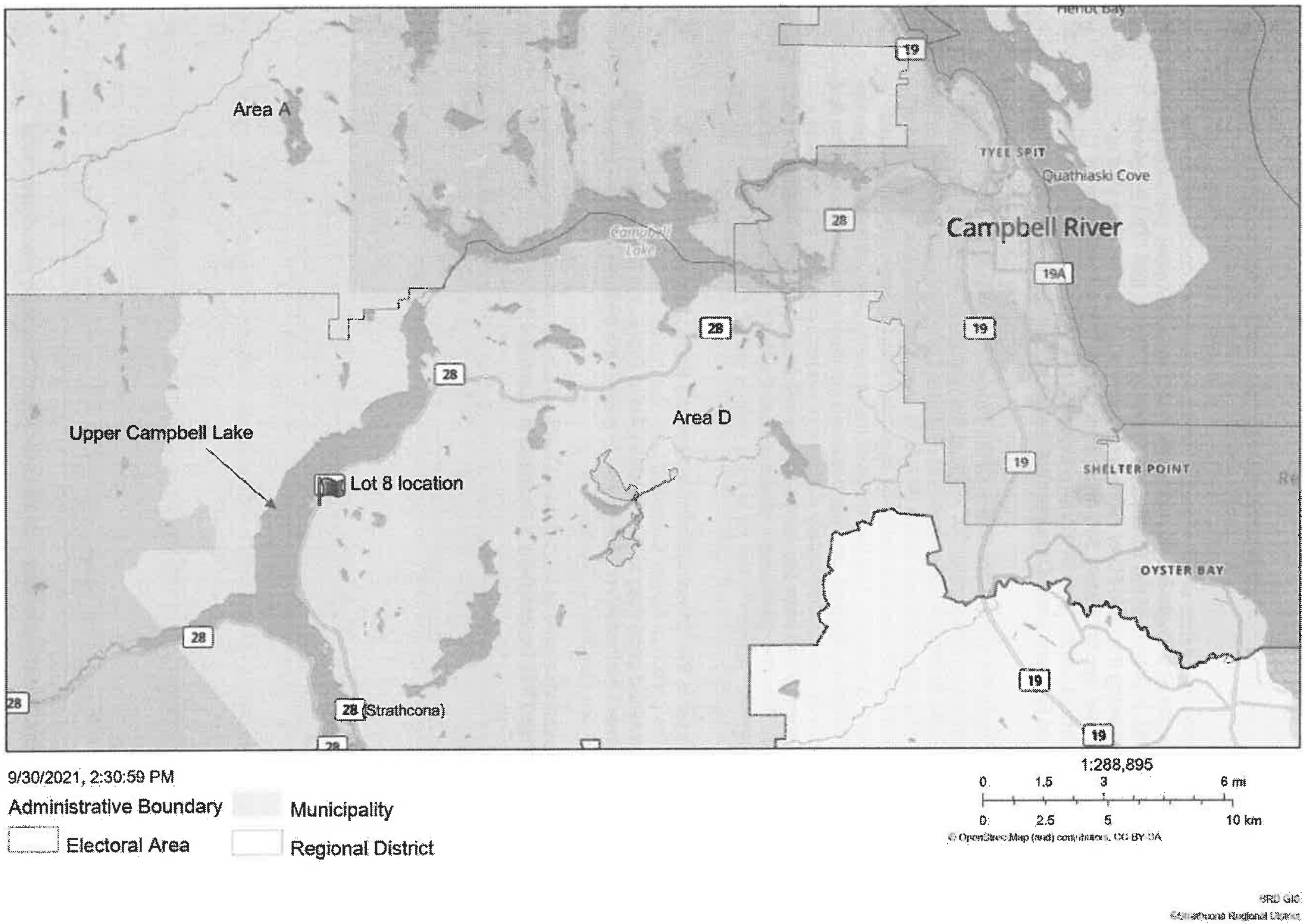


Figure 1. An overview map showing the location of Lot 8 Upper Campbell Lake (red flag) within Electoral Area D of the Strathcona Regional District.

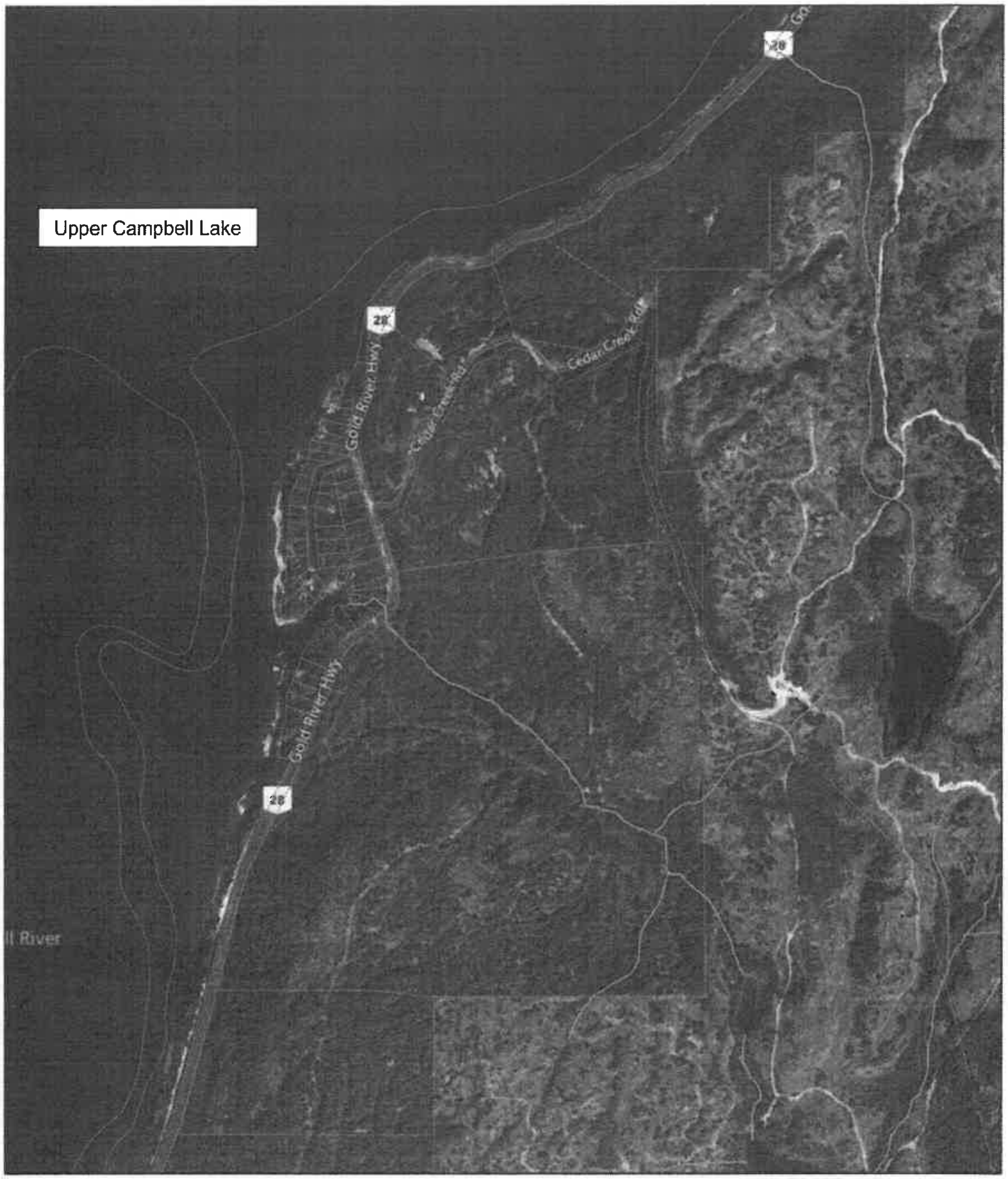


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Figure 2. Aerial imagery showing the location of proposed development at Lot 8 Upper Campbell Lake (outlined red).

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

Fisheries Resource Values

The proposed development property is located approximately 30 km west of the City of Campbell River, BC, and is bordered on the west by Upper Campbell Lake (Photo 6). Upper Campbell Lake is a reservoir with a surface area of approximately 2,978 hectares and a critical water level elevation of 222 m.[2] The lake is part of the Campbell River watershed and has high recreational value for outdoor pursuits including boating, swimming and fishing. Cutthroat trout, rainbow trout, Dolly Varden char, sculpin, and threespine stickleback have been documented in the lake[3]. No other streams, ditches, wetland or ponds are mapped within the assessment area or were found during the site assessment within the property boundaries.

Current Riparian Condition

The riparian bank on the eastern property boundary is very steep, extending up from the lake bank at a gradient of at least 80%. The riparian bank is fully vegetated over a horizontal distance of approximately 19 m, with a second-growth canopy consisting of a mix of Douglas-fir, western redcedar and western hemlock, with a low open understory of dull Oregon grape, salal, bunchberry, vanilla leaf, twinflower, sword fern and moss groundcover (Photo 2).

The upper portion of the property above the steep riparian bank has been previously cleared (more than a decade ago) and is generally vegetated with red alder and cedar saplings and a mix of thimbleberry, trailing blackberry, salal, dull Oregon grape, red huckleberry and various grasses and forbs (Photo 3). Scotch broom and Himalayan blackberry are present at a low to moderate density within the cleared portion of the property (Photo 7). No invasive species were observed in the forested area along the shoreline.

Proposed Development Activities

Proposed development at Lot 8 Upper Campbell Lake includes construction of a 154 m^2 single family vacation home and small detached studio within the existing cleared area on the terrace above the steep riparian bank (Figure 3 – Site Plan). Access will be via the existing gravel drive easement, with a parking pad and engineered concrete retaining wall to be installed outside the riparian assessment area.

[2] BC Hydro. November 21, 2012. Campbell River System Water Use Plan.
[3]Fisheries Information Summary System - –
http://a100.gov.bc.ca/pub/fidq/fishDistributionsQuery.do

Section 2. Results of Detailed Riparian Assessment (SPEA Width)

Refer to Section 3 of Technical Manual

Date: Sept. 30, 2021

Description of Water bodies involved (number, type): 1, Upper Campbell Lake

Stream	0
Wetland	0
Lake	1
Ditch	0
Number of reaches	1
Reach #	1

Channel width and slope and Channel Type

Upper Campbell Lake:

	Channel Width(m)		Gradient (%)
starting point	-		-
upstream			
downstream			
Total: minus high /low			
mean			
	R/P	C/P	S/P
Channel Type	N/A		

I, Jess Newman, hereby certify that:
a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*;
b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Linda Sams;
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 technical manual to the Riparian Areas Protection Regulation.

Site Potential Vegetation Type (SPVT)

	Yes	No	
SPVT Polygons		X	Tick yes only if multiple polygons, if No then fill in one set of SPVT data boxes

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Polygon No:

	LC	SH	TR
SPVT Type			X

Method employed if other than TR

Zone of Sensitivity (ZOS) and resultant SPEA

Segment No:	1	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)	15					
Litter fall and insect drop ZOS (m)	15					
Shade ZOS (m) max	-	South bank	Yes		No	X
Ditch	Justification description for classifying as a ditch (manmade, no significant headwaters or springs, seasonal flow)					
Ditch Fish Bearing	Yes		No		If non-fish bearing insert no fish bearing status report	
SPEA maximum	**15**	(For ditch use table3-7)				

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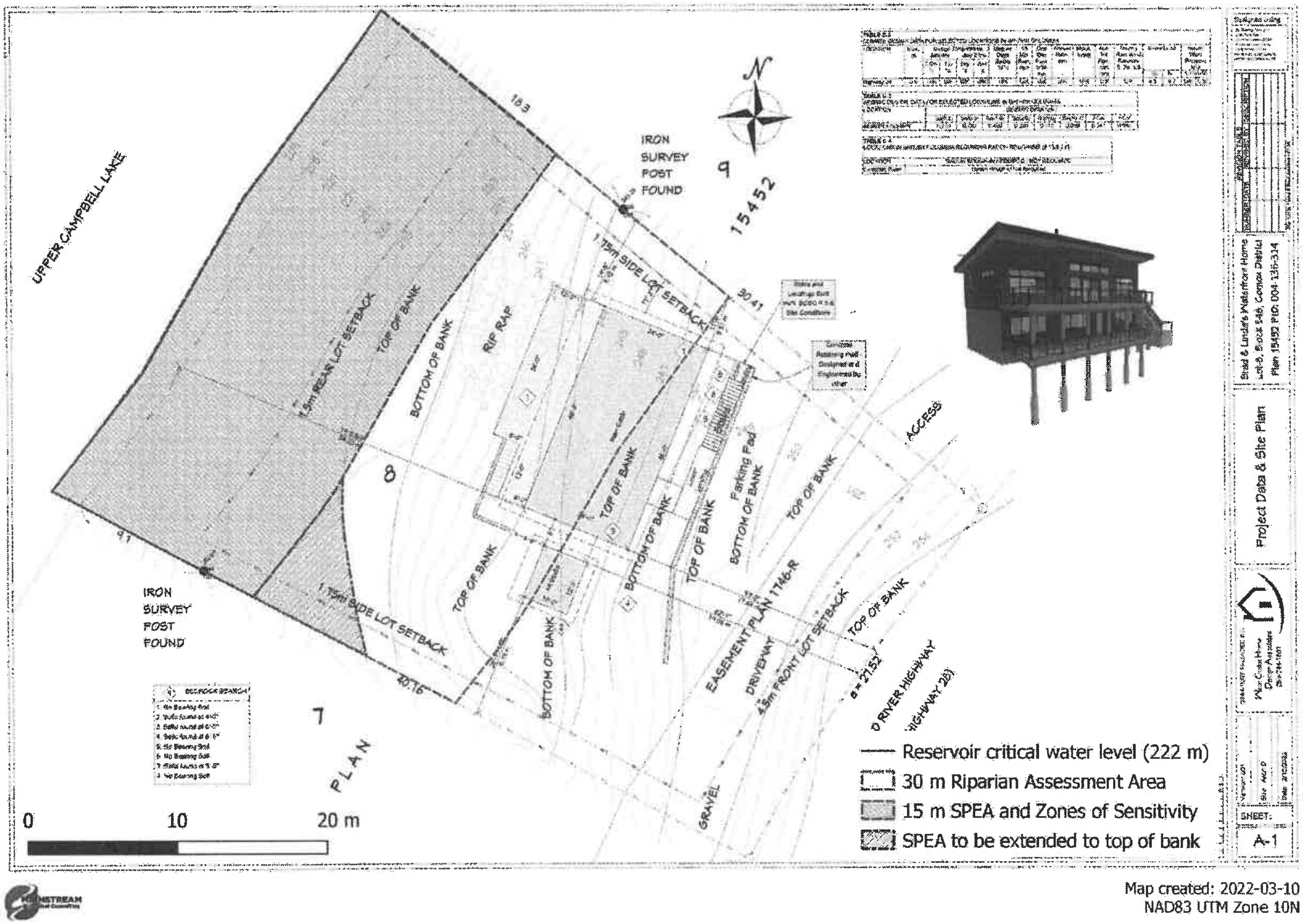
Comments

Upper Campbell Lake is a confirmed fish-bearing lake within the Campbell River watershed. A 15 m SPEA has been identified under the RAPR for the east bank of Upper Campbell Lake adjacent to the property. Where applicable, the SPEA will be extended to the top of the steep riparian bank to protect slope stability and water quality.
The SPEA boundary must be marked by a BC Land Surveyor prior to development. Because Upper Campbell Lake is a reservoir with fluctuating water levels, the SPEA will be applied from the critical water level mark of the reservoir (222 m).

Section 3. Site Plan



Map created: 2022-03-10
NAD83 UTM Zone 10N

Section 4. Measures to Protect and Maintain the SPEA

NOTE: once the measures have been completed, make sure page is formatted so boxes don't split across pages, add page breaks where necessary.

1. Danger Trees	• No danger trees were observed on the SPEA boundary near the proposed house location. Two potential danger trees located near the top of the property, well outside the SPEA and RAA, will be removed prior to construction. • If there is concern about the condition of trees within the lake SPEA in future, a certified tree assessor should be retained to evaluate tree condition. • If, following assessment by a certified assessor, trees within the SPEA are removed due to potential hazard, tree stumps and root systems are to be left in place, and trees must be replaced according to the MOE Tree Replacement Criteria[4]. • No additional protection measures are required.
I, Jess Newman, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*; b. I am qualified to carry out this part of the assessment of the development proposal made by the developer Linda Sams; 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 Minister's technical manual to the Riparian Areas Protection Regulation.	
2. Windthrow	• No significant signs of windthrow, such as broken tops or lifting roots were observed within the assessment area. • The SPEA is steep (>80%) and many trees are leaning or show 'J' shaped growth. Tree fall debris is moderately abundant. • Historical clearing has exposed this area of second growth to wind over time and resulted in a natural feathered and generally windfirm edge. • The existing forested boundary at the top of the riparian bank will remain as is and will not result in a newly exposed edge to prevailing winds. • No danger trees or targets are present within the SPEA area, and any windthrow in the SPEA is likely to fall downslope away from the proposed development location. • Minor tree loss due to windthrow will not have serious negative impact on adjacent fish habitat in the lake. The shoreline adjacent to the property consists of bedrock ledges, with a steep drop-off and no potential spawning habitat. • No additional measures are required.
I, Jess Newman, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*; b. I am qualified to carry out this part of the assessment of the development proposal made by the developer Linda Sams; 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 Minister's technical manual to the Riparian Areas Protection Regulation.	

[4] MOE Tree Replacement Criteria - http://www.env.gov.bc.ca/wld/documents/bmp/treereplcrit.pdf

<table>
<tr><td>3. Slope Stability</td><td>The SPEA is steep (80-90%) but forested, which helps protect the soil and provide stability to the slope.
A geotechnical assessment determined the property safe for the intended use, provided recommendations provided by the report were implemented[5]. The geotechnical assessment is included as Appendix B of this report.
Forest vegetation on the steep slopes below the proposed development area should remain intact to protect slope stability and prevent erosion. No site drainage (during or after construction) is to be directed to the riparian bank of Upper Campbell Lake.</td></tr>
<tr><td colspan="2">I, <u>Jess Newman</u>, hereby certify that:
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b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Linda Sams</u>;
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 Minister's technical manual to the Riparian Areas Protection Regulation.</td></tr>
<tr><td>4. Protection of Trees</td><td>All trees must be retained within the SPEA, unless deemed to be danger trees at some point in the future. No disturbance (i.e. limb or tree removal) should occur to the trees unless approved by a Qualified Environmental Professional. Trees that are removed from the SPEA are to be replaced according to provincial Tree Replacement Criteria[6].
Prior to construction, a temporary barrier such as snow fencing must be established to mark the SPEA boundary. The barrier must be situated outside of the SPEA and root zone of the trees. A Qualified Environmental Professional should verify the location of the barrier prior to work beginning on site.
All workers involved with development are to be made aware that the area behind the barrier is "no disturbance zone", and no machinery is to be allowed to enter that area, and no clearing or tree modification is to occur beyond the barrier.</td></tr>
<tr><td colspan="2">I, <u>Jess Newman</u>, hereby certify that:
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b. I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Linda Sams</u> ;
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 Minister's technical manual to the Riparian Areas Protection Regulation.</td></tr>
</table>

[5] Lewkowich Engineering Associates Ltd. Proposed single family residence Lot 8 Upper Campbell Lake, Highway 28, Strathcona Regional District, BC. Geotechnical Assessment – Slope Stability. Prepared for Bradley Anderson. August 30, 2018.
[6] https://www.env.gov.bc.ca/wld/documents/bmp/treereplcrit.pdf

5. Encroachment	• The SPEA boundary, extended to the top of the riparian bank as shown in the Site Plan, must be determined by a BC Land Surveyor and marked in the field prior to any clearing. No flagging has been placed; however, the reservoir critical water level (222 m) should be used as a reference to apply the setback. • A temporary barrier such as snow fencing must be established along the SPEA and remain in place throughout development activities. • A QEP must verify barrier presence prior to clearing or development, and all workers involved with development are to be made aware that the area behind the barrier is a "no disturbance zone" and no machinery is permitted to enter. • There is to be no disturbance of vegetation, trees or ground within the SPEA. • The steep riparian bank provides a clear visual indication of the SPEA location; however, once construction is complete a permanent barrier such as a low rail fence or row of boulders could be placed to further demarcate the SPEA and prevent future encroachment.
I, Jess Newman, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*; b. I am qualified to carry out this part of the assessment of the development proposal made by the developer Linda Sams; 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 Minister's technical manual to the Riparian Areas Protection Regulation.	
6. Sediment and Erosion Control	• Activities requiring extensive excavation or soil movement should not be scheduled for periods when heavy rainfall or snow melt is expected. If this type of work is occurring during these periods, an Environmental Monitor should inspect the work area to confirm and document that there is no release of turbid water from the property. • No site drainage during or after construction is to be directed towards the SPEA or Upper Campbell Lake. • Upon completion of construction activities all exposed soils should be stabilized using mulch, native grass seed mix, or other native plant species. • No trail or access routes to the lakeshore are planned at this time. If future shoreline access is required, it should be designed with the input of a QEP.
I, Jess Newman, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*; b. I am qualified to carry out this part of the assessment of the development proposal made by the developer Linda Sams; 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 Minister's technical manual to the Riparian Areas Protection Regulation.	

7. Stormwater Management	• During construction the area between the construction site and the SPEA should be monitored to ensure that sediment is not being directed towards the SPEA and Upper Campbell Lake especially following rain events. Ditching or other methods to direct water away from the SPEA may be required, particularly during periods of heavy rain or snowmelt. • Surface run-off from the proposed development is not to be directed in the SPEA or towards the lake. • Foundation and perimeter drains must not release water towards the SPEA and lake. • Stormwater originating from the proposed development will be directed away from Upper Campbell Lake and the SPEA for infiltration to ground.
I, Jess Newman , hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*; b. I am qualified to carry out this part of the assessment of the development proposal made by the developer Linda Sams ; 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 Minister's technical manual to the Riparian Areas Protection Regulation.	
8. Floodplain Concerns (highly mobile channel)	• No floodplain concerns are applicable. Proposed development is adjacent to a reservoir.
I, Jess Newman, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*; b. I am qualified to carry out this part of the assessment of the development proposal made by the developer Linda Sams; 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 Minister's technical manual to the Riparian Areas Protection Regulation.	

Section 5. Environmental Monitoring

Low intensity environmental monitoring will be required during the proposed development activities at Lot 8 Upper Campbell Lake. The property owner / developer is responsible for ensuring that the Environmental Monitoring requirements for the proposed development activities are fulfilled. The sections below further describe the responsibilities relating to Environmental Monitoring and a suggested Environmental Monitoring Plan for this proposed development project.

Description of Project Responsibilities:

QEP:

- Develops ESC and EM plan, in consultation with developer and / or construction contractor.
- Responsible for documenting compliance with EM / ESC plans and working with Developer / contractors to modify plans or actions when necessary.
- Liasing with regulators at the request of the Project Owner / Developer, including reporting of Environmental Incidents as required by regulations

Project owner / Developer:

- Ensuring that Measures are implemented as described in this report, and for implementing the EM plan
- Retaining a QEP to EM as necessary
- Assisting in communication of EM plans with contractors / workers

Contractors:

- Implementing Measures, including ESC measures, as described in this report or developed in consultation with the EM and /or Project Owner

Environmental Monitoring Plan:

If the QEP is not retained to carry out the field reviews and environmental monitoring, the QEP may not be able to provide assurance that the prescribed protection measures were implemented or that the work was completed to an acceptable standard.

Pre-construction requirements:

- The location of the SPEA must be clearly marked prior to development and communicated to all contractors/crew to ensure no disturbance to the SPEA occurs. While the property owner or developer has a responsibility to ensure this is done, a qualified Environmental Monitor can act on their behalf. The environmental monitor must verify that a barrier has been installed.
- Development of monitoring schedule tied into construction schedule and time of year
- Establishment of communication protocol between Project Owner / Contractor and EM.

During construction:

- Environmental monitoring during construction is advised; however, the intensity of monitoring can be low due to the planned construction activity (residential construction, low risk for environmental impacts to SPEA if measures are adhered to).

- Circumstances such as extreme rainfall or potential encroachment into the SPEAs during construction should trigger the developer to immediately contact a qualified EM for assistance in evaluating and mitigating any adverse impacts.

Post construction:

- **A follow up report by a QEP is required to verify that the requirements stated in this RAPR report have been met during the Development Project. The follow up report must be submitted to the Provincial Notification System. It is the responsibility of the developer to notify the QEP when the development work has been completed and request the completion of the follow up report.**

Section 6. Photos

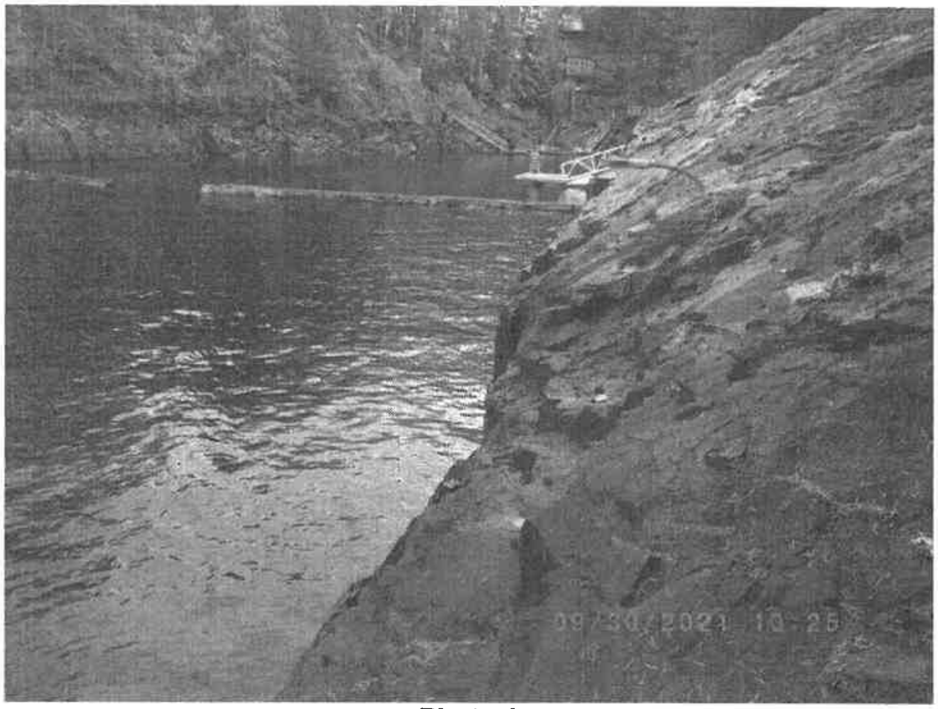


Photo 1
A view northeast along the bedrock ledge at the shoreline in Lot 8 Upper Campbell Lake.

Photo 2
A view southwest along the steep, forested riparian bank within Lot 8 Upper Campbell Lake.

Photo 3
A view north across the cleared portion of Lot 8 proposed for development.

Photo 4
A view south in Lot 8 Upper Campbell Lake showing the wooden platform near the southern property boundary.

Photo 5
A view southeast towards Highway 28 showing the shared gravel driveway access at Lot 8 Upper Campbell Lake.

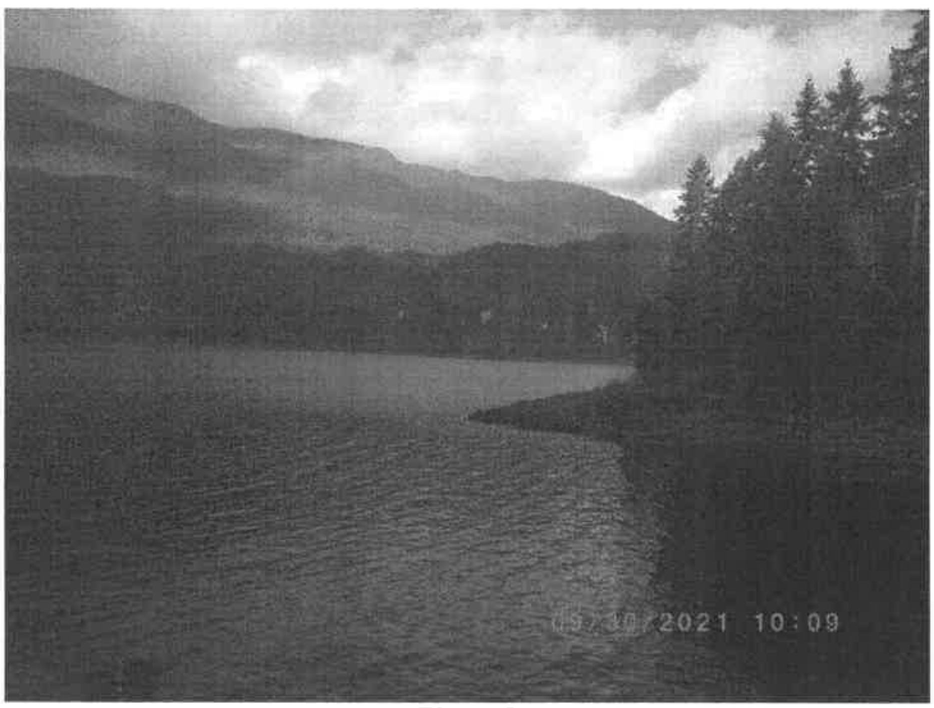


Photo 6
A view northwest across Upper Campbell Lake from the shoreline of Lot 8.

Photo 7
A view north within the upper, cleared portion of the property showing Scotch broom and Himalayan blackberry.

Section 7. Professional Opinion

Qualified Environmental Professional opinion on the development proposal's riparian assessment.

Date March 18, 2022

1. I/We Jess Newman

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 Protection Regulation made under the *Riparian Areas Protection Act*;
b) I am/We are qualified to carry out the assessment of the proposal made by the developer Linda Sams, 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 specifications of the Riparian Areas Protection Regulation and assessment methodology set out in the minister's manual; AND

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

a) N/A the site of the proposed development is subject to undue hardship, (**if applicable, indicate N/A otherwise**) and
b) ✓ the proposed development will meet the **riparian protection standard** if the development proceeds as proposed in the report and complies with the measures, if any, recommended in the report.

[NOTE: "Qualified Environmental Professional" means an individual as described in section 21 of the Riparian Areas Protection Regulation

Appendix A: Summary of Primary Qualified Environmental Professional Qualifications

Date: March 3, 2022	
Name of Primary QEP	Jess Newman
Professional Designation	RPBio
Professional Association	College of Applied Biology
Registration Number	2891
Riparian assessments completed or contributed to	
Report title	**2141 Willis Road RAPR**
Report date	February 2022
Responsibility	Secondary QEP, field assessment
Report title	**249 Hembrough Road RAPR**
Report date	November 2021
Responsibility	Primary QEP, field assessment, report
Report title	**1530 Grayling Drive RAR**
Report date	March 2019
Responsibility	Primary QEP, field assessment, report
Report title	**6501 Island Highway RAR**
Report date	January 2019
Responsibility	Secondary QEP, field assessment
Report title	**2980 Island Hwy RAR**
Report date	December 2018
Responsibility	Primary QEP, field assessment and report
Report title	**4748 Upland Road RAR**
Report date	December 2018
Responsibility	Primary QEP, field assessment and report
Report title	**2020 Woodburn Road RAR**
Report date	June 2018
Responsibility	Secondary QEP, field assessment and report
Report title	**560 Otter Road RAR**
Report date	March 2018
Responsibility	Secondary QEP, field assessment and report
Report title	**1681 Evergreen Road RAR**
Report date	January 2018
Responsibility	Secondary QEP, field assessment and report
Report title	**2141 Willis Road RAR**
Report date	November 2017
Responsibility	Secondary QEP, field assessment and report
Report title	**1885 Willis Road RAR and PDA**
Report date	October 2017
Responsibility	Secondary QEP, field assessment, RAR report and PDA

Report title	**241 Jacqueline Road RAR**
Report date	June 2017
Responsibility	Secondary QEP, field assessment and report
Report title	**320 Petersen Road RAR**
Report date	June 2017
Responsibility	Secondary QEP, field assessment and report
Report title	**Parkway Properties West RAR**
Report date	February 2017
Responsibility	Secondary QEP, field assessment
Report title	**3815 Peak Drive RAR**
Report date	November 2016
Responsibility	Secondary QEP, field assessment and report

Appendix B: Geotechnical Assessment

Lewkowich Engineering Associates Ltd.
geotechnical • health, safety & environmental • materials testing

Bradley Anderson
521 South Alder Street
Campbell River, BC
V9W 5V2

File Number: F6108.01
Date: August 30, 2018

PROJECT: **PROPOSED SINGLE FAMILY RESIDENCE**
LOT 8 UPPER CAMPBELL LAKE, HIGHWAY 28, STRATHCONA REGIONAL DISTRICT, BC

SUBJECT: **GEOTECHNICAL ASSESSMENT – SLOPE STABILITY**

LEGAL DESCRIPTION: **LOT 8, BLOCK 846, COMOX DISTRICT, PLAN 1452**

REFERENCE: **Lewkowich Engineering Associates Ltd., *Geotechnical Slope Assessment*, File No.: G5262.01, May 2, 2007.**
Heidema Engineering Ltd., *Retaining Wall Assessment*, File No.: 11-7888, May 5, 2011.

Dear Mr. Anderson:

1. INTRODUCTION

As requested, Lewkowich Engineering Associates Ltd. (LEA) has carried out a geotechnical assessment for the above referenced development with respect to the proposed residential development. This report provides a summary of our findings and recommendations.

2. BACKGROUND

LEA understands the proposed development consists of a multi storey residence that will be constructed on a steep slope at the subject site.

3. ASSESSMENT OBJECTIVES

a. Our assessment, as summarized within this report, is intended to meet the following objectives:

   i. Certify that the land is considered geotechnically safe and suitable for the use intended (defined for the purposes of this report as the construction of a single family residence), with the probability of a geotechnical failure resulting in property damage of less than 10 percent (10%) in 50 years, with the exception of geohazards due to a seismic event which are to be based on a less than 2 percent (2%) probability of exceedance in 50 years.

ii. Identify any geotechnical deficiency that might impact the design and construction of the development, and prescribe the geotechnical works and any changes in the standards of the design and construction of the development that are required to ensure the land, buildings, and works and services are developed and maintained safely for the use intended.

iii. Provide geotechnically related recommendations with regard to slope stability, soil bearing capacities, and seismic site class.

4. ASSESSMENT METHODOLOGY

a. LEA visited the site on August 7, 2018 to review existing site conditions. A section of the slope was surveyed with a clinometer and laser rangefinder. Soil and bedrock exposures were logged. The desktop study included a review of previous reports.

b. A site plan showing the location of the test holes (Figure 1) is attached, following the text of this report.

5. SITE CONDITIONS

5.1. General

a. The subject property is located on the east side of Upper Campbell Lake, approximately 340m south of the Gold River Highway intersection with Cedar Creek Road. The access drive intersects Highway 28 approximately 240m south of the Cedar Creek Road intersection, and 3.2km north of Strathcona Park Lodge.

b. The site topography is dominated by steep grades interrupted with natural and excavated terraces and a fill embankment. The site has an average grade of approximately 40° with buildable areas sloped at roughly 30° above horizontal.

c. The fill embankment is located 10m north of the access lane and consists of 4.5m high stacked rock wall, sloped at 45°. The top of the fill is graded flat and level. We did not observe any geosynthetic reinforcement within the fill embankment.

d. The site was vegetated with grass and sparse deciduous growth within cleared areas. Tree stumps were left in place within the lower cleared areas. Surrounding native vegetation consisted of mature coniferous trees and low growing bush. Most of the native trees showed signs of 'J' bending growth. Leaning trees and tree fall debris was noted throughout the site.

5.2. Soil Conditions

a. The site is dominated by granitic bedrock. We observed decimeter to meter scale jointing that was approximately orthogonal. Bedrock was moderately weathered with near vertical faces within the west half of the site.

b. Soil exposure on the east side of the access lane revealed very dense, blocky silt with sand, rounded gravel and cobbles. This material appeared to be glacially consolidated (glacial till).

c. Overburden soils were typically 0.3 to 0.6m thick, and consisted of topsoil, with root structures, sand, silt, and some gravel.

d. Depths are referenced to the existing ground surface at the time of our field investigation. Soil classification terminology is based on the Modified Unified classification system. The relative proportions of the major and minor soil constituents are indicated by the use of appropriate Group Names as provided in ASTM D2487 Figures 1a, 1b, and 2. Other descriptive terms generally follow conventions of the Canadian Foundation Engineering Manual.

5.3. Groundwater

a. There was no observed groundwater seepage or infiltration during the site investigation. We expect infiltrated stormwater flows to follow the upper surface of impermeable glacial till and bedrock.

b. Groundwater levels can be expected to fluctuate seasonally with cycles of precipitation. Groundwater conditions at other times and locations can differ from those observed within the test pits at the time of our assessment.

5.4. On Site Infiltration and Stormwater Disposal

As part of the geotechnical investigation, field observations of the subgrade soil conditions with respect to the on site infiltration and disposal of stormwater were carried out. Given the impervious nature of the shallow glacial till soils and inferred bedrock, the on site infiltration of collected stormwater is not recommended.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. General

From a geotechnical point of view, the land is considered safe for the use intended (defined for the purposes of this report as the construction of a single family residence on a steep slope), with the probability of a geotechnical failure resulting in property damage of less than;

a. 2% in 50 years for geotechnical hazards due to seismic events, including slope stability; and,
b. 10% in 50 years for all other geotechnical hazards;

provided the recommendations in this report are followed.

6.2. Slope Stability

a. The primary failure modes expected on this site are shallow translational failures, debris slides, and surficial creep. These failures may be triggered by steep conditions, stormwater flows, weather events that uproot trees, and/or seismic shaking.

b. Translational failures typically occur in areas with shallow soils deposits on dense and steeply graded basal layers. Debris slides are more likely to occur in areas of steep terrain convergence. Evidence of debris slides was observed below the vertical sided rock outcrop within the west half of the site. Shallow soil movement and surficial creep (< 1m deep) was evident throughout the site, as indicated by leaning trees and 'J' bending growth in trees.

6.3. Foundation Design & Construction

a. Due to the potential for soil movement and the steep terrain, we recommend placing or pinning foundations directly on intact bedrock. Prior to construction, the building area should be stripped to remove all unsuitable materials to provide a competent foundation bearing grade for footing support.

b. Foundations must be set back at least 3m horizontally from the top of bank above bedrock slopes steeper than 45° above horizontal. Bedrock supporting foundations must be intact. Exterior footings should be provided with a minimum 0.6m depth of ground cover for frost protection purposes.

c. We recommend placing longitudinal steel in poured concrete foundation elements to mitigate cracking. Although the subgrade materials are competent, minor reflection cracking may occur where the subgrade transitions between different materials within the foundation subgrade or where rock jointing is subject to expansion and contraction (freeze/thaw).

d. Foundations bearing on undisturbed glacial till or bedrock may be designed based on a Service Limit State (SLS) bearing capacity of 200 kPa and an Ultimate Limit State (ULS) bearing capacity of 250 kPa. These values assume a minimum 0.6m depth of confinement or cover.

e. Provided the recommendations in this report are followed, we expect that total building settlement will not exceed 25mm, with total differential movement not exceeding 15mm between column spacing.

f. Prior to placement of concrete footings, any bearing soils that have been softened, loosened, or otherwise disturbed during the course of construction should be removed, or else compacted following our recommendations for structural fill. Compaction will only be feasible if the soil has suitable moisture content and if there is access to heavy compaction equipment. If no structural fill is placed, a smooth-bladed clean up bucket should be used to finish the excavation.

g. The Geotechnical Engineer should evaluate foundation bearing conditions at the time of construction to confirm that footings are based on appropriate and properly prepared founding material.

6.4. Removal of Unsuitable Materials and General Excavation Recommendations

a. Prior to construction, all unsuitable materials should be removed to provide a suitable base of support. Unsuitable materials include any non-mineral material such as vegetation, topsoil, peat, fill or other materials containing organic matter, as well as any soft, loose, or disturbed soils.

b. Conventions outlined in the Occupational Health and Safety Regulations under Part 20, Sections 20.78 through 20.95 should be adhered to for any excavations on site. Where excavations scenarios are not clearly defined under these regulations, a qualified geotechnical engineer should be consulted to assess potential hazards and provide recommendations.

c. The Geotechnical Engineer should be consulted immediately with any slope stability concerns during construction. Excavation side walls higher than 1.2m should be sloped at 1H:1V or terraced with vertical heights of each terrace not exceeding 1.2m, unless otherwise approved by the Geotechnical Engineer. Individual terraces should be at least as wide as they are high. The Geotechnical Engineer should be consulted where vertical heights for the excavation side walls exceed 1.2m.

d. Ground water or surface flows ingressing into any excavations should be controlled with a perimeter ditch located just outside of the building areas, connected to positive drainage.

e. The Geotechnical Engineer is to confirm the removal of unsuitable materials and approve the exposed competent inorganic subgrade.

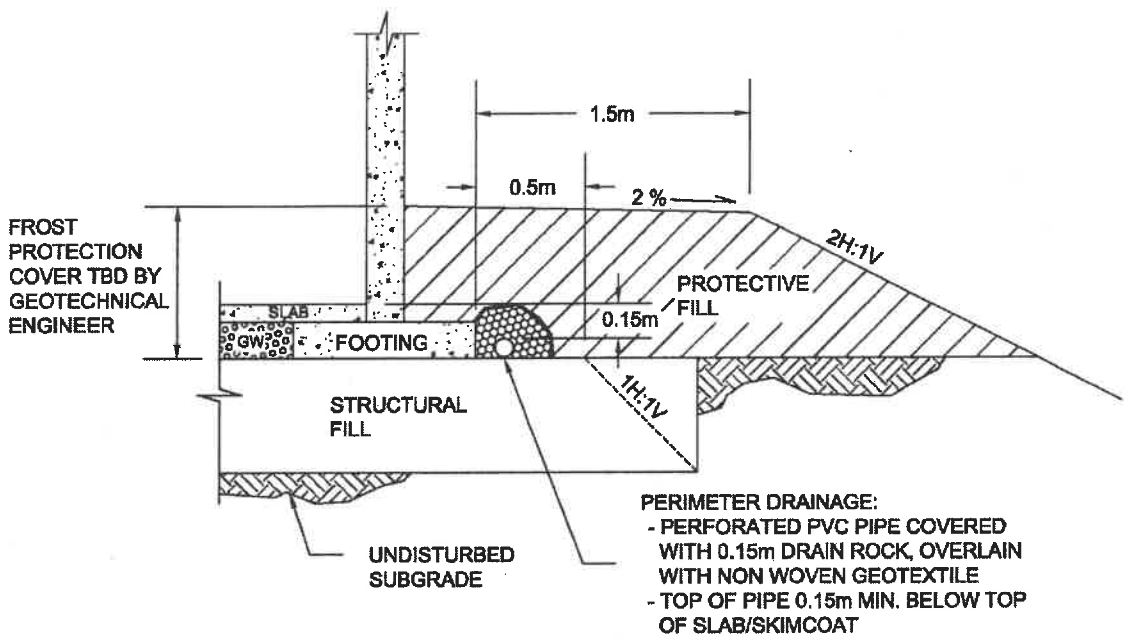
f. We understand that the design elevations for the proposed development area may include manipulating the current topography of the subject area to create a smoother transition to the property located to the immediate south.

6.5. Structural Fill

a. Structural fill should be used where fill is required to raise areas that will support buildings, slabs, or pavements. The Geotechnical Engineer should first approve the exposed subgrade in fill areas, to confirm the removal of all unsuitable materials. The thickness of structural fill should be consistent in all areas below the footing elevation to minimize differential settlements.

b. Structural fill should be inorganic sand and gravel. If structural fill placement is to be carried out in the wet season, material with a fines content limited to 5% passing the 75μm sieve should be used, as such a material will not be overly sensitive to moisture, allowing compaction during rainy periods of weather.

c. Structural fill should be compacted to a minimum of 95% of the corresponding Modified Proctor maximum dry density (ASTM D1557) in foundation and floor slab areas, as well as in paved roadway and parking areas.



d. Structural fills under foundations should include the zone defined by a plane extending down and outward a minimum 0.5m from the outer edge of the foundation at an angle of 45 degrees from horizontal to ensure adequate subjacent support.

e. Compaction of fill should include moisture conditioning as needed to bring the soils to the optimum moisture content and compacted using vibratory compaction equipment in lift thickness appropriate for the size and type of compaction equipment used.

f. A general guideline for maximum lift thickness is no more than 100mm for light hand equipment such as a "jumping-jack," 150mm for a small roller and 300mm for a large roller or heavy (>500 kg) vibratory plate compactor or a backhoe mounted hoe-pac or a large excavator mounted hoe-pac, as measured loose.

g. It should be emphasized that the long-term performance of buildings, slabs, and pavements is highly dependant on the correct placement and compaction of underlying structural fills. Consequently, we recommend that structural fills be observed and approved by the

Geotechnical Engineer. This would include approval of the proposed fill materials and performing a suitable program of compaction testing during construction.

6.6. Seismic Issues

a. No compressible or liquefiable soils were encountered during the site investigation.

b. Based on the 2012 British Columbia Building Code, Division B, Part 4, Table 4.1.8.4.A, "Site Classification for Seismic Site Response," the soils and strata encountered during the test pitting investigation would be "Site Class C" (Very Dense Soil or Soft Rock).

6.7. Permanent Dewatering & Stormwater Management

a. Conventional requirements of the 2012 British Columbia Building Code pertaining to building drainage are considered suitable at this site. Once final plans and tentative elevations are determined, the Geotechnical Engineer should be consulted to provide further dewatering data.

b. Stormwater for roof and perimeter drains should be conveyed to suitable outlets with solid piping. Outlets should be downslope of any foundations and should not convey flows to areas subject to erosion.

c. Splash pads for rainwater leaders are acceptable if they do not cause erosion downgrade of the pads. Final surface grades around the building should slope away from the building at a 2% grade for at least 2m horizontally.

6.8. Lateral Earth Pressures

a. We understand that the proposed development may include the construction of pour-in-place concrete retaining walls for the residence and/or ancillary structures. The total height and overall scope of wall construction has yet to be determined. Below are typical lateral earth pressures for conventional pour-in-place concrete retaining walls. If other types of retaining wall structures are being considered, please contact our office for additional design information.

b. Lateral earth pressure coefficients (K) for the design of the foundation walls are outlined in Table 1. It is assumed that there will be no additional surcharge on the slope. A back slope of 25 degrees has been used in these calculations because of geometric limitations inherent to the equations. It should be noted that the methods employed are estimates and further analysis may be required after dimensions of the proposed structure have been determined.

c. An average soil friction angle of 36 degrees has been used to calculate the lateral earth pressure coefficients. It is assumed that retained soils are well compacted, cohesionless sands and gravels, with a unit weight of 21 kN/m^3.

d. The Mononobe-Okabe (M-O) Method has been used to calculate the active seismic lateral earth pressure coefficients. The static active lateral earth pressure has been calculated using Coulomb's theory. The results for the passive earth pressures have been calculated using Rankine theory.

e. The seismic thrust coefficient provides a value that combines both dynamic and static forces.

f. The total thrust for the static case acts through a point that is approximately H/3 above the toe of the wall. The dynamic component of the seismic thrust acts through a point at approximately 0.6H above the toe of the wall.

Table 1 Lateral Earth Pressure Coefficients (ULS)

Lateral Earth Pressure Condition	Earth Pressure Coefficient (K)	
Static Passive	K_P	3.25
Static Active	K_A	0.28
Static At Rest	K_O	0.47

Seismic Active	K_{AE}	0.40

The total thrust resulting from lateral earth pressures under each of the conditions outlined in Table 1 may be calculated using the following relationship:

$$P = 0.5\,K\,\gamma\,H^2$$

where: P = total thrust (kN/m length of wall)

K = Earth Pressure Coefficient

γ = Soil Unit Weight (kN/m^3)

H = Height of Wall (m)

7. GEOTECHNICAL ASSURANCE AND QUALITY ASSURANCE

The 2012 British Columbia Building Code requires that a geotechnical engineer be retained to provide Geotechnical Assurance services for the construction of buildings. Geotechnical Assurance services include review of the geotechnical components of the plans and supporting documents, and responsibility for field reviews of these components during construction.

8. ACKNOWLEDGEMENTS

Lewkowich Engineering Associates Ltd acknowledges that this report may be requested by the building inspector (or equivalent) of the Regional District as a precondition to the issuance of a building permit. It is acknowledged that the Approving Officers and Building Officials may rely on this report when making a decision on application for development of the land. We acknowledge that this report has been prepared for, and at the expense of the Client. We have not acted for or as an agent of the Regional District in the preparation of this report.

9. LIMITATIONS

The conclusions and recommendations submitted in this report are based upon the data obtained from a limited number of widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction or further investigation. The recommendations given are based on the subsurface soil conditions encountered during the test pitting and drilling programs, current construction techniques, and generally accepted engineering practices. No other warrantee, expressed or implied, is made. Subgrade conditions are known only at the test pit and borehole locations and have been used to infer conditions throughout the site in preparation of this report. If unanticipated conditions become known during construction or other information pertinent to the development become available, the recommendations may be altered or modified in writing by the undersigned.

10. CLOSURE

Lewkowich Engineering Associates Ltd. appreciates the opportunity to be of service on this project. If you have any comments, or additional requirements at this time, please contact us at your convenience.

Respectfully Submitted,
Lewkowich Engineering Associates Ltd

PROFESSIONAL PROVINCE OF J. M. FISCHER # 43419 BRITISH COLUMBIA ENGINEER

2018-08-30

PROFESSIONAL PROVINCE OF C. M. HUDEC # 29249 BRITISH COLUMBIA ENGINEER

Johannes Fischer, P.Eng.	Chris Hudec, M.A.Sc., P.Eng.
Geotechnical Engineer	Senior Project Engineer

Attachments: Appendix D: Landslide Assessment Assurance Statement

APPENDIX D: *LANDSLIDE ASSESSMENT ASSURANCE STATEMENT*

Note: This Statement is to be read and completed in conjunction with the "*APEGBC Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia*", March 2006/Revised September 2008 ("*APEGBC* Guidelines") and the "2006 BC Building Code (BCBC 2006)" and is to be provided for *landslide assessments* (not floods or flood controls) for the purposes of the Land Title Act, Community Charter or the Local Government Act. Italicized words are defined in the *APEGBC* Guidelines.

To: The *Approving Authority* Date: 2018-09-10

STRATHCONA REGIONAL DISTRICT
301-990 CEDAR ST. CAMPBELL RIVER, BC, V9W 7Z8

Jurisdiction and address

With reference to (check one):

- ☐ Land Title Act (Section 86) – Subdivision Approval
- ☑ Local Government Act (Sections 919.1 and 920) – Development Permit
- ☑ Community Charter (Section 56) – Building Permit
- ☐ Local Government Act (Section 910) – Flood Plain Bylaw Variance
- ☐ Local Government Act (Section 910) – Flood Plain Bylaw Exemption
- ☐ British Columbia Building Code 2006 sentences 4.1.8.16 (8) and 9.4 4.4.(2) (Refer to BC Building and Safety Policy Branch Information Bulletin B10-01 issued January 18, 2010)

For the Property:

LOT 8, BLOCK 846, COMOX DISTRICT, PLAN 15452 - LOT 8 UPPER CAMPBELL LAKE

Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a *Qualified Professional* and is a *Professional Engineer* or *Professional Geoscientist.*

I have signed, sealed and dated, and thereby certified, the attached *landslide assessment* report on the Property in accordance with the *APEGBC Guidelines*. That report must be read in conjunction with this Statement. In preparing that report I have:

Check to the left of applicable items

✓ 1. Collected and reviewed appropriate background information
✓ 2. Reviewed the proposed *residential development* on the Property
✓ 3. Conducted field work on and, if required, beyond the Property
✓ 4. Reported on the results of the field work on and, if required, beyond the Property
✓ 5. Considered any changed conditions on and, if required, beyond the Property

6. For a *landslide hazard analysis* or *landslide risk analysis* I have:
   - ✓ 6.1 reviewed and characterized, if appropriate, any *landslide* that may affect the Property
   - ✓ 6.2 estimated the *landslide hazard*
   - ✓ 6.3 identified existing and anticipated future *elements at risk* on and, if required, beyond the Property
   - ✓ 6.4 estimated the potential *consequences* to those *elements at risk*
7. Where the *Approving Authority* has adopted a *level of landslide safety* I have:
   - ___7.1 compared the *level of landslide safety* adopted by the *Approving Authority* with the findings of my investigation
   - ___7.2 made a finding on the *level of landslide safety* on the Property based on the comparison
   - ___7.3 made recommendations to reduce *landslide hazards* and/or *landslide risks*
8. Where the *Approving Authority* has **not** adopted a *level of landslide safety* I have:

✓ 8.1 described the method of *landslide hazard analysis* or *landslide risk analysis* used

✓ 8.2 referred to an appropriate and identified provincial, national or international guideline for *level of landslide safety*

✓ 8.3 compared this guideline with the findings of my investigation

___ 8.4 made a finding on the *level of landslide safety* on the Property based on the comparison

✓ 8.5 made recommendations to reduce *landslide hazards* and/or *landslide risks*

✓ 9. Reported on the requirements for future inspections of the Property and recommended who should conduct those inspections.

Based on my comparison between

Check one

☐ the findings from the investigation and the adopted *level of landslide safety* (item 7.2 above)

☑ the appropriate and identified provincial, national or international guideline for *level of landslide safety* (item 8.4 above)

I hereby give my assurance that, based on the conditions[1] contained in the attached *landslide assessment* report,

Check one

☐ for subdivision approval, as required by the Land Title Act (Section 86), "that the land may be used safely for the use intended"

Check one

- ☐ with one or more recommended registered covenants.
- ☐ without any registered covenant.

☑ for a development permit, as required by the Local Government Act (Sections 919.1 and 920), my report will "assist the local government in determining what conditions or requirements under [Section 920] subsection (7.1) it will impose in the permit".

☑ for a building permit, as required by the Community Charter (Section 56), "the land may be used safely for the use intended"

Check one

- ☑ with one or more recommended registered covenants.
- ☐ without any registered covenant.

☐ for flood plain bylaw variance, as required by the "Flood Hazard Area Land Use Management Guidelines" associated with the Local Government Act (Section 910), "the development may occur safely".

☐ for flood plain bylaw exemption, as required by the Local Government Act (Section 910), "the land may be used safely for the use intended".

JOHANNES FISCHER
Name (print)

SEPTEMBER 10, 2018
Date

Signature

[1] When seismic slope stability assessments are involved, *level of landslide safety* is considered to be a "life safety" criteria as described in the National Building Code of Canada (NBCC 2005), Commentary on Design for Seismic Effects in the User's Guide, Structural Commentaries, Part 4 of Division B. This states:

> *"The primary objective of seismic design is to provide an acceptable level of safety for building occupants and the general public as the building responds to strong ground motion; in other words, to minimize loss of life. This implies that, although there will likely be extensive structural and non-structural damage, during the DGM (design ground motion), there is a reasonable degree of confidence that the building will not collapse nor will its attachments break off and fall on people near the building. This performance level is termed 'extensive damage' because, although the structure may be heavily damaged and may have lost a substantial amount of its initial strength and stiffness, it retains some margin of resistance against collapse".*

2351 B ROSEWALL CRESCENT
Address

COURTENAY BC V9N 8R9.

250-334-6384
Telephone

PROFESSIONAL PROVINCE OF J. M. FISCHER # 43419 BRITISH COLUMBIA ENGINEER

2018/10/10

(Affix Professional seal here)

If the *Qualified Professional* is a member of a firm, complete the following.

I am a member of the firm LEWKOWICH ENGINEERING ASSOCIATES LTD.
and I sign this letter on behalf of the firm. (Print name of firm)

STAFF REPORT

DATE:	April 12, 2023
TO:	Chair and Directors Electoral Areas Services Committee
FROM:	Dave Leitch Chief Administrative Officer
RE:	**ESA DEVELOPMENT PERMIT:** ☐ **Foreshore** ☒ **Watercourse** ☐ **Eagle** ☐ **Heron**

FILE: 0540-04 EASC

Planning File No:	3060-20 / DP 1D 23		
Folio No.:	772 05069.000	**PID No.:**	004-136-314
Applicants:	Linda Sams and Brad Anderson		
Legal Descriptions:	Lot 8, Block 846, Comox District, Plan 15452		
Civic Addresses:	Lot 8, Gold River Hwy., Campbell River BC		
OCP Bylaw:	Bylaw No. 1857 *Oyster Bay – Buttle Lake OCP Bylaw 1996*		
OCP Designation:	Upland Resource		
Zoning Bylaw:	Bylaw No. 1404 *Campbell River Area Zoning Bylaw, 1991*		
Zone:	Upland Resource 400 (UR-400)		

PURPOSE

To consider an environmentally sensitive areas development permit (ESA DP) application to allow the construction of a single-family dwelling and art studio outside the identified Streamside Protection and Enhancement Area (SPEA) on a property adjacent to Upper Campbell Lake.

POLICY ANALYSIS

Sections 488 - 491 of the *Local Government Act* (LGA) authorizes a local government to manage different types of development that occur in specific areas. The LGA allows a local government to designate development permit areas and establish guidelines within official community plans to protect the natural environment. Accordingly, pursuant to Part 404.1 of Bylaw No. 1857, Oyster Bay – Buttle Lake OCP Bylaw, 1996, development within 30.0 metres from the top bank of a stream connected to fish habitat as identified in the Regional District's Sensitive Habitat Atlas, or as defined by the Riparian Areas Regulation (RAR), requires an Environmentally Sensitive Areas Development Permit (ESA DP) prior to the commencement of development activities.

EXECUTIVE SUMMARY

An application has been received to permit the construction of a single-family dwelling and art studio outside the identified streamside protection and enhancement area (SPEA) of a lakeside property. The subject property is designated as Upland Resource in the *Oyster Bay – Buttle Lake Official Community Plan* and is zoned Upland Resource 400 (UR-400) in the *Campbell River Area Zoning Bylaw*. It is surrounded by UR-400 zoned cottage lots to the north and south, a larger UR-400 parcel to the east and by Upper Campbell Lake to the west. The proposed development is permitted by the zoning bylaw; however, as the proposed work is located within 30 metres of the top bank of a watercourse connected to fish habitat, and therefore within an environmentally sensitive development permit area (DPA), an environmentally sensitive area development permit (ESA DP) is required.

A Riparian Area Assessment (RAA) has been prepared by Jess Newman, RPBio, which provides support for the issuance of the ESA DP and recommendations for the protection of fish habitat from the proposed development. In the RAA, the QEP has set criteria for the proposed construction, including the erection of temporary and permanent fencing to protect the SPEA both during and after the construction phase. With the exception of potential danger tree removal, no new encroachment or disturbance of soils is permitted within the SPEA boundaries and all native vegetation within the SPEAs must be retained. Under RAR, a post-development report is required to provide feedback on the measures taken, that the measures were implemented appropriately and the adequacy of the measures in protecting the SPEA. These recommendations have been incorporated into the ESA DP, as presented for the Committee's consideration.

Given that the proposed development is permitted by the Campbell River Area Zoning Bylaw, 1991, is outside the SPEA identified by the RAA, and as the ESA DP incorporates the recommendations provided within the RAA, issuance of the ESA DP to allow the proposed development to take place is supportable.

RECOMMENDATIONS:

1. THAT the report from the Chief Administrative Officer be received.

2. THAT the Committee recommend that the environmentally sensitive area development permit DP 1D 23 (Anderson) as attached in staff report dated April 12, 2023, be approved, and

   THAT the Corporate Officer be authorized to issue the permit.

Respectfully:

Dave Leitch
Chief Administrative Officer

BACKGROUND

The subject property is located within the Oyster Bay – Buttle Lake Electoral Area (Area D) in the Oyster Bay neighbourhood and is zoned Upland Resource 400 (UR-400). The lot area is 1700 square metres (0.4 acres) with the Gold River Hwy. abutting the east property line and UR-400 zoning on the remaining three sides. This parcel was created in 1962 as part of a subdivision plan of part of Block 846, Comox District, and includes 45 mostly lakefront lots intended for seasonal recreational use.

The Riparian Areas Regulation (RAR) requires development activities within 30 metres of a watercourse connected to fish habitat (which includes Upper Campbell Lake) to undergo an RAR assessment to provide recommendations for the protection of fish habitat. A report incorporating these recommendations has been prepared by Jess Newman RPBio and has been submitted to the RAR Notification Service to review and approval. The report's recommendations, including demarcation of the SPEA and protection of the aquatic habitat, have been incorporated into the ESA DP document as attached.

PLANNING ANALYSIS

Environmentally Sensitive Areas Development Permit
A Riparian Area Assessment (RAA) for the subject property dated March 3, 2022 was completed by Jess Newman, RPBio. In the RAA, the QEP has set criteria for the proposed construction, including the erection of temporary and permanent fencing to protect the SPEA both during and after the construction phase. With the exception of potential danger tree removal, no new encroachment or disturbance of soils is permitted within the SPEA boundaries and all native vegetation within the SPEAs must be retained. Under RAR, a post-development report is required to provide feedback on the measures taken, that the measures were implemented appropriately and the adequacy of the measures in protecting the SPEA.

FINANCIAL IMPLICATIONS
Applicable fees have been collected for this application under the Planning Procedures and Fees Bylaw No. 5.

LEGAL IMPLICATIONS
The report and development permit as presented comply with the *Local Government Act (*LGA*)* and regional district bylaws. Development permits are authorized only in the circumstances specified in Sections 488 - 491 of the LGA*.* The authority under this subsection must be exercised only in accordance with the applicable guidelines specified under this section in an official community plan

INTERGOVERNMENTAL/REGIONAL IMPLICATIONS
There are no intergovernmental/regional implications associated with this ESA DP as all works are limited to the property.

CITIZEN/PUBLIC RELATIONS IMPLICATIONS
Citizen/public relations implications associated with this ESA DP should be minimal as all site development and construction works are limited to the property and adjacent road right-of-way.

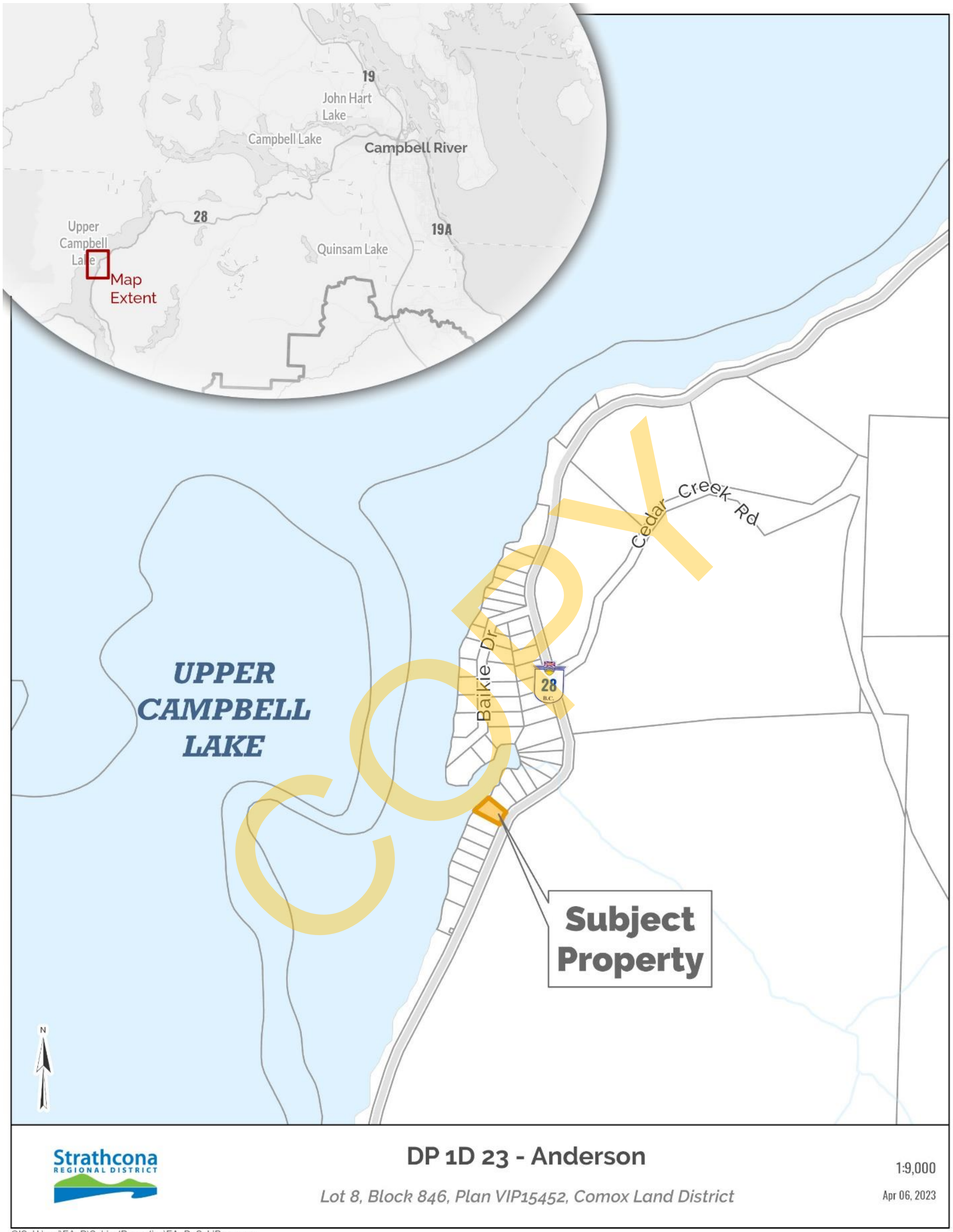
INTERDEPARTMENTAL INVOLVEMENT/IMPLICATIONS
Interdepartmental involvement associated with this development permit is limited; however, the processing of the ESA DP will require both planning and legislative staff resources.

Submitted by:

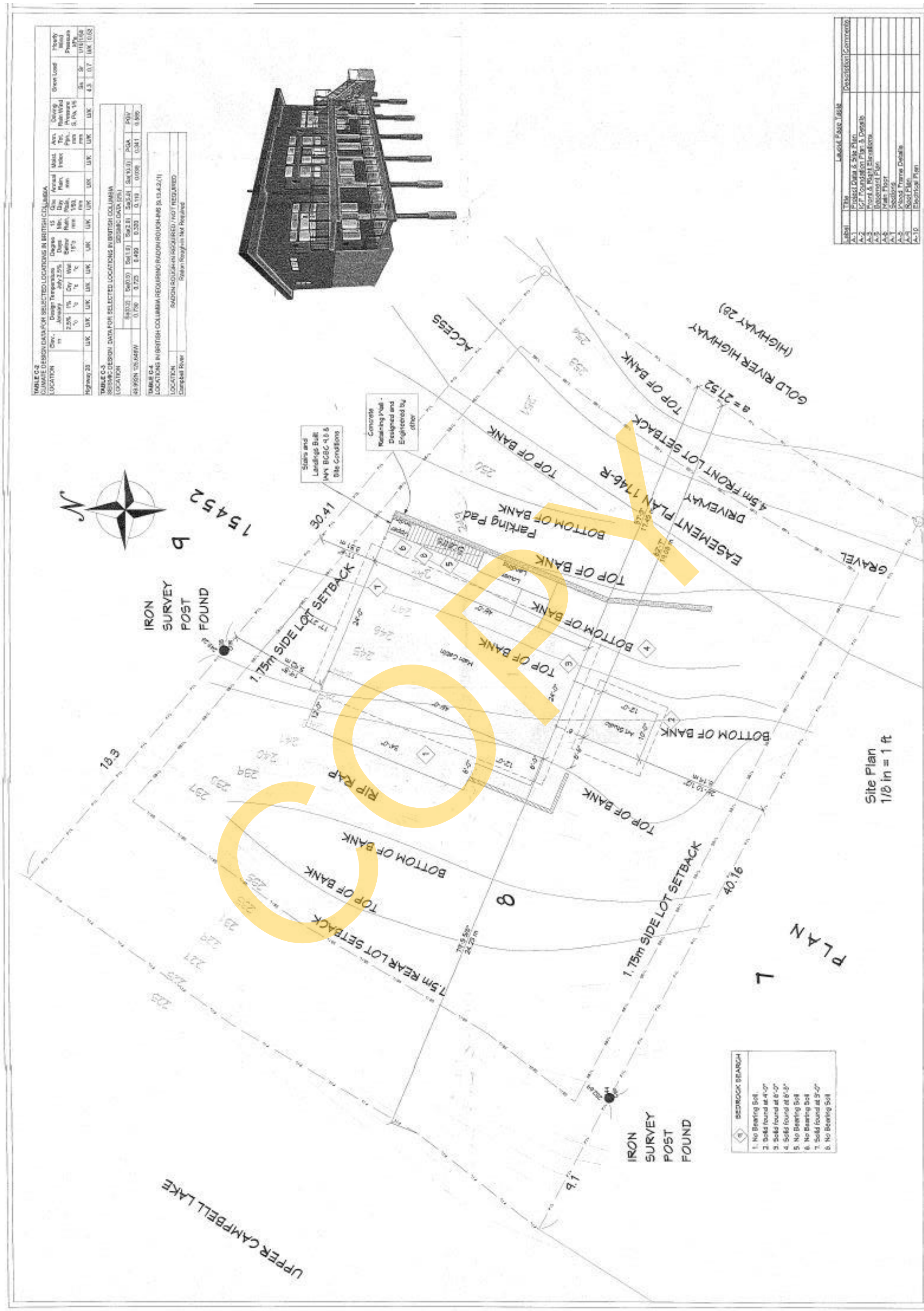
Aniko Nelson
Senior Manager, Community Services

Prepared by: *J. Neill, Planner*

Attachment: ESA Development Permit DP 1D 23



Location Map


GOLD RIVER HIGHWAY
(HIGHWAY 28)
ACCESS
TOP OF BANK
4.5m FRONT LOT SETBACK
DRIVEWAY
EASEMENT PLAN 1746-R
GRAVEL
BOTTOM OF BANK
Parking Pad
TOP OF BANK
1.75m SIDE LOT SETBACK
IRON SURVEY POST FOUND
RIP RAP
BOTTOM OF BANK
TOP OF BANK
7.5m REAR LOT SETBACK
1.75m SIDE LOT SETBACK
UPPER CAMPBELL LAKE
PLAN 1
15452
30.41
18.9
40.16
9.1
Site Plan
1/8 in = 1 ft
COPY

Site Plan

Elevation Views of Proposed Residence

Environmentally Sensitive Areas Development Permit

FILE: 3060-20/ DP 1D 23

TO: Linda Sams and Brad Anderson (the "Applicants")

1. This development permit (DP 1D 23) is issued subject to compliance with all the bylaws of the regional district applicable thereto, except as specifically varied or supplemented by this permit for the construction of ***a single family dwelling and art studio outside the identified SPEA on the property.***

2. This development permit applies to only those lands within the regional district on the property described below:

Legal Description:	Lot 8, Block 846, Comox District, Plan 15452		
Parcel Identifier (PID):	004-136-314	**Folio:**	772 05069.000
Civic Address:	Lot 8, Gold River Hwy., Campbell River BC		

3. The land described herein shall be developed strictly in accordance with the following terms and conditions and provisions of this permit, including Schedule A and Schedule B:

   a) All future development activities shall take place in accordance with the site plan shown as Schedule A and the recommendations contained within Schedule B - Riparian Area Assessment (RAA), prepared by Jess Newman, RPBio., dated March 3, 2022. These recommendations include, but are not limited to:

      i) The 15-metre SPEA boundary, extended to the top of the riparian bank as shown in the Site Plan, must be determined by a BC Land Surveyor and marked in the field prior to any clearing. The reservoir critical water level (222 metres) should be used as a reference to apply the setback.

      ii) There is to be no disturbance of vegetation, trees or soils with the SPEA.

      iii) If, following assessment by a certified assessor, trees within the SPEA are removed due to potential hazard, tree stumps and root systems are to be left in place, and trees must be replaced according to the MoE Tree Replacement Criteria.

      iv) Prior to construction, a temporary barrier such as snow fencing must be established to mark the SPEA boundary. The barrier must be situated outside the SPEA and root zone of the trees. A Qualified Environmental Professional should verify the location of the barrier prior to work beginning on site. No machinery is permitted to enter the SPEA boundary.

      v) Activities requiring extensive excavation or soil movement should be scheduled for periods of dry weather. No site drainage during or after construction is to be directed towards the SPEA or Upper Campbell Lake.

      vi) Once construction is complete, all exposed soils should be stabilized using mulch, native grass mix, or other native plant species. A permanent barrier such as a split-rail fence should be installed to prevent future encroachment into the SPEA.

b) As per Section 5 'Environmental Monitoring' of the RAA, a follow-up report prepared by a Qualified Environmental Professional (QEP) shall be submitted verifying that the requirements stated within the RAA have been met during the development project.

4. This development permit (DP 1D 23) shall lapse if development is not substantially commenced within **two (2)** years of the issue date of this permit (see below). Lapsed permits cannot be renewed; therefore, application for a new development permit must be made, and permit granted by the Strathcona Regional District board, in order to complete the remainder of the work.

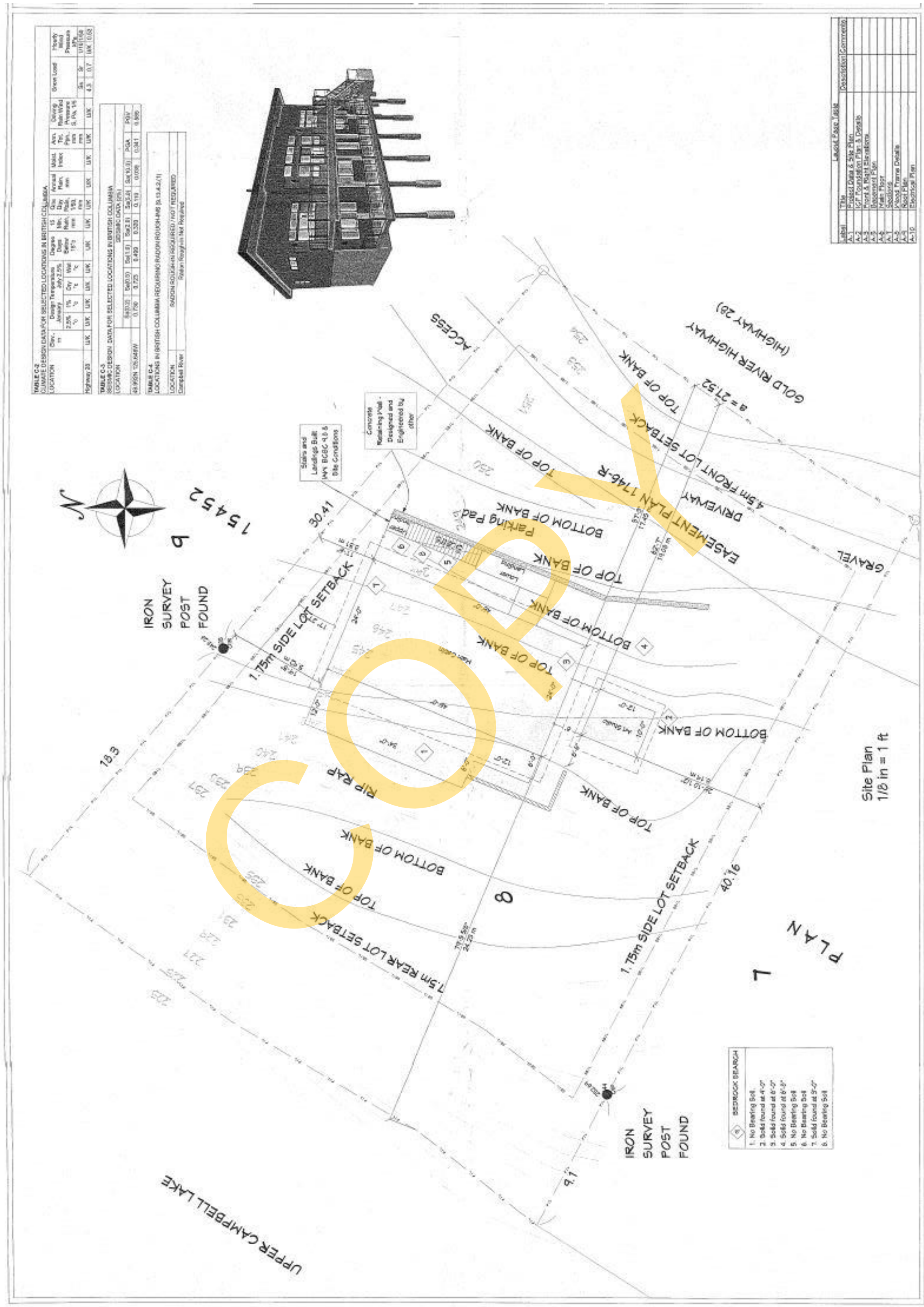
5. This permit is ***NOT*** a building permit.

DEVELOPMENT PERMIT DP 1D 23 issued the ____th day of _________________ 2023.

____
Corporate Officer

Date: _______________________________

Schedule A



Site Plan

Schedule B

Riparian Area Assessment prepared by Jess Newman, BPBio