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JUAN DE FUCA LAND USE COMMITTEE

Notice of Meeting on Tuesday, **June 18, 2024, at 7 pm**

Juan de Fuca Local Area Services Building, #3 – 7450 Butler Road, Otter Point, BC

AGENDA

1. Territorial Acknowledgment

2. Approval of Agenda

3. Adoption of Minutes of May 21, 2024

4. Chair's Report

5. Planner's Report

6. Presentation
   a) Don Closson (CRD Representative) and Sid Jorna (Commission Chair), Juan de Fuca Electoral Area Parks and Recreation Advisory Commission re: Determination of Park Land Requirements

7. Non-Adhering Residential Use within the Agricultural Land Reserve Application
   a) AG000085 - Parcel A (DD 80053I) of Section 86, Sooke District (315 Becher Bay Road)

8. Zoning Amendment Applications
   a) RZ000285 - That Part of Lot 2, Section 60, Renfrew District, Plan 6764 Lying to the South of the 66 Foot Road Dedicated by Said Plan (9333 Invermuir Road)
   b) RZ000286 - That Part of Section 90, Renfrew District, Shown Outlined in Red on Plan 913R Lying to the South of the Southerly Boundary of Plan 503RW and to the West of a Boundary Parallel to and Perpendicularly Distant 575 Feet from the Easterly Boundary of that Part of Said Section Shown Outlined in Red on Said Plan 913R, Except Part in Plan VIP80043 (9285 Invermuir Road)

9. Adjournment

PLEASE NOTE: The public may attend the meeting in-person or electronically through video or teleconference. To attend electronically, please contact us by email at jdfinfo@crd.bc.ca so that staff may forward meeting details.

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Minutes of a Meeting of the Juan de Fuca Land Use Committee
Held Tuesday, May 21, 2024, at the Juan de Fuca Local Area Services Building
3 – 7450 Butler Road, Otter Point, BC

PRESENT: Director Al Wickheim (Chair), Les Herring, Vern McConnell, Roy McIntyre, Ron Ramsay, Dale Risvold, Anna Russell
Staff: Darren Lucas, Planner; Juan de Fuca Local Area Services; Wendy Miller, Recorder
PUBLIC: 1 in-person; 1 EP

EP – Electronic Participation

The meeting was called to order at 7:00 pm.

1. **Territorial Acknowledgement**
   The Chair provided a Territorial Acknowledgement.

2. **Approval of the Agenda**

   MOVED by Dale Risvold, **SECONDED** by Vern McConnell that the agenda be approved.
   CARRIED

3. **Adoption of Minutes of March 19, 2024, and April 16, 2024**

4. **Chair's Report**
   The Chair stated that the application under consideration this evening has opportunity to provide trail to enhance park connectivity and advance the Active Transportation Network Plan.

5. **Planner's Report**
   No report.

6. **Administrative Bylaw**
   a) **Provision of Park Land Requirement for Subdivision**
   SU000711 and SU000756 - That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) and Except Parts in Plans 3054 and 17721: PID: 009-499-369 (3542 Otter Point Road)
   Darren Lucas spoke to the staff report addressing the provision of 5% park land or cash-in-lieu pursuant to Section 510 of the *Local Government Act (LGA)* regarding a 6-lot subdivision.

   The subject property, proposed subdivision and Wieland Road right-of-way were highlighted.

   Attention was directed to the proposal submitted by the landowner, as included in the staff report, to satisfy provision of park land requirement, which was as supported by the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission at its meeting of March 26, 2024.

It was confirmed that the application agent was present.

Darren Lucas stated that:
- as part of the subdivision process, a segment of land would be added to the Wieland Road right-of-way held by the Ministry of Transportation and Infrastructure
- the JdF Community Parks Program has a Licence of Occupation over the Wieland Road right-of-way which permits trail improvements

LUC discussion ensued regarding the applicant's proposal relative to the value of park land or cash-in-lieu required by the *LGA* and the improvements proposed in the right-of-way not held by the CRD.

MOVED by Roy McIntyre, **SECONDED** by Vern McConnell that the Land Use Committee recommends to the Capital Regional District Board:
That in accordance with Section 510 of the *Local Government Act*, park dedication in the amount of 5% be required for the proposed subdivision of That Part of Section 17, Otter District, Lying East of Otter Point Road, Except Parcel C (DD43782I) and Except Parts in Plans 3054 and 17721 (the "Land"); PID: 009-499-369; except that a lesser amount may be acceptable where the owner agrees to construct a trail built to JdF Community Parks and Recreation standards prior to subdivision approval on that part of the Land that will become the Wieland Road right-of-way.

CARRIED

At the request of the Chair, Darren Lucas outlined resources which guide consideration of park land requirements including local Official Community Plans, the Juan de Fuca Community Parks and Recreation Strategic Plan, and, in future, the Active Transportation Network Plan.

MOVED by Anna Russell, **SECONDED** by Director Wickheim that a representative for the Juan de Fuca Electoral Area Parks and Recreation Advisory Commission be invited to the next Land Use Committee meeting to make a presentation regarding considerations for determining park land requirements.

CARRIED

The Director supported extending an invite to the Chair of the Commission.

7. Adjournment
The meeting adjourned at 7:46 pm.

_____
Chair

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REPORT TO THE JUAN DE FUCA LAND USE COMMITTEE
MEETING OF TUESDAY, JUNE 18, 2024

SUBJECT **Non-Adhering Residential Use within the Agricultural Land Reserve Application for Parcel A (DD 80053I) of Section 86, Sooke District – 315 Becher Bay Road**

ISSUE SUMMARY

To consider an application for a non-adhering residential use for the purpose of constructing a detached secondary suite (carriage house) and an accessory building (garage) on land in the Agricultural Land Reserve (ALR).

BACKGROUND

The 4 ha parcel is located at 315 Becher Bay Road and is in the Agricultural Land Reserve (ALR) (Appendices A and B). The property is designated Agriculture in the Official Community Plan (OCP) for East Sooke, Bylaw No. 4000, and is zoned Agricultural (AG) in the Juan de Fuca Land Use Bylaw, 1992, Bylaw No. 2040. The parcel is adjacent to AG zoned parcels to the north and south and backs on to Becher Bay to the east (Appendix C).

CRD Building Permit records show that a single-family dwelling was constructed in 1977; however, the permit was never completed. The property is not currently used for farming.

The applicant recently commenced construction of a 186 m^2 carriage house that includes a 103 m^2 detached accessory suite (Appendix D), and an additional 114 m^2 steel frame garage without a building permit (Appendix E). ALR regulations were updated in 2021 to allow ALR parcels of 40 ha or less one residence up to 500 m^2 and one additional residence up to 90 m^2. Since the floor area of the proposed residence is greater than 90 m^2, it is considered a non-adhering residential use and must be approved by the Agricultural Land Commission (ALC). Since the proposed garage is not for farm use, it is also considered a non-adhering residential use and must be approved by the ALC. In order to obtain a building permit and complete construction, approval for the non-adhering residential use and approval for variances to increase the allowable floor area and height of a detached accessory suite are required.

ALTERNATIVES

Alternative 1
That staff be directed to refer the application for a non-adhering residential use for Parcel A (DD 80053I) of Section 86, Sooke District to the Juan de Fuca Electoral Area Agricultural Advisory Planning Commission for comment.

Alternative 2
That the application be denied and not be forwarded to the ALC.

Alternative 3
That the application be forwarded to the ALC with no comment.

Alternative 4
That this report be referred back to staff for more information.

IMPLICATIONS

Legislative Implications
Section 20.1 of the *Agricultural Land Commission Act* (*ALC Act*) limits residential use of agricultural land to one residence per parcel and a total floor area of 500 m^2 or less. Section 34.3 of the *Agricultural Land Reserve Use Regulation* allows for an additional residence to be constructed if conditions in the regulation are met. If a parcel is 40 ha or less, the secondary residence must have a floor area of 90 m^2 or less. An owner may apply to the ALC for a non-adhering residential use for permission to alter the condition limiting the size of an additional residence under Section 25 of the *ALC Act*. In making a determination with respect to an application for a non-adhering residential use, the ALC will consider the prescribed criteria, if any, and must not grant permission for an additional residence unless the additional residence is necessary for a farm use pursuant to section 25(1.1) of the *ALC Act*.

Section 34(4) of the *ALC Act* requires that local government review applications and, subject to subsection (5), forward the application to the ALC together with comments and recommendations in respect of the application. If the application applies to land zoned by bylaw to permit farm use, or requires an amendment to an official community plan or zoning bylaw, the local government may exercise its authority to forward the application to the ALC. If an application is not forwarded, it proceeds no further and is not considered by the ALC.

Public Consultation Implications
There are no public notification requirements for non-adhering residential use applications established by the ALC. Applications must be filed with local government and public comments may be collected.

The Juan de Fuca Agricultural Land Reserve Application Policy (the Policy) was adopted by the CRD Board on December 9, 2020, to direct referral of ALR applications to either the JdF Agricultural Advisory Planning Commission (JdF AAPC) or to a local Advisory Planning Commission (APC) for comment.

The AAPC and APCs were established to make recommendations to the Land Use Committee (LUC) and CRD Board on land use planning matters referred to them. Staff recommend referring the application to the JdF AAPC for comment.

Land Use Implications
There is a 290 m^2 single-family dwelling and a 14 m^2 wellhouse situated in the central eastern portion of the property. The detached accessory suite (carriage house) is proposed to be sited to the northwest of the dwelling and the accessory building (garage) is proposed to be sited to the southwest of the dwelling. All structures will be accessed from a single driveway access from Becher Bay Road to the west (Appendix F). The parcel is designated as several Development Permit Areas by the East Sooke OCP, Bylaw No. 4000. The applicable Development Permit guidelines for all recent non-farm use land clearing on the parcel are being addressed under Development Permit application DP000416.

The applicant has provided a proposal outlining the rationale for the application (Appendix G) that indicates the siting for the proposed structures were chosen for its accessibility from the existing driveway and house. Each storey of the carriage house is 93 m^2; however, an additional 10 m^2 on the main floor is designated as an entrance and laundry area for the suite, which increases the floor area to approximately 103 m^2.

The East Sooke OCP, Bylaw No. 4000, designates land in the ALR as Agriculture to protect these lands for current and future agricultural activities. This designation supports farming activities and other land uses as permitted by the ALC. Policy 464F states that the *ALC Act* and *Regulations* will be taken into account in the review of any land use or building application on

lands in the ALR. Policy 464G recommends that buildings be sited on less productive lands and that buildings be clustered to maximize the area available for agriculture. Policy 464H supports site specific zoning to allow multiple residences on Agriculture parcels to make farming more affordable, subject to appropriate controls being in place to ensure long-term farming use and approval of the ALC.

The land is zoned Agricultural (AG) under the Juan de Fuca Land Use Bylaw No. 2040. The AG zone permits multiple dwelling units including either a secondary suite or a detached accessory suite subject to approval from the ALC. Section 20.1 of the *ALC Act* was updated in 2019 and now limits parcels to one residence with a total floor area of 500 m^2 or less. Section 34.3 of the *Agricultural Land Reserve Use Regulation* was updated in 2021 and allows for an additional residence of up to 90 m^2 to be constructed on parcels less than 40 ha. In order to construct an additional residence with a floor area greater than 90 m^2, approval for a non-adhering residential use is required from the ALC. Approval is required from the LUC and CRD Board to vary Section 4.20 (f) of the JdF Land Use Bylaw No. 2040, which specifies that the maximum floor area of a detached accessory suite is 90 m^2. The request to increase the maximum allowable floor area of a detached accessory suite would be considered under concurrent Development Variance Permit application VA000162 upon return of this application to the LUC following review by the JdF AAPC. A request to increase the maximum height permitted for a detached accessory suite from 7 m to 8.37 m was also requested under the variance application.

The Ministry of Agriculture's 2013 *Guide for Bylaw Development in Farming Areas* includes criteria for regulating residential uses in the ALR. Options for reducing impacts of residential uses on ALR land include restricting the overall residential footprint, limiting the building size, and regulating the siting within a maximum setback from the roadway. Should the application be approved, the proposed detached accessory suite (carriage house) will be required to meet the siting specifications of the AG zone, as well as the Detached Accessory Suite regulations unless varied under VA000162. The proposed accessory building (garage) will be required to meet the siting specifications of the AG zone, as well as the Detached Accessory Buildings and Structures regulations.

The Juan de Fuca Agricultural Land Reserve Application Policy establishes evaluation criteria and procedures for ALR applications. In accordance with the Policy, staff recommend that the application be referred to the JdF AAPC for comment.

CONCLUSION

An application has been received to approve the non-adhering residential use of land located within the Agricultural Land Reserve. The owners propose to construct a detached accessory suite (carriage house) with a floor area that exceeds the allowance provided by the *ALR Use Regulation*, and an accessory building (garage) for residential use. In order to proceed as proposed, the Agricultural Land Commission must approve the uses, which requires a resolution of support from the CRD Board. Staff recommend that the application be referred to the JdF Agricultural Advisory Planning Commission for review and comment. Comments received from the JdF AAPC will be returned the Land Use Committee for consideration and a recommendation to the CRD Board and Agricultural Land Commission. At that time, the Land Use Committee may also give consideration to approval of the requested variances for the detached accessory suite.

RECOMMENDATION

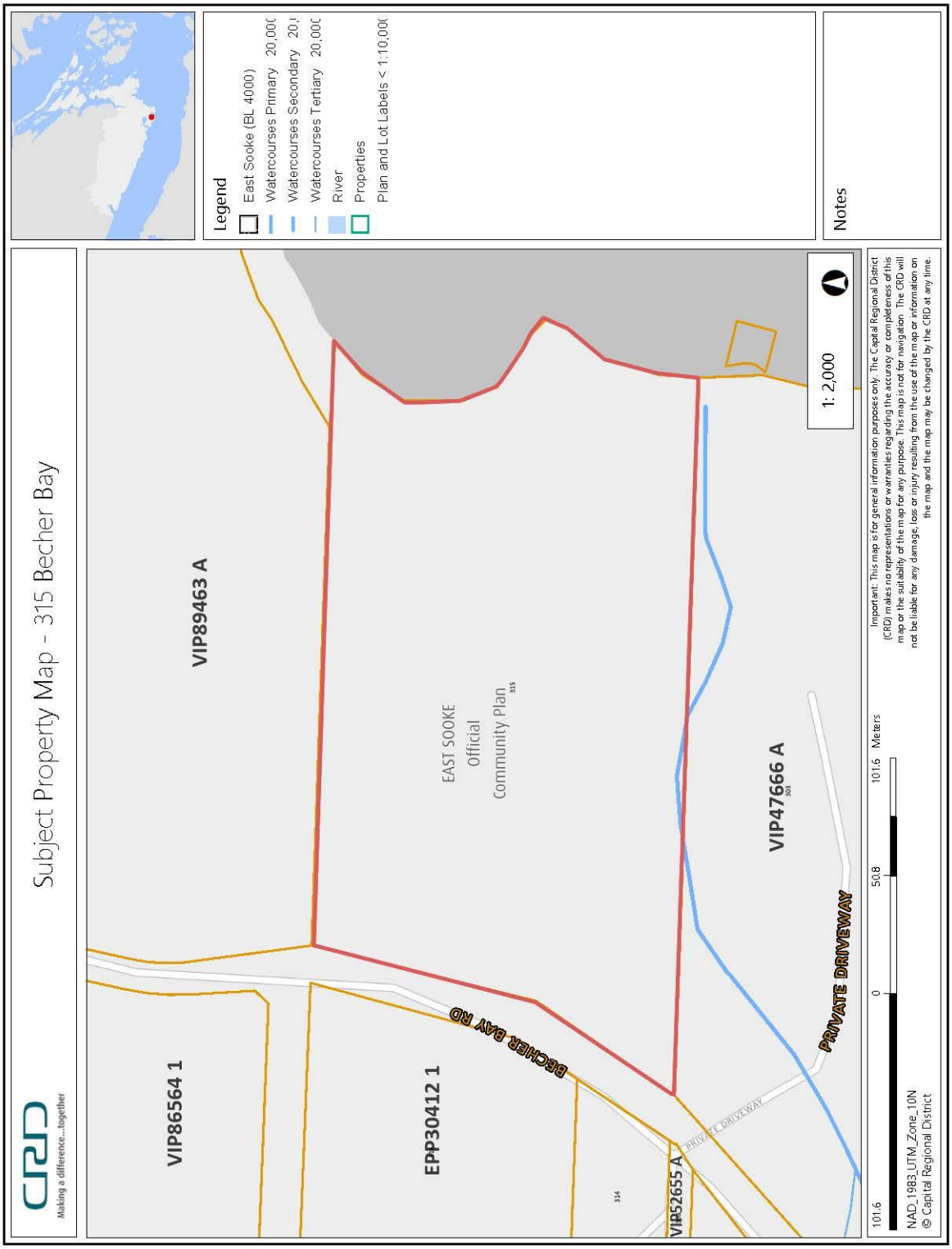
That the application for a non-adhering residential use for Parcel A (DD 80053I) of Section 86, Sooke District, be referred to the JdF Agricultural Advisory Planning Commission for comment.

Submitted by:	Iain Lawrence, MCIP, RPP, Senior Manager, Juan de Fuca Local Area Services
Concurrence:	Kevin Lorette, P.Eng., MBA, General Manager, Planning & Protective Services

ATTACHMENTS

Appendix A: Subject Property Map
Appendix B: Agricultural Land Reserve Map
Appendix C: Zoning Map
Appendix D: Proposed Detached Accessory Suite (Carraige House)
Appendix E: Proposed Accessory Building (Garage)
Appendix F: Site Plan
Appendix G: Proposal

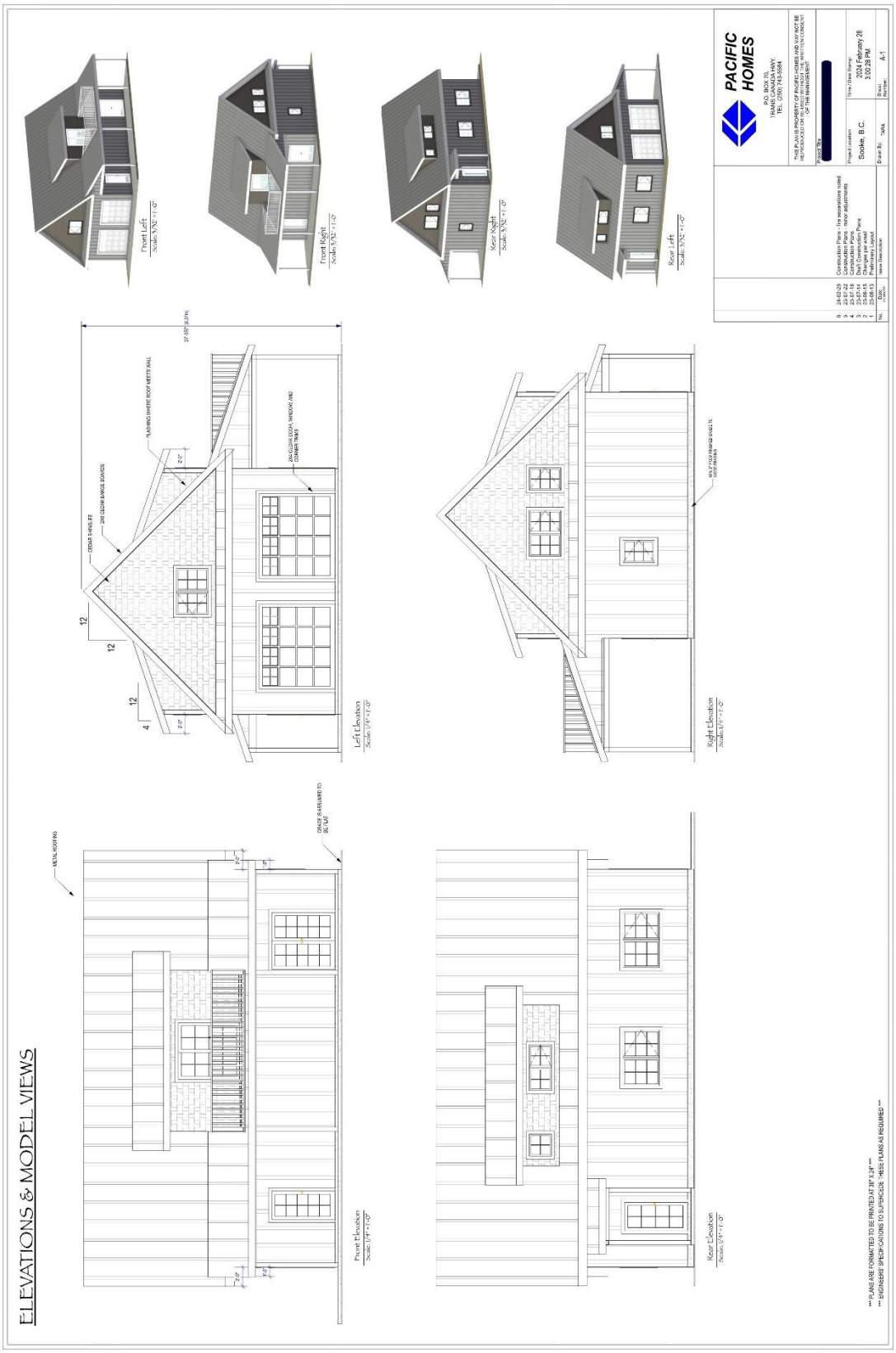
Appendix A: Subject Property Map

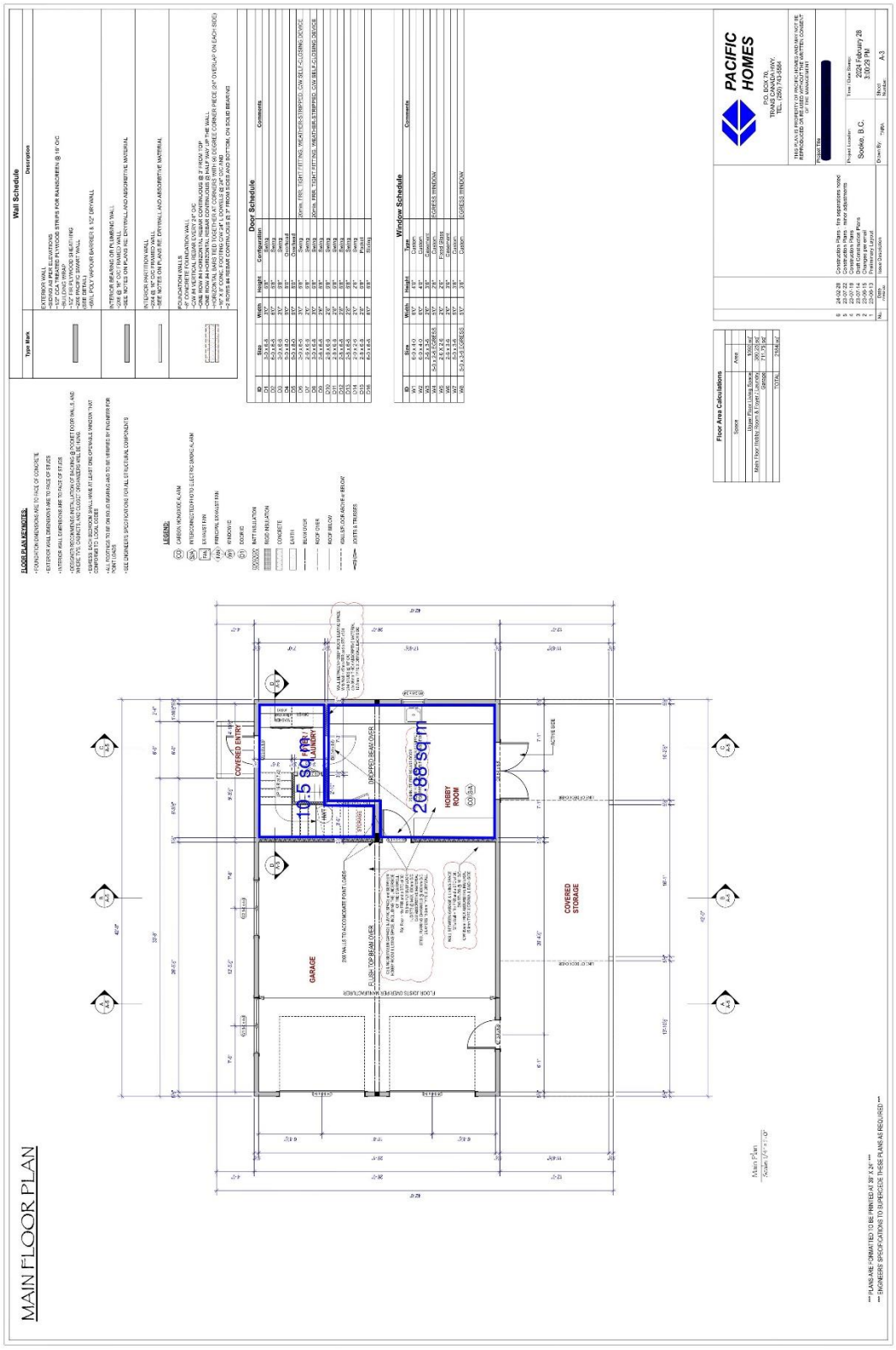


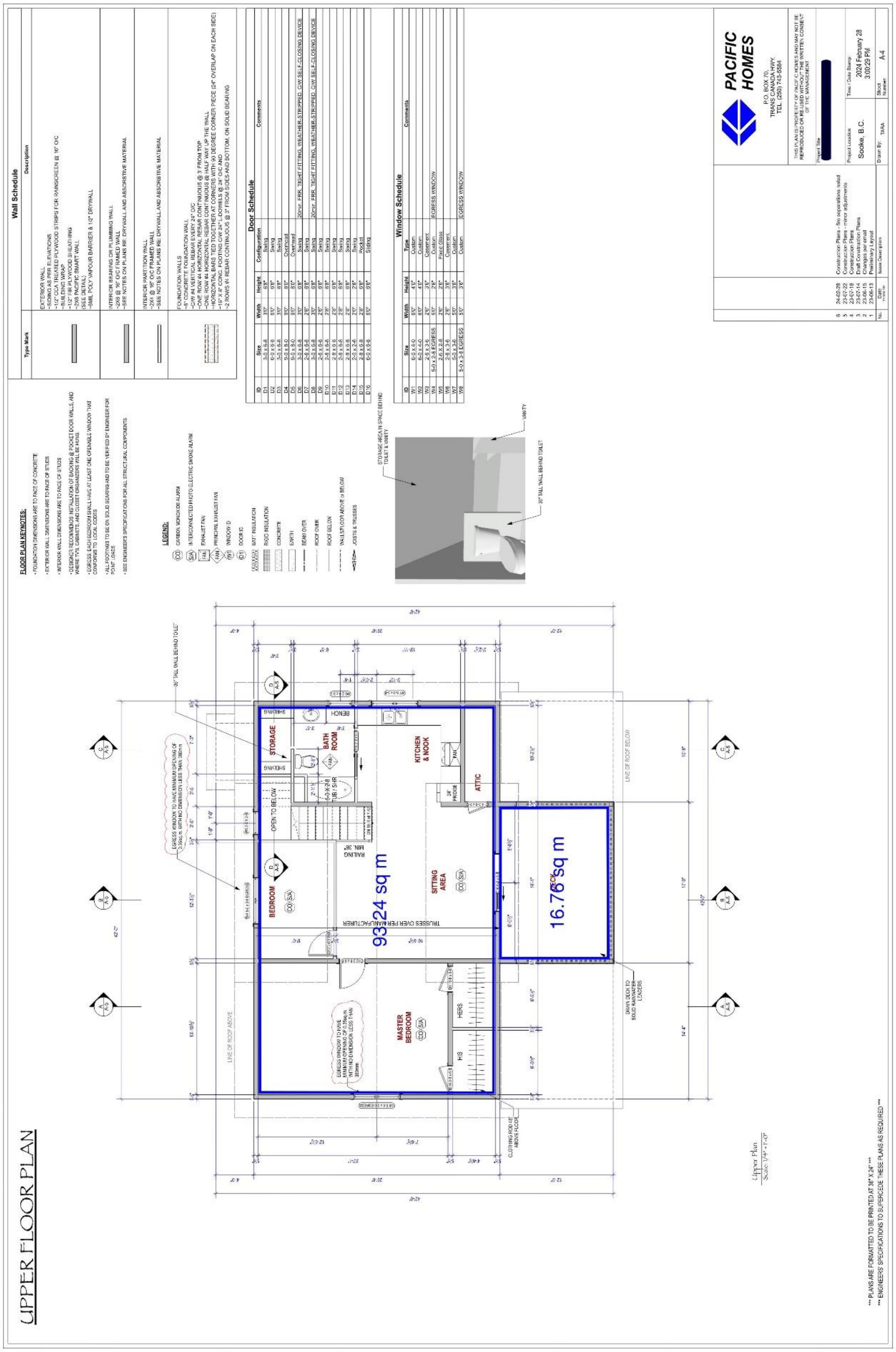
Appendix B: Agricultural Land Reserve Map

Appendix C: Zoning Map

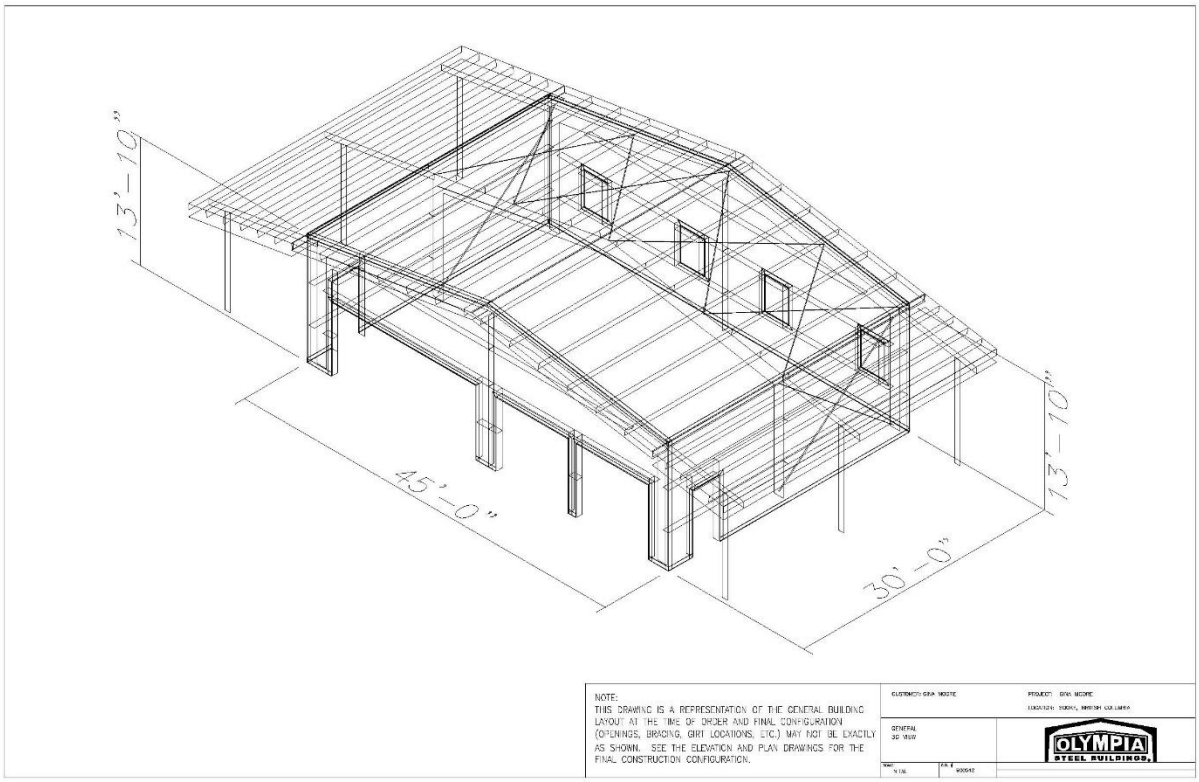
Appendix D: Proposed Detached Accessory Suite (Carriage House)




MAIN FLOOR PLAN
Wall Schedule
Door Schedule
Window Schedule
Floor Area Calculations
PACIFIC HOMES
GARAGE
COVERED ENTRY
HOBBY ROOM
COVERED STORAGE
10.5 Sq.m
20.88 Sq.m
Main Plan
Scale: 1/4" = 1'-0"

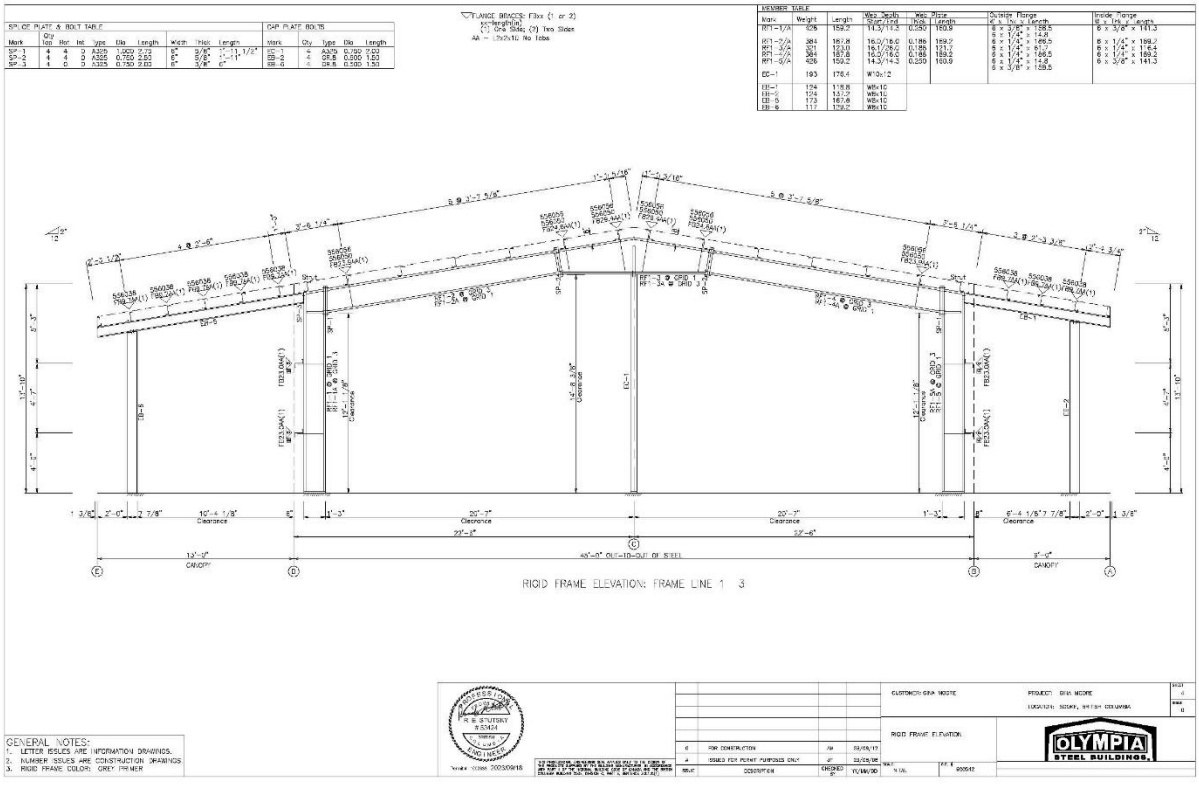

UPPER FLOOR PLAN
Wall Schedule
Door Schedule
Window Schedule
PACIFIC HOMES
Sooke, B.C.

Appendix E: Proposed Accessory Building (Garage)



NOTE:
THIS DRAWING IS A REPRESENTATION OF THE GENERAL BUILDING LAYOUT AT THE TIME OF ORDER AND FINAL CONFIGURATION (OPENINGS, BRACING, GIRT LOCATIONS, ETC.) MAY NOT BE EXACTLY AS SHOWN. SEE THE ELEVATION AND PLAN DRAWINGS FOR THE FINAL CONSTRUCTION CONFIGURATION.

CUSTOMER: GINA MOORE — PROJECT: GINA MOORE
LOCATION: SOOKE, BRITISH COLUMBIA
GENERAL
30' WIDE
OLYMPIA STEEL BUILDINGS



SPLICE PLATE & BOLT TABLE

Mark	Qty Tot	Per	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	1.000	9.73	8"	3/8"	1'-11 1/2"
SP-2	4	4	0	A325	0.750	2.63	8"	5/8"	1'-1"
SP-3	4	0	0	A325	0.750	2.63	8"	5/8"	6"

CAP PLATE BOLTS

Mark	Qty	Type	Dia	Length
EC-1	4	A325	0.750	7.03
EC-2	4	GR.8	0.500	1.53
EC-3	4	GR.8	0.500	1.53

FLANGE BRACES: Fbx (1 or 2)
bx=length(in)
(1) C=6 Sides (2) Two Sides
AA – 12"x7x10 No Tabs

MEMBER TABLE

Mark	Weight	Length	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange d x ths x Length	Inside Flange d x ths x Length
RF1-1/A	526	152.2	14.3/14.3	0.350	189.9	8 x 3/8 x 198.5 6 x 1/4 x 14.8	8 x 3/8 x 141.3
RF1-2/A	384	167.8	16.0/16.0	0.186	189.2	6 x 1/4 x 166.5	8 x 1/4 x 189.2
RF1-3/A	301	123.0	16.1/16.0	0.186	123.7	6 x 1/4 x 91.1	6 x 1/4 x 164
RF1-4/A	384	167.8	16.0/16.0	0.186	189.2	6 x 1/4 x 166.5	6 x 1/4 x 189.2
RF1-5/A	426	159.2	14.3/14.3	0.350	189.9	6 x 1/4 x 14.8 8 x 3/8 x 198.5	8 x 3/8 x 141.3
EC-1	193	178.4	W10x12				
EC-2	174	178.8	WB-10				
EC-3	194	137.7	WB-10				
EC-5	173	187.8	WB-10				
EC-6	117	159.2	WB-10				

RIGID FRAME ELEVATION: FRAME LINE 1 3

GENERAL NOTES:
1. LETTER ISSUES ARE INFORMATION DRAWINGS.
2. NUMBER ISSUES ARE CONSTRUCTION DRAWINGS
3. RIGID FRAME COLOR: GREY PRIMER

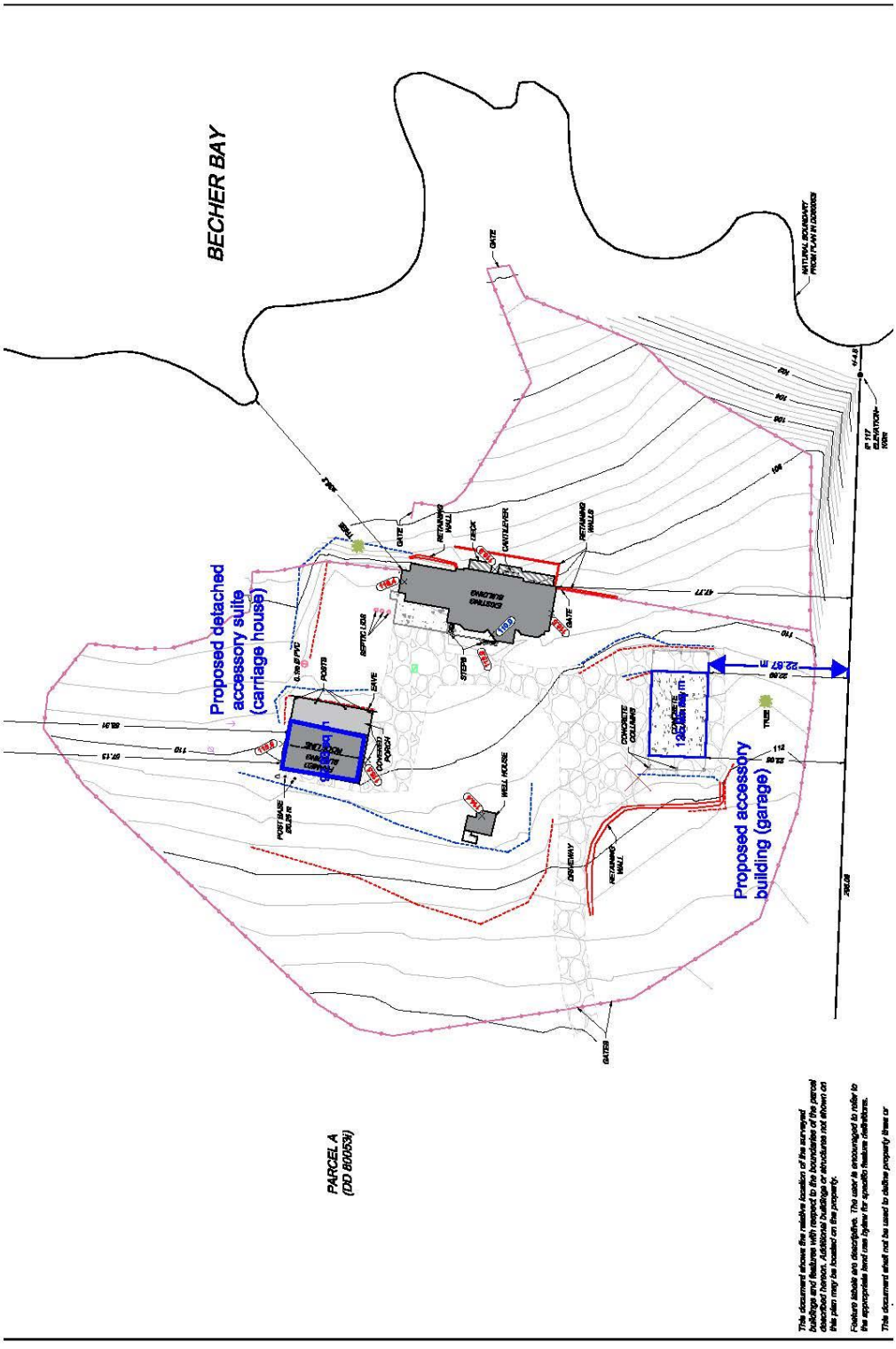
PROFESSIONAL ENGINEER — R. B. STUDRY — B.C.S.E.I.

#	DESCRIPTION	BY	DD/MM/YY
1	FOR CONSTRUCTION	AM	03/05/17
A	ISSUED FOR PRINT PURPOSES ONLY	JP	03/05/17

CHECKED BY: YU/MM/DD

CUSTOMER: GINA MOORE — PROJECT: GINA MOORE
LOCATION: SOOKE, BRITISH COLUMBIA
RIGID FRAME ELEVATION
OLYMPIA STEEL BUILDINGS

Appendix F: Site Plan



Appendix G: Proposal

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Provincial Agricultural Land Commission - Applicant Submission

Application ID:	100902
Application Type:	Non-Adhering Residential Use within the ALR
Status:	Submitted to L/FNG
Applicant:	[redacted]
Local/First Nation Government:	Capital Regional District

1. Parcel(s) Under Application

Parcel #1

Parcel Type	Fee Simple
Legal Description	PARCEL A (DD 80053I) OF SECTION 86, SOOKE DISTRICT
Approx. Map Area	4.3 ha
PID	008-413-835
Purchase Date	May 15, 2023
Farm Classification	No
Civic Address	315 Becher Bay Rd, V9Z 1B7
Certificate Of Title	LAND TITLE OFFICE.pdf

Land Owner(s)	Organization	Phone	Email	Corporate Summary
[redacted]	No Data	[redacted]	[redacted]	Not Applicable

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2. Other Owned Parcels

Do any of the land owners added previously own or lease other parcels that might inform this application process?	No

3. Primary Contact

Will one of the landowners or government contacts added previously be the primary contact?	Yes
Type	Land Owner
First Name	[redacted]
Last Name	[redacted]
Organization (If Applicable)	No Data
Phone	[redacted]
Email	[redacted]

4. Government

Local or First Nation Government:	Capital Regional District

5. Land Use

Land Use of Parcel(s) under Application

Describe all agriculture that currently takes place on the parcel(s).	The property is being used for residential purposes. No agriculture
Describe all agricultural improvements made to the parcel(s).	Approximately 1/3 of the property is fenced. Approx 1/2 acre of trees removed.
Describe all other uses that currently take place on the parcel(s).	Residential, recreational. Vacation property

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Choose and describe neighbouring land uses

	Main Land Use Type	Specific Activity
North	Unused	raw land heavily treed
East	Other	ocean
South	Residential	neighbour
West	Unused	raw land heavily treed

6. Proposal

Selected Subtype:	Additional Residence for Farm Use
What is the purpose of the proposal?	We are building a carriage house to provide accommodation for family members when they come to visit as the principal residence will be losing sq. footage (bedrooms) during the renovation. Below the carriage house will be our garage as there won't be a garage in the principal residence. Note: We are also planning on building an engineered steel accessory building for storage of personal items (boat, kayaks, paddleboards, lawn equipment etc.) This building is 114 m2
What is the total floor area (m^2) of the proposed additional residence?	93
Describe the necessity for an additional residence for farm use and how it will support agriculture in the short or long term.	The additional residence nor property will be used for farm use. It's a guest house for people to stay while on the property visiting and the accessory building will be strictly for storage of personal items.
Describe the rationale for the proposed location of the additional residence.	It's located close the house. Will be able to share the driveway and have access to the yard. The accessory building will be on the opposite side as the carriage house also sharing the driveway and yard.
Provide the total area (m^2) and a description of infrastructure necessary to support the additional residence.	93 m2 Concrete foundation, engineered Pacific Homes carriage house. 114 m2 Concrete foundation, engineered steel accessory building provided by Olympia Steel Buildings.

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Describe the total floor area (m^2), type, number, and occupancy of all residential structures currently located on the property.	290 m2 principal residence. Tutor style home build in the 70s which will be occupied by my partner and I.
Proposal Map / Site Plan	3755-02-SITE-Signed.pdf
Do you need to import any fill to construct or conduct the proposed non-adhering residential use?	No

7. Optional Documents

Type	Description	File Name
Professional Report	Geotech report	Geotechnical Schedule B - 315 Becher Bay, Sooke (1).pdf
Professional Report	Geotech report	23-747 - Geotechnical Memo 1 - Nov 23, 2023 BS2 (1).pdf

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REPORT TO THE JUAN DE FUCA LAND USE COMMITTEE
MEETING OF TUESDAY, JUNE 18, 2024

SUBJECT **Zoning Amendment Application for That Part of Lot 2, Section 60, Renfrew District, Plan 6764 Lying to the South of the 66 Foot Road Dedicated by Said Plan (PID: 003-175-201) – 9333 Invermuir Road**

ISSUE SUMMARY

The landowners have applied to rezone the subject property from the Rural A zone to the Rural Residential 3 zone (RR-3) to facilitate subdivision.

BACKGROUND

The 7.8 ha oceanfront subject property is located on Invermuir Road in Shirley and is zoned Rural A in the Juan de Fuca Land Use Bylaw, 1992, Bylaw No. 2040 (Appendix A). The property is designated Pacific Acreage in the Shirley-Jordan River Official Community Plan (OCP), Bylaw No. 4001. Abutting properties along the south side of Invermuir Road are zoned Rural A, and parcels on the north side of Invermuir Road are a mixture of Rural A, Rural 2 (RU-2), and Forestry (AF) zoned lands. Portions of the property are designated as Steep Slopes, Shoreline Protection, and Sensitive Ecosystem development permit areas. There are two existing dwellings and one accessory building that are serviced by septic and water cisterns (~11,365 L & ~13720 L). The cisterns are refilled through water delivery. The property is located within the Shirley Fire Protection Local Service Area.

The landowners have submitted an application to amend Bylaw No. 2040 by removing the property from the Rural A zone (Appendix B) and adding it to the Rural Residential 3 (RR-3) zone (Appendix C) to facilitate a 2-lot fee-simple subdivision application (SU000763), proposing one lot for each of the two existing dwellings (Appendix D). The proposal is supplemented by an Environmental Report and a Riparian Areas Regulation Report (RAPR) (Appendix E).

Staff have prepared Bylaw No. 4615 for consideration (Appendix F) based on the information provided by the applicant.

ALTERNATIVES

Alternative 1

That staff be directed to refer proposed Bylaw No. Bylaw No. 4615, "Juan de Fuca Land Use Bylaw, 1992, Amendment No. 165, 2024" to the Shirley-Jordan River Advisory Planning Commission, appropriate CRD departments, First Nations and the following external agencies for comment:
Pacheedaht First Nation
T'Sou-ke First Nation
BC Hydro
District of Sooke
Island Health
Ministry of Forests - Archaeology Branch
Ministry of Forests - Water Protection Section
Ministry of Land, Water and Resource Stewardship
Ministry of Transportation & Infrastructure
RCMP
Sooke School District #62

Alternative 2

That proposed Bylaw No. 4615 not proceed.

IMPLICATIONS

Legislative Implications

The Advisory Planning Commissions (APCs) were established to make recommendations to the Land Use Committee (LUC) on land use planning matters referred to them related to Part 14 of the *Local Government Act* (*LGA*). Staff recommend referring proposed Bylaw No. 4615 to the Shirley-Jordan River APC.

Pursuant to Section 464(3) of the *LGA*, since an official community plan is in effect for the area that is the subject of the zoning bylaw, the bylaw is consistent with the OCP, and the sole purpose of the bylaw is to permit a development that is entirely a residential development, the CRD must not hold a public hearing with respect to the bylaw. Upon receipt of referral comments the LUC and may consider a recommendation for all bylaw readings and adoption at the same meeting.

Regional Growth Strategy Implications

Section 445 of the *LGA* requires that all bylaws adopted by a regional district board after the board has adopted a regional growth strategy (RGS) be consistent with the RGS. In accordance with CRD policy, where a zoning bylaw amendment that applies to land within the Shirley-Jordan River OCP area is consistent with the OCP, it does not proceed to the CRD Board for a determination of consistency with the RGS. Staff are of the opinion that the proposed amendment is consistent with the policies of the Shirley-Jordan River OCP.

First Nations Implications

The CRD places a high value on its relationship with First Nations and the enhancement of reciprocal engagement procedures that advance reconciliation. The subject property is located within the traditional territory of the Pacheedaht and T'Sou-ke First Nations. Each Nation will be invited to participate in the land use review and referral process to inform the Nations of proposed development activity within their territory and seek meaningful dialogue and comment with respect to the proposal.

Land Use Implications

The Shirley-Jordan River OCP designates the subject property as Pacific Acreage (PA), which generally consists of rural and rural residential zoned lands outside Settlement areas and west of Muir Creek. The PA designation supports an average minimum parcel size of one parcel per two hectares provided that no new parcels are created with an area of less than one hectare. The OCP generally supports a density of one single-family dwelling or one two-family dwelling per parcel for land designated PA. The OCP also includes policies that support the rezoning of Rural A zoned lands for the purposes of subdivision to create a number of lots equivalent to the number of existing dwellings. Proposed Bylaw No. 4615, removes the property from the Rural A zone and adds it to the RR-3 zone. This is aligned with the OCP and its intention to maintain the neighbourhood's rural character.

The RR-3 zone does not permit intensive agriculture; silviculture; animal hospitals; veterinary clinics; accessory on-site logging; pole, post, or shake cutting from on-site trees; and finfish culture, which are all permitted uses within the current Rural A zone. The RR-3 zone has minimum parcel size of 2 ha and permits one one-family dwelling or one duplex per parcel with either a secondary suite or a detached accessory suite permitted where there is no duplex. In comparison, the current Rural A zone has a minimum parcel size of 4 ha and permits up to four one-family dwellings on parcels that are greater than 4 ha but less than 16 ha. Proposed Bylaw No. 4615 does not increase the existing density of one-family dwellings on the 7.8 ha property. Each potential parcel could support either a secondary suite or detached accessory suite.

The Environmental Report and RAPR provide an inventory of sensitive ecosystems and wildlife with an impact assessment of existing development and the proposed subdivision. Together, both reports provide recommendations for the proposed subdivision to meet the development permit area guidelines and provincial regulations, such as those under the *Water Sustainability Act* and *Regulations*.

While the owner has applied for a two-lot subdivision, should Bylaw No. 4615 be approved, the property could be subdivided into three parcels. However, should the subdivision proceed as proposed, further subdivision under the RR-3 zone regulations would not be possible as each proposed parcel is less than 4 ha. At the time of subdivision, the owner will be required to obtain a development permit to address the Steep Slopes, Shoreline Protection, and Sensitive Ecosystem DP guidelines and authorize the activity. Based on the information provided by the applicants and the policies of the OCP, staff recommend that the rezoning application be referred to the Shirley-Jordan River APC, appropriate CRD departments, First Nations, and external agencies for comment.

CONCLUSION

The purpose of Bylaw No. 4615 is to amend the Juan de Fuca Land use Bylaw, 1992, Bylaw No. 2040 by rezoning the subject property from Rural A to RR-3. Staff have prepared proposed Bylaw No. 4615 and recommend that the rezoning application be referred to the Shirley-Jordan River APC, First Nations, CRD departments, and external agencies for comment. All comments received will be brought back to the Land Use Committee. At that time, the Committee may consider a recommendation for bylaw readings.

RECOMMENDATION

That staff be directed to refer proposed Bylaw No. Bylaw No. 4615, "Juan de Fuca Land Use Bylaw, 1992, Amendment No. 165, 2024" to the Shirley-Jordan River Advisory Planning Commission, appropriate CRD departments, First Nations and the following external agencies for comment:
Pacheedaht First Nation
T'Sou-ke First Nation
BC Hydro
District of Sooke
Island Health
Ministry of Forests - Archaeology Branch
Ministry of Forests - Water Protection Section
Ministry of Land, Water and Resource Stewardship
Ministry of Transportation & Infrastructure
RCMP
Sooke School District #62

Submitted by:	Iain Lawrence, RPP, MCIP, Senior Manager, Juan de Fuca Local Area Services
Concurrence:	Kevin Lorette, P.Eng, MBA, General Manager, Planning & Protective Services

ATTACHMENTS

Appendix A: Location, Zoning, and DPA Map
Appendix B: Rural A Zone
Appendix C: Rural Residential 3 (RR-3) Zone
Appendix D: Proposed Subdivision Plan
Appendix E: Environmental Report and Riparian Areas Regulation Report
Appendix F: Proposed Bylaw No. 4615

Appendix A: Location, Zoning, and DPA Map

Appendix B: Rural A Zone

Schedule "A" of Capital Regional District Bylaw No. 2040
Juan de Fuca Land Use Bylaw

2.0 RURAL ZONE - A

2.01 Permitted Uses

In addition to the uses permitted by Section 4.15 of Part 1 of this Bylaw, the following uses and no others shall be permitted in the Rural A Zone:

(a) Agriculture;
(b) Intensive Agriculture, except that sites for piggeries, fur farming and other similar agricultural, horticultural and animal raising activities in which the intensity and nature of the use would be materially more offensive by reason of noise, odour or appearance shall be located at least 150m from the nearest Residential or Multiple Family Residential Zone;
(c) Silviculture;
(d) Home Based Business Categories One, Two and Three; *Bylaw 3705*
(e) One-family dwelling;
(f) Two-family dwelling;
(g) Animal Hospitals;
(h) Veterinary Clinics;
(i) One travel trailer or one camper may be permitted in conjunction with a permitted residential use on a lot, which may be used but not rented for the temporary accommodation of guests or visitors;
(j) Two Boarders or Lodgers;
(k) Accessory uses such as on-site logging, and pole- or post- or shake-cutting from trees grown on-site;
(l) Finfish culture, land-based;
(m) One secondary suite per lot pursuant to Part 1, Subsection 4.19; *Bylaw 2674*
(n) Detached Accessory Suites pursuant to Part 1, Subsection 4.20. *Bylaw 3605*

2.02 Minimum Parcel Size for Subdivision Purposes

The minimum lot size shall be 4.0ha.

2.03 Number of Dwelling Units

The maximum density for residential buildings (comprised of one- and/or two-family dwellings) shall not exceed the following:
(a) On lots of 0.4ha or less, one one-family dwelling;
(b) On lots of more than 0.4ha and less than 0.8ha, not more than two one-family or one two-family dwelling;
(c) On lots of more than 0.8ha and less than 4ha, not more than three one-family dwellings or three dwelling units;
(d) On lots of more than 4ha and less than 16ha, not more than four one-family dwellings or four dwelling units;
(e) On lots of more than 16ha and less than 32ha, not more than five one-family dwellings or five dwelling units;
(f) On lots of more than 32ha, not more than eight one-family dwellings or eight dwelling units.

2.04 Height

The maximum height permitted shall be 11m.

2.05 Lot Coverage

The maximum lot coverage permitted shall be 15 percent.

Schedule "A" of Capital Regional District Bylaw No. 2040
Juan de Fuca Land Use Bylaw

2.06	**Maximum Size of Residential Buildings**	Provided applicants having either met the *Sewerage System Regulation* (e.g., a filing) or acceptance by VIHA via referral: *Bylaw 3705* (a) On lots of less than 1ha in area, residential buildings and structures shall not exceed a Floor Area Ratio of 0.45 or a Total Floor Area of 418m², whichever is less; (b) On lots of 1ha or more in size, residential buildings and structure shall not exceed a Floor Area Ratio of 0.45. *Bylaw 3705*
2.07	**Yard Requirements for Residential Buildings**	(a) Front yards shall be a minimum of 7.5m; (b) Side yards shall be a minimum of 6m except for lots of greater than 1ha in size and where residential uses exceed a Total Floor Area of 418m², minimum side yards shall be 15 m each side; (c) Flanking yards shall be a minimum of 6m CTS; (d) Rear yards shall be a minimum of 11m.
2.08	**Yard Requirements for Farm Buildings**	(a) Front yards shall be a minimum of 30m; (b) Side, flanking and rear yards shall be a minimum of 15m.
2.09	**Yard Requirements for Finfish Culture, Land-Based Uses and Structures**	Front, side, flanking and rear yards shall be a minimum of 30m.
2.10	**Yard Requirements for Intensive Agriculture Uses and Buildings**	(a) Front yards shall be a minimum of 30 m; (b) Side, rear and flanking yards shall be a minimum of 30m. *Bylaw 2103*

Appendix C: Rural Residential 3 (RR-3) Zone

Schedule "A" of Capital Regional District Bylaw No. 2040
Juan de Fuca Land Use Bylaw

7.0 RURAL RESIDENTIAL 3 ZONE - RR-3

7.01 Permitted Uses

In addition to the uses permitted by Section 4.15 of Part 1 of this Bylaw, the following uses and no others are permitted in the Rural Residential 3 RR-3 Zone:

(a) One-family dwelling;
(b) Two-family dwelling;
(c) Home Based Business Categories One, Two and Three; *Bylaw 3705*
(d) Agriculture;
(e) Two Boarders or Lodgers;
(f) Farm buildings on farms;
(g) Veterinary Clinics and Animal Hospitals;
(h) Secondary suite pursuant to Part 1, Subsection 4.19; *Bylaw 2674*
(i) Detached Accessory Suites pursuant to Part 1, Subsection 4.20. *Bylaw 3605*

7.02 Minimum Lot Size for Subdivision Purposes

(a) Minimum lot size shall be 2 ha;
(b) Notwithstanding Section 7.02(a) of Part 2 of this Bylaw, when the area of the original lot being subdivided is 60ha or more, then lot averaging may be permitted with an average lot size of 2ha and a minimum lot size of 1ha;
(c) Notwithstanding Sections 7.02(a) and (b) of Part 2 of this Bylaw, lot sizes for subdivision purposes shall be 1ha average and .5 ha minimum for Part Lot 3, Sec. 51, Plan 39570 Except Plan 41935 as shown shaded on Plan No. 29 described in Bylaw 2437. *Bylaw 2437*

7.03 Number of Residential Buildings

One one-family dwelling or one two-family dwelling is permitted per lot.

7.04 Height

Maximum height shall be 9m.

7.05 Lot Coverage

Maximum lot coverage shall be 15 percent.

7.06 Maximum Size of Residential Buildings

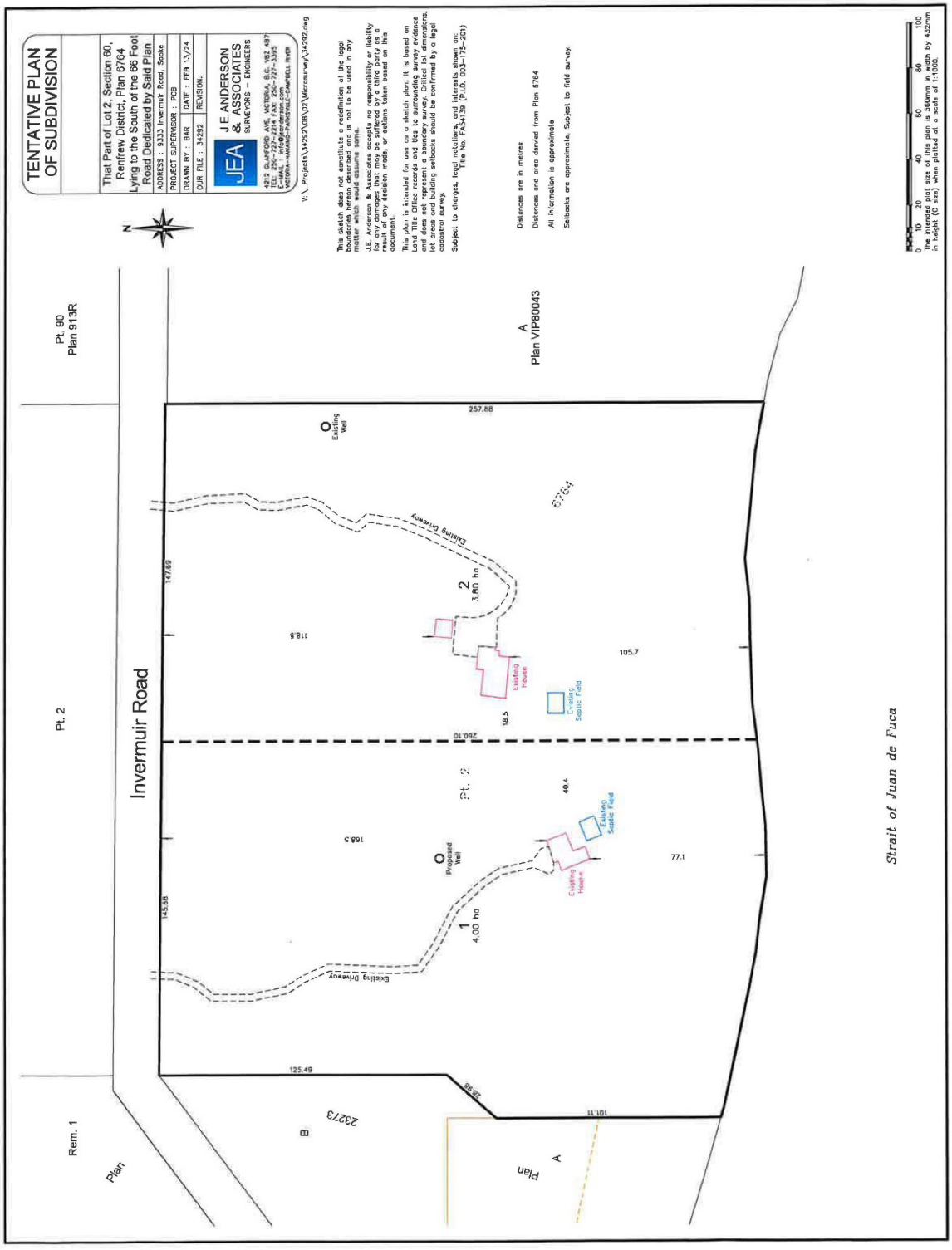
Provided applicants having either met the *Sewerage System Regulation* (e.g., a filing) or acceptance by VIHA via referral: *Bylaw 3705*

(a) On lots of less than 1ha in area, residential buildings and structures shall not exceed a Floor Area Ratio of 0.45 or a Total Floor Area of 418m², whichever is less;
(b) On lots of 1ha or more in size, residential buildings and structures shall not exceed a Floor Area Ratio of 0.45.

Schedule "A" of Capital Regional District Bylaw No. 2040
Juan de Fuca Land Use Bylaw

7.07	**Yard Requirements**	(a) Front yards shall be a minimum of 7.5m; (b) Side yards shall be a minimum of 6m; except that for lots of greater than 1ha in size and where residential uses exceed a Total Floor Area of 418m², minimum side yards shall be 15m each side; (c) Flanking yards shall be a minimum of 6m CTS; (d) Rear yards shall be a minimum of 10m.
7.08	**Yard Requirements for Buildings and Structures for Livestock or Keeping of Animals**	(a) Front yards shall be a minimum of 90m; (b) Side, flanking and rear yards shall be a minimum of 30m each.
7.09	**Yard Requirements - Other Farm Buildings**	(a) Front yards shall be a minimum of 30m; (b) Side, Flanking and Rear yards shall be a minimum of 15m.

Appendix D: Proposed Subdivision Plan



Appendix E: Environmental Report and Riparian Areas Regulation Report

March 15, 2024

RE: Environmental Development Permit Area Review Report for Subdivision of 9333 Invermuir Road, Shirley, BC

On February 9, 2024, Sara Stallard and Laura Hooper conducted a site visit at 9333 Invermuir Road to review the location of a proposed subdivision (Figures 1 and 2).

Introduction

9333 Invermuir Road, is an approximately 8.38-hectare lot in Shirley, BC (Figures 1 and 2). The property is primarily undeveloped, except for the house, driveway and associated infrastructure that were built on the eastern half of the property in pre-1960, and a two-story cottage and associated infrastructure constructed in 1972 on the west half of the property (Photos 3-6). The property was partially logged in 2021/2022 under BC Timbermark Certificate 182681 after the property experienced damaging blowdowns in 2018. The vegetation on the property is a matrix of mature coniferous forest in the Coastal Western Hemlock very wet maritime zone by Biogeoclimatic Ecosystem Classification (BEC).

The subject property is within the Watercourse, Wetlands and Riparian Areas, Sensitive Ecosystems, and Shoreline Protection Development Permit Areas. This report addresses the Riparian Areas and Sensitive Ecosystems and Shoreline Protection Development Permit requirements (Figures 3 and 4).

Proposed Development

The proposal for work is shown on Figures 5 and 6:

- subdivide the lot with the new lot line perpendicular to Invermuir Road, and
- construct a well with a small pumphouse outside the RAA, in an existing disturbed area

Background Information

The current environmental data and information available for the area was reviewed prior to conducting the field assessment for the site. In part, this included a review of the Shirley – Jordan River Official Community Plan, 2018 Bylaw 4001, aerial photography (CRD Regional Map), the Sensitive Ecosystem Inventory (SEI) for the Shirley/Jordan River Electoral Area, the BC Conservation Data Centre (CDC) records for rare species occurrences, the BC Fisheries Inventory Data Queries (FIDQ) and the Wildlife Tree Stewardship Program (WiTS) occurrences.

According to the SEI for the Shirley/Jordan River Electoral Area, the subject site is partially covered by two SEI polygons and one other important ecosystem (OIE) designations (Morgen & Tripp, 2014). According to the SEI, "[t]hese ecosystems typically have high biodiversity and are home to many rare and endangered animals, plants and plant communities" (Ward, et al., 1998). The Polygon IDs and designations are listed below, along with the estimated condition and conservation importance assessed by Morgen & Tripp (2014).

Swell Environmental Consulting Ltd
480 Beach Drive, Victoria, BC V8M 2S5 lehna@swell.ca 250.217.9190

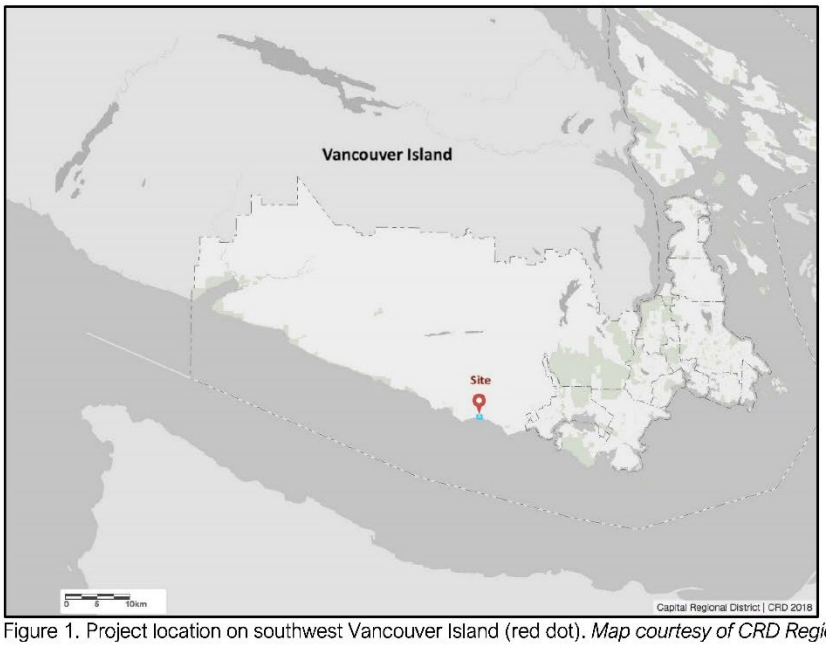


Figure 1. Project location on southwest Vancouver Island (red dot). *Map courtesy of CRD Regional Map.*

Figure 2. 9333 Invermuir Road in local context. *Aerial photo courtesy of CRD Regional Map.*

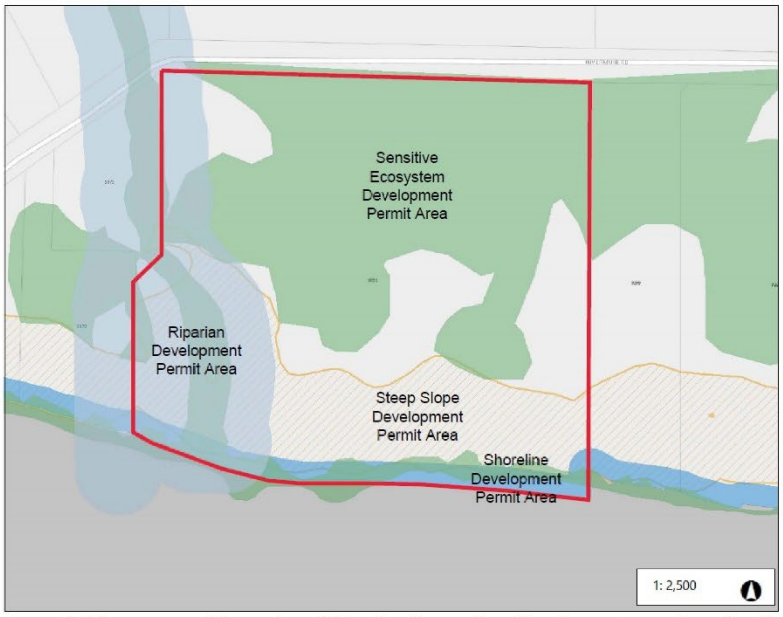


Figure 3. Watercourse, Wetlands and Riparian Areas, Sensitive Ecosystems, Shoreline Protection, and Steep Slope (not addressed in this report) Development Permit Areas from the Shirley – Jordan River Official Community Plan, 2018 *Bylaw 4001* (Schedules C, D & E).

Figure 4: Four sensitive ecosystem polygons from the CRD Natural Areas Atlas (2019 imagery) which is based on mapping from the Sensitive Ecosystem Inventory (SEI) prepared by Madrone Environmental, 2014.

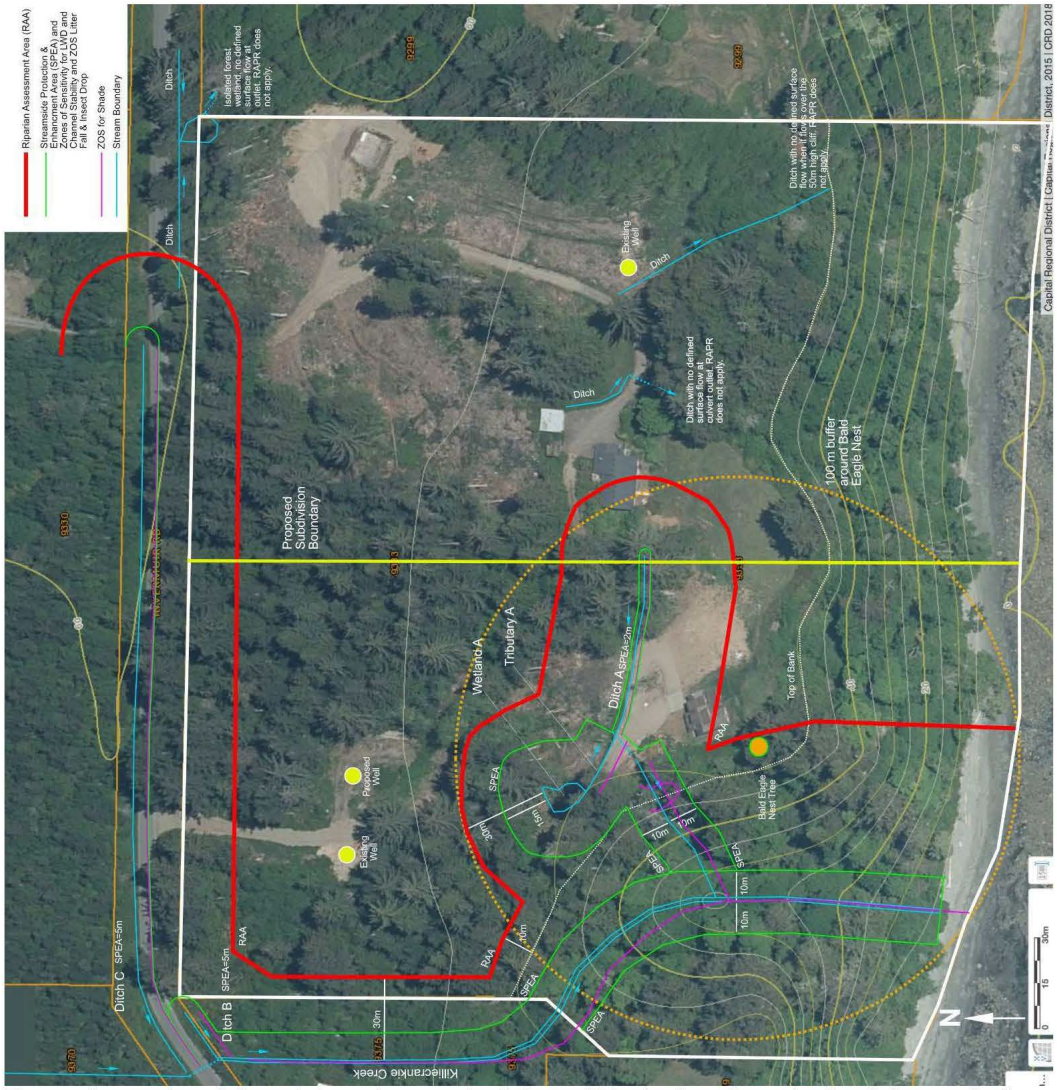


Figure 5. Property boundaries, existing and proposed well sites and Riparian Areas Protection Regulation waterbodies and setback information.

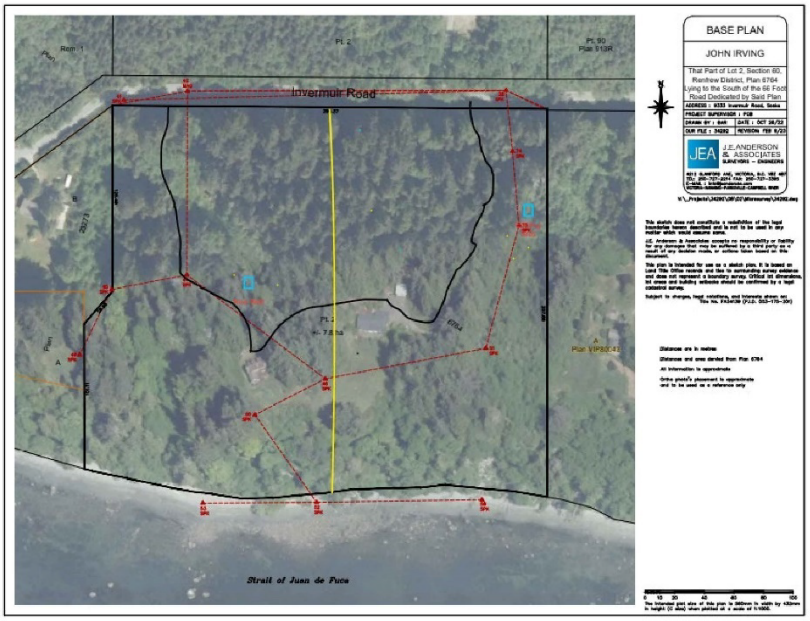


Figure 6. Proposed subdivision survey plan.

Development Permit Areas

Approximately 90 percent of the property is encompassed by the Sensitive Ecosystem, Riparian, Shoreline and Steep Slope Development Permit Areas (Figure 3 and 4). The Steep Slope DPA is not addressed in this report.

Species at Risk

No known mapped locations of red or blue listed species or communities were found in the Conservation Data Centre - Mapped Known Locations of Species and Ecological Communities at Risk (CDC iMap, January 2024).

Sensitive Ecosystems

The Sensitive Ecosystem DPA established under this section includes sensitive ecosystems and other important ecosystems identified as Intertidal, Estuarine, Freshwater, Older Forest, Mature Forest, Fringe Forest, Woodland, Herbaceous, Sparsely Vegetated, Wetlands, and Riparian. The community's Official Community Plan mapping and the Sensitive Ecosystem Inventory (SEI) prepared by Madrone Environmental (2014) identifies the three sensitive ecosystems on 9333 Invermuir Road: Mature Forest (9MF:co); Riparian (10RI:ff) and Shoreline (10IT:bs). The property is dominated by mature forest (ca. 65%) and bordered to the west by riparian sensitive ecosystems and the south by shoreline sensitive ecosystems.

<u>Mature Forest Ecosystem</u>

9MF:co;1XX is a Mature Forest Ecosystem (9=90%) (structural stage 6), conifer subclass (conifers >75% of stand) covering much of the northern 2/3 of the property. Condition: poor. Conservation importance: moderate. Potential for Red-listed Ecosystems. The historical SEI code was SG:co (Second Growth). According to Morgan and Tripp (2014) "Although mature forests are not defined as sensitive, these sites were included in the mapping as an OIE because they can have significant ecological and biological values

(RISC, 2006). Mature forests along the coast of Vancouver Island can provide recruitment sites for ecosystems at risk and/or important wildlife habitat (RISC, 2006)." "Structural stage and stand composition information was added for all SEI classes/subclasses, where applicable. Structural stages range from 1 (non-vegetated and sparsely vegetated) to 7 (old forest)." 1XX in the polygon label is defined as (1=10%) of the polygon having a component of non-SEI/OIE (e.g., rural, road, etc.).

The Conservation Data Centre (2004) and Madrone (2014) describe the Sensitive Ecosystem polygon as 9MF:co; 1XX as mature forests where conifers make up >75% of the stand composition. These forests are between 80 years and 250 years. As these forests age, they become more desirable for logging, and also exist in remnant patches. Like older forests, these ecosystems are not only characterized by their age, but by the complexity of the canopy and understory. Mature forests have an open canopy due to natural thinning of trees. The open canopy allows significant light to penetrate through the trees, resulting in a well-established understory of shrubs, ferns and mosses. There will also be evidence of regeneration by younger trees and some coarse woody debris.

Riparian Ecosystem

10RI:ff is a Riparian Ecosystem (10=100%), flood fringe subclass (narrow linear communities along open water where there is no floodplain) following the course of Killiecrankie Creek at the western edge of the property. Condition: good for section within the subject property & excellent immediately upstream of property line. Conservation importance: none listed in Madrone Environmental (2014) for the section on subject site.

Riparian 10RI:ff which consists of riparian ecosystem with a flood fringe subclass. These subclasses consist of narrow linear communities along open water bodies (rivers, lakes, and ponds) where there is no floodplain. Due to their proximity to these water bodies, they are typically influenced by erosion, sedimentation, and flooding. Generally, the vegetation will indicate that there is subsurface accessible groundwater. Tall shrub and deciduous tree communities are common in riparian ecosystems, and the vegetation is generally distinct from adjacent uplands or wetlands. Moist, rich soils can tend to result in larger than average tree growth along riparian corridors.

Intertidal (Shoreline) Ecosystem

10IT:bs is an Intertidal Ecosystem (10=100%) at the marine and terrestrial interface, subclass beaches and rocky shoreline, along the entire southern edge of the property. Condition and conservation importance not mapped.

Shoreline 10IT:bs consists of IT: Intertidal & shallow sub-tidal ecosystems at marine and terrestrial interface with a subclass of beaches and rocky shorelines, vegetated or not. The marine shoreline zone, or "Intertidal", is used to describe ecosystems located at the interface of terrestrial vegetation and the marine environment. The intertidal is regularly inundated with water, and as such, is not vegetated, or vegetated with salt-tolerant species. They include mudflats, beaches and rocky shorelines influenced by tidal cycles with little to no freshwater input.

In addition to the mapped polygons, the area proposed for development was assessed in the field for other sensitive ecosystems. No other sensitive ecosystems were found within the footprints of the proposed work.

The Sensitive Ecosystem DPA also includes a 100-metre buffer around the eagle's nest identified on the property during the site visit in the, as recommended in the Sensitive Ecosystem Inventory (Figure 7 and 8). An additional nest, BAFA-103-001 is recorded by the Wildlife Tree Stewardship Atlas at 9547 Invermuir Road.

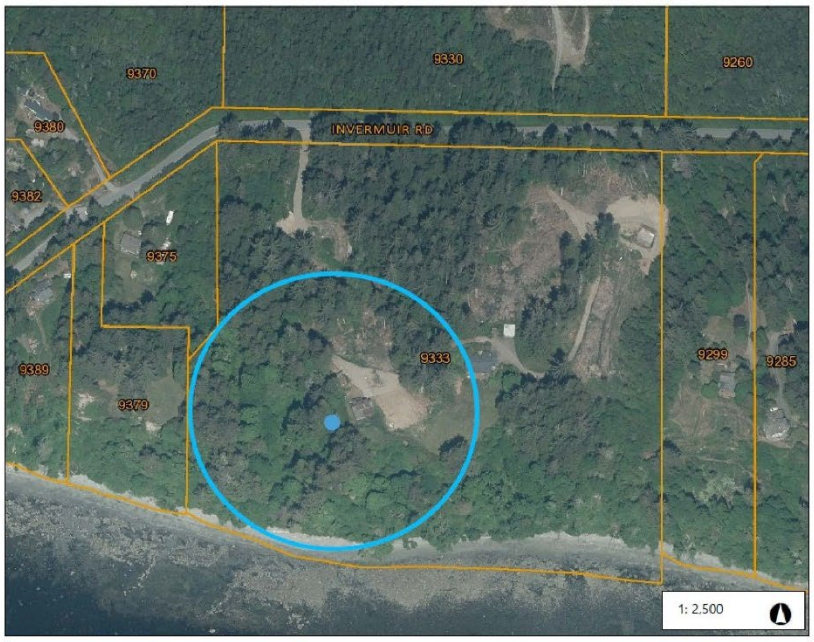


Figure 7. Approximate location of bald eagle nest with 100 m buffer on 9333 Invermuir Road.

Figure 8: Location of bald eagle nest facing west on 9333 Invermuir Road.

Riparian Areas

Detailed information to address the riparian areas is provided in the Riparian Areas Protection Regulation (RAPR) Report for 9333 Invermuir Road by Swell Environmental Consulting Ltd, dated February 9, 2024. The Streamside Protection and Enhancement Areas (SPEAs) on Killecrankie Creek, its wetlands, tributaries and ditches are indicated in Figure 3.

The Riparian Assessment Area (RAA) for Killecrankie Creek is shown in Figure 3. While the proposed subdivision lot line is not within the Streamside Protection and Enhancement Area (SPEA) for Killecrankie Creek, the ditch is intersected by the proposed subdivision. There are no riparian concerns for the subdivision layout given there is no development proposed in the RAA as part of the rezoning and subdivision. Any future development in the RAA will require a new RAPR assessment for that proposal to ensure the riparian areas are considered and protected as part of any development process that could impact them.

No documented observations of fish presence were discovered for Killecrankie Creek in Habitat Wizard or FIDQ searches, an observation substantiated by Morgen & Tripp (2014). As the authors note, lack of data does not suggest no fish are present. Fish absence has not been demonstrated for Killiecrankie Creek so it is assumed to be fish-bearing, or potentially fish-bearing. Kirby Creek (to west) and Muir Creek (to east) list a combination of Coho, Cutthroat Trout, Steelhead, Chum, Rainbow Trout, Chinook, Sculpin, and Threespine Sticklebacks.

Wildlife

Known Occurrences

The following wildlife was observed during the site review: Bald Eagle (*Haliaeetus leucocephalus*) with a nest onsite and occupied, Common Raven (*Corvus corax*), deer (*Odocoileus hemionus*), Bear (*Ursus americanus vancouveri*) with scat observed at base of ravine and black bear family (mother and two cubs) observed on numerous occasions by owners. Additionally, the following species have been observed by the owners, Roosevelt Elk (*Cervus elaphus roosevelti*) BC Blue list (Special Concern) and a Black bear family.

Potential Occurrences

Meidinger and Pojar (1991) lists wildlife species as having the potential to inhabit the riparian areas in this biogeoclimatic zone. They are as follows:

> Wildlife species at risk: Roosevelt Elk, Grizzly Bear, Mountain Beaver, Townsend's Chipmunk, Pacific Jumping Mouse, Pacific Water Shrew, Bald Eagle, Great Blue Heron, Green-backed Heron, Yellow-headed Blackbird, Purple Martin, Tailed Frog, Pacific Giant Salamander
>
> Representative wildlife species in the riparian habitat include Black-tailed Deer, Black Bear, Gray Wolf, River Otter, Mink, Deer Mouse, and Wandering Shrew.
>
> Bird species in the riparian habitat include Osprey, Short-eared Owl, Snowy Owl, Ruffed Grouse, Ring-necked Duck, Redhead, Harlequin Duck, Wood Duck, Red-throated Loon, Common Merganser, Wilson's Phalarope, Black Tern, Mew Gull, and American Dipper.
>
> Amphibians and reptiles in the riparian habitat include Common Garter Snake, Western Garter Snake, Northwestern Garter Snake, Painted Turtle, Western Toad, Bullfrog, Red-legged Frog, Northwestern Salamander, Long-toed Salamander, and Rough-skinned Newt.
>
> Meidinger and Pojar (1991) lists wildlife species as having the potential to inhabit the mixed coniferous and deciduous forests in this biogeoclimatic zone. Marbled Murrelet are listed as a potential, red-listed species at risk in this habitat and Roosevelt Elk are blue-listed species at risk

that have the potential in inhabit the mature forest. Representative wildlife species include those listed above as well as Marten, California Myotis, Douglas Squirrel, and Columbian Mouse. Representative bird species include those listed above as well as Red-tailed Hawk, Northern Saw-whet Owl, Blue Grouse, Steller's Jay, Hairy Woodpecker, Pine Grosbeak, and Townsend's Warbler. Representative bird species include those listed above as well as Northern Alligator Lizard, Pacific Treefrog and Ensatina Salamander.

Existing Condition

Site Characterization

The existing condition of 9333 Invermuir Road is described below in Figures 7-10 and in Photographs 1-21.

9333 Invermuir Road is very moist and nutrient-rich, has an imperfectly draining water-receiving hummocky forest floor and an open understory, enriched by seepage, with water-collecting sites, numerous small depressions with raised organic mounds. It is south facing and fairly level then dropping approximately 50 m via a steep cliff down to the beach of the Strait of Juan de Fuca. There is a deep ravine at the west edge of the property. The property has two dwelling units on a circular driveway with various outbuildings and older concrete pads.

Landscape Context

South of Invermuir Road are large, forested lots with single family dwellings. The area north of Invermuir Road has recently been logged. Roadside ditches are located at the north property boundary, on both sides of Invermuir Road. The property is located within the Very Dry Maritime subzone of the Coastal Western Hemlock ecosystem (CWHxm) which has soils with very dry to medium moisture levels with a very poor to medium nutrient content. The site hummocky nature with standing water visible throughout the mature forest. There is very slight variation on species composition/dominance across the site.

History of Site Disturbance

The site was partially cleared pre-1960 to facilitate the construction of a single-family dwelling, driveway, associated infrastructure, and a hobby farm (Photos 3-5). A second cabin was built on the southwest portion of the property in 1972 (Photo 6).

Recent Site Disturbance

Aerial photos and previous SEI mapping indicate that the subject lot was approximately 50% covered by Mature Forest stand. Approximately 12, 000 sq m of mature forest was removed between 2021 and 2023, particularly in the eastern side of the lot (Photos 18-20). These areas are now characterized by hummocky landscapes, thick humus-rich soils with numerous wet depressions. Salal (*Gaultheria shallon*), sword fern (*Polystichum munitum*), red huckleberry, and common rush (*Juncus effusus*) are the most observed species, with invasives such as Scotch broom (*Cytisus scoparius*), foxglove (*Digitalis purpurea*), and thistles (*Cirsium* sp.) becoming established sporadically across the logged areas. Deep skidder tracks with standing water extend into the central remaining forest on what appears to be an historic logging road that was used in the most recent logging (Photo 7). The property owner indicated that the removals were completed under BC Timbermark Certificate 182681 after the property experienced damaging blowdowns in 2018.

There is a steep gravel bank and concrete pad at the northeast corner of the property. The gravel bank was exposed when trees fell from the top of the embankment, which had previously been shrub and tree covered, during a windstorm in 2018 (Owners, pers comm). These falling trees caused a large, open shed to collapse (Owners, pers comm). A large concrete pad remains from this shed structure (Photo 17). Another cement pad in a small clearing at the west side of the property was formerly a small dairy barn (Figure 7).

A second well was installed on the west side of the property (2022-23) to facilitate subdivision (Photo 3, Figure 9). An additional well may need to be installed on the property to ensure sufficient water flows.

Figure 9: Approximate location of existing well dug to facilitate the proposed subdivision and gravel area of 9333 Invermuir Road.

Description of Existing Vegetation

During the site visit on February 9, 2024, the vegetation on 9333 Invermuir Road was assessed. The property is large (8.38 ha), and a 2-lot subdivision is being proposed for the property. The assessment was conducted on the entire property for the proposed rezoning and subdivision.

The existing vegetation on the site is indicative of the Very Dry Maritime subzone of the Coastal Western Hemlock ecosystem (CWHxm) and consists of a second growth forest dominated by western redcedar (Thuja plicata) with Douglas-fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*), with an open understory consisting of moss with sword fern (*Polystichum munitum*), salal (*Gualtheria shallon*), oceanspray (*Holodiscus discolor*) and dull Oregon grape (*Mahonia nervosa*), licorice fern (*Polypodium glycyrrhiza*), mosses and grasses.

General Description of Forests

The vegetation around the structures and driveways includes bracken fern (*Pteridium aquilinum*), deer fern (*Struthiopteris spicant*), salmonberry (*Rubus spectabilis*), English holly (*Ilex aquifolium*), trailing blackberry (*Rubus ursinus*) and agricultural grasses. Surrounding both houses and to the top of south bank are manicured lawns with ornamentals plants (rhododendron, bamboo, etc).

We have observed that the mature forest on the property has several distinct species compositions which are described below. We have also provided comments on a juvenile forest, the riparian forest and the vegetation on the steep slope above the shoreline (Figure 10).

Mature Forest (A):
The Mature Forest along Invermuir Road and the east property line is dominated by western redcedar (*Thuja plicata*) with Sitka spruce (*Picea sitchensis*), Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), grand fir *(Abies grandis*), bigleaf maple (*Acer macrophyllum*). The area has an open understory with red huckleberry (*Vaccinium parvifolium*), sword fern (*Polystichum munitum*), salal (*Gaultheria shallon*), trailing blackberry (*Rubus ursinus*), with undulating floor and small wet depressions, in open areas with common rush (*Juncus effusus*), slough sedge (*Carex obnupta*), hummocky landscape lots of coarse woody debris and thick humic layer spongey underfoot. Oceanspray (*Holodiscus discolor*) and dull Oregon-grape *(Mahonia nervosa*) at northeast open edge is not observed elsewhere on the property.

Mature Forest (B):
Area A is divided from Area B by the eastern driveway and is very similar to Area A except there is grand fir (*Abies grandis*) in this part of the forest which does not exist elsewhere on the property.

Mature Forest (C):
Mature grove south of driveway and southeast of east house is dominated by Western redcedar (*Thuja plicata*) and to a less extent by Sitka spruce (*Picea sitchensis*), Douglas-fir (*Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*). There is an open understory with red huckleberry (*Vaccinium parvifolium*), sword fern (*Polystichum munitum*), salal (*Gaultheria shallon*), trailing blackberry (*Rubus ursinus*), with undulating floor and small wet depressions, in open areas with common rush (*Juncus effusus*), slough sedge (*Carex obnupta*), hummocky landscape lots of coarse woody debris and thick humic layer spongey underfoot. There is some invasive English holly (*Ilex aquifolium*).

Juvenile Forest (D & E):
There are two young forests of juvenile red alder (*Alnus rubra*), with salmonberry (*Rubus spectabilis*), red huckleberry (*Vaccinium parvifolium)*, salal (*Gaultheria shallon*), trailing blackberry (*Rubus ursinus*) in the southeast and northwest corner. The area in the southeast corner is more open and reported to have been a cleared area and former orchard. The juvenile alders transition into young conifers at eastern edge.

The forest in the northwest corner has juvenile red alder (*Alnus rubra*) intermixed with juvenile Western redcedar (*Thuja plicata*) and a dense understory dominated by salmonberry (*Rubus spectabilis*) and sword fern (*Polystichum munitum*),

Riparian Forest (F):
The riparian forest is within a ravine dominated by western redcedar and bigleaf maple, with red alder and western hemlock. There is an understory of elderberry, salmonberry, sword fern, licorice fern, red huckleberry, crevice alumroot (Heuchera micrantha), and sedges (*Carex* sp.). Killecranke Creek flows through this forested area.

Shoreline Forest (G):
The 45-50 m steep slope to the shoreline of the subject property has a vegetated steep bank between the upper terrace and the shoreline. The vegetation is comprised of Bigleaf maple (dominant), with red alder and western red cedar and an understory of salmonberry, sword fern and sparse Himalayan blackberry.

Figure 10: Polygons of distinct forest types at 9333 Invermuir Road, Shirley, BC, red polygons meet the sensitive ecosystem definition of Mature Forest.

Observed Sensitive Ecosystems

The mapped SEI sensitive ecosystems are shown in Figures 5 and 6. The sensitive ecosystems observed on the property are shown outlined in red in Figure 10. We recommend that that Sensitive Ecosystem Development Permit Area mapping for the property be adjusted to the observed boundaries indicated in Figure 10.

General Description of Riparian Areas - Killiecrankie Creek

Killecrankie Creek is contained within a ravine dominated by western redcedar and bigleaf maple, with red alder and western hemlock. It has an understory of elderberry, salmonberry, sword fern, licorice fern, red huckleberry, crevice alumroot (*Heuchera micrantha*), and sedges (*Carex* sp.). Killiecrankie Creek is virtually inaccessible with a steep and damaged trail of ropes and fixed ladders. There were heavily damaged and unusable remains of previous wooden stairs and creek crossings observed.

Killiecrankie Creek is a short creek less than 800 m in length that discharges directly into the marine environment at Orveas Bay on the Strait of Juan de Fuca on the southwest coast of Vancouver Island. It has no standard watershed code. A search of the iMap BC fisheries layers, FIDQ - Fish Inventories Data Queries, and Habitat Wizard for Killiecrankie Creek produced no fish observations or other creek information (all accessed February 8, 2024). The creek on the property is in a steep 50 m deep ravine with an overall gradient of >30% in the first 150 m of the creek. Additionally, there is a 2 m high vertical barrier to fish passage at the cobble beach interface (Photo 21). The creek is known to dry out in the summers and there are no known ponds upstream of the ravine. However, this upland (off-property) segment was not assessed; therefore, the RAPR default is fish-bearing. Any fish within this stream would be resident (not anadromous fish access).

Watershed Context and Fisheries Resource Values

There are 8 waterbodies, on and adjacent to the property at 9333 Invermuir Road (Figure 3):

- Killiecrankie Creek – enters the property from the northwest and discharges into Orveas Bay (potentially fish bearing stream (RAPR applies, SPEA = 10m)
- Wetland A – in the southwest quadrant of 9333 Invermuir Road, is drained by Unnamed Tributary A (not fish accessible), flows into potentially fish bearing stream (RAPR applies, SPEA = 15-30m)
- Unnamed Tributary A – in the southwest quadrant of the property, flows west into Killecrankie Creek (not fish accessible), flows into potentially fish bearing stream (RAPR applies, SPEA = 10m)
- Ditch A – flows into Unnamed Tributary A from the east (not fish accessible), flows into potentially fish bearing stream (RAPR applies, SPEA = 2m)
- Ditch B – Invermuir Road drainage (south side) bordering the northwest corner of the property, flows west into Killiecrankie Creek just south (downstream) of the culvert crossing under Invermuir Road (potentially fish accessible), flows into potentially fish bearing stream (RAPR applies, SPEA = 5m)
- Ditch C – Invermuir Road drainage (north side), flows west into Killiecrankie Creek just north (upstream) of the culvert crossing under Invermuir Road potentially fish accessible), flows into potentially fish bearing stream (RAPR Applies, SPEA = 5m)
- Wetland B – isolated forest wetland in the northeast corner of the property with no defined surface flow at outlet; eastern roadside ditches flow to wetland. RAPR does not apply.
- Driveway Ditches – shallow ditches from eastern driveway: flows go subsurface or have no defined channel before cascading off 50 m vertical cliff. RAPR does not apply.

Shoreline Ecosystem

The shoreline of the subject property is a high-energy, steep beach profile of large cobble in narrow band at high tide, at base of 45-50 m vegetated bank. It is undeveloped and in its natural state (or ecologically intact) with active erosion observed. The shoreline is virtually inaccessible from the subject property with a steep and damaged trail of ropes and fixed ladders. Damaged and unusable remains of previous wooden stairs and wooden creek crossings were observed.

Proposed Development

Approximately 90 percent of the property is encompassed by the Mapped Development Permit Areas for Mature Forest, Riparian, Intertidal or Steep Slopes (Steep Slope DPA not addressed in this report). The property owners are proposing a rezoning and subdivision of the property into two lots this development, which can be facilitated given the large size of the lot (8.38 ha) and the existing extent of the disturbance (approximately 2 ha). No additional development is proposed except for the installation of a well and pumphouse.

The proposal for work is shown on Figures 3 and 4:

- subdivide the large parcel into two equal lots (new north to south property line)
- construct a well and small pumphouse for the proposed western lot (Figure 4)
- utilize existing septic fields on each lot

Development Effects

Construction of the well and pumphouse must occur outside the SPEAs in the western portion of the property, as shown on Figure 3. Keeping development activities within the existing disturbances minimizes the impact of the development by allowing the remainder of the site to retain its natural condition.

Future development activities should be assessed under the RAPR and DPA guidelines, and, if possible limited to the existing disturbed areas to leave the remaining sensitive ecosystem Mature Forest and Riparian ecosystems in intact. Further vegetation removal from the top of the bank/steep slope should be avoided to help maintain slope stability (assessment by a geotechnical engineer may be required in the future if development is proposed near the top of slope).

Recommendations for the Proposed Development
The only proposed development as part of the rezoning and subdivision is the installation of a well and pump house.

Sensitive Ecosystem Development Permit Area Boundary Adjustment
The mapped SEI sensitive ecosystems are shown in Figures 5 and 6. The sensitive ecosystems observed on the property are shown outlined in red in Figure 10. We recommend that that Sensitive Ecosystem Development Permit Area mapping for the property be adjusted to the observed boundaries indicated in Figure 10.

Protecting ecological features

- Locations of SPEA, no-go zones, critical root zones of retained trees and vegetation, and sensitive areas are fenced and communicated to all personnel.
- Clearing of trees or shrubs between February 1 and August 15 must be preceded by a nesting bird survey to confirm no active nests will be disturbed (BC Wildlife Act, Section 34 and Federal Migratory Bird Act)
- Avoid placing soil/gravel piles or heavy construction materials around roots of trees to be retained, or otherwise compacting soils or cutting into root zones. Protective tree fencing to be used for delineating protected areas.
- Contact Environmental Monitors immediately with any concerns.

Tree Protection

- ISA Certified Arborist is consulted for construction (e.g. well installation) activities adjacent to trees to be retained along the edge of the well site the trees to be retained will have the limits of their Critical Root Area (CRZ) defined by an ISA certified arborist.
- These CRZs will be separated from the development by robust tree protection fencing (e.g. snow fencing).
- No construction-related material shall be stored within any fenced off area.
- An ISA Certified Arborist should be consulted prior to clearing, blasting, rock breaking or filling (soil or rock) adjacent to the Critical Root Zone (CRZ) (e.g. near the dripline) of trees to be retained to provide tree protection measures to minimize root damage and ensure that they remain viable over the long-term. In future development phases, if new construction is proposed and building location and designs are created, an arborist should be consulted to develop specific measures for any trees to be retained.

Erosion & Sediment Control
During construction of the well and pumphouse, the contractor must implement environmental protection measures to ensure that no contaminants, such as spills or sediment-laden water, enter downstream receiving environments (Killiecrankie Creek). These measures should include:

- Minimize vegetation removal
- Installation of erosion and sediment control structures (e.g. sediment fence) between the construction are and creek or other water bodies.

- Scheduling excavation activities during dry weather, where possible, and additional care and protection will be required while excavation activities are carried out during wet weather
- Cover exposed soils, if needed (e.g. poly, tarps, mulch, seeding, 'rough and loose' treatment)
- Ensure soil and debris stockpiles are placed away from the SPEAs and sediment-laden water cannot flow into the waterbodies.
- Contact Environmental Monitor immediately with any concerns.

Spill Prevention & Response

- Equipment is inspected for leaks prior to beginning work.
- Spill response kits (capable of addressing the volume of fuel/oils/chemicals on site) are on site when any heavy machinery is working, and operators are trained in their use.
- Equipment refueling is at a designated location and >30 m from aquatic ecosystems.
- Fuel generators must be placed in a spill-proof container (e.g. plastic bin, or other impermeable containment area such as poly-lined bermed depression.
- Store all fuel cans in spill-proof containers (e.g. as above).
- Concrete wash-water and wet concrete is highly alkaline and toxic to fish and other aquatic organisms. All concrete wash-water from equipment, trucks and/or hand tools needs to be directed to a settling area away from runoff paths to the waterbodies. Freshly poured concrete needs to be covered when rain is forecasted or runoff needs to be isolated from waterbodies during the curing process.
- In case of spills, the following general steps are recommended:
    - Stop source of spill/prevent further spillage (turn off valves, right overturned containers)
    - Block spill from reaching aquatic (marine or freshwater) environment or pathways to waterbodies
    - Block spill from spreading
    - Call Environmental Monitors
    - Clean up spilled materials
- Contact Environmental Monitors immediately with any concerns.

Revegetation

Should there be interest in replanting disturbed areas with native species the following species are recommended:

- Douglas-fir (*Pseudotsuga menziesii*)
- western redcedar (*Thuja plicata*)
- red alder (*Albus rubra*)
- bigleaf maple (*Acer macrophyllum*)
- Nootka rose (*Rosa nutkana*)
- oceanspray (*Holodiscus discolor*)
- June plum (*Oemelaria cerasiformis*)
- Saskatoon (*Amelanchier alnifolia*)
- dull Oregon grape (*Mahonia nervosa*)
- sword fern (*Polystichum munitum*)
- salal (*Gaultheria shallon*)
- kinnickinnick (*Arctostphylos uva-ursi*)
- coastal strawberry (*Fragaria chiloensis*)

Development Permit Guidelines

The following guidelines (in Part 5 of Bylaw 4001) for the Sensitive Ecosystem Development Permit Area are applicable to the development, and are addressed in the development proposal as follows:

1. Development or alteration of land will be planned to avoid intrusion into and minimize the impact on the Sensitive Ecosystem DPA.
    - Approximately 90% of the property is encompassed by the Development Permit Area polygons for Mature Forest, Riparian, Shoreline or Steep Slope (Steep Slope DPA not addressed in this report). The property owners are proposing a rezoning and subdivision of the property into two lots, this development can be facilitated given the large size of the lot (8.38 ha) and the existing extent of the disturbance (approximately 2 ha). The development activity (installation of a well and pumphouse) is proposed in an existing disturbed area (Figure 3). The footprint of the well installation should be minimized to limit the tree and vegetation removal and utilize existing disturbed areas.

2. The removal of gravel and soil from watercourses is prohibited unless otherwise approved by the provincial or federal government.
    - Not Applicable.

3. Proposed plans of subdivision will avoid watercourse crossings where possible.
    - Not Applicable.

4. Watercourse crossings will be avoided, but where this is not possible, bridges are preferred rather than culverts, and any works will be sited to minimize disturbance to banks, channels, shores and vegetative cover, and must be approved by the provincial government.
    - Not Applicable.

5. Changes in the land surface, which could affect the health of vegetation or the biodiversity of any plant communities and disturbance of mature vegetation and understorey plants, will be minimized.
    - Not Applicable.

6. Disturbance to existing vegetation not directly affected by the footprint of buildings, ancillary uses and driveways will be minimized.
    - Not Applicable.

7. Planting of non-native vegetation or invasive species in designated sensitive ecosystem development permit areas is not supported.
    - Not Applicable, no non-native species are proposed for planting.

8. The CRD may consider variances to siting or size regulations where the variance could result in the enhanced protection of an environmentally sensitive area.
    - Not Applicable.

9. As a condition of the issuance of a development permit, compliance with any or all conditions recommended in a report by a QP will be considered by the CRD and may be included in the development permit.
    - See Recommendations for Environmental Protection during well and pumphouse installation.

10. Those areas where existing vegetation is disturbed will be rehabilitated with appropriate landscaping and habitat compensation measures in a manner recommended in a report by a QP.
    - The owners recently removed sections of the mature forest under timbermark certificate number 182681.

11. Development and associated drainage will be designed and constructed so that there is no increase or decrease in the amount of surface water or groundwater available to the sensitive ecosystem.
    - Not Applicable.

12. Culverts may be designed to encourage storage of water within the watercourse.
    - Not Applicable.

13. Where necessary, provision will be made and works undertaken to maintain the quality of water reaching the sensitive ecosystem.
    - Not Applicable.

14. All new developments or modifications to existing developments including site works, gardening, landscaping and other related residential activities should be designed and implemented to maintain the quantity and quality of water and to avoid the entry of pollutants or nutrient rich water flowing into watercourses, lakes, ponds and wetlands.
    - Proposal is for rezoning, subdivision and installation of a well and pumphouse, there is not expected to be any change to the quality or quantity of stormwater from these works. A detailed stormwater management plan should be developed for future significant construction requiring permits.

15. Development will be designed to avoid any increase in the volume and peak flow of runoff and a drainage plan may be required in support of this guideline.
    - Proposal is for rezoning, subdivision and installation of a well and pumphouse, there is not expected to be any change to the quality or quantity of stormwater from these works. A detailed stormwater management plan should be developed for future significant construction requiring permits.

16. Plantings of native vegetation may be required to reduce the risk of erosion, restore the natural state of the site, improve water quality, or stabilize slopes and banks.
    - The owners removed sections of the mature forest under timbermark certificate number 18268.

17. The planting of non-native vegetation or alien invasive species, as defined in the provincial Spheres of Concurrent Jurisdiction – Environment and Wildlife Regulation 144/2004, is not supported.
    - Not Applicable, no non-native species are proposed for planting.

18. Construction at a certain time of year and using methods that minimize the impacts on rare and sensitive species may be required.
    - Not Applicable.

19. Where possible, large tracts of wildlife habitat or continuous habitat corridors will be preserved, in order to facilitate movement of wildlife.
    - The proposed subdivision is leaving a large portion of the both lots undeveloped as wildlife habitat.

20. A buffer zone may be specified where land alteration or structures will be limited to those compatible with the characteristics of the sensitive ecosystem or those that can be mitigated in a manner recommended by a QP.
    - Not Applicable.

21. In order to ensure unnecessary encroachment does not occur into the sensitive ecosystem at the time of construction, permanent or temporary fencing measures may be required.
    - Not Applicable.

22. Development may be restricted during sensitive life-cycle times.
    - Not Applicable.

The following guidelines (in Part 5 of Bylaw 4001) for the Riparian Development Permit Area are applicable to the development, and are addressed in the development proposal as follows:

1. Development or alteration of land will be planned to avoid intrusion into and minimize the impact on the Riparian DPA.
    - Development has been planned to minimize the impact on riparian areas and sensitive ecosystems, all proposed work is outside the SPEAs.

2. Modification of channels, banks or shores must not result in harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes within the Riparian DPA.
    - Not Applicable.

3. The removal of gravel and soil from streams is prohibited unless otherwise approved by the provincial or federal government.
    - Not Applicable.

4. Proposed plans of subdivision will avoid stream crossings where possible and demonstrate the presence of building areas outside of the SPEA.
    - No stream crossings are proposed, and all proposed developments are outside the SPEAs.

5. Stream crossings will be avoided, but where this is not possible, bridges are preferred rather than culverts, and any works will be sited to minimize disturbance to banks, channels, shores and vegetative cover, and must be approved by the Province.
    - Not Applicable.

6. Culverts may be designed to encourage in-stream storage of water to allow the unrestricted movement of fish in both directions.
    - Not Applicable.

7. Construction at a certain time of year and using methods that minimize the impacts on rare and sensitive species may be required.
    - Not Applicable.

8. To minimize encroachments into the Riparian DPA, variances for the height and location of buildings and structures may be considered.
    - Not required, all proposed development is outside the SPEAs.

9. As a condition of the issuance of a development permit, compliance with any or all conditions recommended in a report by a QEP, prepared in accordance with the RAR, will be considered by the CRD and may be included in a development permit.
    - See Recommendations for Environmental Protection and Riparian Areas Protection Regulation (RAPR) Report, February 9, 2024.

10. Development permits may include requirements for environmental monitoring and when required, these monitoring reports must be prepared by a QEP.
    - Not Applicable.

11. All of the measures specified by a QEP necessary to maintain the integrity of a SPEA will be considered by the CRD for inclusion as a condition in a development permit.
    - Not Applicable.

12. Development permits will not be issued until the CRD has been notified by the Riparian Areas Regulation Notification System (RARNS) that the Province has received a riparian areas assessment report.
    - RAPR Report February 9, 2024 - Submitted for review to the Province.

13. Where a QEP has required the planting of native vegetation to reduce the risk of erosion, restore the natural state of the site, improve water quality, or stabilize slopes and banks, a landscaping plan of the re-vegetation may be required.
    - Not Applicable.

14. In situations where a SPEA would reduce the density of development permitted by the zoning bylaw, a QEP is required to provide recommendations on how the permitted density of development could be accommodated with the least possible impact on fish habit.
    - Not Applicable.

15. An applicant may be required to provide an explanatory plan of a SPEA.
    - Site Plan provided in the RAPR Report and Figure 3 in this report.

16. For all or part of land within a SPEA that has been identified by a QEP, property owners may wish to consider dedicating the land back to the Crown, gifting the land to a nature conservation organization or registering a conservation covenant.
    - Not Applicable.

17. All new developments or modifications to existing developments including site works, gardening, landscaping and other related residential activities should be designed and implemented to maintain the quantity and quality of water and to avoid the entry of pollutants or nutrient rich water flowing into streams and wetlands.
    - Proposal is for subdivision and a small amount of works; details stormwater management should be developed for works requiring a permit.

18. Development will be designed to avoid any increase in the volume and peak flow of runoff and a drainage plan may be required in support of this guideline.
    - Proposal is for rezoning, subdivision and installation of a well and pumphouse, there is not expected to be any change to the quality or quantity of stormwater from these works. A detailed stormwater management plan should be developed for future significant construction requiring permits.

19. Plantings of native vegetation may be required to reduce the risk of erosion, restore the natural state of the site, improve water quality, or stabilize slopes and banks.
    - Not Applicable.

20. Where necessary or desirable, a buffer zone to remain free of development may be specified and protection measures for retention and management of vegetation in these areas may be established.
    - Not Applicable.

21. To avoid encroachment, fencing may be required prior to, during or after construction.
    - Not Applicable.

The following guidelines (in Part 5 of Bylaw 4001) for the Shoreline Development Permit Area are applicable to the development, and are addressed in the development proposal as follows:

1. Development or alteration of land will be planned to avoid intrusion into and minimize the impact on the Shoreline Protection DPA.
    - Not Applicable.

2. Alteration of natural shorelines will be avoided.
    - Not Applicable.

3. Erosion and sedimentation will be avoided.
    - Not Applicable.

4. The removal of vegetation and impact to tree root zones will be minimized.
    - Not Applicable.

5. Changes in natural shoreline processes will be minimized.
    - Not Applicable.

6. The use of fill, disturbance to the soil and blasting will be minimized.
    - Not Applicable.

7. Non-structural and soft armoring are the preferred type of works for shore protection and where this approach is not possible, riprap and stone revetment is preferred over single-plane seawalls, subject to approval from federal and provincial agencies.
    - Not Applicable.

8. A QP must design any shore protection devices or works.
    - Not Applicable.

9. Proposed developments that may have the potential to adversely affect fish habitat will require the review and approval by appropriate federal and provincial agencies prior to the issuance of a development permit.
    - Not Applicable.

10. Setbacks for buildings and structures will consider the current risk from storms and flooding as well as minimum elevation guidelines established by the CRD or other public authority with respect to the potential risk from erosion and coastal flooding associated with climate change and sea level rise.

    - Not Applicable.

11. Variances to allow the siting of buildings and structures outside the Shoreline Protection DPA will be considered.

    - Not Applicable.

12. Compliance with the conditions or recommendations in a report by a QP will be considered by the CRD and may be included in a development permit.

    - Not Applicable.

13. The planting of native vegetation may be required to reduce the risk of erosion, restore the natural ecology, revegetate disturbed areas, improve water quality and ensure the stability of slopes and banks.

    - Not Applicable.

14. Erosion control measures and fencing may be required during and after construction.

    - Not Applicable.

15. Machinery working in this environmentally sensitive area may be required to use biofuels instead of fossil fuels. To avoid disturbance of the upland and foreshore areas for a purpose referred to in Section 491(1)(e) of the LGA, heavy machinery may need to be barged to the site.

    - Not Applicable.

16. Construction may be restricted to certain times of the year to avoid stormy seasons, unusually high or low tides and sensitive lifecycle times for wildlife such as nesting or migrating.

    - Not Applicable.

17. Where possible, vegetation and natural resources such as anchored logs and riparian plantings on protected shorelines, will be incorporated into shore protection works.

    - Not Applicable.

Summary

The proposal is for rezoning and a two-lot subdivision, including the installation of a well and pumphouse (Figure 4) with no other development activities are proposed. The property contains four sensitive ecosystems that require Development Permits via the Official Community Plan (OCP): Mature Forest, Riparian (Killiecrankie Creek runs adjacent to and through the property), Shoreline and Steep Slopes (Steep Slopes not addressed in this report). The sensitive ecosystems mapped by the OCP and observed on site are shown in Figures 4, 5 and 10. The existing mature forest, riparian and shoreline ecosystems areas to be retained are connected to adjacent forests and are in excellent ecological condition and provide a habitat for birds and wildlife. Following the completion of the rezoning and subdivision and proposed development activities, a large portion of the properties will remain in an undeveloped condition.

Killiecrankie Creek is on the west side of 9333 Invermuir Road and the Streamside Protection and Enhancement Areas (SPEA) of the creek, wetland, tributary and ditch are shown in Figure 3. The channels immediately adjacent to the property on the south and north sides of Invermuir Road are tributary to Killiecrankie Creek and therefore are protected by the Riparian Area Protection Regulation (RAPR). No activities are proposed within the Riparian Assessment Area (30 metres from High Water Mark) and the well and pumphouse construction is outside these SPEAs. Details for the riparian protection measures are provided in the Riparian Areas Protection Report, February 9, 2024.

A mapped and observed Bald Eagle Nest is located on the property, and there is a 100m buffer as per Sensitive Ecosystems, and Shoreline Protection Development Permit Areas from the Shirley – Jordan River Official Community Plan, 2018 Bylaw 4001. No development is proposed within the buffer area.

No significant development is currently proposed on the subdivided lots, the only proposed work for a well and pumphouse. Future proposed development activities must be assessed under the RAPR and Riparian, Sensitive Ecosystem, Shoreline, and Steep Slope DPA guidelines, and, if possible limited to the existing disturbed areas to leave the remaining sensitive Mature Forest and Riparian ecosystems in intact. Further vegetation removal from the top of the bank/steep slope should be avoided to help maintain slope stability (assessment by a geotechnical engineer may be required in the future if development is proposed near the top of slope). Tree protection measures must be recommended by an ISA certified arborist to protect trees being retained. Erosion and sediment control, and spill prevention and response measures are also required during construction to protect downstream aquatic ecosystems.

Please do not hesitate to contact me with any questions you may have.

Sincerely,

Laura Hooper, MSc, PAg (#2546)

Sara Stallard BSc. AScT (#22338), Envr Tech

Lehna Malmkvist, MSc, RPBio (#1613)

Site Photographs

Photo 1. Ditch along Invermuir Road. Property is on the right side of photo, Killiecrankie Creek is across the road.

Photo 2. Invermuir Road roadside ditch, flowing adjacent to the subject property (left side of photo).

Photo 3. Existing driveway at west of 9333 Invermuir Road with well installed in 2023, proposed pumphouse to be constructed.

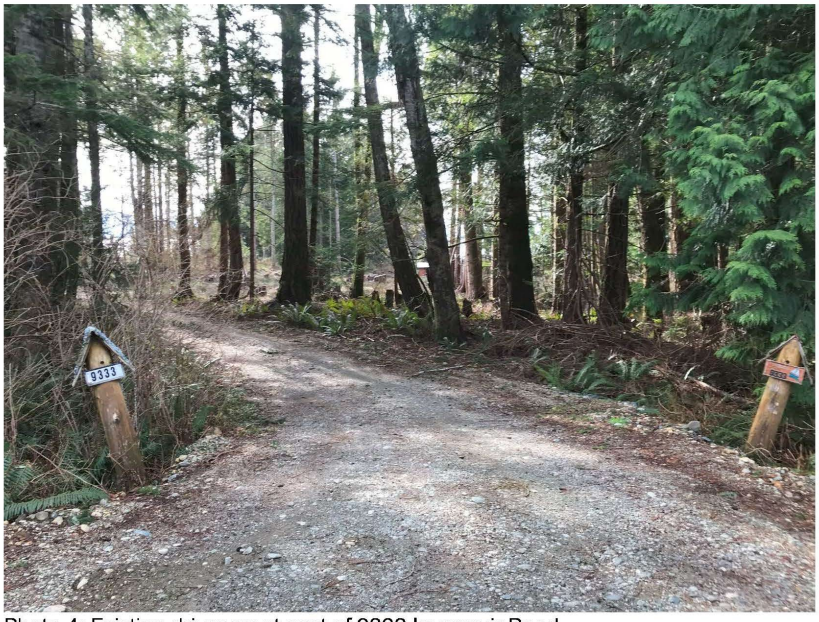


Photo 4: Existing driveway at east of 9333 Invermuir Road.

Photo 5. Existing house constructed pre-1960.

Photo 6. Existing cabin constructed in 1972.

Photo 7. Deep skidder tracks with standing water extend into the Mature Forest (C).

Photo 8. Mature Forest (A).

Photo 9: Mature Forest (B).

Photo 10: Mature Forest (C).

Photo 11: Juvenile Forest (E).

Photo 12: Juvenile Forest (F).

Photo 13: Riparian Forest (G).

Photo 14: Shoreline Forest (H).

Photo 15: Shallow pond (foreground) with tributary under driveway (right of photo) to Killecrankie Creek.

Photo 16. Ditch connecting to tributary to Killecrankie Creek.

Photo 17: Gravel area with concrete pad.

Photo 18: Mature forest removal on eastern section of 9333 Invermuir Road.

Photo 19: Mature forest removal on centre section of 9333 Invermuir Road.

Photo 20: Mature forest removal on centre section of 9333 Invermuir Road.

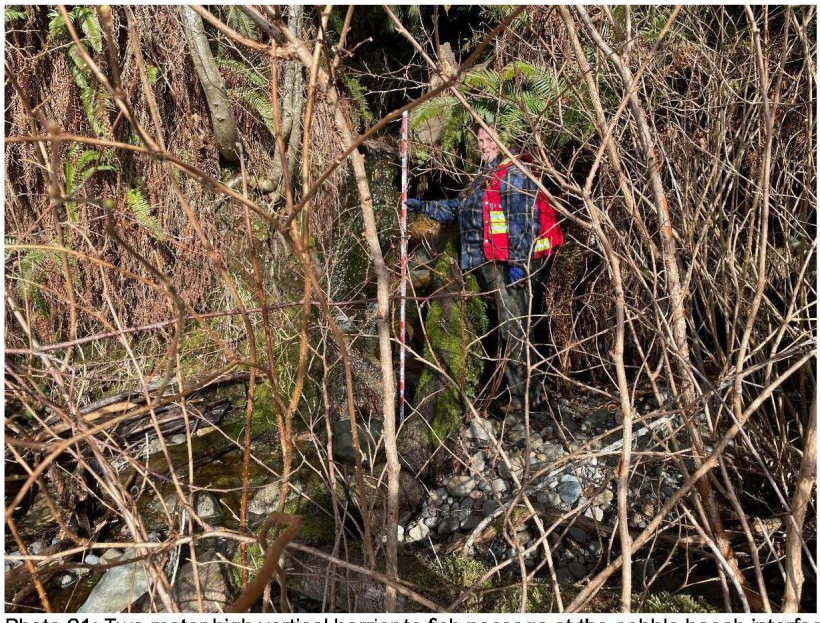


Photo 21: Two meter high vertical barrier to fish passage at the cobble beach interface.

swell ENVIRONMENTAL CONSULTING

RIPARIAN AREAS REGULATION REPORT

9333 Invermuir Road, Shirley, BC

March 15, 2024

Prepared for:

Prepared by:
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Lehna Malmkvist, MSc, RPBio. (#1613)
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480 Beach Drive, Victoria, BC V8S 2M6

		Date	March 28, 2024
I. Primary QEP Information			
First Name	Sara	Middle Name	
Last Name	Stallard		
Designation	AScT	Company	Swell Environmental Consulting Ltd
Registration #	22338	Email	sara@swell.ca
Address			
City		Postal/Zip	Phone #
Prov/state	BC	Country	CANADA
II. Secondary QEP Information (use Form 2 for other QEPs)			
First Name	Laura	Middle Name	
Last Name	Hooper		
Designation	PAg	Company	Danaca Consulting
Registration #	2546	Email	danacaconsulting@gmail.com
Address			
City		Postal/Zip	Phone #
Prov/state	BC	Country	CANADA
III. Developer Information			
First Name		Middle Name	
Last Name			
Company			
Phone #		Email	
Address			
City		Postal/Zip	3
Prov/state	BC	Country	Canada
IV. Development Information			
Development Type	Subdivision: 6 or less Single Family Lots		
Area of Development	8.38 ha	Riparian Length (m)	256 m
Lot Area (ha)	8.38 ha	Nature of Development	Re-development
Proposed Start Date	April 1, 2024	Proposed End Date	December 31, 2025
V. Location of Proposed Development			
Street Address (or nearest town)	9333 Invermuir Road, Shirley, BC V9Z 1G3		
Local Government	Capital Regional District	City	Shirley
Stream Name	Killecrankie Creek		
Legal Description (PID)	003-175-201	Region	1 – Vancouver Island
Stream/River Type	Stream, Wetland, Ditch	DFO Area	South Coast
Watershed Code	SANJWSD000098 no standard code listed		
Latitude	48 22 58	Longitude	123 52 54

II. Additional QEP Information

First Name	Lehna	Middle Name	
Last Name	Malmkvist		
Designation	RPBio	Company	Swell Environmental Consulting Ltd.
Registration #	1613	Email	lehna@swell.ca
Address			
City		Postal	Phone #)
Prov/state	BC	Country	Canada

Table of Contents for RAPR Assessment Report

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

The subject site is located at 9333 Invermuir Road, Shirley, BC and is 8.38 ha (Figures 1 and 2). The project is a proposed subdivision to create two lots (Figures 3 and 4).

On February 9, 2024, Sara Stallard, AScT and Laura Hooper, PAg visited the site to conduct Riparian Areas Protection Regulation (RAPR) assessment for the proposed project.

Watershed Context and Fisheries Resource Values

There are 8 waterbodies, on and adjacent to the property at 9333 Invermuir Road (Figure 3):

- Killiecrankie Creek – enters the property from the northwest and discharges into Orveas Bay (potentially fish bearing stream (RAPR applies, SPEA = 10m)
- Wetland A – in the southwest quadrant of 9333 Invermuir Road, is drained by Unnamed Tributary A (not fish accessible), flows into potentially fish bearing stream (RAPR applies, SPEA = 15-30m)
- Unnamed Tributary A – in the southwest quadrant of the property, flows west into Killecrankie Creek (not fish accessible), flows into potentially fish bearing stream (RAPR applies, SPEA = 10m)
- Ditch A – flows into Unnamed Tributary A from the east (not fish accessible), flows into potentially fish bearing stream (RAPR applies, SPEA = 2m)
- Ditch B – Invermuir Road drainage (south side) bordering the northwest corner of the property, flows west into Killiecrankie Creek just south (downstream) of the culvert crossing under Invermuir Road (potentially fish accessible), flows into potentially fish bearing stream (RAPR applies, SPEA = 5m)
- Ditch C – Invermuir Road drainage (north side), flows west into Killiecrankie Creek just north (upstream) of the culvert crossing under Invermuir Road potentially fish accessible), flows into potentially fish bearing stream (RAPR Applies, SPEA = 5m)
- Wetland B – isolated forest wetland in the northeast corner of the property with no defined surface flow at outlet; eastern roadside ditches flow to wetland. RAPR does not apply.
- Driveway Ditches – shallow ditches from eastern driveway: flows go subsurface or have no defined channel before cascading off 50 m vertical cliff. RAPR does not apply.

Killiecrankie Creek is a short creek less than 800 m in length that discharges directly into the marine environment at Orveas Bay on the Strait of Juan de Fuca on the southwest coast of Vancouver Island. It has no standard watershed code. A search of the iMap BC fisheries layers, FIDQ - Fish Inventories Data Queries, and Habitat Wizard for Killiecrankie Creek produced no fish observations or other creek information (all accessed February 8, 2024). The creek on the property is in a steep 50 m deep ravine with an overall gradient of >30% in the first 150 m of the creek. Additionally, there is a 2 m high vertical barrier to fish passage at the cobble beach interface (Photo 1). The creek is known to dry out in the summers and there are no known ponds upstream of the ravine. However, this upland (off-property) segment was not assessed; therefore, the RAPR default is fish-bearing. Any fish within this stream would be resident (not anadromous fish access).

Site Assessment

The RAPR assessment reviewed the subject property with a focus on the Riparian Assessment Area (RAA) (Figure 3). The RAA encompasses the approximately one quarter of the western portion of the lot, and the Streamside Protection & Enhancement Areas (SPEA), and stream encompasses western edge of the lot.

The property is previously developed with driveways, two single family homes, accessory buildings, driveways, and landscaping (Photos 2-5). The property was partially logged in 2021/2022 under BC Timbermark Certificate 182681 after the property experienced damaging blowdowns in 2018, including logging within the SPEAs of Wetland A, Tributary A, and Ditch A.

Killiecrankie Creek, as described above, flows steeply south along the western edge of the property in a step pool series. The creek flows over the headwall of the 50-m deep ravine as it enters the property. The riparian forest within the ravine is dominated by western redcedar (*Thuja plicata*), and bigleaf maple (*Acer macrophyllum*), with red alder (*Alnus rubra*) and western hemlock (*Tsuga heterophylla*). There is an understory of elderberry (*Sambucus racemose*), salmonberry (*Rubus parviflorus*), sword fern (*Polystichum munitum*), licorice fern (*Polypodium glycyrrhiza*), red huckleberry (*Vaccinium parvifolium*), crevice alumroot (*Heuchera micrantha*), and sedges (*Carex* sp.) (Photos 6-8).

Wetland A is an ephemeral depression within a mature forest with no incoming watercourses or ditches. It is adjacent to the western driveway in the southwest quadrant of 9333 Invermuir Road and is drained by Unnamed Tributary A. The riparian vegetation consists of western redcedar (*Thuja plicata*) and red alder (*Alnus rubra*), with an open understory with slough sedge (*Carex obnupta*), sword fern (*Polystichum munitum*), licorice fern (*Polypodium glycyrrhiza*), salmonberry (*Rubus parviflorus*), trailing blackberry (*Rubus ursinus*), mosses and grasses (Photo 9). There was little to no distinct wetland vegetation observed.

Unnamed Tributary A is an ephemeral and narrow man-made watercourse that drains Wetland A in the southwest quadrant of 9333 Invermuir Road along the western driveway and flows west under the driveway through a 300 mm culvert and over the lip of the 50-m deep ravine where it discharges into Killecrankie Creek. The vegetation consists of a mixed forest dominated western redcedar (*Thuja plicata*), and bigleaf maple (*Acer macrophyllum*). There is an understory of salmonberry (*Rubus parviflorus*), sword fern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), red huckleberry (*Vaccinium parvifolium*), and salal (*Gaultheria shallon*) (Photo 10).

Ditch A flows along the driveway into Unnamed Tributary A from the east and joins the tributary at the upstream end of the driveway culvert. It is a uniform width dug channel with no headwaters or springs and ends at the driveway edge. The riparian vegetation consists of western redcedar (*Thuja plicata*) and Douglas-fir (*Pseudotsuga menziesii*) with an open understory with mosses, sword fern (*Polystichum munitum*), and salmonberry (*Rubus parviflorus*) (Photo 11).

Ditch B flows west along the northwest property line of 9333 Invermuir Road in the road right-of-way; it discharges into Killecrankie Creek at the south (downstream) end of the culvert crossing under Invermuir Road. The channel is straight with no headwaters or springs, has rooted vegetation on the banks, and lateral movement is confined by Invermuir Road and aligned to the property boundary. Only a very short segment (approx. 10 m) of the ditch carries flow, the remainder of the depression is vegetated with drier vegetation. The SPEA consists of a roadway on the north side of the channel. The riparian vegetation consists of juvenile western hemlock (*Tsuga heterophylla*), salal (*Gaultheria shallon*), bracken fern (*Pteridium aquilinum*), sword fern (*Polystichum munitum*), trailing blackberry (*Rubus ursinus*), dull Oregon-grape (*Mahonia nervosa*), and salmonberry (*Rubus parviflorus*) at the confluence with the creek (Photo 12).

Ditch C is the Invermuir Road drainage (on the north side) and flows west into Killiecrankie Creek just north (upstream) of the culvert crossing under Invermuir Road and is within the road right-of-way. The channel is straight with no headwaters or springs, has rooted vegetation on the banks, and lateral movement is confined by Invermuir Road. The SPEA vegetation is the same as that of Ditch B (Photo 13 and14).

The vegetation identification on the property was limited due to the time of the year of the assessment.

Proposed Development

The proposed development is a rezoning subdivision to divide 9333 Invermuir Road (8.38ha) into two lots: lot 1 (4.19 ha) and lot 2 (4.19 ha). Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA. The proposed subdivision boundary is through the centre of the lot and the only proposed development is installation of a well and pumphouse, outside the RAA (Figure 3). The subdivision will be aligned to have the two existing dwelling units each have a separate lot.

I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers

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 Protection Regulation.

Sources

BC CDC (British Columbia Conservation Data Centre). 2024. Website accessed February 8 at https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-data-centre/explore-cdc-data/known-locations-of-species-and-ecosystems-at-risk/cdc-imap-theme

CRD Atlas (Capital Regional District). 2024. Webmap accessed February 8 at https://maps.crd.bc.ca/Html5Viewer/?viewer=public

FIDQ (Fish Inventories Data Queries). 2024. Database was accessed on February 8 at https://a100.gov.bc.ca/pub/fidq/welcome.do

Habitat Wizard. 2024. Database was accessed on February 8 at http://www.env.gov.bc.ca/habwiz

iMapBC. 2024. Website accessed for streams and fisheries layers on February 8 at https://www2.gov.bc.ca/gov/content/data/geographic-data-services/web-based-mapping/imapbc

Morgen, J. & T. Tripp. 2014. *Sensitive Ecosystem Inventory (SEI) for the Shirley/Jordan River Electoral Area.* Prepared for Local Area Planning (Juan de Fuca), Planning & Protective Services, Capital Regional District (CRD). Prepared by Madrone Environmental Services Ltd. 58pp.

Section 2. Results of Riparian Assessment (SPEA width)

2.1 Results of Detailed Riparian Assessment

Date: February 9, 2024

Description of Water bodies involved (number, type)	Stream – Killiecrankie Creek
Stream	X
Wetland	
Lake	
Ditch	
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	2.6		
upstream	~~5.1~~		
	3.2		
	3.1		
	2.5		30
	3.4		
downstream	3.8		
	4.3		30
	3.6		
	3.4		
	~~2.1~~		
Total: minus high /low	30.10		
mean	3.32		30
	R/P	C/P	S/P
Channel Type			X

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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 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:	n/a			Method employed if other than TR
	LC	SH	TR	
SPVT Type			X	

Zones 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)	10							
Litter fall and insect drop ZOS (m)	10							
Shade ZOS (m) max	10	South bank	Yes	X	No			
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	**10**	(For ditch use table 3-7)						

Segment No:	2	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							
Litter fall and insect drop ZOS (m)	10							
Shade ZOS (m) max	N/A	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	**10**	(For ditch use table 3-7)						

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Comments

Killiecrankie Creek is a short creek less than 800 m in length that discharges directly into the marine environment at Orveas Bay on the Strait of Juan de Fuca on the southwest coast of Vancouver Island. It has no standard watershed code. A search of the iMap BC fisheries layers, FIDQ - Fish Inventories Data Queries, and Habitat Wizard for Killiecrankie Creek produced no fish observations or other creek information (all accessed February 8, 2024). The creek on the property is in a steep 50 m deep ravine with an overall gradient of >30% in the first 150 m of the creek. Additionally, there is a 2 m high vertical barrier to fish passage at the cobble beach interface (Photo 1). The creek is known to dry out in the summers and there are no known ponds upstream of the ravine. However, this upland (off-property) segment was not assessed; therefore, the RAPR default is fish-bearing. Any fish within this stream would be resident (not anadromous fish access).

Date:	February 9, 2024
Description of Water bodies involved (number, type)	Wetland A

Stream	
Wetland	X
Lake	
Ditch	
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		
upstream		
downstream		
Total: minus high /low		
mean		

	R/P	C/P	S/P
Channel Type		X	

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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:	n/a			Method employed if other than TR
	LC	SH	TR	
SPVT Type			X	

Zones 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	30	South bank	Yes	X	No			
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	**30**	(For ditch use table 3-7)						

Segment No:	2	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	NA	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 table 3-7)						

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Comments

Wetland A is an ephemeral depression within a mature forest with no incoming watercourses or ditches. It is drained by Unnamed Tributary A, an ephemeral and narrow man-made watercourse that flows over the lip of the 50-m deep ravine where it discharges into Killecrankie Creek. There is no fish access to the upper portion of Unnamed Tributary A or to the Wetland.

Date: February 9, 2024

Description of Water bodies involved (number, type)	Stream - Unnamed Tributary A
Stream	X
Wetland	
Lake	
Ditch	
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	1.1		
upstream	~~1.2~~		
	1.0		1
	0.9		
	0.7		
	1.2		
downstream	1.2		21
	0.6		
	0.9		
	1.0		50
	~~0.8~~		
Total: minus high /low	8.65		
mean	0.96		24
	R/P	C/P	S/P
Channel Type			X

I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, hereby certify that:
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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 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:	n/a			Method employed if other than TR
	LC	SH	TR	
SPVT Type			X	

Zones 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)	10							
Litter fall and insect drop ZOS (m)	10							
Shade ZOS (m) max	2.9	South bank	Yes	X	No			
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	**10**	(For ditch use table 3-7)						

Segment No:		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							
Litter fall and insect drop ZOS (m)	10							
Shade ZOS (m) max	NA	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	**10**	(For ditch use table 3-7)						

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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 Protection Regulation.

Comments

Wetland A is an ephemeral depression within a mature forest with no incoming watercourses or ditches. Unnamed Tributary A is an ephemeral and narrow man-made watercourse that flows over the lip of the 50-m deep ravine where it discharges into Killecrankie Creek. It is fed by Wetland A (an ephemeral depression within a mature forest with no incoming watercourses or ditches) and Ditch A (ephemeral, no headwaters). There is no fish access to the upper portion of Unnamed Tributary A or to the Wetland.

Date: February 9, 2024

Description of Water bodies involved (number, type)	Ditch A
Stream	
Wetland	
Lake	
Ditch	X
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	0.9			
upstream	~~1.4~~			
	1.2			
	1.5			
	1.4			
	0.8			
downstream	0.7			
	0.7			
	0.8			
	0.7			
	~~0.5~~			
Total: minus high /low	8.5			
mean	0.94			
	R/P	C/P	S/P	
Channel Type				

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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 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:	n/a			Method employed if other than TR
	LC	SH	TR	
SPVT Type			X	

Zones 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)								
Litter fall and insect drop ZOS (m)								
Shade ZOS (m) max		South bank	Yes	X	No			
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		(For ditch use table 3-7)						

Segment No:		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)								
Litter fall and insect drop ZOS (m)								
Shade ZOS (m) max	N/A	South bank	Yes		No			
Ditch	Justification description for classifying as a ditch (manmade, no significant headwaters or springs, seasonal flow)							
Ditch Fish Bearing	Yes		No	X	If non-fish bearing insert no fish bearing status report			
SPEA maximum	**2**	(For ditch use table 3-7)						

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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 Protection Regulation.

Comments

Ditch A is connected to Unnamed Tributary A (an ephemeral and narrow man-made watercourse that flows over the lip of the 50-m deep ravine where it discharges into Killecrankie Creek). There is no fish access to the upper portion of Unnamed Tributary A or to Wetland A. There is no fish access to Ditch A.

Date: February 9, 2024

Description of Water bodies involved (number, type)	Ditch B
Stream	
Wetland	
Lake	
Ditch	X
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	0.5			
upstream	0.6			
	0.6			
	0.7			
	~~0.7~~			
	0.8			
downstream	1.0			
	~~1.3~~			
	1.2			
	1.6			
	1.7			
Total: minus high /low	8.4			
mean	0.93			
	R/P	C/P	S/P	
Channel Type				

I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers
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 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

I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers ;
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 Protection Regulation.

Polygon No:	n/a			Method employed if other than TR
	LC	SH	TR	
SPVT Type			X	

Zones 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)								
Litter fall and insect drop ZOS (m)								
Shade ZOS (m) max		South bank	Yes		No			
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		(For ditch use table 3-7)						

Segment No:		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)								
Litter fall and insect drop ZOS (m)								
Shade ZOS (m) max		South bank	Yes		No			
Ditch	Justification description for classifying as a ditch (manmade, no significant headwaters or springs, seasonal flow)							
Ditch Fish Bearing	Yes	X	No		If non-fish bearing insert no fish bearing status report			
SPEA maximum	**5**	(For ditch use table 3-7)						

I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers

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 Protection Regulation.

Comments

Ditch B is roadside drainage in the Invermuir Road right-of-way (south side); it discharges into Killecrankie Creek at the south (downstream) end of the culvert crossing under Invermuir Road. The channel is straight with no headwaters or springs, has rooted vegetation on the banks, and lateral movement is confined by Invermuir Road. Killiecrankie Creek is not accessible to anadromous fish passage, and while it is expected that it is ephemeral with no over-summering fish habitat, the default is that there may be fish and the ditch could have fish at some times of the year.

Date: February 9, 2024

Description of Water bodies involved (number, type)	Ditch C
Stream	
Wetland	
Lake	
Ditch	X
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~~			
upstream	1.6			
	1.7			
	1.6			
	1.7			
	1.6			
downstream	1.7			
	1.7			
	1.9			
	1.8			
	~~2.1~~			
Total: minus high /low	15.15			
mean	1.68			
	R/P	C/P	S/P	
Channel Type				

I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers

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 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

I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers

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 Protection Regulation.

Polygon No:	n/a			Method employed if other than TR
	LC	SH	TR	
SPVT Type			X	

Zones 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)								
Litter fall and insect drop ZOS (m)								
Shade ZOS (m) max		South bank	Yes	X	No			
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		(For ditch use table 3-7)						

Segment No:		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)								
Litter fall and insect drop ZOS (m)								
Shade ZOS (m) max		South bank	Yes		No			
Ditch	Justification description for classifying as a ditch (manmade, no significant headwaters or springs, seasonal flow)							
Ditch Fish Bearing	Yes	X	No		If non-fish bearing insert no fish bearing status report			
SPEA maximum	**5**	(For ditch use table 3-7)						

I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers

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 Protection Regulation.

Comments

Ditch C is the Invermuir Road drainage (on the north side) and flows west into Killiecrankie Creek just north (upstream) of the culvert crossing under Invermuir Road and is within the road right-of-way. The channel is straight with no headwaters or springs, has rooted vegetation on the banks, and lateral movement is confined by Invermuir Road. Killiecrankie Creek is not accessible to anadromous fish passage, and while it is expected that it is ephemeral with no over-summering fish habitat, the default is that there may be fish and the ditch could have fish at some times of the year.

Section 3. Figures and Site Plans

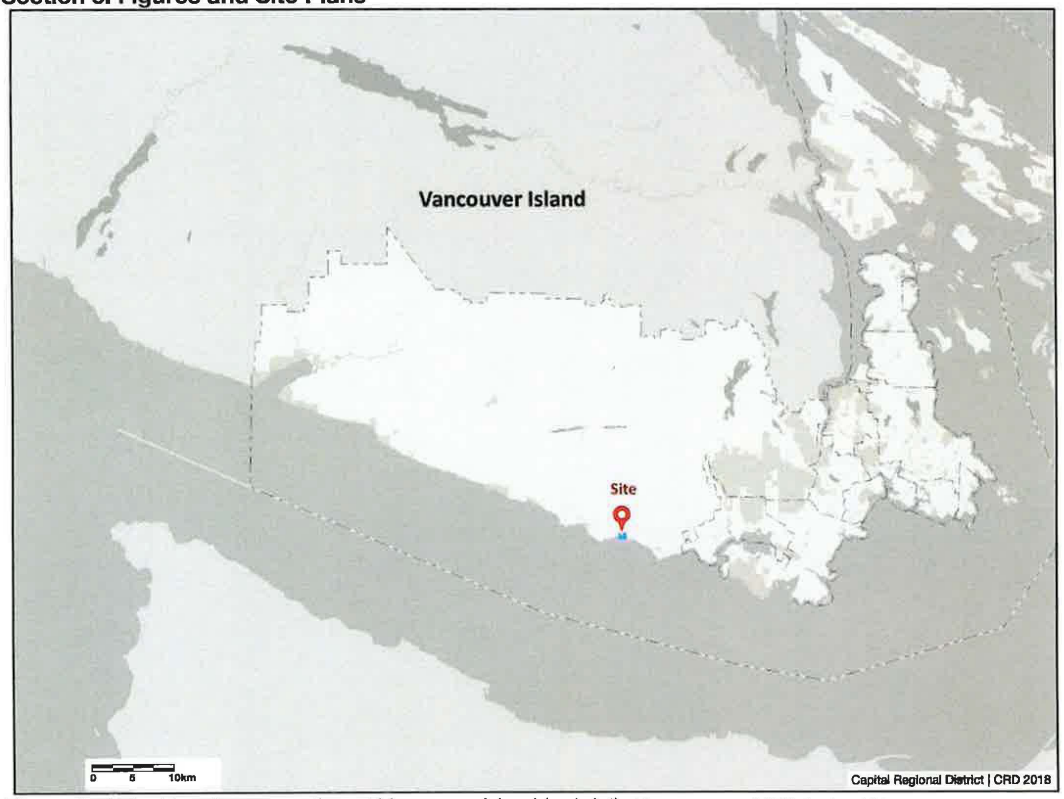


Figure 1. Project location on southwest Vancouver Island (red dot). *Map courtesy of CRD Regional Map*

Figure 2. 9333 Invermuir Road in context of local creeks with documented fish habitat. *Aerial photo courtesy of CRD Regional Map.*

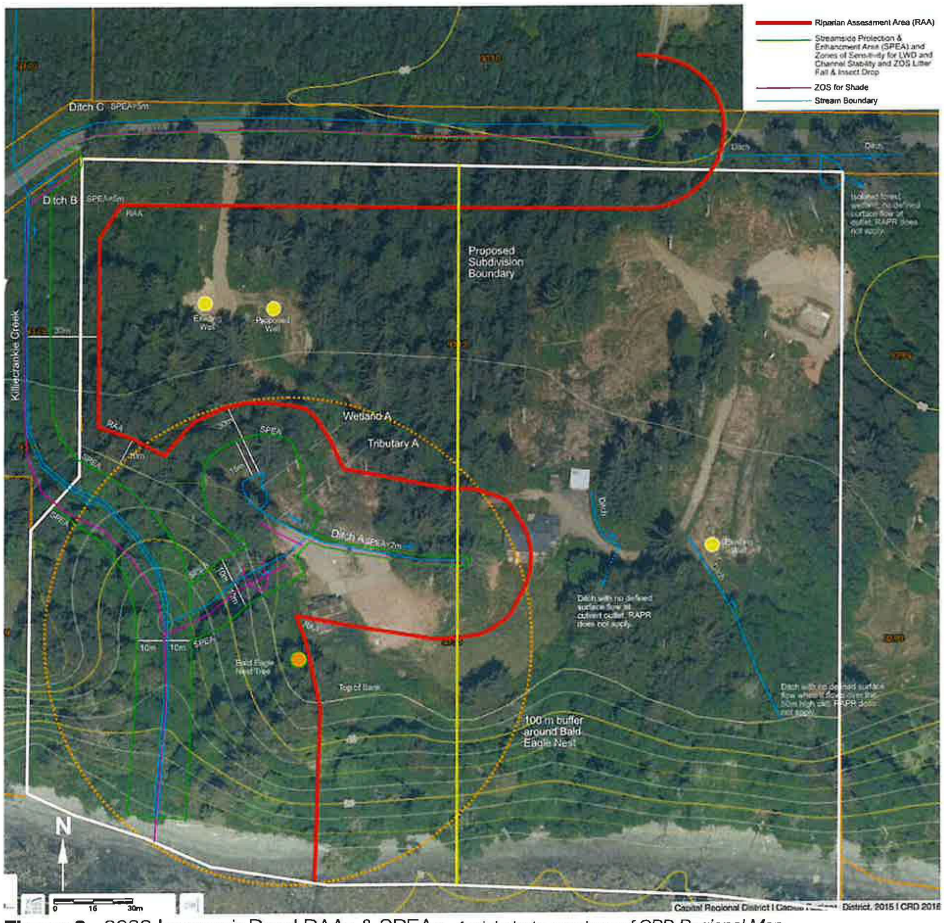


Figure 3. 9333 Invermuir Road RAAs & SPEAs. *Aerial photo courtesy of CRD Regional Map.*

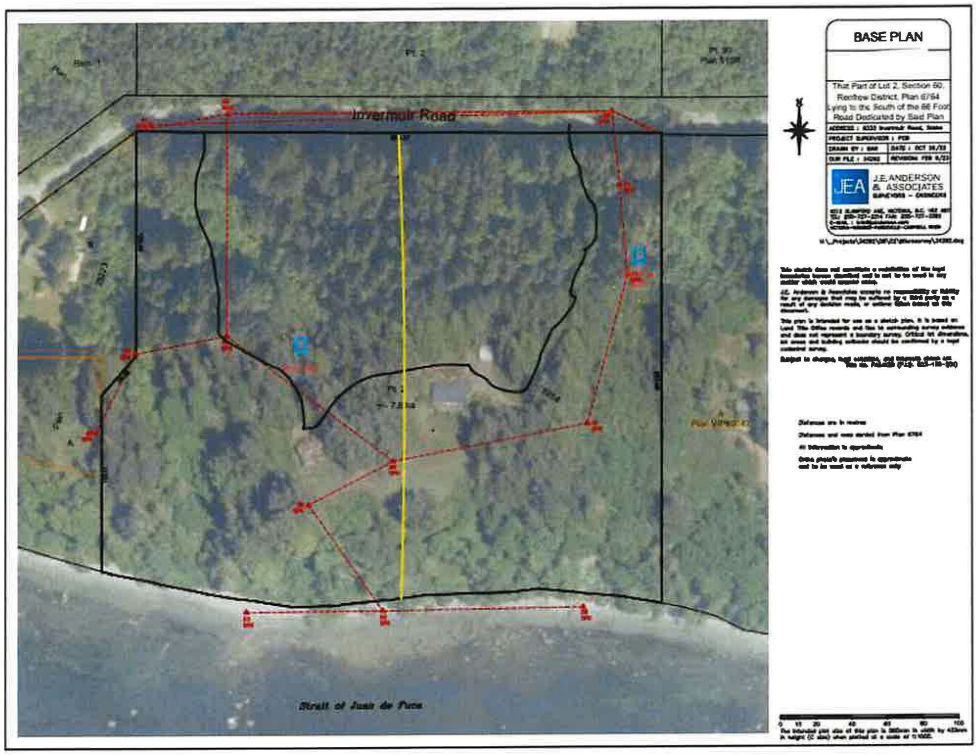


Figure 4. Proposed subdivision survey plan.

Section 4. Measures to Protect and Maintain the SPEA

4.1 Danger Trees
Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA; therefore, a tree assessment was not conducted.

4.2 Windthrow
Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA therefore, there is no expected increased risk of windthrow in the SPEA and a tree assessment was not conducted.

4.3 Slope Stability
Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA; therefore, a geotechnical assessment was not conducted.

4.4 Protection of Trees
Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA therefore, no tree protection is required.

4.5 Encroachment
Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA. The proposed well and pumphouse installation is outside the RAA (Figure 3)

The existing uses within the SPEA of Tributary A, Wetland A and Ditch A will remain as is (driveway to 9333 Invermuir Road).

The owners are aware via this report that the current uses are permitted, and that the following restrictions exist for new activities within the SPEA:

- Planting native plants only
- Removal of non-native species
- Tree removal is only permitted for hazard trees, which must be identified by an ISA certified arborist, and replacement trees planted
- Trees and limbs that fall naturally in the SPEA should be left to provide organic debris for stream function, habitat and contributions to natural nutrient regimes, rather than being cleared or used for firewood
- No other development activities (e.g. clearing, buildings, road building, etc.) are permitted within the SPEA
- Any other development in the RAA than what is described in this report will require a new RAPR Assessment.

The High Water Mark/Stream Boundary location was determined through QEP site visit, GPS, and air photo interpretation, If, in the future, on-the-ground development works are proposed within the Riparian Assessment Area of any part of the waterbodies, a survey of the High Water Mark/Stream Boundary is recommended as part of a future RAPR Assessment to ensure all development activities are outside the SPEAs.

4.6 Erosion & Sediment Control

Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA. A well and pumphouse will be installed outside the RAA. Erosion and sediment control measures and spill prevention measures must be implemented during the well installation and pumphouse construction.

4.7 Stormwater Management

Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA, and no new development on the property (except one well and pumphouse to be installed and no new stormwater management is required.

4.8 Floodplain Concerns

Proposal is for a two lot subdivision only and no development is proposed within the floodplains.

1. Danger Trees
I, Sara Stallard, ASCT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers 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 Protection Regulation.
2. Windthrow
I, Sara Stallard, ASCT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and a. 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 Protection Regulation.
3, Slope Stability
I, Sara Stallard, ASCT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and a. 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 Protection Regulation.
4. Protection of Trees
I, Sara Stallard, ASCT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and a. 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 Protection Regulation.
5. Encroachment
I, Sara Stallard, ASCT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and a. 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 Protection Regulation.
6. Erosion and Sediment Control
I, Sara Stallard, ASCT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and a. 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 Protection Regulation.
7. Stormwater Management
I, Sara Stallard, ASCT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and a. 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 Protection Regulation.
8. Floodplain Concerns (highly mobile channel)
I, Sara Stallard, ASCT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and a. 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 Protection Regulation.

Section 5. Environmental Monitoring

Proposal is for a rezoning and subdivision only, no clearing, construction, or development is proposed in the RAA, and environmental monitoring is not required.

The owner has been informed of the obligation to protect the Streamside Protection and Enhancement Area (SPEA) and waterbodies, and that any future development in the RAA than what is described in this report will require a new RAPR Assessment.

The owners have been informed of the obligation of a QEP to submit a conformance statement and post-development report to the RAPR Notification System and have agreed to obtain the services of a QEP to complete this task. A post development report will include a field inspection of the development site and SPEA to ensure that the measures in the RAPR report have been implemented and that no damage has occurred or is expected to occur to the integrity of the SPEA.

If a QEP is not retained to monitor the project, it may not be possible to provide assurance that the work-site procedures were followed appropriately or the work completed to an acceptable standard, or to sign a conformance statement and submit a post-development report.

Section 6. Photos

Photo 1: Two meter high vertical barrier to fish passage at the cobble beach interface.

Photo 2. Existing eastern driveway at 9333 Invermuir Road.

Photo 3. Existing western driveway at 9333 Invermuir Road.

Photo 4. Existing 1972 building on west 9333 Invermuir Road.

Photo 5. Existing pre-1960's building on east 9333 Invermuir Road.

Photo 6: Terminus of Killecrankie Creek at cobble beach of Orveas Bay.

Photo 7: Typical section of Killecrankie Creek.

Photo 8. Typical riparian vegetation in ravine of Killecrankie Creek.

Photo 9. Wetland A is an ephemeral depression in the southwest quadrant of 9333 Invermuir Road.

Photo 10. Unnamed Tributary A is in the southwest quadrant of 9333 Invermuir Road, flowing west into Killiecrankie Creek.

Photo 11. Ditch A flows into Unnamed Tributary A from the east.

Photo 12. Ditch B is flows west along the northwest property line of 9333 Invermuir Road.

Photo 13: Invermuir Road roadside ditch connecting to Killecrankie Creek which crosses Invermuir Road via culvert.

Photo 14. Ditch C flows west along the north side of Invermuir Road.

Section 7. Professional Opinion

Assessment Report Professional Opinion on the Development Proposal's riparian area.

Date March 15, 2024

1. I, Sara Stallard, AScT, Laura Hooper, PAg, and Lehna Malmkvist, RPBio, 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 developers , 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) [X] 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.]

Section 8. Statement of Limitations

The assessment was carried out using the provincial Riparian Areas Protection Regulation method.

The use of this report is restricted to the intended purpose of application for development approval, as described within the report.

The measures prescribed in Section 4 assume diligent work practices by the owner and contractors, and implementation of construction best management practices for environmental protection during the site work.

If Swell Environmental Consulting Ltd. is not retained to carry out field reviews and environmental monitoring, Swell may not be able to provide assurance that the work-site procedures were followed appropriately or the work completed to an acceptable standard, or to sign a conformance statement and submit a post-development report.

The report addresses this site and project only and does not address possible existing or future impacts to fish in the subject streams that cannot be addressed by measures on the subject property.

This report should be considered valid for up to five years for the proposed development exactly as described in the report. The report is no longer valid if the proposed development changes. Additional factors that may influence the validity of the report and the recommended measures include, but are not limited to, changes to stream flows due to factors such as alteration of land uses in the watershed, shifting weather patterns (e.g. rainfall intensity, frequency, and/or duration), stormwater infrastructure, and those listed in Section 1, page 6 under "Limitations".

Appendix 1. Qualified Environmental Professional Qualifications

Date	**March 15, 2024**
Name of Qualified Environmental Professional (QEP)	Lehna Malmkvist
Professional Designation	RPBio
Professional Association	College of Applied Biology
Registration #	1613
Training in RAPR Assessment Methods	
Organization or Agency delivering training	Vancouver Island University
Name of Trainer	Lora Tryon
Date of Training Session	July 28-31, 2020
Organization or Agency delivering training	Malaspina University College
Name of Trainer	BC Ministry of Environment Staff
Date of Training Session	June 7-9, 2005
Other relevant education, training, or experience	
Working In and Around Water	Natural Resources Training Group, 2022
Fish Habitat Restoration – Restoration Techniques	Natural Resources Training Group, 2022
Fish Habitat Restoration – Prescription Development	Natural Resources Training Group, 2022
Riparian Areas Protection Regulation Webinar	BC Ministry of Forests, Lands and Natural Resource Operations, 2019
Legislated Riparian Assessments in BC Professional Practice Guidelines (RAPR)	College of Applied Biology, 2018
Green Shores for Homes 1 & 2	University of Victoria, 2017
Principles and Applications in Fluvial Geomorphology for Stream Restoration,	2012
Qualified Environmental Professional Workshop (RAPR)	BC Ministry of Forests, Lands and Natural Resource Operations, 2012
Qualified Environmental Professional Workshop (RAPR)	BC Ministry of Forests, Lands and Natural Resource Operations, 2010
Erosion & Sediment Control	Malaspina University College , 2008
Environmental Monitoring for Construction Projects	Malaspina University College, 2006
Develop with Care and Riparian Areas Protection Regulation Workshop	BC Ministry of Forests, Lands and Natural Resource Operations, 2007
Soil Bioengineering for Restoration	David Polster, 2005
Riparian Assessments Completed or Contributed to	
Dates and Assessment Numbers available upon request. Client Confidentiality prevents report title disclosure.	

Date	**March 15, 2024**
Name of Qualified Environmental Professional (QEP)	Laura Hooper
Professional Designation	PAg
Professional Association	British Columbia Institute of Agrologists
Registration #	2546
Training in RAPR Assessment Methods	
Organization or Agency delivering training	Vancouver Island University
Name of Trainer	Lora Tryon
Date of Training Session	July 28-31, 2020
Organization or Agency delivering training	Malaspina University College
Name of Trainer	BC Ministry of Environment Staff
Date of Training Session	February 23-25, 2009
Other relevant education, training, or experience	
Stream Based Channel Assessments	Vancouver Island University, 2023
Erosion and Sediment Control	Malaspina University College, 2008
Develop with Care and Riparian Areas Protection Regulation Workshop	BC Ministry of Forests, Lands and Natural Resource Operations, 2007
Riparian Assessments Completed or Contributed to	
Dates and Assessment Numbers available upon request. Client Confidentiality prevents report title disclosure.	

Date	**March 15, 2024**
Name of Qualified Environmental Professional (QEP)	Sara Stallard
Professional Designation	AScT
Professional Association	Applied Science Technologists & Technicians of BC
Registration #	22338
Training in RAR Assessment Methods	
Organization or Agency delivering training	Malaspina University College
Name of Trainer	Michael Roth
Date of Training Session	March 7-9, 2007
Training in RAPR Assessment Methods	
Organization or Agency delivering training	Vancouver Island University
Name of Trainer	Lora Tryon
Date of Training Session	July 28-31, 2020
Other relevant education, training, or experience (partial list only)	
Riparian Areas Protection Regulation Webinar	BC Ministry of Forests, Lands and Natural Resource Operations (FLNRO), 2019
Green Shores Homes Verifier	Stewardship Centre for BC, 2017
Green Shores for Homes 1 & 2	University of Victoria/ Stewardship Centre for BC, 2015/2016
RAR QEP Professional Workshop	FLNRO, 2013
RAR QEP Professional Workshop	FLNRO, 2012
Erosion & Sediment Control	Vancouver Island University, 2012
Stream Hydrology and Habitats	Canadian Rivers Institute/UNB (Robert Newbury), 2011
Canadian Aquatic Biomonitoring Network (CABIN)	Environment Canada/University of New Brunswick, 2010
Environmental Monitoring for Construction Projects	Malaspina University College, 2007
Soil Bioengineering for Restoration	David Polster, 2005
Riparian Assessments Completed or Contributed to	
Dates and Assessment Numbers available upon request. Client Confidentiality prevents report title disclosure.	

Appendix 2. Riparian Assessment Assurance Statements

Riparian Assessment Assurance Statements – Qualified Environmental Professional

To: Capital Regional District
Juan de Fuca Community Planning #3 - 7450 Butler Road Sooke, BC V9Z 1N1

With reference to the Riparian Areas Protection Regulation assessment for the properties:
PID 003-175-201- 9333 Invermuir Road, Shirley, BC V9Z 1G3

The undersigned hereby gives assurance that he/she is a Qualified Environmental Professional:
Name of Qualified Environmental Professional: Laura Rose Elizabeth Hooper
Professional designation: Professional Agrologist (PAg) #2546
Professional association: British Columbia Institute of Agrologists

We have signed, sealed and dated, and thereby certified, the attached riparian assessment report on the property in accordance with the Professional Practice Guidelines – Legislated Riparian Assessments and with the assessment methods. That report must be read in conjunction with this statement. In preparing that report I have:

☑ 1. Collected and reviewed appropriate background information
☑ 2. Reviewed the development proposal 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. Incorporated recommendations or assessment results from other specialists
☑ 6. Prescribed measures to protect and maintain the integrity of the streamside protection and enhancement area
☑ 7. Prescribed measures to avoid the occurrence of a HADD*
☑ 8. Reported on the requirements for field reviews or environmental monitoring of the property during or following site works for the proposed development and recommended who should conduct those field reviews or environmental monitoring
☐ 9. Reviewed the riparian assessment report with the client and explained the content and the measures required to be implemented.

**HADD – harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes*

I hereby confirm that in my professional opinion, based on the conditions contained in the attached riparian assessment report, as required by the Riparian Areas Protection Regulation (Section 4):

[N/A] the site of the proposed development is subject to undue hardship, (if applicable, indicate N/A otherwise) and
[X] 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.

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

Laura Hooper, PAg #2546 March 15, 2024

Riparian Assessment Assurance Statement – Supporting Specialist – Registered Professional

To: Laura Hooper, PAg #2546

With reference to the *riparian assessment* for the property: 9333 Invermuir Road, Shirley, BC V9Z 1G3 – PID 003-175-201

The undersigned hereby gives assurance that he/she is a Registered Professional:
Name of specialist: Sara Stallard, BSc, Env. Tech
Professional designation: AScT #22338
Professional association: Applied Science Technologists & Technicians of BC

This is to advise that I have completed the following work in support of the *riparian assessment* noted above, and have submitted signed and sealed documents to the *Qualified Environmental Professional* in respect of the work completed by me:
Detailed Riparian Areas Protection Regulation Assessment and Reporting

I confirm that I have liaised as required with the *Qualified Environmental Professional* for the purposes of my services.

I hereby give my assurance that I am a Registered Professional and that the work undertaken on this project by me falls within my area of professional expertise.

S. Stallard, March 15, 2024
Sara Stallard, BSc, AScT, Envr. Tech.

Swell Environmental Consulting Ltd.
480 Beach Drive, Victoria, BC V8S 2M6 ph. 250-217-9190 e. lehna@swell.ca

Riparian Assessment Assurance Statement – Supporting Specialist – Registered Professional

To: Laura Hooper, PAg #2546

With reference to the *riparian assessment* for the property: 9333 Invermuir Road, Shirley, BC V9Z 1G3 – PID 003-175-201

The undersigned hereby gives assurance that he/she is a Registered Professional:
Name of specialist: Lehna Malmkvist, MSc.
Professional designation: RPBio #1613
Professional association: College of Applied Biology

This is to advise that I have completed the following work in support of the *riparian assessment* noted above, and have submitted signed and sealed documents to the *Qualified Environmental Professional* in respect of the work completed by me:
Detailed Riparian Areas Protection Regulation Assessment and Reporting

I confirm that I have liaised as required with the *Qualified Environmental Professional* for the purposes of my services.

I hereby give my assurance that I am a Registered Professional and that the work undertaken on this project by me falls within my area of professional expertise.

L. Malmkvist

Lehna Malmkvist, MSc, RPBio (#1613)
March 15, 2024

Appendix 3. Owners Statement of Acceptance of the Riparian Areas Protection Regulation Assessment Report

I, [redacted], owner, have signed this Statement of Acceptance of the Riparian Areas Protection Regulation Assessment Report completed by Swell Environmental Consulting Ltd. for the proposed development at 9333 Invermuir Road, Shirley, BC V9Z 1G3 – PID 003-175-201 in the Capital Regional District.

I have read the report and:

- accept the results;
- understand and agree to the measures recommended;
- give approval to submit the report to approving authorities, the provincial RAPR Notification System and the Capital Regional District
- will inform the QEP if the land use or proposed development changes from that described in the report;
- will have all necessary permits in place prior to starting work;
- will provide verification in writing to the QEP a minimum of 2 weeks prior to the start of work on site; and,
- will notify the QEP of key construction stages as described in the report.

I understand that a conformance statement and post-development report must be completed by a QEP and submitted to the RAPR Notification System and Capital Regional District. To complete the post-development reporting (check one):

☒ I will retain the services of Swell Environmental Consulting Ltd. – Quote Req'd
☐ I will not retain the services of Swell Environmental Consulting Ltd.

Signed:

[redacted] – 27/3/24
Date

Appendix F: Proposed Bylaw No. 4615

CAPITAL REGIONAL DISTRICT
BYLAW NO. 4615

A BYLAW TO AMEND BYLAW NO. 2040, THE "JUAN DE FUCA LAND USE BYLAW, 1992"

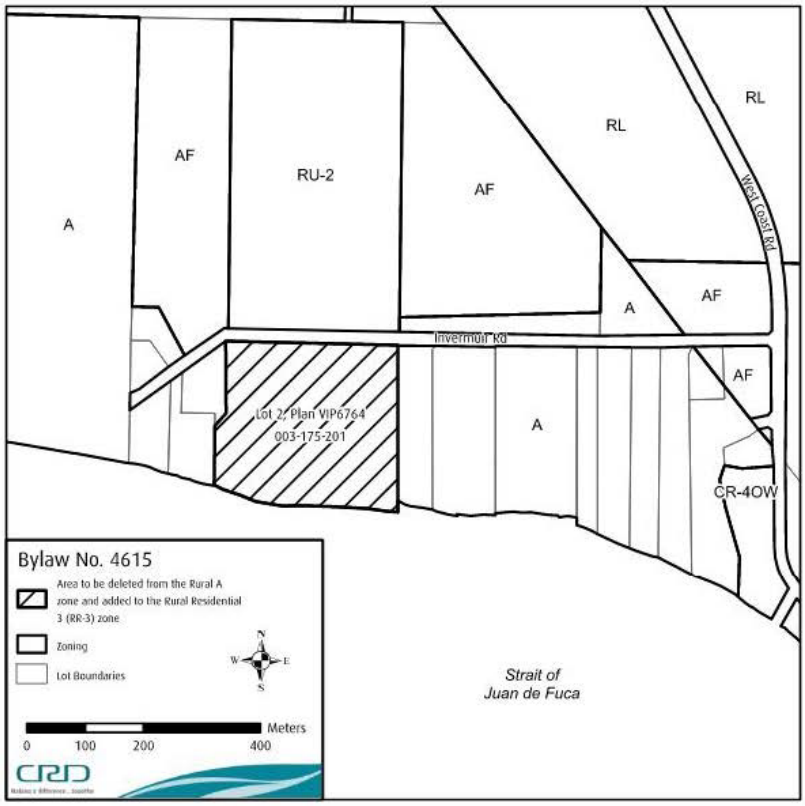
The Capital Regional District Board, in open meeting assembled, enacts as follows:

1. Bylaw No. 2040 being the "Juan de Fuca Land Use Bylaw, 1992" is hereby amended as follows:

A. SCHEDULE B, Map 3 – SHIRLEY JORDAN RIVER ZONING MAP

(a) By deleting That Part of Lot 2, Section 60, Renfrew District, Plan 6764 Lying to the South of the 66 Foot Road Dedicated by Said Plan from the Rural A Zone and adding to Rural Residential 3 Zone – RR-3, as shown on Plan No. 1.

Plan No. 1 of Bylaw No. 4615, an amendment to Bylaw No. 2040



2. This Bylaw may be cited as "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 165, 2024".

READ A FIRST TIME THIS	day of	2024
READ A SECOND TIME THIS	day of	2024
READ A THIRD TIME THIS	day of	2024
ADOPTED THIS	day of	2024

CHAIR CORPORATE OFFICER

Making a difference...together

REPORT TO THE JUAN DE FUCA LAND USE COMMITTEE
MEETING OF TUESDAY, JUNE 18, 2024

SUBJECT **Zoning Amendment Application for That Part of Section 90, Renfrew District, Shown Outlined in Red on Plan 913R Lying to the South of the Southerly Boundary of Plan 503RW and to the West of a Boundary Parallel to and Perpendicularly Distant 575 Feet from the Easterly Boundary of that Part of Said Section Shown Outlined in Red on Said Plan 913R, Except Part in Plan VIP80043 (PID: 009-592-130) – 9285 Invermuir Road**

ISSUE SUMMARY

The landowner has applied to rezone the subject property from the Rural A zone to the Rural Residential 6A zone (RR-6A) to facilitate subdivision.

BACKGROUND

The 3.11 ha oceanfront subject property is located on Invermuir Road in Shirley and is zoned Rural A in the Juan de Fuca Land Use Bylaw, 1992, Bylaw No. 2040 (Appendix A). The property is designated Pacific Acreage in the Shirley-Jordan River Official Community Plan (OCP), Bylaw No. 4001. Abutting properties along the south side of Invermuir Road are zoned Rural A, and parcels on the north side of Invermuir Road are a mixture of Rural A, Rural 2 (RU-2), and Forestry (AF) zoned lands. Portions of the property are designated as Steep Slopes, Shoreline Protection, and Sensitive Ecosystem development permit areas. There are three existing dwellings and four accessory buildings that are serviced by three separate septic systems and one water supply well. The property is entirely within the Shirley Fire Protection local service area.

The landowner has submitted an application to amend Bylaw No. 2040 by removing the property from the Rural A zone (Appendix B) and adding it to the Rural Residential 6A (RR-6A) zone (Appendix C) to facilitate a 3-lot fee-simple subdivision application (SU000766), proposing one lot for each existing dwelling (Appendix D). The proposal is supplemented by a Water and Sewerage Servicing Assessment (Appendix E), and an Environmental Assessment (Appendix F).

Staff have prepared Bylaw No. 4616 for consideration (Appendix G) based on the information provided by the applicant.

ALTERNATIVES

Alternative 1

That staff be directed to refer proposed Bylaw No. Bylaw No. 4616, "Juan de Fuca Land Use Bylaw, 1992, Amendment No. 166, 2024" to the Shirley-Jordan River Advisory Planning Commission, appropriate CRD departments, First Nations and the following external agencies for comment:
Pacheedaht First Nation
T'Sou-ke First Nation
BC Hydro
District of Sooke
Island Health
Ministry of Forests - Archaeology Branch
Ministry of Forests - Water Protection Section
Ministry of Land, Water and Resource Stewardship
Ministry of Transportation & Infrastructure
RCMP
Sooke School District #62

Alternative 2

That proposed Bylaw No. 4616 not proceed.

IMPLICATIONS

Legislative Implications

The Advisory Planning Commissions (APCs) were established to make recommendations to the Land Use Committee (LUC) on land use planning matters referred to them related to Part 14 of the *Local Government Act* (*LGA*). Staff recommend referring proposed Bylaw No. 4616 to the Shirley-Jordan River APC.

Pursuant to Section 464(3) of the *LGA*, since an official community plan is in effect for the area that is the subject of the zoning bylaw, the bylaw is consistent with the OCP, and the sole purpose of the bylaw is to permit a development that is entirely a residential development, the CRD must not hold a public hearing with respect to the bylaw. Upon receipt of referral comments the LUC and may consider a recommendation for all bylaw readings and adoption at the same meeting.

Regional Growth Strategy Implications

Section 445 of the *LGA* requires that all bylaws adopted by a regional district board after the board has adopted a regional growth strategy (RGS) be consistent with the RGS. In accordance with CRD policy, where a zoning bylaw amendment that applies to land within the Shirley-Jordan River OCP area is consistent with the OCP, it does not proceed to the CRD Board for a determination of consistency with the RGS. Staff are of the opinion that the proposed amendment is consistent with the policies of the Shirley-Jordan River OCP.

First Nations Implications

The CRD places a high value on its relationship with First Nations and the enhancement of reciprocal engagement procedures that advance reconciliation. The subject property is located within the traditional territory of the Pacheedaht and T'Sou-ke First Nations. Each Nation will be invited to participate in the land use review and referral process to inform the Nations of proposed development activity within their territory and seek meaningful dialogue and comment with respect to the proposal.

Land Use Implications

The Shirley-Jordan River OCP designates the subject property as Pacific Acreage (PA), which generally consists of rural and rural residential zoned lands outside Settlement areas and west of Muir Creek. The PA designation supports an average minimum parcel size of one parcel per two hectares provided that no new parcels are created with an area of less than one hectare. The OCP generally supports a density of one single-family dwelling or one two-family dwelling per parcel for land designated PA. The OCP also includes policies that support the rezoning of Rural A zoned lands for the purposes of subdivision to create a number of lots equivalent to the number of existing dwellings. Proposed Bylaw No. 4616 removes the property from the Rural A zone and adds it to the RR-6A zone. This is aligned with the OCP and its intention to maintain the neighbourhood's rural character.

The RR-6A zone does not permit intensive agriculture; silviculture; animal hospitals; veterinary clinics; accessory on-site logging; pole, post, or shake cutting from on-site trees; and finfish culture, which are all permitted uses within the current Rural A zone. The RR-6A zone has a minimum average parcel size of 1 ha and permits one one-family dwelling per parcel with either a secondary suite or a detached accessory suite. In comparison, the current Rural A zone has a minimum parcel size of 4 ha and permits up to three dwelling units on parcels greater than 0.8 ha but less than 4 ha. Proposed Bylaw No. 4616 does not increase the existing density of one-family dwellings on the 3.11 ha property, although each potential parcel could support either a secondary suite or detached accessory suite.

The application included a Water and Sewerage Servicing Assessment and an Environmental Assessment. The Water and Sewerage Servicing Assessment provides an overview of potential impacts to the aquifer and natural environment in conjunction with the feasibility for the proposed

subdivision to meet servicing requirements. The Environmental Assessment provides greater detail on the natural environment by inventorying the sensitive ecosystems, wildlife and non-riparian watercourses and wetlands. The Environmental Assessment also included recommendations for the proposed rezoning and subdivision application in keeping with the development permit guidelines.

Should Bylaw No. 4616 be approved, the property could be subdivided into three parcels. At the time of subdivision, the owner will be required to obtain a development permit to address the Steep Slopes, Shoreline Protection, and Sensitive Ecosystem DP guidelines and authorize the activity. Based on the information provided by the applicants and the policies of the OCP, staff recommend that the rezoning application be referred to the Shirley-Jordan River APC, appropriate CRD departments, First Nations, and external agencies for comment.

CONCLUSION

The purpose of Bylaw No. 4616 is to amend the Juan de Fuca Land use Bylaw, 1992, Bylaw No. 2040 by rezoning the subject property from Rural A to Rural Residential 6A in order facilitate a proposed three-lot subdivision. Staff have prepared proposed Bylaw No. 4616 and recommend referral to the Shirley-Jordan River APC, First Nations, CRD departments, and external agencies for comment. All comments received will be brought back to the Land Use Committee. At that time, the Committee may consider a recommendation for bylaw readings.

RECOMMENDATION

That staff be directed to refer proposed Bylaw No. Bylaw No. 4616, "Juan de Fuca Land Use Bylaw, 1992, Amendment No. 166, 2024" to the Shirley-Jordan River Advisory Planning Commission, appropriate CRD departments, First Nations and the following external agencies for comment:
Pacheedaht First Nation
T'Sou-ke First Nation
BC Hydro
District of Sooke
Island Health
Ministry of Forests - Archaeology Branch
Ministry of Forests - Water Protection Section
Ministry of Land, Water and Resource Stewardship
Ministry of Transportation & Infrastructure
RCMP
Sooke School District #62

Submitted by:	Iain Lawrence, RPP, MCIP, Senior Manager, Juan de Fuca Local Area Services
Concurrence:	Kevin Lorette, P.Eng, MBA, General Manager, Planning & Protective Services

ATTACHMENTS

Appendix A: Location, Zoning, and DPA Map
Appendix B: Current Rural A Zone
Appendix C: Proposed Rural Residential 6A (RR-6A) Zone
Appendix D: Proposed Subdivision Plan
Appendix E: Water and Sewerage Servicing Assessment
Appendix F: Environmental Assessment
Appendix G: Proposed Bylaw No. 4616

Appendix A: Location, Zoning, and DPA Map

Appendix B: Current Rural A Zone

Schedule "A" of Capital Regional District Bylaw No. 2040
Juan de Fuca Land Use Bylaw

2.0 RURAL ZONE - A

2.01 Permitted Uses

In addition to the uses permitted by Section 4.15 of Part 1 of this Bylaw, the following uses and no others shall be permitted in the Rural A Zone:

(a) Agriculture;
(b) Intensive Agriculture, except that sites for piggeries, fur farming and other similar agricultural, horticultural and animal raising activities in which the intensity and nature of the use would be materially more offensive by reason of noise, odour or appearance shall be located at least 150m from the nearest Residential or Multiple Family Residential Zone;
(c) Silviculture;
(d) Home Based Business Categories One, Two and Three; *Bylaw 3705*
(e) One-family dwelling;
(f) Two-family dwelling;
(g) Animal Hospitals;
(h) Veterinary Clinics;
(i) One travel trailer or one camper may be permitted in conjunction with a permitted residential use on a lot, which may be used but not rented for the temporary accommodation of guests or visitors;
(j) Two Boarders or Lodgers;
(k) Accessory uses such as on-site logging, and pole- or post- or shake-cutting from trees grown on-site;
(l) Finfish culture, land-based;
(m) One secondary suite per lot pursuant to Part 1, Subsection 4.19; *Bylaw 2674*
(n) Detached Accessory Suites pursuant to Part 1, Subsection 4.20. *Bylaw 3605*

2.02 Minimum Parcel Size for Subdivision Purposes

The minimum lot size shall be 4.0ha.

2.03 Number of Dwelling Units

The maximum density for residential buildings (comprised of one- and/or two-family dwellings) shall not exceed the following:
(a) On lots of 0.4ha or less, one one-family dwelling;
(b) On lots of more than 0.4ha and less than 0.8ha, not more than two one-family or one two-family dwelling;
(c) On lots of more than 0.8ha and less than 4ha, not more than three one-family dwellings or three dwelling units;
(d) On lots of more than 4ha and less than 16ha, not more than four one-family dwellings or four dwelling units;
(e) On lots of more than 16ha and less than 32ha, not more than five one-family dwellings or five dwelling units;
(f) On lots of more than 32ha, not more than eight one-family dwellings or eight dwelling units.

2.04 Height

The maximum height permitted shall be 11m.

2.05 Lot Coverage

The maximum lot coverage permitted shall be 15 percent.

Schedule "A" of Capital Regional District Bylaw No. 2040
Juan de Fuca Land Use Bylaw

2.06	**Maximum Size of Residential Buildings**	Provided applicants having either met the *Sewerage System Regulation* (e.g., a filing) or acceptance by VIHA via referral: *Bylaw 3705* (a) On lots of less than 1ha in area, residential buildings and structures shall not exceed a Floor Area Ratio of 0.45 or a Total Floor Area of 418m², whichever is less; (b) On lots of 1ha or more in size, residential buildings and structure shall not exceed a Floor Area Ratio of 0.45. *Bylaw 3705*
2.07	**Yard Requirements for Residential Buildings**	(a) Front yards shall be a minimum of 7.5m; (b) Side yards shall be a minimum of 6m except for lots of greater than 1ha in size and where residential uses exceed a Total Floor Area of 418m², minimum side yards shall be 15 m each side; (c) Flanking yards shall be a minimum of 6m CTS; (d) Rear yards shall be a minimum of 11m.
2.08	**Yard Requirements for Farm Buildings**	(a) Front yards shall be a minimum of 30m; (b) Side, flanking and rear yards shall be a minimum of 15m.
2.09	**Yard Requirements for Finfish Culture, Land-Based Uses and Structures**	Front, side, flanking and rear yards shall be a minimum of 30m.
2.10	**Yard Requirements for Intensive Agriculture Uses and Buildings**	(a) Front yards shall be a minimum of 30 m; (b) Side, rear and flanking yards shall be a minimum of 30m. *Bylaw 2103*

Appendix C: Proposed Rural Residential 6A (RR-6A) Zone

Schedule "A" of Capital Regional District Bylaw No. 2040
Juan de Fuca Land Use Bylaw

10A.0 RURAL RESIDENTIAL 6A ZONE – RR-6A

Bylaw 4246

10A.01 Permitted Uses

In addition to the uses permitted by Section 4.15 of Part 1 of this Bylaw, the following uses and no others are permitted in the Rural Residential 6A (RR-6A) zone:

(a) One-family dwelling;
(b) Agriculture;
(c) Silviculture;
(d) Two Boarders or Lodgers;
(e) Farm/Agriculture Buildings;
(f) Home Based Business Categories One, Two and Three;
(g) One travel trailer or one camper may be permitted in conjunction with a permitted residential use on a lot, to be used, but not rented, for the temporary accommodation of guests or visitors.
(h) Secondary suite pursuant to Part 1, Section 4.19;
(i) Detached accessory suite pursuant to Part 1, Section 4.20.

10A.02 Minimum Lot Size for Subdivision Purposes

(a) The minimum average lot size for subdivision purposes is 1 ha and no lot shall be created with a lot size smaller than 0.5 ha.
(b) For the purposes of this zone, the total area of land in a plan of subdivision, prior to the removal of land for road and park dedication or for common property, divided by the number of lots intended to be created shall not be less than the minimum average lot size specified in Section 10A.02(a).

10A.03 Number of Dwellings

One one-family dwelling and one of either a secondary suite or a detached accessory suite, but not both.

10A.04 Height

Maximum height shall be 9 m.

10A.05 Lot Coverage

Lot coverage shall not exceed 25 percent.

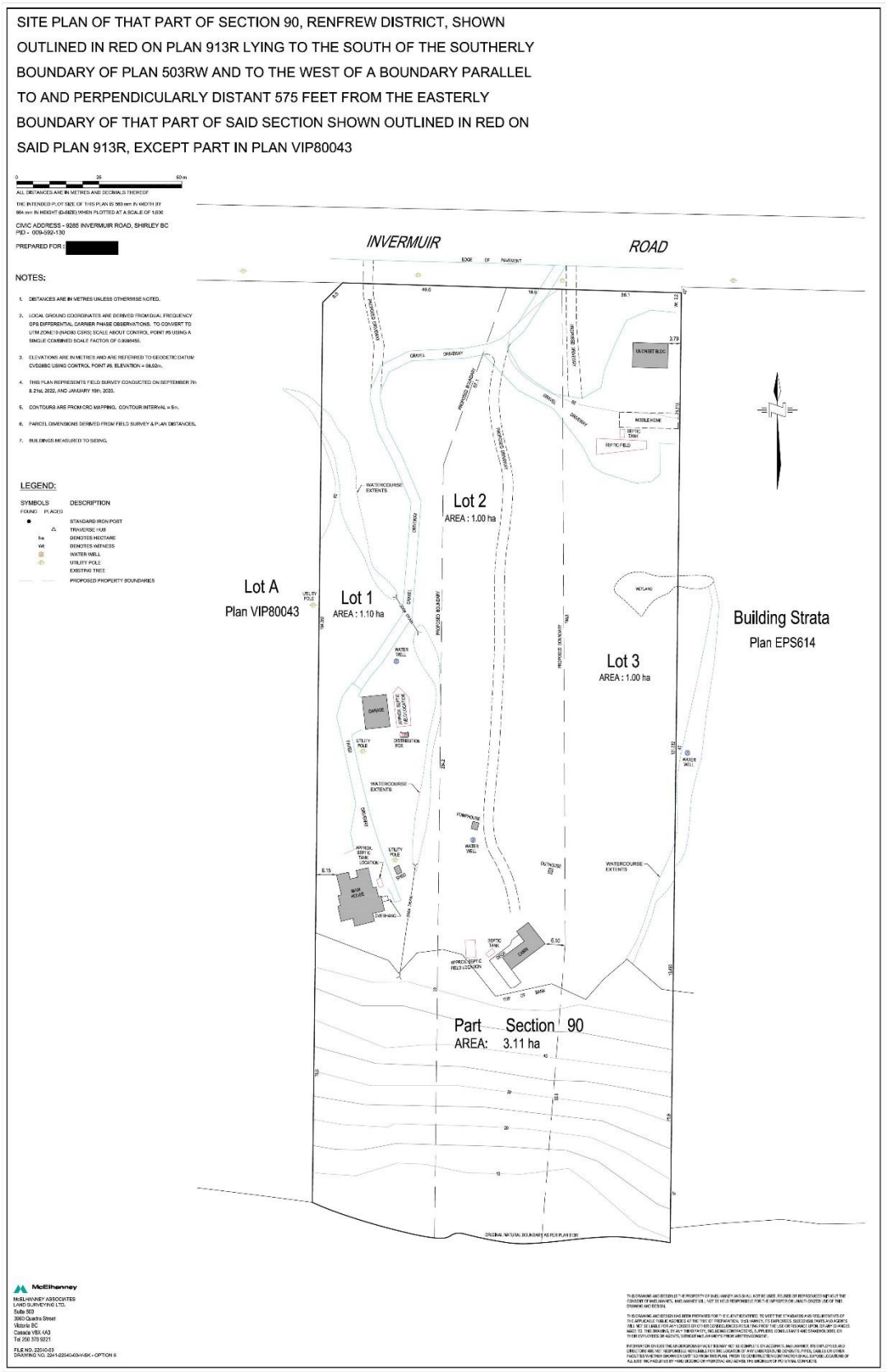
10A.06 Maximum Size of Residential Buildings

Provided applicants having either met the *Sewerage System Regulation* (e.g., a filing) or acceptance by VIHA via referral:
(a) On lots of less than 1 ha in area, residential buildings and structures shall not exceed a Total Floor Area of 418 m^2;
(b) On lots of 1 ha or more in size, residential buildings and structures shall not exceed a Floor Area Ratio of 0.045.

Schedule "A" of Capital Regional District Bylaw No. 2040
Juan de Fuca Land Use Bylaw

10A.07	**Yard Requirements**	(a) Front yards shall be a minimum of 7.5 m; (b) Side yards shall be a minimum of 6 m; except that for lots of greater than 1 ha in size and where residential uses exceed a Total Floor Area of 418 m^2, minimum side yards shall be 15 m each side; (c) Flanking yards shall be a minimum of 6 m CTS; (d) Rear yards shall be a minimum of 10 m.
10A.08	**Yard Requirements for Agricultural Buildings and Structures**	Farm buildings and structures for agricultural uses shall be not less than 30 m from the front lot line and not less than 15 m from any other boundary of the lot.

Appendix D: Subdivision Plan



Appendix E: Water and Sewerage Servicing Assessment

McElhanney

March 20th, 2024

9285 INVERMUIR ROAD REZONING PROJECT
PRELIMINARY ON-SITE WATER SUPPLY / SEWAGE MANAGEMENT ASSESSMENT

McElhanney Ltd. (McElhanney) was retained by you to express opinions on the potential suitability of a rural residential property in Shirley, BC (the subject property) to host individual on-site sewage management systems and private groundwater water supply wells capable of servicing one 3-bedroom single family dwelling on three proposed fee-simple subdivided daughter lots.

The scope of work undertaken by McElhanney to support the development of these opinions included the following tasks:

- desktop research on the regional location and configuration, legal and municipal settings, current land uses, and environmental setting of the subject property, as well as its regional groundwater and surface water development histories within a 500 m radius of its centre;
- reviews of subdivision standards published by Island Health (IH) to confirm the minimum permitted lot sizes and on-site sewage effluent discharge areas required for fee-simple subdivision purposes, where on-site sewerage systems private groundwater supply wells will service one 3-bedroom residential dwelling on each daughter lot;
- reviews of subdivision bylaws and guidelines published by the Capital Regional District (Juan de Fuca Community Planning Department) and the BC Ministry of Transportation and Infrastructure (MOTI) to confirm the minimum sustainable water supply well yield required for fee-simple subdivision purposes, where private groundwater supply wells will service one 3-bedroom residential dwelling on each daughter lot;
- a brief site visit including an interview with the subject property's current owner relating to its existing on-site sewage management and water supply systems, and visual examinations of the property's topography, surface drainage, and existing on-site sewerage systems and groundwater supply wells;
- data compilation and evaluation; and
- preparation of this report.

BACKGROUND INFORMATION

The subject property is located at 9285 Invermuir Road, Shirley BC, centred at latitude 48°22'57.87"N longitude 123°52'40.67"W (UTM 5359214N 434994E Zone 10), and covers 3.11 hectares (ha). The regional location of the subject property is shown on ***Figure 1***.

The current registered owner (the Owner) in fee simple of the subject property is subject property is listed on its land title certificate #CB1027583 as

and legally described as "*That Part Of Section 90, Renfrew District, Shown Outlined In Red On Plan 913R Lying To The South Of The Southerly Boundary Of Plan 503RW And To The West Of A Boundary Parallel To And Perpendicularly Distant 575 Feet From The Easterly Boundary Of That Part Of Said Section Shown Outlined In Red On Said Plan 913R, Except Part In Plan VIP80043* (PID 009-592-130)". Land title certificate

McElhanney Ltd.
Suite 500, 3960 Quadra Street, Victoria, BC V8X 4A3
mcelhanney.com

#CB1027583 lists three covenants and two statutory rights-of-way, none of which will constrain the siting of on-site sewerage systems or groundwater supply wells on the site. The legal setting and current configuration of the subject property are shown on ***Figure 2***, while copies of its current land title certificate, covenants, and statutory rights-of-way are included in ***Appendix A***.

The subject property currently hosts three residential dwellings, one garage, one small shed, one pumphouse, one outhouse, three on-site sewerage systems, and one water supply well. Current land uses on the subject property are shown on ***Figure 3***.

Land uses on the subject property are municipally regulated by CRD's Juan de Fuca Zoning Bylaw No. 2040, which currently designates the property as "*Rural A Zone*" and permits a minimum lot size of 4.0 ha for subdivision purposes. It is understood that you are in negotiations with CRD's planning department to rezone the subject property to "*Rural Residential 6A Zone (RR6A)*", which will permit a minimum average lot size of 1.0 ha for subdivision purposes with no lot being created with an area smaller than 0.5 ha. The proposed subdivision plan for the subject property is shown on ***Figure 4***, which indicates that the areal extents of the proposed daughter lots will range from 1.0 to 1.1 ha. Copies of the sections of CRD's land use bylaw pertaining to the subject property's current and proposed zoning categories are included in ***Appendix B***.

The climate of the region hosting the subject property is classified as "*Transitional Cool Mediterranean*"[1] and characterized by warm, humid summers and mild wet winters. The property is within the rain shadows of the Vancouver Island Insular Ranges to the west and the Olympic Mountains to the south. Prevailing winds are from the southeast in winter and northwest in summer. The Shirley region is prone to prolonged periods of heavy rainfall and intense, short-duration storm events during the winter months, and is relatively free of heavy precipitation during the summer. Historical weather statistics for 1981 to 2010 from Environment Canada's (EC's) nearby "*Metchosin #1015105*" station[2] 23 km to the east indicate that the area receives on average 1,038.9 mm of precipitation per year, with almost 80% of this amount falling between the months of October and March. The minimum mean monthly rainfall is 16.5 mm occurring in July, while the maximum mean monthly rainfall is 207.8 mm occurring in November. The region also receives on average 30.7 cm of snowfall during the winter months, with maximum mean monthly accumulations of 8.6 cm occurring in January. The location of EC's "*Metchosin #1015105*" station relative to the subject property is shown on ***Figure 5***.

The ground surface within the subject property consists primarily of a south-facing, gently sloping bench within its northern two-thirds overlooking a steep bank on the south shore of the Strait of Juan de Fuca within its southern one-third. Topographic elevations within the property's northern bench range from 58 m above mean sea level (amsl) at its northeast corner to 49 m amsl along its west side adjacent to its main residence, while elevations of its southern steep slope range from 49 m amsl at its crest to sea level along the marine shoreline. The topography of the region surrounding the subject property is shown on ***Figure 6***.

1 "*Climate, Vancouver Island - Land of Contrasts.*" (Tuller S.E. 1979) Western Geographical Series, Volume 17. Edited by C.N. Forward, UVIC, Victoria, BC pp71-91.
2 "*Canadian Climate Normals 1981-2010*". Environment Canada Meteorological Service http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?stnID=97&lang=e&StationName=Shawnigan+Lake&SearchType=Contains&stnNameSubmit=go&dCode=1&dispBack=1

The subject property is underlain at depth by siltstone, shale, sandstone, and pebble to boulder conglomerate sedimentary rocks) of the Upper Eocene to Oligocene-aged Carmanah Group[3]. Bedrock in the vicinity of the property has been extensively modified by glaciation, which resulted in the deposition of areally extensive, variably thick, semi-consolidated blankets to mantles of Fraser Drift Formation ground moraine (till) and glaciofluvial deposits over the bedrock surface up to 36 m thick[4]. Soils within the property reflect their parent materials and topographic settings and include those mapped as part of the Somenos and Sprucebark Soil Associations[5]. Somenos soils are classified as morainal duric dystric brunisols and are generally sandy loam in texture, well drained, and display moderately to strongly cemented pans. Sprucebark soils are classified as colluvial orthic dystric brunisols (shallow lithic phase) and are generally gravelly-sandy loam in texture and rapidly drained. The bedrock geology and soil associations within the region surrounding the subject property are shown on ***Figures 7*** and ***8***, respectively.

Surface drainage on the subject property is variably imperfect to good within its northern benched terrain and rapid within its southern steep bank. The benched portion of the property contains one wetland in its northeast part and two south-flowing, permanent watercourses that drain directly into the Strait of Juan de Fuca, as shown on ***Figures 3*** and ***4***.

The subject property is underlain by Aquifers #449 and #606[6]:

- Aquifer #449 is a moderately productive, partially confined aquifer hosted by a mixed assemblage of sandstone and conglomerate sedimentary rocks of the Carmanah Group that covers 28.1 km^2 in the vicinity of Muir Creek. Aquifer #449 has low vulnerability to surface contamination sources and is subject to low extraction demand. Based on 64 wells registered by the BC Ministry of Environment and Climate Change Strategy (BCENV) as completed within Aquifer #449, the median yield of wells constructed within this aquifer is 0.76 L/s with a median groundwater depth of 35.4 m below ground surface (bgs); and
- Aquifer #606 is a low productivity, partially confined aquifer underlying Aquifer #449, is hosted by a mixed assemblage of gabbroic intrusive and basaltic volcanic rocks of the Eocene-aged Metchosin Igneous Complex, and covers 537.6 km^2 along the southwest coast of Vancouver Island within the communities of Jordan River, Sooke, Metchosin, Esquimalt, Colwood, and Langford. Aquifer #606 has low to moderate vulnerability to surface contamination sources and is subject to low extraction demand. Based on 1,550 BCENV-registered wells completed within Aquifer #606, the median yield of wells constructed within this aquifer is 0.13 L/s with a median groundwater depth of 15.2 m bgs.

There are 14 provincially registered wells[7] within a 500 km radius of the centre of subject property that were constructed within Aquifers #449 and #680 as shown on ***Figure 9***, although there may be other unregistered wells in the area. There is one well registered with BCENV within the subject property as shown on ***Figures 3*** and ***4***, which is designated by BCENV as Well Tag Number (WTN) 99450. This well was reportedly completed to a depth of 79.2 m bgs and produces 0.50 L/s from one bedrock fracture zone at 73.8 m bgs. The nearest off-site well to the subject property is indicated by BCENV as being 5 m east of the approximate centre of the property's

[3] "*MapPlace2 Website, Geology Layer*" (2019). BC Geological Survey. http://apps.empr.gov.bc.ca/pub/mapplace/mp2/fusion/templates/mapguide/slate/index.html?ApplicationDefinition=Library://mp2.ApplicationDefinition&locale=en
[4] "*BC Water Resources Atlas, Water Wells Layer, On-Site Well Tag Number 99540*". BC Ministry of Environment and Climate Change Strategy http://webmaps.gov.bc.ca/imf5/imf.jsp?site=wrbc
[5] "*Soils of Southern Vancouver Island*". Jungen J.R. (1985) BC Ministry of Environment Technical Report 17. ISSN 0821-0942 http://sis.agr.gc.ca/cansis/publications/surveys/bc/bc44/index.html
[6] "*BC Water Resources Atlas, Aquifers Layer.*" BC Ministry of Environment and Climate Change Strategy http://webmaps.gov.bc.ca/imf5/imf.jsp?site=wrbc
[7] "*BC Wells Database*". BC Ministry of Environment and Climate Change Strategy. https://apps.nrs.gov.bc.ca/gwells/

east border (WTN 105344); this well was completed to a depth of 73.1 m bgs and reportedly yields 0.95 L/s from one bedrock fracture zone at 65.5 m bgs. The median yield of the 14 registered wells constructed within Aquifer #449 within a 500 m radius of the centre of the subject property is 1.0 L/s with a median groundwater depth of 41.1 m bgs.

There are no provincially licensed surface water points of diversion (PODs)[8] within the subject property. There are two licensed PODs within a 500 m radius of the property's centre; the nearest licensed POD to the property is located approximately 430 m to the west, designated by BCENV and License #F110306, and reportedly permitted to divert up to 2.27 m^3/day from Killicrankie Creek for domestic purposes.

LOT SERVICING REQUIREMENTS FOR SUBDIVISION PURPOSES

IH's subdivision standards[9] indicate that the minimum size for subdivided fee-simple daughter lots that will be serviced by private groundwater supply wells is 1 ha. For daughter lots covering at least 1 ha with average ground slopes up to 15%, at least 0.9 m of unsaturated native mineral soil is required for subdivision purposes. Minimum sewage effluent discharge areas (including primary and reserve areas of equal size) required for subdivision purposes for an estimated daily sewage flow of 1,363 L/day and assuming Type 1 (septic tank) sewage treatment varies according to soil textures and soil percolation rates as follows:

- for sand-gravel textured soils with percolation rates of between 1 and 5 minutes per 2.5 centimetres (cm), the minimum discharge area required is 535 m^2, with a minimum 120 m dispersal field length;
- for loam textured soils with percolation rates of between 6 and 15 minutes per 2.5 centimetres (cm), the minimum discharge area required is 715 m^2, with a minimum 180 m dispersal field length; and
- for silt textured soils with percolation rates of between 16 and 30 minutes per 2.5 centimetres (cm), the minimum discharge area required is 890 m^2, with a minimum 240 m dispersal field length.

IH's subdivision standards indicate that soil percolation rates on proposed daughter lots must not exceed 30 minutes per 2.5 cm and natural ground slopes within the proposed lots must not exceed 30%. IH's standards require that proposed lots with existing residential dwellings must have an on-site sewerage system that meets current provincial regulatory design and operating standards and guidelines, and that only a reserve discharge area covering 50% of the minimum areas listed above are required on these lots. IH's standards also prescribe the following minimum horizontal setback distances from sewerage system components to specific receptors:

- minimum setback distances from discharge areas: 3 m from lot boundaries; 3 m from buildings; 3 m from domestic water lines; 30 m from a water supply well; 3 m from an upslope interceptor ditch; 30 m from the high-water mark (HWM) of a freshwater body, watercourse, or wetland; 30 m from the high tide mark of a marine shoreline; and 30 m from an existing or potential sewage effluent breakout point; and
- minimum setback distances from septic tanks: 3 m from lot boundaries; 3 m from buildings; 30 m from a water supply well; and 15 m from the high-water mark of a surface water body or high tide mark of a marine shoreline.

IH's subdivision standards do not contain information on minimum sustainable water supply well yield required for fee-simple subdivision purposes. A copy of an excerpt from IH's standards pertaining to minimum lot sizes, discharge areas, and horizontal setback distances for properties serviced by private groundwater supply wells is

[8] "*BC Water Resources Atlas, Water Licensing Layer.*" BC Ministry of Environment and Climate Change Strategy http://webmaps.gov.bc.ca/imf5/imf.jsp?site=wrbc
[9] "*Subdivision Standards*" (February 2020). Island Health. https://www.islandhealth.ca/sites/default/files/environment/documents/subdivision-standards.pdf

included in ***Appendix C***.

CRD's Bylaw No. 2024, Subdivision Servicing Requirements guideline[10] indicates that each proposed daughter lot must be capable of hosting an on-site sewerage system that meets current provincial regulatory design and operating standards and guidelines, but does not contain information on minimum unsaturated native mineral soil depths, ground slopes, soil percolation rates, primary or reserve discharge areas, or horizontal setback distances required for subdivision purposes. However, CRD's guideline indicates that where a subdivision is not serviced by a community water supply, each proposed lot must be capable of hosting a private groundwater supply well capable of a sustainable yield of at least 1,400 L/day (equivalent to 0.02 L/s). A copy of excerpts from CRD's guideline pertaining to on-site sewage disposal and water supply requirements is included in ***Appendix D***.

Similarly, MOTI's rural subdivision approval guideline[11] indicates that each proposed daughter lot must be capable of hosting an on-site sewerage system that meets current provincial regulatory design and operating standards and guidelines, but does not contain information on minimum unsaturated native mineral soil depths, ground slopes, soil percolation rates, primary or reserve discharge areas, or horizontal setback distances required for subdivision purposes. However, MOTI's guideline indicates that each proposed lot must be capable of hosting a private groundwater supply well capable of a sustainable yield of at least 2,500 L/day (equivalent to 0.03 L/s) if there is no subdivision bylaw applicable to the subject property. A copy of excerpts from MOTI's guideline pertaining to on-site sewage disposal and water supply requirements is included in ***Appendix E***.

The siting of private wells servicing one single-family dwelling on subdivided lots is subject to horizontal setback requirements from regulated receptors listed in the BC Groundwater Protection Regulation (GWPR)[12], the BC Sewerage System Regulation (SSR)[13], and the BC Sewerage System Standard Practice Manual (SSSPM)[14]. These regulations and guidelines prescribe the following setback requirements for the siting of new domestic groundwater supply wells:

- 15 m from an existing water supply well (GWPR); 50 m from the shoreline of a saltwater body (SSSPM); 30 m from a sewerage system handling less than 22.7 m3/day (SSR, SSSPM); and 60 m from an underground stormwater management facility (SSSPM).

SITE EXAMINATION

An interview with the subject property's Owner provided the following information relating to its existing on-site sewage management and water supply systems:

- the property currently hosts three separate on-site sewerage systems servicing its main residence and a cabin in the southwest part of the property immediately north of its steep bank overlooking the Strait of

[10] "*Juan de Fuca Land Use Bylaw No. 2040, Schedule A, Part 6: Subdivision Servicing Requirements*" (adopted January 23rd, 1992; including all amending bylaws adopted by December 14th, 2022). Capital Regional District https://www.crd.bc.ca/docs/default-source/crd-document-library/bylaws/juandefucaelectoralarea/2040--(consolidated)-juan-de-fuca-land-use-bylaw-1992.pdf?sfvrsn=dabc64ca_14

[11] "*Rural Subdivision Approvals, Section 2.3.1.01: Water Supply*" (October 2023). BC Ministry of Transportation and Infrastructure. https://www2.gov.bc.ca/assets/gov/driving-and-transportation/funding-engagement-permits/subdividing-land/rural_subdivision_guide.pdf

[12] "*Groundwater Protection Regulation*" (February 29th, 2016, including amendments up to BC Reg 253/2022, December 1st, 2022). BC Reg 39/2016 OC 113/2016, Water Sustainability Act.https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/39_2016

[13] "*Sewerage System Regulation*" (July 8th, 2004, including amendments up to BC Reg 76/2022, March 30th, 2022). BC Reg 326/2004 OC 701/2004, Public Health Act. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/22_326_2004

[14] "*Sewerage System Standard Practice Manual, Version 3*" (September 2014). Health Protection Branch, BC Ministry of Health. https://www2.gov.bc.ca/assets/gov/environment/waste-management/sewage/spmv3-24september2014.pdf

Juan de Fuca, and a mobile home in its northeast corner. All three systems utilize Type 1 (septic tank) sewage treatment and discharge to conventional subsurface dispersal fields. The systems were installed between the early 1970s and 2010. None of the existing sewerage systems are registered with Island Health; and

- the property hosts one water supply well approximately 30 m east-northeast of the main residence in the southwest part of the property that services all three of these buildings using buried water lines. The well is registered with BCENV, and the existing water supply lines will be decommissioned once the property's rezoning and subdivision applications have been approved.

Visual examinations of the subject property provided the following information pertaining to its topography, geology, and surface drainage:

- the property's topography within its northern two-thirds was undulating to rolling and generally slopes gently towards the south with ground slopes of between 1 and 8%. This portion of the property hosted an approximately centrally located, north-south trending surface water divide that separated surface runoff flowing east and west towards its two permanent watercourses. Surface drainage conditions west of the divide were generally imperfect to good, with small areas of seasonally water-saturated ground and hydrophytic vegetation being observed near the property's northwest corner adjacent to Invermuir Road. Surface drainage conditions east of the divide were comparatively imperfect, with one permanent wetland and numerous small areas of seasonally water-saturated ground and hydrophytic vegetation being observed along the east side of the property south of the existing mobile home and sewerage dispersal field;
- no exposures of bedrock or natural soil were observed; and
- the property's topography within its southern one-third was steep and deeply incised by two ravines hosting its permanent watercourses, with ground slopes of up to 75%. Surface drainage conditions within this portion of the property appeared to be rapid.

Visual examinations of the subject property's existing sewerage systems in the company of the Owner provided the following information:

- main residence system: the existing sewerage system servicing the main residence in the southwest part of the property appears to consist of a Type 1 on-site sewerage system, although the only components visible at the time of McElhanney's examination consisted of a metal lid and high-level tank alarm adjacent to the residence's southeast corner that were reportedly associated with an underground septic tank, and an underground concrete distribution box with a concrete lid and a conventional dispersal field adjacent to the east side of a garage building approximately 35 m north of the residence. Based on the slightly elevated setting of the distribution box and dispersal field compared to the residence, it was assumed by McElhanney and confirmed by the owner that treated sewage effluent was conveyed under pressure and on-demand from the septic tank through a solid, 50 mm diameter PVC forcemain northwards to the distribution box, from which effluent was discharged by gravity northwards through solid, 50 mm diameter PVC pipes into the dispersal field; the Owner was not aware of whether treated effluent was dosed from a septic tank clarifier chamber or a separate dosing tank. The interior of the septic tank was not visually examined to determine its configuration (i.e., number of chambers), working volume, or operational condition. An examination of the distribution box indicated that it contained one inlet and five outlet ports, although three of the outlet ports were closed off by plastic fittings; none of the outlet ports were equipped with flow control fittings. The distribution box appeared to be in good operational condition, although contained small amount of coarse and fine organic material suggestive of minor biosolids carryover from the septic tank. An examination of the dispersal field did not reveal the

number, locations, or widths of its infiltration trenches, or provide information on their operational conditions;

- cabin system: the existing sewerage system servicing the small cabin approximately 30 m east-southeast from the main residence appears to consist of a Type 1 on-site sewerage system, although none or the system's components were visible at the time of McElhanney's examination to facilitate evaluations of their configurations, working volumes, or operational conditions. According to the Owner, the system consisted of an underground septic tank adjacent to the cabin's northwest side and a conventional dispersal field approximately 5 m west of the cabin that received treated effluent from the tank by gravity; the Owner was not aware of the presence of a distribution box between the septic tank and dispersal field, which is commonly utilized by gravity-based sewerage systems; and
- mobile home system: the existing sewerage system servicing the mobile home in the northeast part of the property appears to consist of a Type 1 on-site sewerage system, although the only system component visible at the time of McElhanney's examination consisted of a rectangular concrete lid with two concrete access ports; consequently, evaluations of the configurations, working volumes, or operational conditions or its components were not conducted. According to the Owner, the system consisted of an underground septic tank adjacent to the mobile home's southwest corner and a conventional dispersal field approximately 5 m south of the mobile home that received treated effluent from the tank by gravity; the Owner was not aware of the presence of a distribution box between the septic tank and dispersal field.

The locations of these existing sewerage systems are shown on ***Figures 3*** and ***4***.

Horizontal setback distances from the three existing sewerage systems' components to regulated receptors could not be accurately measured since their precise locations are not known. However, the following general interpretations of these system's compliance with current provincial regulatory component siting requirements were apparent based on McElhanney's field observations:

- main residence system: the assumed location of the system's septic tank based on the observed location of its metal lid and information provided by the Owner appears to meet the minimum horizontal setback distances to regulated receptors required by IH for subdivision purposes except for its distance from the residence (i.e., < 3 m). However, the assumed location of the system's dispersal field based on the observed location of its distribution box and information provided by the Owner suggests that while it appears to meet IH's horizontal setback distance requirements to lot boundaries and water supply wells, it does not appear to meet IH's setback requirements from the adjacent garage (i.e., < 3 m) or the HWM of the adjacent watercourse to the east (i.e., < 30 m);
- cabin system: the assumed locations of the system's septic tank and dispersal field based on information provided by the Owner appears to meet the minimum horizontal setback distances to regulated receptors required by IH for subdivision purposes to lot boundaries and water supply wells, they do not appear to meet IH's setback requirements from the cabin (i.e., < 3 m), the HWM of the adjacent watercourse to the west (i.e., < 30 m), or an existing or potential sewage effluent breakout point; and
- mobile home system: the assumed locations of the system's tank and dispersal field based on the observed location of its tank's concrete lid and information provided by the Owner appears to meet the minimum horizontal setback distances to regulated receptors required by IH for subdivision purposes.

Consequently, the assumed locations of the existing sewerage systems tanks, distribution boxes, and dispersal fields servicing the main residence and cabin do not appear to be in full compliance with IH's current horizontal setback distance requirements for subdivision purposes, while the system servicing the mobile home appears to be in compliance with these requirements.

No instances of effluent surfacing or breakout were observed adjacent to the reported locations of the three existing sewerage systems' tanks or dispersal fields that might suggest recent or historical system component malfunctions and/or extant hazards to human health from the systems' operations.

Visual examinations of the subject property's existing water supply system in the company of the Owner provided the following information:

- one 150 mm diameter drilled well as observed approximately 30 m east-northeast of the main residence and 3 m south of a small shed in the southwest part of the property; the Owner confirmed that this well was the only water supply source currently in use on the property and that untreated water was supplied from the well to the main residence, cabin, and mobile home using dedicated, buried water lines. A BCENV "Well Identification Number (WID)" plate was affixed to the well's casing that identified it as WID #12635 (which according to BCENV records was equivalent to WTN #99450). The well was finished at surface with a 30 cm steel casing stick and cap. Raw water from the well was presumably pumped underground to the adjacent shed, which contained a hydropneumatic tank and electrical on-demand pump controls. All observed water system components appeared to be in good operational condition; and
- one 90 cm diameter concrete lid was observed approximately 10 m north of the garage building that the Owner indicated as covering a shallow water supply well that had been decommissioned in 2005 and was therefore not currently in service.

The locations of these existing sewerage systems are shown on ***Figures 3*** and ***4***.

CONCLUSIONS

On-Site Sewage Management Feasibility

Based on the scope of work completed by this assessment, McElhanney reached the following conclusions regarding the potential feasibility of using individual on-site sewerage systems using Type 1 (septic tank) sewage treatment to service one 3-bedroom single family dwelling on each of the subject property's three proposed subdivided daughter lots:

- property-wide sewage management suitability: in consideration of IH's horizontal setback distance requirements from proposed sewage effluent discharge areas to regulated receptors listed in their Subdivision Standards, the four areas shown on ***Figure 10*** and listed below may be suitable to host sewage effluent discharge zones in accordance with IH requirements:
    - Discharge Zone A: this zone is located at the extreme north end of Proposed Lot 1, covers approximately 720 m^2, and currently hosts a 17 m long section of the main residence's and cabin's gravelled access road that will be removed when the property is redeveloped in future (included in the estimated total area). Ground slopes within this zone appear to be less than 5% towards south and southeast. Natural soils within this zone appear to be imperfectly to moderately drained and based on their assumed sandy loam soil texture may have soil percolation rates from 6 to 16 minutes per 2.5 cm;
    - Discharge Zone B: this zone is located at the extreme north end of Proposed Lot 2, covers approximately 1,730 m^2, and currently hosts a 40 m long section of the mobile home's existing and proposed gravelled access road (included in the estimated total area). Ground slopes within this zone appear to be less than 5% towards the south and east. Natural soils within this zone appear to be well drained and based on their assumed sandy loam soil texture may have soil percolation rates

from 6 to 16 minutes per 2.5 cm;
- Discharge Zone C: this zone is located at the extreme north end of Proposed Lot 3, covers approximately 1,090 m², and currently hosts a mobile home and its sewerage system, a Quonset hut, and an existing gravelled parking area (parking are included in the estimated total area only). Ground slopes within this zone appear to be less than 5% towards the south. Natural soils within this zone appear to be well drained and based on their assumed sandy loam soil texture may have soil percolation rates from 6 to 16 minutes per 2.5 cm; and
- Discharge Zone D: this zone is located near the centre and on the east border of Proposed Lot 2, covers approximately 165 m², and does not currently host any of the property's existing buildings, access road, parking areas, or other infrastructure. Ground slopes within this zone appear to be less than 5% towards the south. Natural soils within this zone appear to be well drained and based on their assumed sandy loam soil texture may have soil percolation rates from 6 to 16 minutes per 2.5 cm;

- proposed Lot 1 on-site sewage management feasibility: assuming a minimum lot size of 1 ha, there appears to be sufficient area within Discharge Zone A with ground slopes of less than 15% and unsaturated thicknesses of at least 0.9 m of sandy loam soils to accommodate one reserve discharge zone covering at least 445 m², pending intrusive confirmations of soil textures, seasonally highest water table depths, and soil percolation rates within the proposed discharge area. Provided IH is satisfied that the existing sewerage system servicing the main residence is acceptable in terms of its substantial compliance with current provincial regulations and is not causing to contributing to a human health hazard, the siting of a primary discharge zone within this lot may not be required for subdivision purposes. However, if IH is not satisfied with the existing sewerage system, Discharge Zone A appears to have sufficient area to host a one primary discharge area and one reserve area with a combined area of at least 715 m², subject to the intrusive confirmation of its soil texture, subsurface drainage characteristics, and percolation rates;

- proposed Lot 2 on-site sewage management feasibility: assuming a minimum lot size of 1 ha, there appears to be sufficient area within Discharge Zone B with ground slopes of less than 15% and unsaturated thicknesses of at least 0.9 m of sandy loam soils to accommodate one primary reserve area and one reserve discharge area with a combined area of least 890 m², pending intrusive confirmations of soil textures, seasonally highest water table depths, and soil percolation rates within the proposed discharge area; and

- proposed Lot 3 on-site sewage management feasibility: assuming a minimum lot size of 1 ha, there appears to be sufficient area within Discharge Zone C with ground slopes of less than 15% and unsaturated thicknesses of at least 0.9 m of sandy loam soils to accommodate one reserve discharge zone covering at least 445 m², pending intrusive confirmations of soil textures, seasonally highest water table depths, and soil percolation rates within the proposed discharge area. Provided IH is satisfied that the existing sewerage system servicing the mobile home is acceptable in terms of its substantial compliance with current provincial regulations and is not causing to contributing to a human health hazard, the siting of a primary discharge area within this lot may not be required for subdivision purposes. However, if IH is not satisfied with the existing sewerage system, Discharge Zone C appears to have sufficient area to host one primary discharge zone and one reserve discharge zone covering a combined area of at least 890 m², subject to the intrusive confirmation of its soil texture, subsurface drainage characteristics, and percolation rates.

On-Site Water Supply Feasibility

Based on the scope of work completed by this assessment, McElhanney reached the following conclusions regarding the potential feasibility of using private groundwater supply wells to service one 3-bedroom single family dwelling on each of the subject property's three proposed subdivided daughter lots:

- property-wide groundwater supply suitability: in consideration of CRD's and MOTI's requirements for minimum sustainable yields for private wells completed on subdivided lots and given that the property hosts one existing well that reportedly produces up to 0.5 L/s and the mean reported yield of the 14 wells within a 500 m radius of the property's centre is 1.0 L/s, the likelihood that two additional water supply wells may be completed on the property with individual sustainable yields of at least 2,500 L/day (equivalent to 0.03 L/s) is considered high;

- proposed Lot 1 private groundwater well supply completion feasibility: the likelihood that a new private groundwater supply well can be completed within this lot is considered high, provided the minimum horizontal setback requirements from the new well to regulated receptors specified by the GWPR, SSR, and SSSPM are met;

- proposed Lot 2 private groundwater well supply completion feasibility: given that Lot 2 contains the property's existing water supply well, the completion of a new private groundwater supply well on this lot should not be required; and

- proposed Lot 3 private groundwater supply well completion feasibility: the likelihood that a new private groundwater supply well can be completed within this lot is considered high, provided the minimum horizontal setback requirements from the new well to regulated receptors specified by the GWPR, SSR, and SSSPM are met.

CLOSURE

McElhanney conducted the assessment described by this report pursuant to a request by you to provide such services. McElhanney has prepared this report for exclusive use by you, Island Health, the Capital Regional District, and the BC Ministry of Environment and Climate Change Strategy in support of the subject property's proposed rezoning and subdivision. Any other third-party use of this report, or reliance placed on it, or decisions taken based on it, are the responsibility of such parties. McElhanney accepts no responsibility for any damages suffered by any third party, or any claims made by any third party because of decisions made or actions taken, based on this report.

McElhanney's desktop investigations and fieldwork were conducted in accordance with generally accepted engineering practices for such investigations, and in accordance with regulatory guidelines and prescriptions. The findings of this report are partially based on information provided to McElhanney by you, as well as other individuals or organizations. While McElhanney believes that this information is true and accurate and provided in good faith, and has attempted to corroborate such information where possible, McElhanney does not accept responsibility for any inaccuracies, deficiencies or omissions contained in this report from the use of such information.

McElhanney has in good faith, and in accordance with generally accepted engineering practices and current regulatory guidelines, provided preliminary opinions on the potential suitability of the subject property to host individual on-site sewage management systems and private groundwater water supply wells capable of servicing

one 3-bedroom single family dwelling on three proposed fee-simple subdivided daughter lots. However, due to the limited scope of work completed by this assessment, McElhanney is unable to offer you any warranties, either express or implied, regarding the conclusions reached by this report.

The findings of this report are based in part on visual observations of the subject property on December 4th, 2023, and are limited to the date of this assessment.

Thank you for the opportunity to assist you on this interesting project. If you have questions or require further information, please contact the undersigned.

Sincerely,

McELHANNEY LTD.

Prepared by:

03/20/24

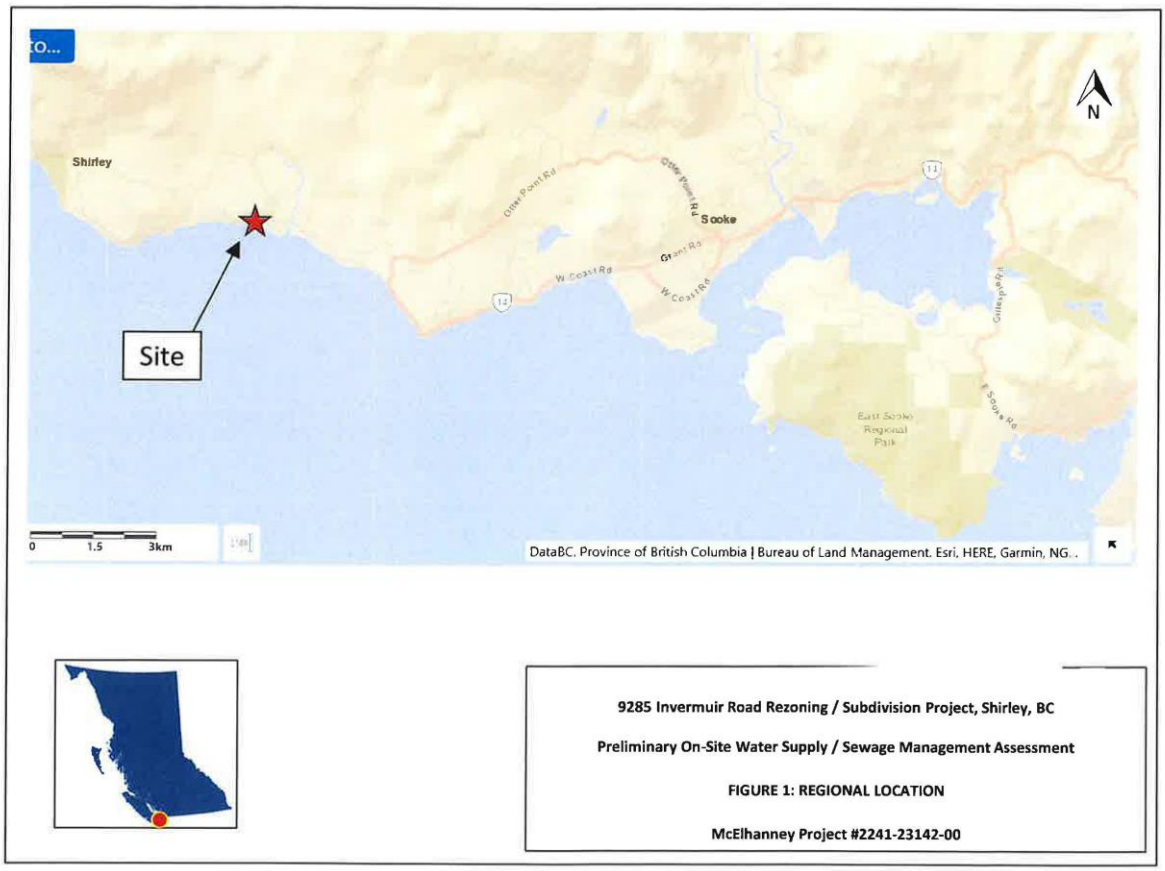
Mike Harris, P.Geo., ROWP
Senior Environmental Geoscientist

Reviewed by:

David Smith, MCIP, RPP
Senior Planner / Project Manager

PERMIT TO PRACTICE
McElhanney Ltd.
PERMIT NUMBER: 1003299
Engineers and Geoscientists of BC

Figures



9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC

Preliminary On-Site Water Supply / Sewage Management Assessment

FIGURE 1: REGIONAL LOCATION

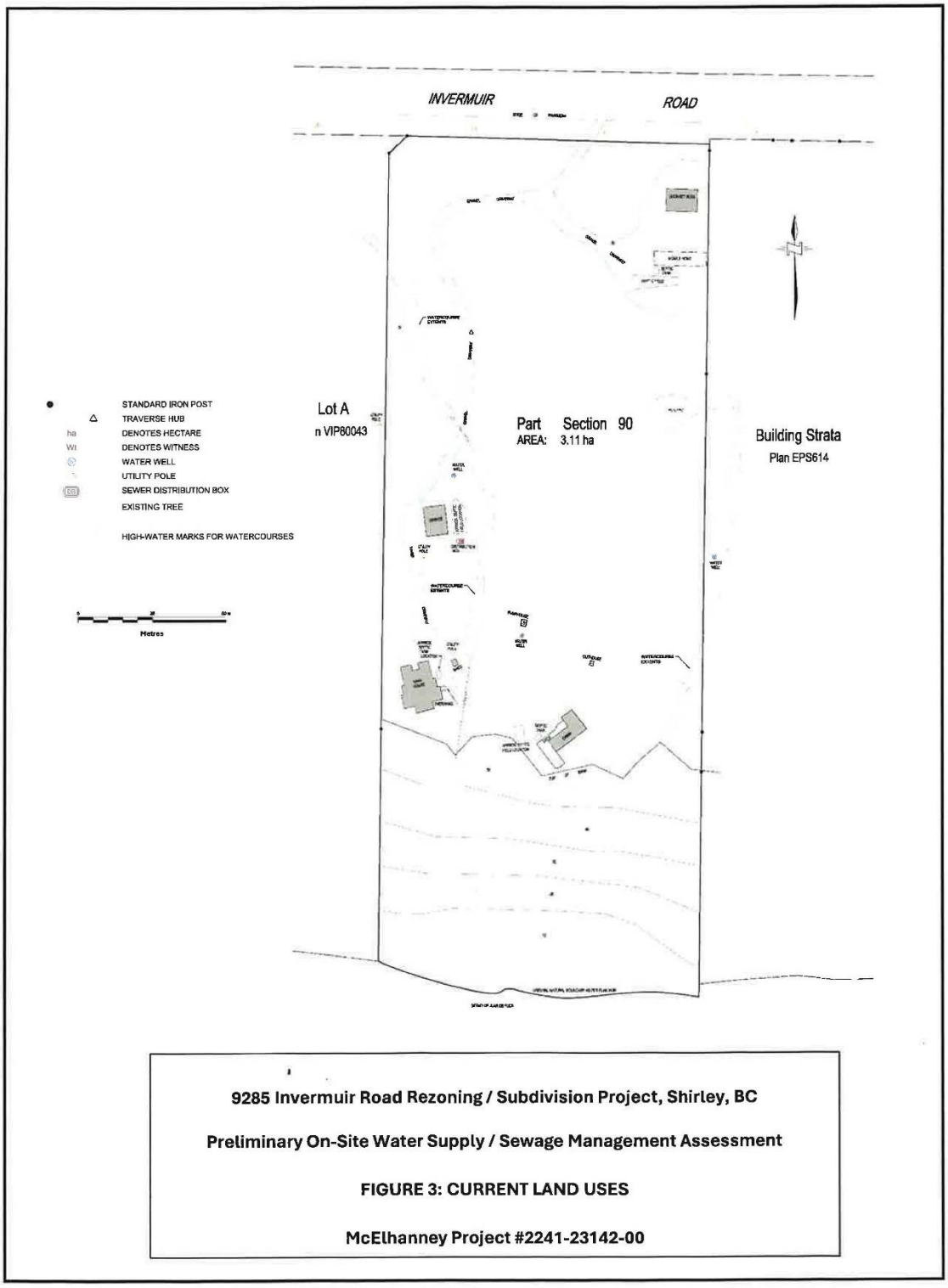
McElhanney Project #2241-23142-00

9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC

Preliminary On-Site Water Supply / Sewage Management Assessment

FIGURE 2: LEGAL SETTING / CURRENT PROPERTY CONFIGURATION

McElhanney Project #2241-23142-00

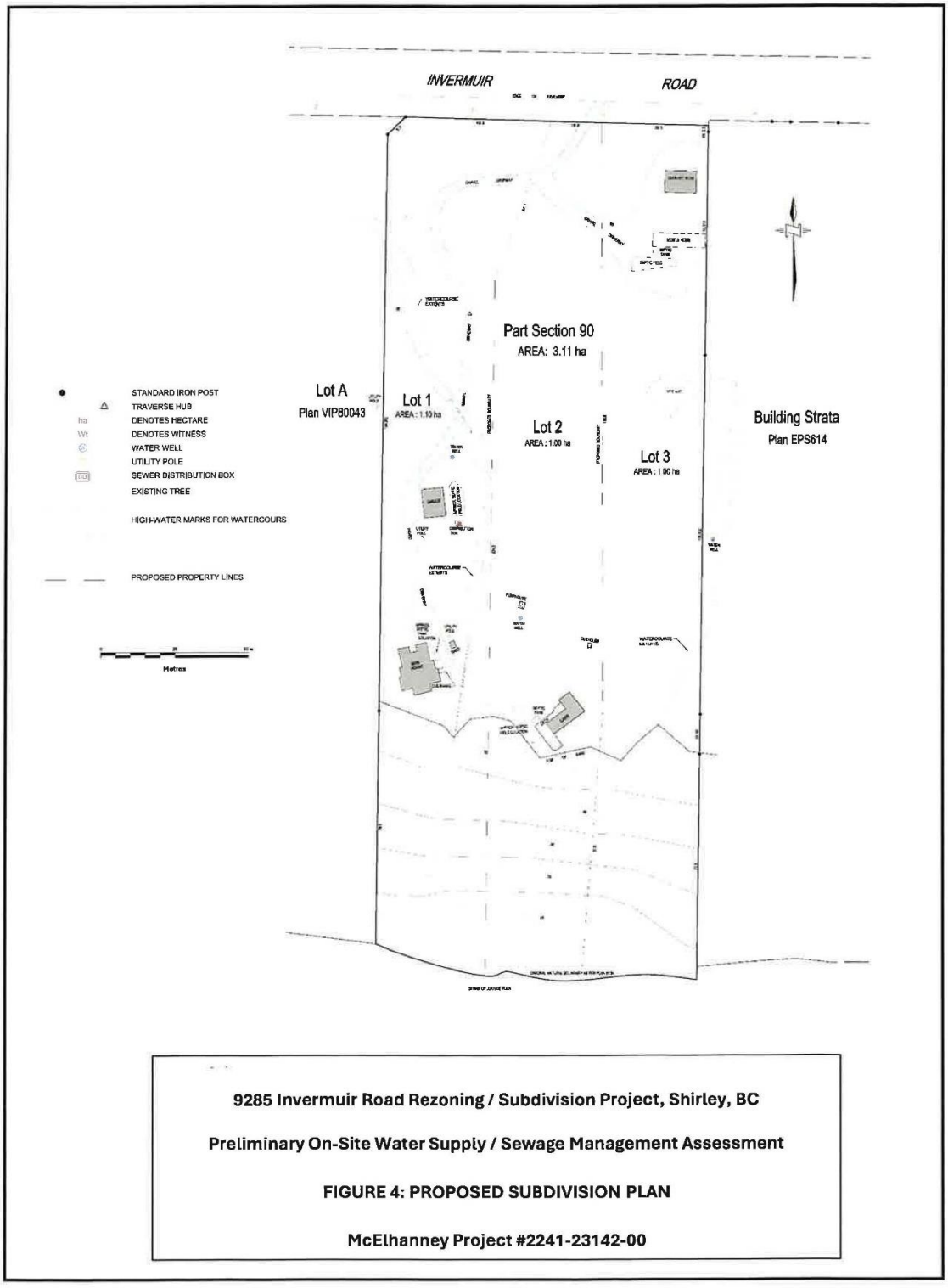


9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC

Preliminary On-Site Water Supply / Sewage Management Assessment

FIGURE 3: CURRENT LAND USES

McElhanney Project #2241-23142-00

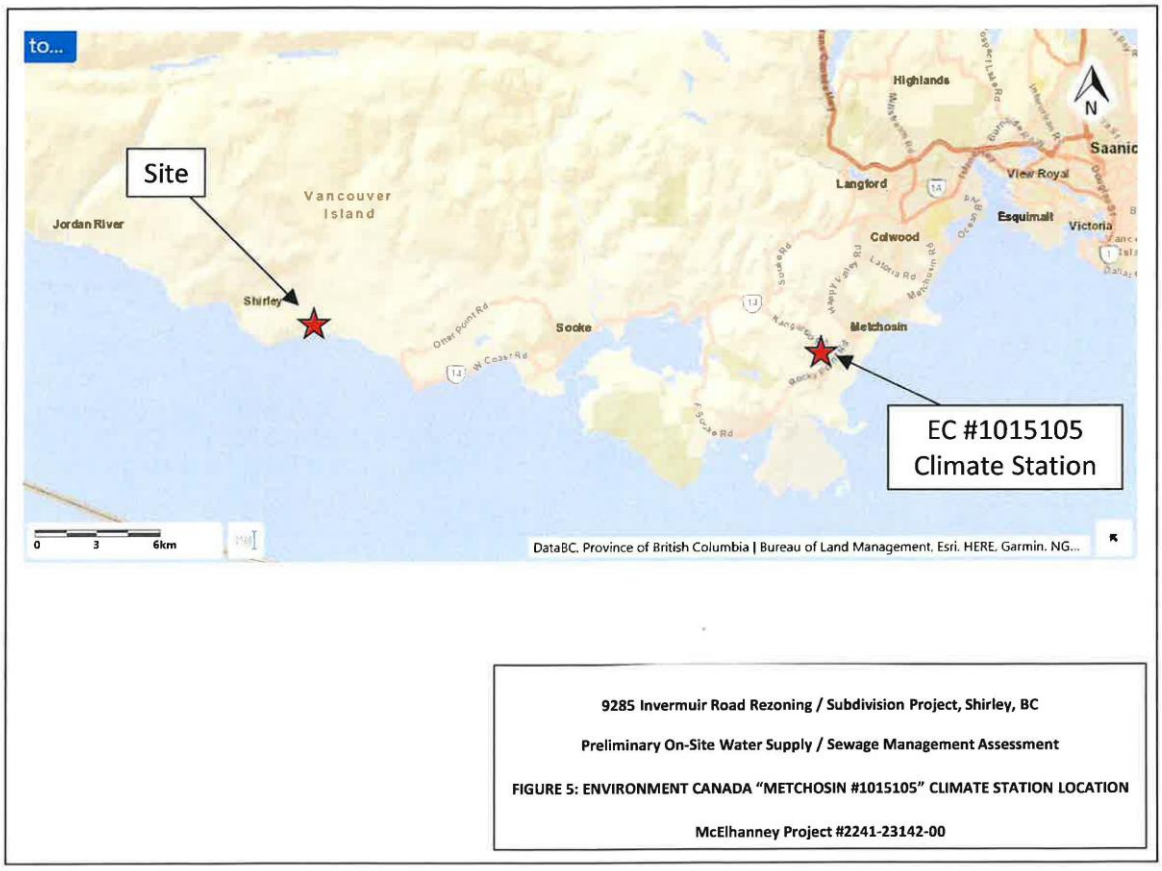


9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC

Preliminary On-Site Water Supply / Sewage Management Assessment

FIGURE 4: PROPOSED SUBDIVISION PLAN

McElhanney Project #2241-23142-00



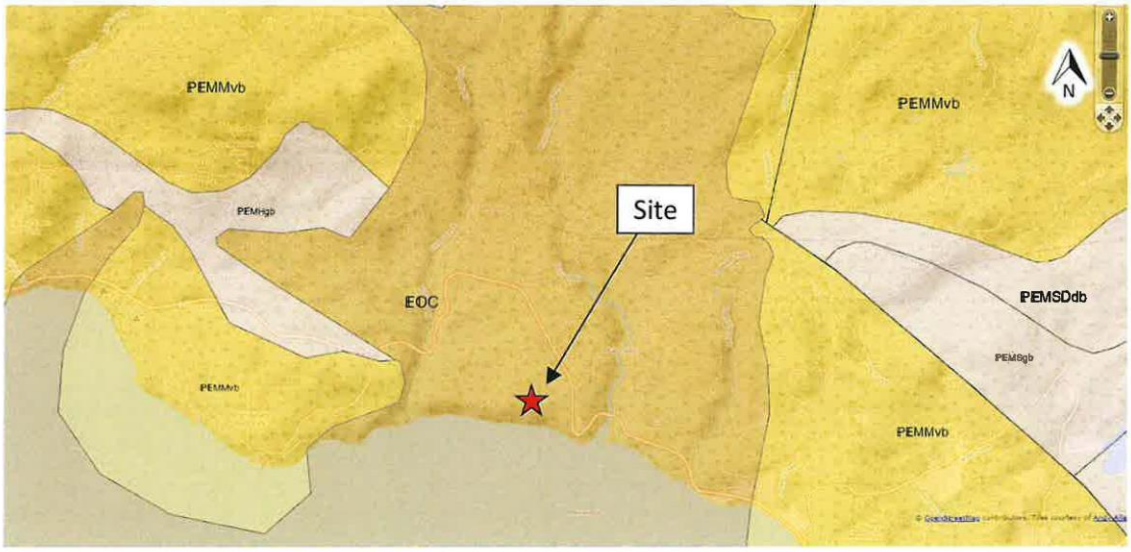
9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC

Preliminary On-Site Water Supply / Sewage Management Assessment

FIGURE 5: ENVIRONMENT CANADA "METCHOSIN #1015105" CLIMATE STATION LOCATION

McElhanney Project #2241-23142-00


Search
Site
Invermuir Road
Invermuir Road
N
Go Premium
Privacy | Terms | Manage Cookie Preferences
Topographic contours (metres)
9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC
Preliminary On-Site Water Supply / Sewage Management Assessment
FIGURE 6: REGIONAL TOPOGRAPHY
McElhanney Project #2241-23142-00



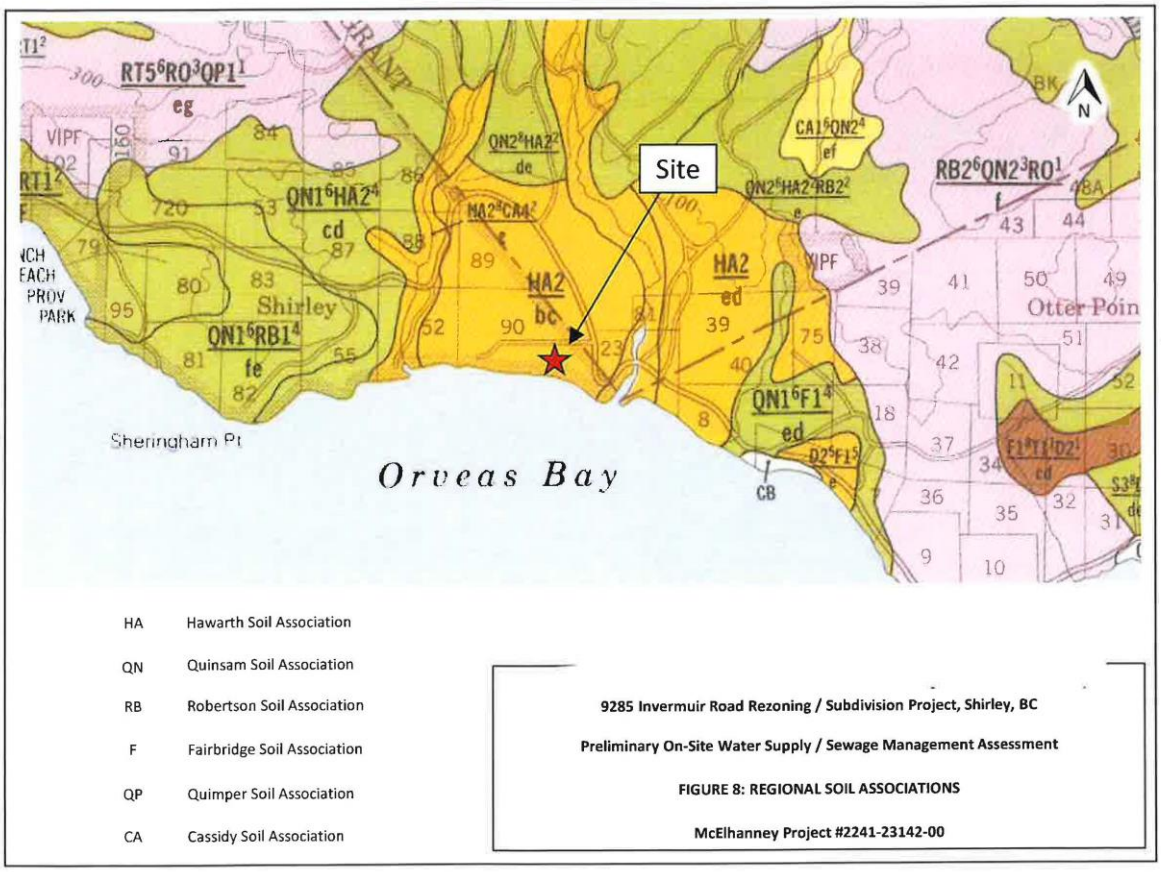
EOlC	Carmanah Group sedimentary rocks
PeEMMvb	Metchosin Igneous Complex basaltic volcanic rocks
PeEMHgb	Metchosin Igneous Complex dioritic intrusive rocks
PeEMSDgb	Metchosin Igneous Complex sheeted dykes
PeEMSgb	Metchosin Igneous Complex gabbroic intrusive rocks

9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC

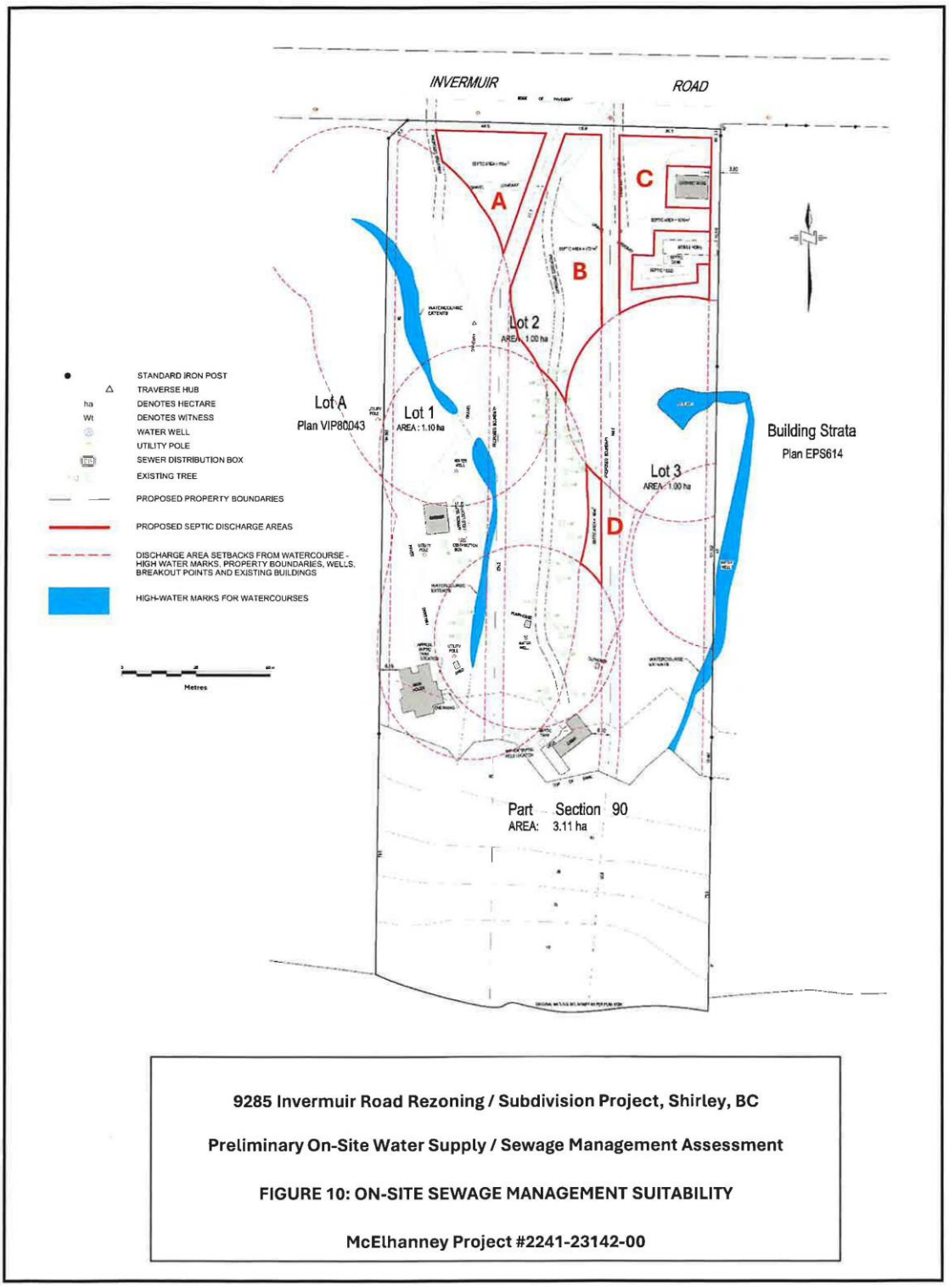
Preliminary On-Site Water Supply / Sewage Management Assessment

FIGURE 7: REGIONAL BEDROCK GEOLOGY

McElhanney Project #2241-23142-00


Site
Shirley
Otter Point
Sheringham Pt
Orveas Bay
N
HA Hawarth Soil Association
QN Quinsam Soil Association
RB Robertson Soil Association
F Fairbridge Soil Association
QP Quimper Soil Association
CA Cassidy Soil Association
9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC
Preliminary On-Site Water Supply / Sewage Management Assessment
FIGURE 8: REGIONAL SOIL ASSOCIATIONS
McElhanney Project #2241-23142-00


to...
N
Invermuir Rd
W Coast Rd
Site
0
100
200m
DataBC, Province of British Columbia | Bureau of Land Management, Esri, HERE, Garmin, Inte...
BCENV-Registered Water Wells
9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC
Preliminary On-Site Water Supply / Sewage Management Assessment
FIGURE 9: REGISTERED WATER WELLS < 500 M FROM THE SUBJECT PROPERTY
McElhanney Project #2241-23142-00



9285 Invermuir Road Rezoning / Subdivision Project, Shirley, BC

Preliminary On-Site Water Supply / Sewage Management Assessment

FIGURE 10: ON-SITE SEWAGE MANAGEMENT SUITABILITY

McElhanney Project #2241-23142-00



ENVIRONMENTAL ASSESSMENT
FOR 9285 INVERMUIR ROAD
SHIRLEY, BC V9Z 1G3

PREPARED FOR:

[redacted]

AND

CAPITAL REGIONAL DISTRICT (CRD)
3-7450 BUTLER ROAD
SOOKE, BC
V9Z 1N1

CORVIDAE PROJECT #2023-162
MARCH 2024

CORVIDAE
ENVIRONMENTAL CONSULTING INC
6526 WATER STREET, SOOKE, BC

SOLUTION ORIENTED. PROTECTION OF THE ENVIRONMENT. ABSOLUTE INTEGRITY. OPEN COMMUNICATION. RESPECT.

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CAVEAT

This Environmental Assessment (EA) has been prepared with the best information available at the time of writing, including the Shirley – Jordan River Official Community Plan, a site visit, review of site plans and design drawings and other documentation relevant to the project. This EA has been developed to assist the project in remaining in compliance with relevant environmental regulations, acts and laws pertaining to the project and to identify and mitigate the expected impacts of the project.

1 INTRODUCTION

Corvidae Environmental Consulting Inc. (Corvidae) is pleased to provide this Environmental Assessment (EA) report for the property located at 9285 Invermuir Road (PID: 009-592-130; Section 90, Plan VIP913R), referred to herein as the Site (Figure 1). The 3.12 ha estate property is proposed to be rezoned from Rural A and subdivided into 3, 1 ha lots. Onsite works associated with the rezoning and subdivision application include providing individual lot services to each of the three (3) proposed lots.

Three development permit areas (DPAs) overlap the Site, including the Steep Slope DPA, the Shoreline Protection DPA, and the Sensitive Ecosystem DPA (Mature Forest) (Figure 2). The Steep Slope DPA and Shoreline Protection DPA will not be affected by the proposed rezoning and subdivision. Removal of trees within the Sensitive Ecosystem DPA will be required to accommodate the installation of the driveway segments within Lots 1 and 2 (see Figure 1 for proposed subdivision layout and driveway segments).

Three (3) surface water features, including one wetland and two streams were detected on the Site during the assessment. It was determined that these features originate in the upper (north) sections of the Site and flow to the south. At the southern extent of the Site, the streams cascade down over steep slopes (>30%) that lead directly to the ocean. As reaches that exceed 20% gradient represent a barrier to fish passage, the watercourses on the property are not accessible to fish and as a result, the Riparian Areas Protection Regulation (RAPR) does not apply.

As aquatic ecosystems are valuable for wildlife, species at risk, and ecosystem services, Corvidae recommends application of setbacks on both the wetland and streams on the property. Based on professional experience and Best Management Practices, a 10 m setback on both sides of the streams, and 10 to 15 m around the wetland (see Section 4.7 for details). These setbacks are intended to protect the aquatic ecosystems in perpetuity, as well as increase the resilience of the ecosystems under increasingly common drought or flood conditions.

The recommended setbacks are intended to allow for sufficient developable area on the subdivided properties and do not constrain access to any parts of the proposed properties. Any activities that may encroach into these recommended setbacks must be planned in consultation with the QEP to ensure that appropriate mitigation measures are in place to protect the aquatic ecosystems and that the appropriate permits and notifications are acquired.

This document addresses the requirements in the Shirley – Jordan River Official Community Plan (OCP) Bylaw No. 4001 and provides an assessment on the environmental conditions on the property, potential impacts of the proposed rezoning and subdivision, and recommendations on the protection of environmentally sensitive features and methods to minimize impacts of the proposed plans.


Lot 1
Lot 2
Lot 3
Subdivision Plan and Environmental Features
Water Well
Wildlife tree
C-70
C-TOP OF BANK SETBACK
Proposed Driveway
Stream
Gravel Driveway
Top of Ravine Bank
Culvert
Watercourse mapped approximately due to steep slopes beyond TORB
Wetland Setback 10m N/E/W and 15m S
Wetland
Stream Setback 10m
Property Boundary
Sewer
Septic Tank
Garage
Building Footprint
Mobile Home
Approx. Septic Field Location
CORVIDAE
ENVIRONMENTAL CONSULTING INC
Rev. # | Date
0 | January 31, 2024
1 | February 1, 2024
2 | February 5, 2024
3 | February 14, 2024
4 | March 2, 2024
5 | March 21, 2024
6 | March 26, 2024
Corvidae Project No.
COR-2023-162
Figure 1
0 10 20 40 Meters
N
Project: 9285 Invermuir Road | Sources: Capital Regional District

1.1 OBJECTIVES

The purpose of this EA is to assess the current terrestrial and riparian environments onsite, identifying terrestrial and aquatic habitat, sensitive ecosystems, and wildlife habitat, including wildlife trees, nests, and any other wildlife features. This EA also identifies the presence of threatened or endangered species on or around the Site, which includes a 200 m buffer around the Site boundaries. As part of the EA, Corvidae completed detailed field assessments to document biophysical features, habitat and verify available ecosystem inventory data.

From this information potential impacts have been determined and mitigations provided to protect the natural environment, its ecosystems and associated biological diversity. This report and planning meet the environmental requirements in the Shirley – Jordan River Official Community Plan, zoning by-laws and addresses provincial and federal laws.

1.2 REGULATORY FRAMEWORK

This environmental assessment is designed to comply with the provisions set out in the Shirley – Jordan River OCP for development permit areas and for compliance with the provisions for environmental protection contained in the following relevant legislation:

Municipal

Shirley – Jordan River OCP, Bylaw No. 4001 (2018)

- Capital Regional District Bylaw 4001, 2018. Shirley – Jordan River OCP, Schedule A, **510 Steep Slope Development Permit Area**:

"That part of the Shirley – Jordan River Plan area indicated as Steep Slope DPA on Schedule C is designated as a development permit area pursuant to Section 488(1)(b) of the Local Government Act (LGA). The Steep Slope DPA includes all those areas having slopes exceeding 30% or 16.7 degrees over a minimum 10 metre run."

Objectives for the Steep Slope DPA:

i. Protects the integrity of the slopes; and
ii. Reduces the risk of injury to persons or damage to the property.

- Capital Regional District Bylaw 4001, 2018. Shirley – Jordan River OCP, Schedule A, **520 Shoreline Protection Development Permit Area**:

"That part of the Shirley – Jordan River Plan area indicated as Shoreline Protection DPA on Schedule D is designated as a development permit area pursuant to Sections 488(1)(a) and 488(1)(b) of the Local Government Act (LGA). The Shoreline Protection DPA established under this section includes all land lying 15 metres upland of the natural boundary of the ocean."

Objectives for the Shoreline Protection DPA:

i. Protects coastal properties from damage and hazardous conditions that can arise from erosion and flooding.
ii. Protects and enhances the ecological health of marine waters, the shoreline, and adjacent uplands; and,

iii. Preserves the integrity and connectivity of coastal processes.

- Capital Regional District Bylaw 4001, 2018. Shirley – Jordan River OCP, Schedule A, **540 Sensitive Ecosystem Development Permit Area**:

"That part of the Shirley – Jordan River area indicated as Sensitive Ecosystem DPA on Schedule E is designated as a development permit area pursuant to Sections 488(1)(a) and 488(1)(i) of the Local Government Act (LGA). The Sensitive Ecosystem DPA established under this section includes those sensitive ecosystems and other important ecosystems identified as Intertidal, Estuarine, Freshwater, Older Forest, Mature Forest, Fringe Forest, Woodland, Herbaceous, Sparsely Vegetated, Wetlands, and Riparian in the Sensitive Ecosystem Inventory (SEI) prepared by Madrone Environmental in 2014. The Sensitive Ecosystem DPA includes the strip of land 30 metres from the natural boundary on either side of all watercourses. This DPA also includes a 100 metre buffer around an eagle's nest, as recommended in the Sensitive Ecosystem Inventory."

Objectives for the Sensitive Ecosystem DPA:

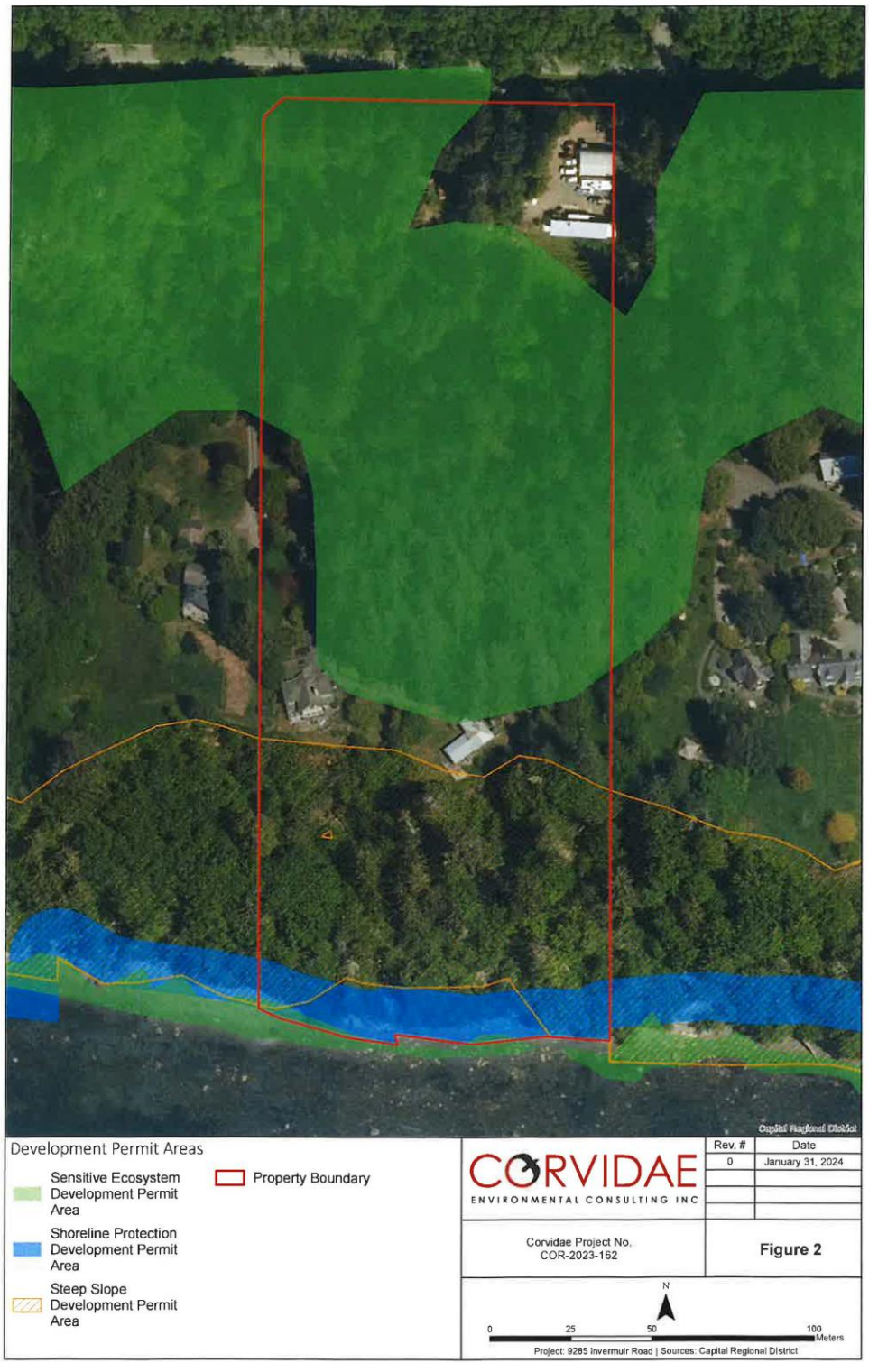
i. Protects, enhances, and restores the biodiversity and ecological values and functions of environmentally sensitive areas.
ii. Fosters compatibility between development, existing land uses and environmentally sensitive areas.
iii. Maintains connectivity between sensitive ecosystems; and
iv. Protects water quality and quantity.

Provincial

- Wildlife Act (1996)
- Invasive Species Council of BC
- *Weed Control Act* (1996, current as of March 2023)
- Water Sustainability Act
- Under the Water Sustainability Act, waterbodies in BC are protected and managed to ensure their sustainability and the availability of water resources for various purposes. The Act sets rules and regulations for activities that have an impact on water quality and quantity, as well as for the use of surface water and groundwater.

Federal

- Migratory Birds Convention Act (1994)
- Species at Risk Act (SARA) (2002)
- Fisheries Act (2019)


Capital Regional District
Development Permit Areas
Sensitive Ecosystem Development Permit Area
Shoreline Protection Development Permit Area
Steep Slope Development Permit Area
Property Boundary
CORVIDAE
ENVIRONMENTAL CONSULTING INC
Rev. #
Date
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January 31, 2024
Corvidae Project No.
COR-2023-162
Figure 2
N
0
25
50
100
Meters
Project: 9285 Invermuir Road | Sources: Capital Regional District

2 SCOPE OF WORK

Corvidae completed an environmental assessment for the Site and documented the ecological features. Background information was reviewed, including applicable databases. During the assessment, the following features were documented in this report:

- Areas of sensitivity, including aquatic ecosystems and riparian areas.
- Areas of habitat and biodiversity values.
- Plant communities and plant species on site.
- Potential wildlife presence and wildlife habitat.
- Soil types and terrain.
- Surface water flow patterns.

Following the field assessment, the biophysical features were mapped, and buffer areas identified. Environmental mitigation measures to minimize the impacts of the proposed works are provided in Section 6.

3 METHODS

3.1 DESKTOP REVIEW

Baseline biophysical conditions were compiled by reviewing the best available data and information including existing reports for the area and conducting searches of online provincial and federal databases:

- BC Conservation Data Centre (BC CDC 2023a and 2023b);
- BC HabitatWizard (Province of BC 2023);
- Aerial photographs of the Site (Google Earth 2023);
- Capital Regional District (CRD) Regional Map (CRD 2021); and
- Shirley-Jordan River Electoral Area Official Community Plan Bylaw No. 4001 (CRD 2018).

3.2 FIELD ASSESSMENT

A field assessment of the Site was completed by Qualified Environmental Professionals (QEP's) from Corvidae on January 16th, 2024. The assessment included characterization of vegetation and habitat types, wildlife sign and species observations, wildlife habitat, surface water features, and assessed the current conditions of the Site. Site photographs are included as Appendix A.

4 ENVIRONMENTAL SITE ASSESSMENT

4.1 LAND USE

The Site currently contains a dwelling on each proposed lot, as well as septic fields, accessory structures (e.g., pumphouse, garage), landscaped areas, and a gravel driveway that becomes paved in the southwestern Site extent. Steep slopes occur in the southern extent of the Site, leading to the shoreline of the marine environment. Anthropogenic features are surrounded by immature coniferous forest, mature coniferous forest, riparian vegetation, and aquatic features, including two streams and one wetland. Surrounding land use is rural residential. The Site is bound by private properties to the west and east, by the marine environment to the south, and by Invermuir Road to the north.

4.2 CLIMATE AND BIOGEOCLIMATIC ZONE

The project is located within the Coastal Western Hemlock (CWH) biogeoclimatic zone, and specifically in the western variant of the Very Dry Maritime subzone (classified as CWHxm2). The CWHxm2 occurs from sea-level to 450m of elevation on southern Vancouver Island. This variant has warm, dry summers and moist, mild winters with relatively little snowfall. Growing seasons are long and can experience water deficits (Pojar et al. 1991).

4.3 TERRAIN AND SOILS

Soils in the CWHxm2 are typically classified as Orthic Dystric Brunisols. The soil texture is sandy loam with 30-60% coarse fragments including gravel and cobble. Soils are well drained, and often less than 1 m thick over extrusive bedrock. Soil survey results available through the BC Soil Information Finder Tool (BC SIFT) classifies the soil onsite as 100% rapidly drained sandy loam (HAWARTH association) (BC SIFT 2018). The topography of the Site slopes steeply to the south, dropping steeply (>30% gradient) from the top of bank to the ocean.

4.4 VEGETATION

The southern portions of the Site above top of bank have been disturbed to accommodate the onsite residences and accessory structures. These areas are characterized by lawn, intermittent native trees, and ornamental trees and shrubs.

Intact, forested areas are characterized by mature Douglas-fir, Sitka spruce, western red cedar, and western hemlock trees. The understory is less developed within dry, upland areas and is dominated by sword fern with lesser amounts of salal, red huckleberry, and trailing blackberry. This ecosystem is consistent with the SEI mapping of the Sensitive Ecosystem Development Permit Area.

Riparian areas bordering the existing surface water features on the Site are more densely vegetated in the understory and herb layers and are characterized by salmonberry, slough sedge, willow species, and sword fern. The canopy within the riparian areas is predominantly comprised of western red cedar and red alder. Slower-moving areas of the existing streams on the property are dominated by slough sedge and reed canarygrass. Skunk cabbage was also observed despite the assessment taking place outside of the growing season.

Vegetation species listed in Table 1 were found on the Site during the assessment. Six invasive species were observed as listed below. These species are listed as "Control" species by the Coastal Invasive Species Committee (2023), which include those that have established infestations throughout the Capital Region. Measures to remove and prevent invasive species are provided in Section 6.

Table 1. Plant species observed on site during the field visit on January 16th, 2024.

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Bigleaf maple	*Acer macrophyllum*	Yellow	--
Bracken fern	*Pteridium aquilinum*	Yellow	--
Butterfly bush	*Buddleja davidii*	Exotic	--
Cutleaf blackberry	*Rubus laciniatus*	**Invasive; Exotic**	--
Douglas-fir	*Pseudotsuga menziesii*	Yellow	--
English holly	*Ilex aquifolium*	**Invasive; Exotic**	--
Evergreen huckleberry	*Vaccinium ovatum*	Yellow	--
Grand fir	*Abies grandis*	Yellow	--
Himalayan blackberry	*Rubus armeniacus*	**Invasive; Exotic**	--
Horsetail sp.	*Equisetum* sp.	Yellow	--
Pacific ninebark	*Physocarpus capitatus*	Yellow	--
Purple-leaved willowherb	*Epilobium ciliatum*	Yellow	--
Red alder	*Alnus rubra*	Yellow	--
Red huckleberry	*Vaccinium parvifolium*	Yellow	--
Reed canarygrass	*Phalaris arundinacea* var. *arundinacea*	**Invasive; Exotic**	--
Salal	*Gaultheria shallon*	Yellow	--
Salmonberry	*Rubus spectabilis*	Yellow	--
Scotch broom	*Cytisus scoparius*	**Invasive; Exotic**	--
Sitka spruce	*Picea sitchensis*	Yellow	--
Slough sedge	*Carex obnupta*	Yellow	--
Spreading woodfern	*Dryopteris expansa*	Yellow	--
Spurge laurel	*Daphne laureola*	**Invasive; Exotic**	--
Sword fern	*Polystichum munitum*	Yellow	--
Trailing blackberry	*Rubus ursinus*	Yellow	--
Western hemlock	*Tsuga heterophylla*	Yellow	--
Western redcedar	*Thuja plicata*	Yellow	--
Western white pine	*Pinus monticola*	Yellow	--
Willow sp.	*Salix* sp.	--	--

[1] BC CDC 2023a
[2] Government of Canada 2023

4.5 WILDLIFE

Existing trees and shrubs on the Site may provide nesting and roosting habitat for birds, including migratory songbirds, year-round resident species, raptors, and owls. A pair of bald eagles were seen perched in a large spruce tree on the Site. Several wildlife trees were observed onsite, which may provide habitat for cavity nesting species. No nests were observed during the site assessment.

Small and large mammals are likely to utilize forested and riparian areas on the Site. Deer scat was noted in several areas. Although none were detected during the site assessment, amphibians may occupy existing surface water features. Species detected during the site assessment (audibly or visually) are listed in Table 2.

Table 2. Wildlife species observed on site during the field visit on January 16th, 2024.

Common Name	Scientific Name	BC Provincial Status[1]	*SARA* Schedule 1 Status[2]
Bald eagle	*Haliaeetus leucocephalus*	Yellow	--
Brown creeper	*Certhia americana*	Yellow	--
California quail	*Callipepla californica*	Exotic	--
Chestnut-backed chickadee	*Poecile rufescens*	Yellow	--
Common raven	*Corvus corax*	Yellow	--
Dark-eyed junco	*Junco hyemalis*	Yellow	--
Eastern cottontail (tracks)	*Sylvilagus floridanus*	Exotic	--
Fox sparrow	*Passerella iliaca*	Yellow	--
Golden-crowned kinglet	*Regulus satrapa*	Yellow	--
Harbour seal (off-property)	*Phoca vitulina*	Yellow	--
Northern flicker	*Colaptes auratus*	Yellow	--
Pacific wren	*Troglodytes pacificus*	Yellow	--
Pine siskin	*Spinus pinus*	Yellow	--
Red-breasted sapsucker	*Sphyrapicus ruber*	Yellow	--
Ruby-crowned kinglet	*Corthylio calendula*	Yellow	--
Song sparrow	*Melospiza melodia*	Yellow	--
Steller sea lion (off-property)	*Eumetopias jubatus*	Blue	1-SC
Varied thrush	*Ixoreus naevius*	Yellow	--
Western gull	*Larus occidentalis*	--	--

[1] BC CDC 2023a
[2] Government of Canada 2023

4.6 SPECIES AT RISK

A query of the BC CDC iMap tool yielded two (2) species at risk occurrences: ermine, *anguinae* subspecies (*Mustela richardsonii anguinae*) and the keeled jumping-slug (*Hemphillia burringtoni*), within a two-kilometer radius of the Site (BC CDC 2023b) (Figure 3). No species at risk were detected onsite during the assessment.

The element occurrence for ermine occurs approximately 1.2 km northeast of the Site. The ermine is endemic to Vancouver Island and Salt Spring Island and is blue listed in BC (CDC 1996). There is limited information available regarding the habitat needs of this species, however, some preferred habitat characteristics include coarse woody debris and thick understories, particularly near water (CDC 2014). If ermine were present on the Site, the species would likely utilize the dense riparian understory of the stream located on the west side of the Site, north of the gravel driveway, however, coarse woody debris is limited. Overall, the potential for ermine to occupy the Site is considered low given a lack of suitable coarse woody debris and understory habitat.

The keeled jumping-slug is red listed in BC and listed as Special Concern under SARA. Three element occurrence polygons of the keeled jumping-slug occur between approximately 680 m and 995 m to the west and southwest of the Site. This species occupies moist forests from young seral stages to old growth and from low to mid-elevations. It is often found in forested riparian areas along creeks or rivers. Required microhabitat features include coarse woody debris, pockets of deep leaf litter, or other moist shelter sites such as provided by root-masses of sword ferns (CDC 2023c). Some suitable habitat characteristics are present on the Site for this species, particularly within areas of mature forest and riparian areas, however, the site is lacking in deep leaf litter pockets and coarse woody debris. This species was not observed during the assessment; however,

adult-sized slugs are typically most visible between April and November. The potential for this species to occur onsite is considered low to moderate.

CRITICAL HABITAT

A 50 km² area of critical habitat for little brown myotis (*Myotis lucifugus*) and Northern myotis (*Myotis septentrionalis*) overlaps the Site. Note, critical habitat mapping is done at a high level to indicate areas in which the biophysical attributes of critical habitat are known to or may occur. For example, the 50 km² polygon for these bat species contains a known occurrence of the species and therefore, it is assumed that additional populations may occupy suitable habitat in the area. No suitable maternal roosting habitat was observed for bats (caves or rock crevasses). Use of the Site by little brown myotis and Northern myotis is considered low based on the site characteristics.

4.7 SURFACE WATER FEATURES

Three (3) unmapped surface water features, including one wetland and two streams were detected on the Site during the assessment. It was determined that these features originate in the upper (north) sections of the Site and flow to the south. Below the top of bank near the southern extent of the Site, the streams cascade down over steep slopes (>30%) that lead directly to the ocean. A search of the BC HabitatWizard database revealed no fish occurrences on or near the Site (Province of BC 2023).

The westernmost stream originates upstream (northwest) of the Site in the adjacent property and flows in a south/southeast direction across proposed Lot 1. The upstream sections of this watercourse contain wide floodplain areas and slow-moving sections that are characterized by salmonberry thickets and red alder with evidence of skunk cabbage along channel edges in slower flowing sections. Pockets of slough sedge were also noted within slow-moving channel sections. Substrates are primarily comprised of fines and sediment.

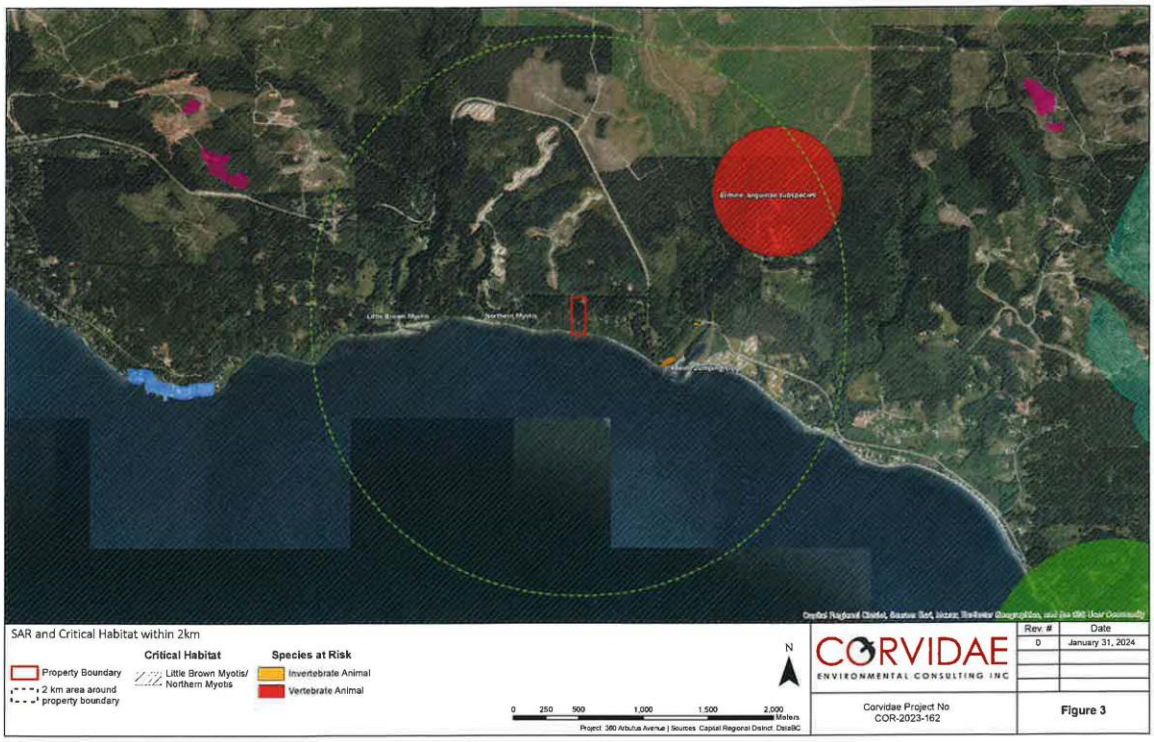
The stream crosses underneath the existing gravel driveway within proposed Lot 1 and flows south toward the existing dwelling. Understory riparian vegetation in this area is reduced in comparison to the northern stream extents. The stream then flows into a culvert that was built to accommodate an onsite path leading into proposed Lot 2, before daylighting just below the top of bank and flowing steeply (> 30% gradient) downslope to the shoreline.

The easternmost stream originates off-property to the east. The offsite extents were not mapped due to private property access restrictions. The portion of the stream channel that occurs in the southeast corner of the Site was noted to be channelized in the southern extents above the top of bank, then widening upstream. Riparian species included salmonberry, sword fern, red alder, and western redcedar. Substrates were observed to be primarily soft (i.e., mud and silt). Similarly to the western stream, the eastern stream flows steeply from the top of bank to the marine shoreline.

A small wetland occurs within proposed Lot 3 and is dominated by slough sedge, with lesser amounts of salmonberry along the periphery. The wetland is shared with the property immediately to the east of the Site. It is anticipated that the wetland connects with the eastern stream and serves as a partial or complete headwaters for this stream, however, access restrictions prevented confirmation of this. No drainages or flow inputs were observed above the wetland on the Site.

As reaches that exceed 20% gradient represent a barrier to fish passage, the watercourses on the property are not accessible to fish and as a result, RAPR does not apply. Despite this, recommended watercourse setbacks have been provided by Corvidae to protect the integrity of these surface water features in perpetuity. A 10 m

setback is recommended for both streams on the Site based on stream width measurements taken during the assessment. A 10 m setback is recommended to be applied to the northern and western boundaries of the wetland, and a 15 m setback to the south of the wetland (Figure 1).


SAR and Critical Habitat within 2km
Critical Habitat
Property Boundary
2 km area around property boundary
Little Brown Myotis/ Northern Myotis
Species at Risk
Invertebrate Animal
Vertebrate Animal
N
0 250 500 1,000 1,500 2,000 Meters
Project: 380 Arbutus Avenue | Sources: Capital Regional District, DataBC
CORVIDAE
ENVIRONMENTAL CONSULTING INC
Rev. #
Date
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January 31, 2024
Corvidae Project No
COR-2023-162
Figure 3

5 POTENTIAL ENVIRONMENTAL EFFECTS

The potential environmental impacts of the proposed subdivision and driveway construction on the Site include:

- Loss of existing trees and spread of invasive plant species,
- Change in wildlife habitat availability, and
- Sediment movement in the project area, particularly adjacent to aquatic ecosystems.

The residual environmental impacts of the activities on the Site will be reduced by the implementation of the mitigation and restoration measures recommended in Section 6 of this report.

The proposed subdivision does not include activities within the Shoreline DPA or activities below top of bank (Steep Slopes DPA); therefore, no effects to the shoreline area or steep slopes are anticipated.

VEGETATION AND MATURE FOREST

The effects of vegetation removal may include loss of biodiversity of plant species and increased susceptibility to invasive plants not only in the cleared area but also in adjacent plant communities. Vegetation immediately adjacent to cleared areas may experience in changes to the canopy structure and understory plant species due windthrow and increased light and moisture penetration.

INVASIVE SPECIES

Invasive plants are particularly adept at colonizing degraded plant communities and disturbed soils in high traffic areas, such as the margins of roads and parking areas. Invasive plants establish readily in disturbed areas as they have a wide ecological tolerance and grow and propagate quickly. The effects of invasive plant establishment may be the reduction or displacement native species by capturing resources and occupying habitats.

WILDLIFE AND WILDLIFE HABITAT

Habitat loss and alteration from vegetation clearing can cause displacement of wildlife, use of less suitable habitat, reduced foraging ability, increased energy expenditure and lower reproductive success.

EROSION AND SEDIMENT

Removal of vegetation and ground disturbance may expose soils to erosion and can result in the movement of sediment on the Site. Damage or degradation of soil surfaces during construction can include loss of soil structure, increased erosion, and soil compaction which can negatively affect post-construction reclamation efforts.

Disturbance or removal of vegetation in the riparian area may result in the loss of features, functions and conditions that are vital for maintaining stream bank stability and aquatic habitat conditions. Vegetation in the riparian area controls surface water run-off from the upland areas, preventing excessive silt and surface run-off pollution from entering the aquatic environment.

6 RECOMMENDED ENVIRONMENTAL PROTECTION MEASURES

The mitigation measures provided in this report are designed to protect sensitive ecosystems and were developed in accordance with:

- The Shirley - Jordan River OCP (2018),
- Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures) (BC Ministry of Environment [MOE] 2014a),
- Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia (MOE 2014b), and
- Environmental Best Management Practices for Urban and Rural Land Development in British Columbia (MOE 2004).

AQUATIC AND RIPARIAN ENVIRONMENTS

All proposed driveway segments currently occur outside of the suggested watercourse setbacks on the Site. The implementation and monitoring of Erosion and Sediment Control (ESC) measures, as provided below, will protect the aquatic features onsite indirectly by mitigating sediment movement and reducing the potential for deleterious substance release.

Any activities that may encroach into these recommended setbacks must be planned in consultation with the QEP to ensure that appropriate mitigation measures are in place to protect the aquatic ecosystems and that the appropriate permits and notifications are acquired. Specific mitigation measures and monitoring requirements will be determined based on the nature of the encroachment and time of year.

VEGETATION

It is recommended that the proposed driveways are aligned with the intent to avoid tree removal to the extent possible with particular care to avoid large, mature trees and wildlife trees. Trees that are required to be removed to accommodate the proposed driveway segments are recommended to be replaced onsite at a 2:1 ratio. Table 3 provides a list of native tree species that are suitable for the Site. Trees should be felled away from existing watercourse setbacks.

Table 3. Recommended native tree species for replacement plantings.

Common Name	Species
Douglas-fir	*Pseudotsuga menziesii*
Western hemlock	*Tsuga heterophylla*
Western redcedar	*Thuja plicata*
Sitka spruce	*Picea sitchensis*

INVASIVE SPECIES

Invasive weed control is difficult for established populations. Species should be removed using the most appropriate methods, at the correct time of year, and plant material must be disposed of correctly to avoid re-establishment or spread. Following removal, re-seed bare soil with desirable, competing vegetation. Details of removal methods for the invasive species on the Site are provided below in Table 4.

Table 4. Removal and disposal methods for invasive species

Species	Removal Method	Removal Timing	Plant Disposal
English holly	English holly can be removed by hand pulling small seedlings or cutting mature trees at ground level removing all plant material.	Removal is best done before flowering to eliminate seed production.	Holly does not root again once removed, so it can also be piled to desiccate on site. Can be bagged and disposed of properly in a landfill. Do not compost.
Scotch broom	Avoid disturbing the soil which can stimulate dormant broom seeds to sprout. Small broom plants can be pulled easily from the ground by hand without disturbing the soil. Larger plants should be cut below the root crown using loppers or a pruning saw.	Scotch broom removal should occur mid-April through early June before its seed pods begin to open.	Bagged and disposed of properly in a landfill. Do not 'recycle' garden debris or compost.
Himalayan blackberry	Can be removed by pulling or cutting the canes from the ground. If possible, dig out the roots, paying careful attention not to damage nearby vegetation.	Removal should occur in the spring and early summer before plants produce berries as cutting canes when the plant is producing flowers reduces re-growth.	Burned or bagged and disposed of properly in a landfill or burning. Do not compost.
Spurge-laurel	Spurge-laurel can be removed by pulling small plants or cutting larger plants just below the soil. Spurge laurel stems may re-sprout after cutting and numerous seedlings may germinate so repeated site visits are necessary. Always wear gloves when handling spurge laurel because it produces a noxious substance which can cause severe eye and skin irritation. Avoid spreading berries during removal.	Can be removed year-round.	Removed plants should be bagged and disposed of properly in a landfill. Do no transport inside an enclosed vehicle as the plants can cause respiratory irritation.

Mitigation measures to control and minimize the spread of invasive weeds on the Site include:

- Clean all machinery before arrival onto the Site to ensure that more weed seeds and other propagules (e.g., pieces of root) are not brought into the project area. This means sweeping the tracks, removing any debris, and washing if muddy.
- Clean all machinery of soil and debris prior to leaving the Site.

WILDLIFE AND WILDLIFE HABITAT

The following measures should be taken to minimize impacts on wildlife and wildlife habitat:

- Vegetation clearing should be completed outside of the migratory bird window (early March to end of August; Government of Canada 2021).
- If vegetation clearing must take place within the sensitive time period for breeding birds, a QEP must conduct nest search surveys a maximum of 2 days prior to the start of activities. Multiple nest surveys may be required. If an active nest is discovered during nest searches or clearing activities, the nest will be subject to site-specific mitigation measures (e.g., protective buffer around the nest or unobtrusive monitoring) until the young have naturally fledged/left the area. Multiple nest sweeps may be required. Nest search areas include both vegetation and onsite, man-made structures that are scheduled for removal.
- If clearing is schedule between January 1 and August 15, a raptor nest survey should be completed by a QEP prior to clearing of any large trees. Occupied or active nests would be subject to the actions described above. There were no raptor nests found on site during the assessment on January 16th.

EROSION AND SEDIMENT CONTROL

The primary focus of erosion and sediment control planning is erosion control; if there is no erosion then there is no sediment. Erosion control is far more cost effective to implement and manage than sediment control.

Mitigation options to minimize the potential effects of the project on the natural environment include:

- Store materials and soils in dry, flat areas at least 15 m from the existing watercourse setbacks.
- During tree clearing and driveway installation, heed weather advisories and schedule work to avoid wet and rainy periods that may result in high surface water flow volumes and/ or increase erosion and sedimentation.
- Install sediment fencing or straw wattles at the boundary of the disturbance footprint if sediment release is noted.
- Regularly inspect and maintain ESC measures in place until all construction is completed and disturbed ground has been permanently stabilized.
- Heed weather advisories and scheduling work to avoid wet, windy, and rainy periods that may result in high flow volumes and/ or increase erosion and sedimentation.
- Minimize amount of time soils are exposed by seeding and planting as soon as disturbance is complete. Cover exposed soil areas with tarps if for a prolonged period or during rainfall events.
- Fuel equipment at least 30 m from surface water features.
- Ensure all construction equipment is leak-free and in good working order. Any leaks should be repaired prior to commencing work.
- Maintain at least one site-specific spill kit that can handle the largest potential spill on site the project site.
- Maintain spill kits, i.e., absorbency pads, plastic bags, etc., on all heavy equipment vehicles used on the project site.
- Clean equipment and tools prior to coming to site, and onsite clean these items in an area located >30 m from surface water features.

7 CONCLUSION

The potential environmental impacts of the proposed project at 9285 Invermuir Road have been presented in this report. The environmental constraints have been assessed on the three proposed subdivision lots.

Three surface water features were mapped on the site. Setbacks based on professional expertise and best management practices have been recommended to protect the integrity of these aquatic ecosystems; however, none of the setbacks or surface water features present constraints to the subdivision or future development on the proposed lots.

The implementation of the mitigation measures recommended in this report, including minimizing tree removal, and the use of erosion and sediment controls will minimize the impacts of the proposed development on the environment, including the Sensitive Ecosystem DPA. All works must be completed in accordance with the migratory bird window. Any activities that may encroach into the recommended aquatic ecosystem setbacks must be planned in consultation with the QEP to ensure that appropriate mitigation measures are in place to protect the aquatic ecosystems and that the appropriate permits and notifications are acquired.

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APPENDIX A – SITE PHOTOGRAPHS

Photo 1.North view of existing paved driveway in proposed Lot 1.

Photo 2. Southwest view of existing dwelling in proposed Lot 1.

Photo 3. Wildlife tree (evidence of foraging and nesting).

Photo 4. Tree canopy in the Sensitive Ecosystem DPA (mature forest).

Photo 5. Eastern stream near TORB, before stream flows over steep slopes, looking south.

Photo 6. North view of eastern watercourse and riparian area.

Photo 7. West view of steep slopes in the western extent below TOB. Stream is present below vegetation cover near photo center.

Photo 8. Existing stairs leading to shoreline area.

Photo 9. East view of the shoreline area along the southern Site boundary.

Photo 10. Downstream extent of western-most stream, discharging to the marine environment. January 16, 2024.

Photo 11. Typical view of tree canopy and vegetation on the steep slopes below TORB between proposed Lots 1 and 2. January 16, 2024.

Photo 12.Typical of west stream on proposed Lot 1. January 16, 2024.

Photo 13. Southeast view of western stream within proposed Lot 1.

Photo 14. North view of western stream channel in the northwest Site extent.

Photo 15.Typical view of vegetation assemblage (younger forest stand age) along the northern property extent near Invermuir Road

Photo 16.Northeast view of existing wetland in proposed Lot 3.

Appendix G: Proposed Bylaw No. 4616

CAPITAL REGIONAL DISTRICT
BYLAW NO. 4616

A BYLAW TO AMEND BYLAW NO. 2040, THE "JUAN DE FUCA LAND USE BYLAW, 1992"

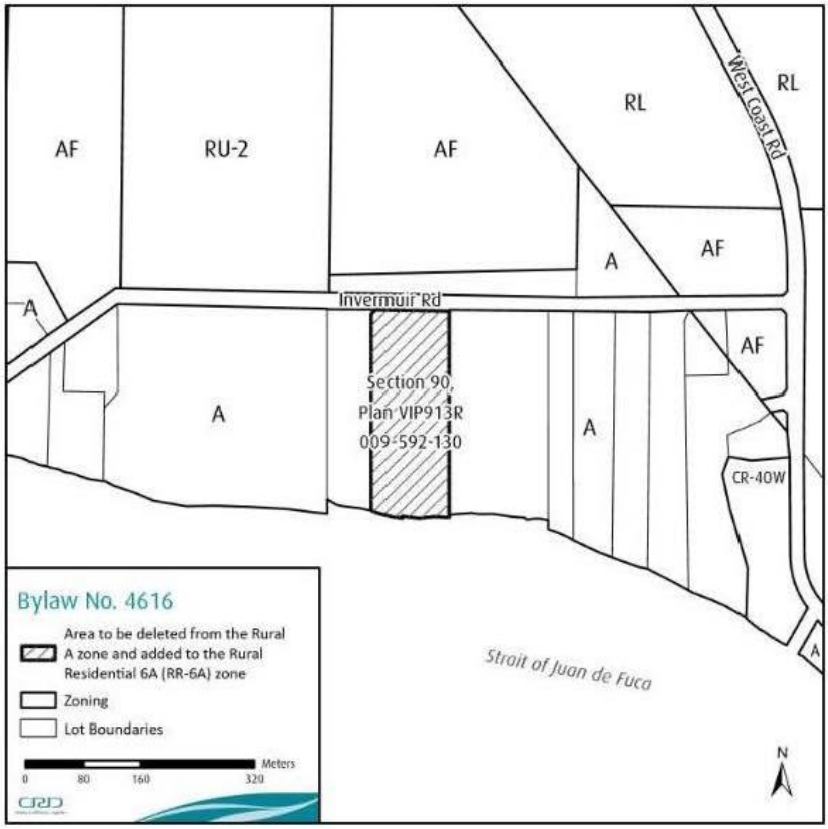
The Capital Regional District Board, in open meeting assembled, enacts as follows:

1. Bylaw No. 2040 being the "Juan de Fuca Land Use Bylaw, 1992" is hereby amended as follows:

A. SCHEDULE B, Map 3 – SHIRLEY JORDAN RIVER ZONING MAP

(a) By deleting That Part of Section 90, Renfrew District, Shown Outlined in Red on Plan 913R Lying to the South of the Southerly Boundary of Plan 503RW and to the West of a Boundary Parallel to and Perpendicularly Distant 575 Feet from the Easterly Boundary of that Part of Said Section Shown Outlined in Red on Said Plan 913R, Except Part in Plan VIP80043 from the Rural A Zone and adding to Rural Residential 6A Zone – RR-6A, as shown on Plan No. 1.

Plan No. 1 of Bylaw No. 4616, an amendment to Bylaw No. 2040



2. This Bylaw may be cited as "Juan de Fuca Land Use Bylaw, 1992, Amendment Bylaw No. 166, 2024".

READ A FIRST TIME THIS	day of	2024
READ A SECOND TIME THIS	day of	2024
READ A THIRD TIME THIS	day of	2024
ADOPTED THIS	day of	2024

CHAIR CORPORATE OFFICER