

**DATE:** October 1, 2019**FILE:** 3160-20/FR 3C 19**TO:** Chair and Directors  
Electoral Areas Services Committee**FROM:** Russell Dyson  
Chief Administrative OfficerSupported by Russell Dyson  
Chief Administrative Officer**R. Dyson****RE: Site Specific Floodplain Setback Reduction  
9570 Sarmma Road (Robinson)  
Puntledge – Black Creek Electoral Area  
Lot 22, Block 29, Comox District, Plan VIP79847, PID 026-477-866****Purpose**

To consider a request for a site specific exemption to the floodplain setback of a proposed single detached dwelling from 60 metres to 30 metres from the natural boundary of Oyster River.

**Recommendation from the Chief Administrative Officer:**

THAT the board grant a site specific exemption of the floodplain specifications that reduces floodplain setback from 60 metres to 30 metres from the natural boundary of Oyster River for the proposed single detached dwelling on property described as Lot 22, Block 29, Comox District, Plan VIP79847, PID 026-477-866 (9570 Sarmma Road);

AND FINALLY THAT, as a condition of the site specific exemption, the Comox Valley Regional District Building Services Department not issue final occupancy for the single detached dwelling on the property described as Lot 22, Block 29, Comox District, Plan VIP79847, PID 026-477-866 (9570 Sarmma Road) until the applicants, at their own expense, register a restrictive covenant under Section 219 of the *Land Title Act*, specifying conditions that would enable the land to be safely used for the use intended according to the terms of the engineer's report by Jim Mitchell, MSc., P.Eng. of Emerald Sea Engineering, dated August 27, 2019, revised September 24, 2019, which will form part of the restrictive covenant, as well as an acknowledgement that no Disaster Financial Assistance funding is available for the building or its contents and releasing and indemnifying the Comox Valley Regional District from liability in the event any damage is caused by flooding or erosion.

**Executive Summary**

- The property, located at 9570 Sarmma Road, is a 1.9 hectare lot located between Sarmma Road and the Oyster River.
- With respect to this property in relation to Oyster River, the Comox Valley Floodplain Management Bylaw requires a flood construction level (FCL) of at least 83 metres geodetic and a floodplain setback of at least 60 metres.
- The applicants are requesting a site specific exemption of the floodplain specifications to allow for a house to be placed 30 metres from the river (Appendix A) and provided a Geotechnical Assessment by an engineer to support the request (Appendix B).
- The proposed location for the dwelling is outside of the mapped floodplain and above the minimum required FCL but within the required floodplain setback.
- The Engineer certifies that the location of the new dwelling is safe and suitable for the use intended, that being a single detached dwelling.

- Staff recommends the request be granted on the basis that the proposed location is outside of the mapped floodplain, above the minimum required FCL, and is supported by a Geotechnical Assessment by an engineer. Further, the applicants are required to register a Section 219 Restrictive Covenant to acknowledge that no Disaster Financial Assistance funding is available for the building or its contents, and to release and indemnify the Comox Valley Regional District (CVRD) from liability.

Prepared by:

Concurrence:

Concurrence:

***B. Chow******T. Trieu******S. Smith***


---

 Brian Chow, RPP, MCIP  
 Rural Planner

---

 Ton Trieu, RPP, MCIP  
 Manager of Planning Services

---

 Scott Smith, RPP, MCIP  
 General Manager of Planning and  
 Development Services Branch

### Stakeholder Distribution (Upon Agenda Publication)

|            |   |
|------------|---|
| Applicants | ✓ |
|------------|---|

### Background/Current Situation

The subject property is a 1.9 hectare lot along the south side of the Oyster River (Figures 1 and 2). This segment of the Oyster River is a narrow stretch constricted by bedrock outcrops on the sides. The property is located at 9570 Sarmma Road in the Puntledge – Black Creek Electoral Area (Electoral Area C). The property was created in the 2005 subdivision that also created Sarmma Road and Pearl of the Oyster Park. The subject property is currently undeveloped and mostly treed. There exists a driveway along the western edge of the lot. The applicants intend to build a single detached dwelling on the subject property (Figure 3). The applicants propose to locate the single detached dwelling at least 30 metres from the natural boundary of Oyster River. As the CVRD Floodplain Management Bylaw states that land within 60 m from the natural boundary of Oyster River is designated as a floodplain setback, a site specific exemption is required.

### Planning Analysis

#### Official Community Plan Analysis

Bylaw No. 337, being the “Rural Comox Valley Official Community Plan Bylaw No. 337, 2014” (OCP), designates the subject property within Rural Settlement Areas (RSAs). Sections 15 and 16 of the OCP provide objectives and policies regarding development in the vicinity of natural hazards. Section 15(2) states, “*To direct new development away from hazard areas*” and Section 16(1) states, “*Do not permit new development in hazard areas, including mapped floodplains, steep slopes and areas of active erosion.*” The single detached dwelling is proposed to be located outside the mapped floodplain. While the lot is large enough that the single detached dwelling could be located beyond the 60 metre floodplain setback, the proposed location of the single detached dwelling is between the 84 to 86 metre elevation, which is higher than the 83 metre mapped FCL. Therefore, the proposal is consistent with the OCP.

#### Zoning Bylaw Analysis

The subject property is zoned Rural Eight (RU-8) which allows for residential use up to a maximum of two dwelling units. The proposed single detached dwelling is consistent with the Zoning Bylaw.

#### Floodplain Management Bylaw Analysis

Section 303(1) of Bylaw No. 2782, being the “Floodplain Management Bylaw, 2005”, states, “*The following distances are specified as floodplain setbacks: (a) 60.0 metres from the natural boundary of Oyster River*”. This is the minimum required distance from the watercourse to any landfill or structural support that

is required to meet the minimum FCL. The applicants are proposing to build the single detached dwelling approximately 30 metres from the natural boundary of Oyster River (Figures 3 and 4).

Section 403 of the bylaw allows for a property owner to apply for a site specific exemption. In support of the application, the applicants submitted a Geotechnical Assessment prepared by Jim Mitchell, MSc., P.Eng. of Emerald Sea Engineering, dated August 27, 2019, and revised on September 24, 2019 (Appendix B). According to the Engineer, the existing grade at the proposed single detached dwelling location is approximately between 84 and 86 metres, which is higher than the mapped minimum FCL of 83 metres (Figure 4). Flood water flows at this location are already obstructed by the bedrock outcropping at the northwest corner of the property and by vegetation (Figures 5 and 6).

With respect to the request to reduce the floodplain setback from 60 metres to 30 metres, the Engineer explains that floodplain setback reduction should be granted due to exposed stable bedrock rock and stable large boulder and cobble shoreline along the natural boundary (Figure 5). The massive rock outcropping at the upstream corner of the property deflects high velocity river flows away. Any development outside of the proposed 30 metres setback will not have a significant obstruction of flood flows and construction closer to the river than the standard 60 metres floodplain setback. The Engineer certifies that the location of the new dwelling is safe and suitable for the use intended, that being a single detached dwelling.

Should the CVRD Board grant the exemption, the bylaw requires the property owners to prepare and register a Section 219 Restrictive Covenant that releases and indemnifies the CVRD from liability in the event any damage is caused by flooding or erosion.

### **Policy Analysis**

Section 524 of the *Local Government Act* (RSBC, 2015, c. 1) (LGA) authorizes a local government to establish a bylaw to designate a flood plain and specify a setback from a watercourse, body of water or dike to any landfill or structural support required to elevate a floor system or pad above the flood level. Sections 524(7) and (8) allows a local government to grant an exemption to a floodplain bylaw upon receipt of a report by a qualified professional that the land may be used safely for the use intended and that the exemption may include terms and conditions the local government considers necessary or advisable.

### **Options**

The board may choose to grant or refuse the site specific exemption of the floodplain specifications. Staff recommends the site specific exemption of the floodplain specifications be granted on the basis that the proposed location is outside of the mapped floodplain, above the minimum required FCL, and is supported by a Geotechnical Assessment by an engineer.

### **Financial Factors**

Applicable fees have been collected for this application under the “Comox Valley Regional District Planning Procedures and Fees Bylaw No. 328, 2014.”

### **Legal Factors**

This report and recommendation contained herein are in compliance with the LGA and CVRD bylaws.

### **Regional Growth Strategy Implications**

Bylaw No. 120, being the “Comox Valley Regional District Regional Growth Strategy Bylaw No. 120, 2010” (RGS), designates the subject property within RSAs. Policy 1D-2 of the RGS, pertaining to the public costs of housing, states, “*Direct new housing away from high risk natural hazard areas such as*

*flood plains, areas exposed to sea-level rise...*” Policy 8F-6 pertaining to planning for climate change adaption states, *“All new development within established floodplains should be discouraged and redevelopment of lands within floodplain areas should only be supported where technical analysis by a qualified professional has been undertaken to ensure that lands are safe for use, development will not impact floodplain functions, and construction levels include safety factors to account for climate change and potential sea level rise and associated extreme storm surges.”* The proposed location is outside of the mapped floodplain and is supported by recommendations from a Qualified Professional.

**Intergovernmental Factors**

There are no intergovernmental factors.

**Interdepartmental Involvement**

This proposal was referred to applicable internal departments. None of the departments had any concerns or comments on this application.

**Citizen/Public Relations**

There are no citizen and/or public relations factors related to this report

Attachments: Appendix A – “Letter from Chris and Joséé Robinson regarding Site Specific Amendment to Floodplain Bylaw”  
Appendix B – “Engineer’s Report by Jim Mitchell, MSc. P.Eng., of Emerald Sea Engineering, dated August 27, 2019, revised on September 24, 2019”



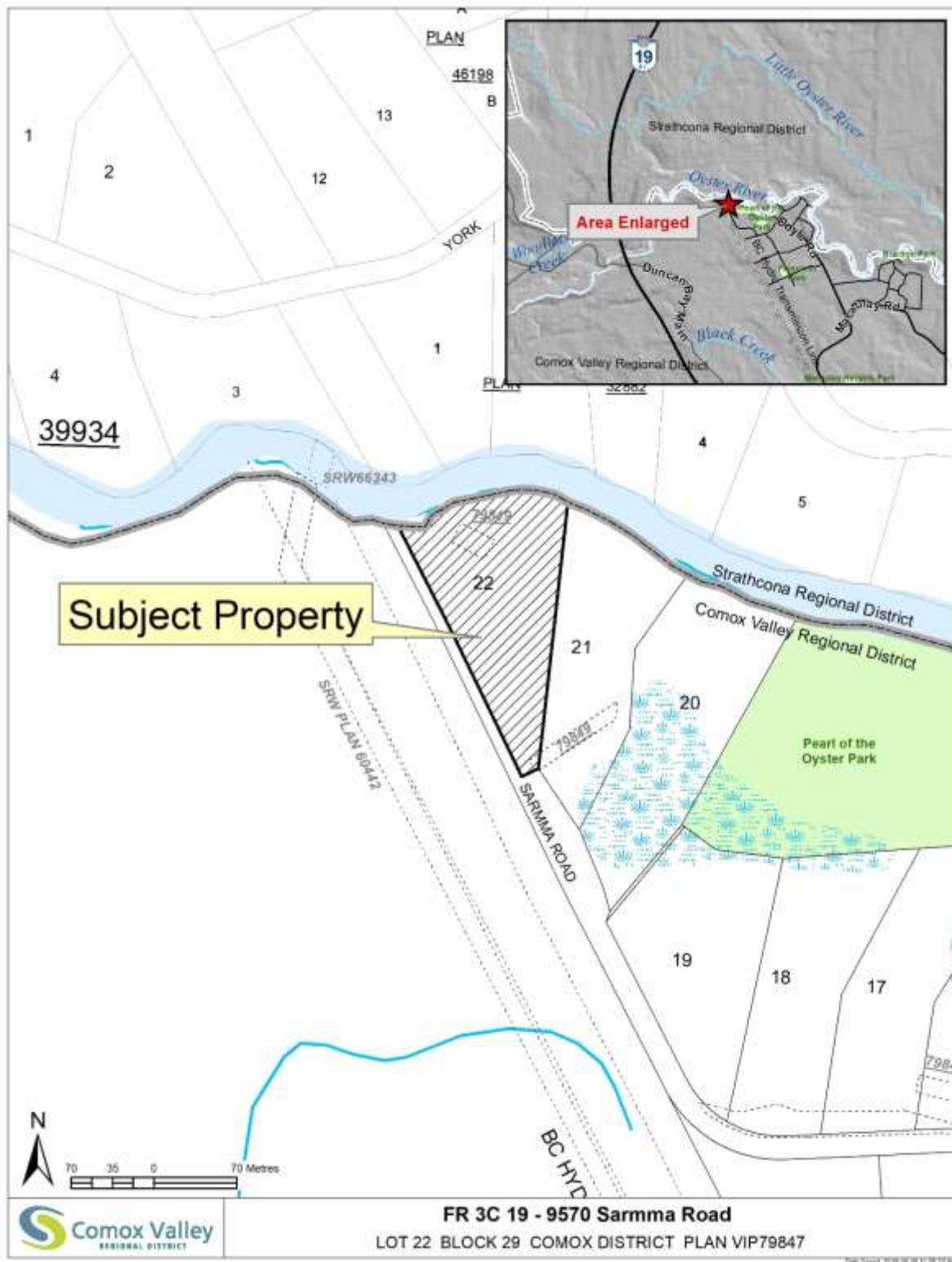


Figure 1: Subject Property Map

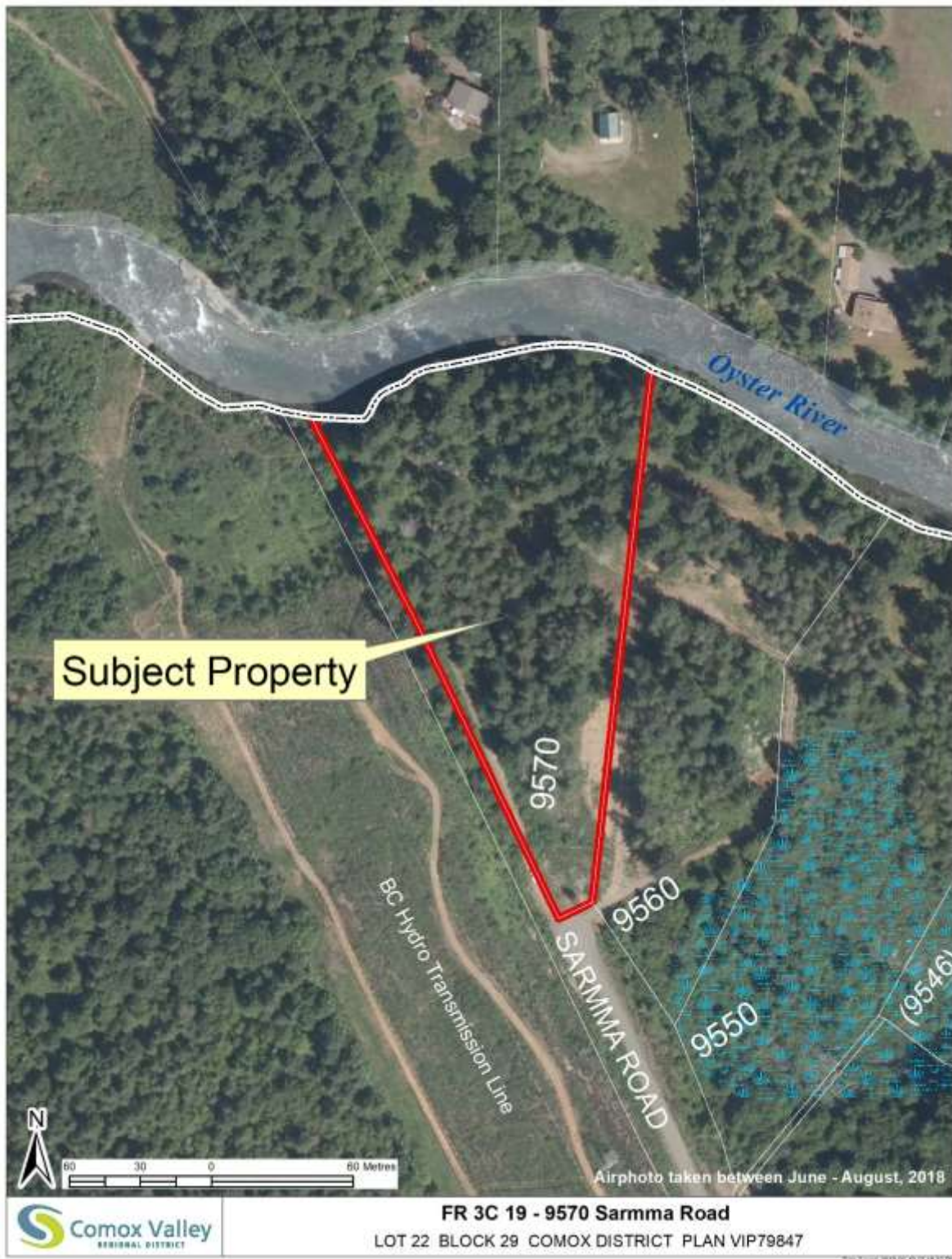


Figure 2: Air Photo



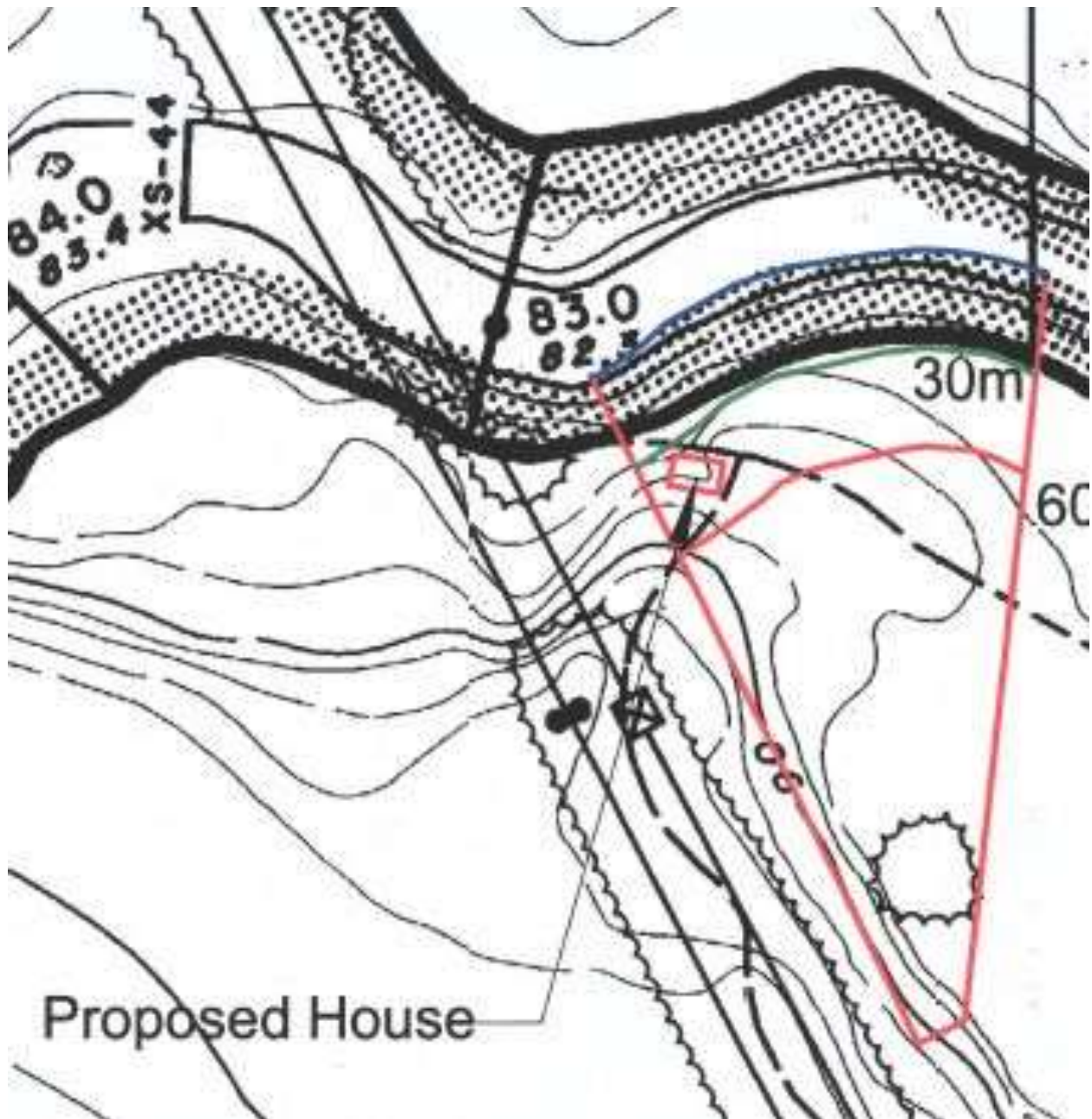
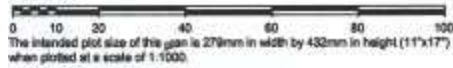


Figure 3: Floodplain Map

TOPOGRAPHIC PLAN OF:  
LOT 22, BLOCK 29, COMOX DISTRICT, PLAN VIP79847.

CIVIC: 9570 SARIMMA ROAD, BLACK CREEK, BC.  
P.I.D.: 028-477-886

Scale 1:1000



### LEGEND

Elevations are in meters and are Geodetic.  
Contour interval 0.5m

- Indicates standard iron post found
- P N B Indicates Present Natural Boundary
- △ Indicates wood stake placed

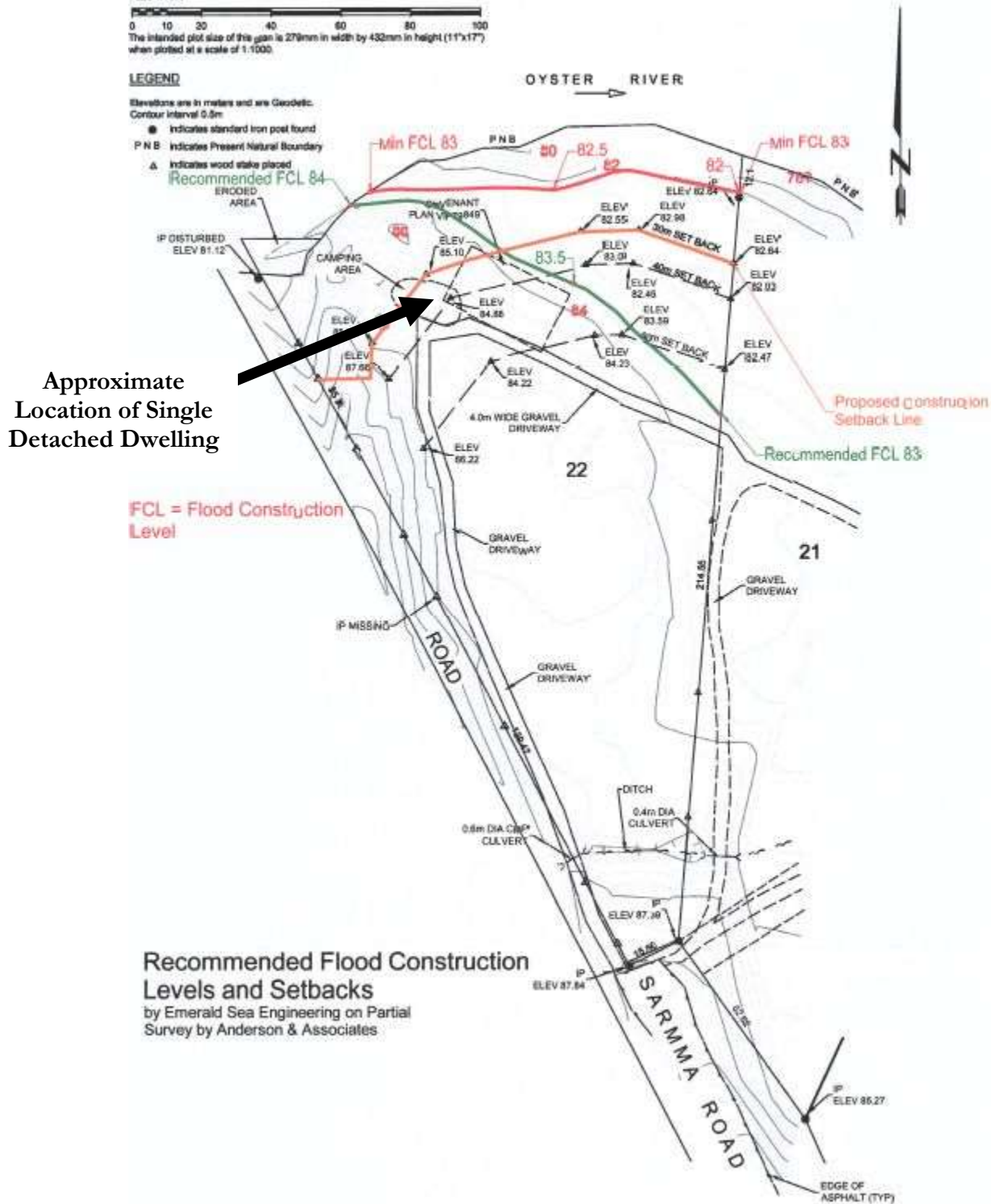






Figure 5: View of Oyster River from the Northwest Corner of the Subject Property Showing the Bedrock



Figure 6: Vegetation between Oyster River and Proposed Location of the Single Detached Dwelling

RE: PLAN VIP- 79849

Lot 22- Sarmma Rd. Black Creek, BC

CVRD Development Permitting Staff

Please consider this letter as a formal application for exemption from the default setback of 60 metres from the Oyster River to build our home.

Included in this application is the detailed topographical survey completed by J.E. Anderson & Associates on January 31<sup>st</sup>, 2019 along with pictures to support our application

The flood plain mapping indicates a minimal flood area on this section of the Oyster River. The elevation of the flood plain is between 82.2 and 82.8 metres at our natural boundary. Our proposed building site is at 85 metres and located at the top of a solid rock wall (pictures included).

The location of our home here has several advantages;

Upslope from the registered septic covenant.

Away from the horse stables and riding arena planned by the neighboring property owners. To compliment this, we intend on housing our gardens and animal pens in the same front section adjacent to our neighbors.

Area for home is presently mostly cleared of trees.

One of the highest elevation area of the property at approximately 85 metres.

The proposed home location is located at the end a pre-existing driveway so no further road construction will be required.

Proposed area of development is at the widest section of the property as it is pie shaped and therefore allows for the greatest distance from our neighbor to the East and BC Hydro owned land to the West.

The proposed location does not have any ephemeral streams or wetlands and will be located outside of the 30 metre Riparian Areas regulated under the Fish Protection Act.

Our neighbors to the south (Lot 21) have recently received an exemption to the 60 metre set-back from the CVRD and we feel that our property which is higher in elevation should be granted the same exemption.

Thank you for your time.

Chris and Josee Robinson

33838 Findlay Court

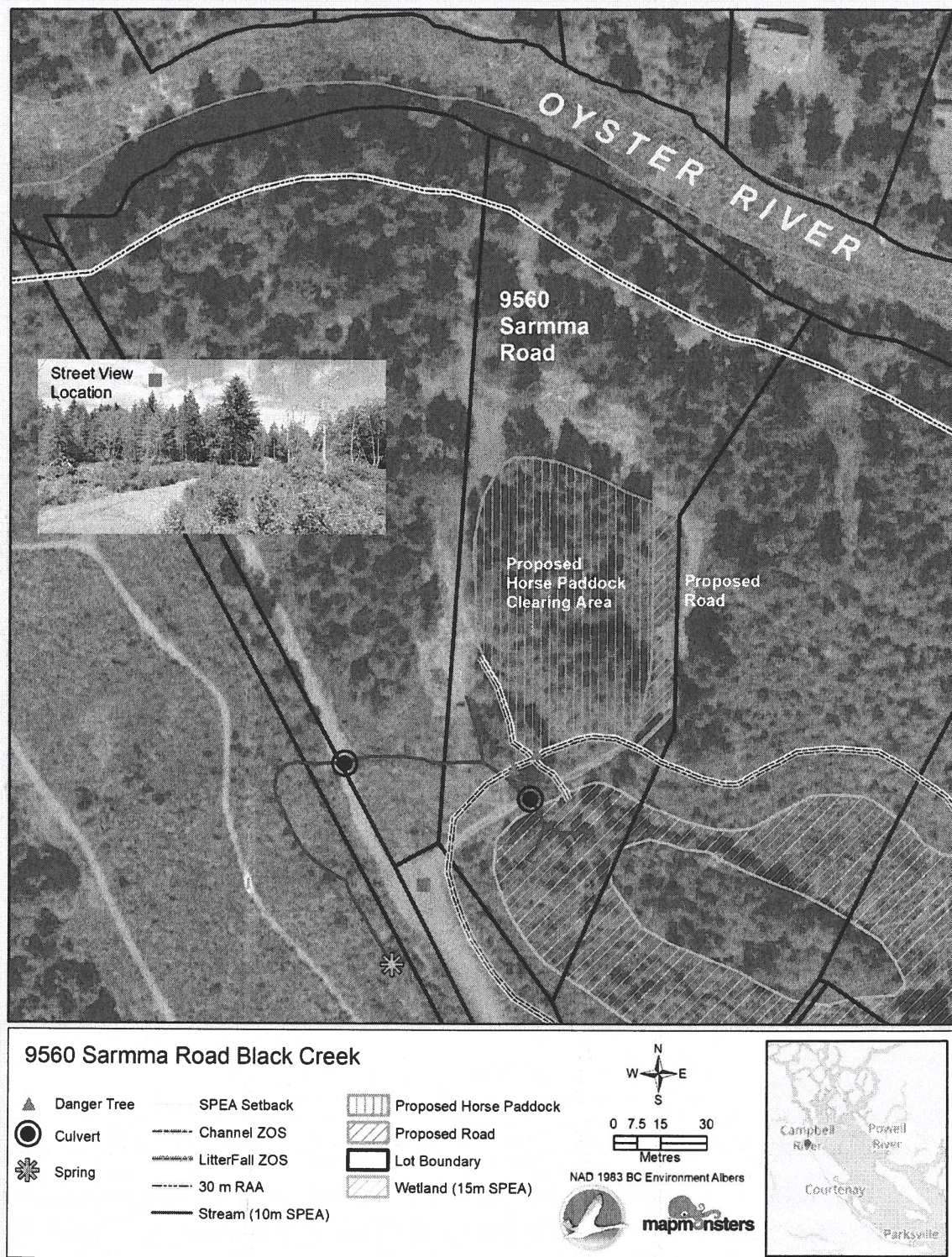
Mission, BC

V2V 7P6





### Section 3. Site Plan



Please note location of adjacent property horse paddock location.

Lot 21 (9560) has an approved Development Plan.



**EMERALD SEA ENGINEERING** 4920 Island highway North, Courtenay, BC V9N 9A1  
250-338-0882 jim.eseng@gmail.com



Green Shores

Green Sites

Green Buildings

August 27, 2019  
Revised September 24, 2019

Comox Valley Regional District  
600 Comox Road  
Courtenay, BC V9N 3P6

Attn: Planning Department

Dear Planning,

**PROJECT: Proposed Single Family Residence  
Lot 22 Sarmma Road, Oyster River, BC**

**SUBJECT: Relaxation of Floodplain Management Provisions**

**1. Introduction**

As requested, Emerald Sea Engineering has carried out an assessment of the flood plain issues at Lot 22 Sarmma Road and evaluated the suitability of the site for the construction of a single family residence within the standard 60 m setback from the river. This report provides an assessment and recommendations to the Board of the Comox Valley Regional District regarding a site specific exemption to the setback that would allow this construction.

**2. Project and Floodplain Location**

- a. The project location is on the south side of the Oyster River upstream of Highway 19A along McCauley to Doyle Road by about 8 km and below Hwy 19 by about 2 km (See Project Location Plan and Aerial Photograph).
- b. The proposed new dwelling location is within 60m of the natural boundary and construction in this zone requires an exemption from the Floodplain Bylaw and special provisions for construction.

**3. Project Description**

- a. Emerald Sea Engineering understands that the lot owner plans to build a single family residence at Lot 22 Sarmma Road.
- b. The house will be of typical wood frame construction.



**EMERALD SEA ENGINEERING**

Flood Plain Exemption Assessment  
Lot 22, 9570 Samma Road  
August 27, 2019, Revised September 24, 2019

**4. Objectives**

Our assessment is intended to meet the following objectives:

- a. Identify flood plain elevations and evaluate the appropriate elevation for the building floor elevation to prevent flooding;
- b. Review concerns about riverfront stability, erosion and restriction of the floodway capacity with regard to the proposed development.
- c. Review of exemption precedent's in the area.
- c. Provide a report to the Comox Valley Regional District certifying that the land may be used safely for the use intended and in accordance with the Comox Valley Regional District Floodplain Management Bylaw 2005 and Section 56 of the Community Charter.

**5. Methods**

- a.. The Provincial Floodplain Mapping for the Oyster River, File No. 0305030-9, Drawing No. 5532-2 and 5532-3, Scale 1:5000, May 1984 were obtained in PDF format from the Provincial web site and were reviewed.
- b. The Comox Valley Regional District Floodplain Management Bylaw 2005 was reviewed.
- c. The Comox Valley Regional District Bylaw 328, Procedures & Fees Bylaw, Schedule A-11, Request for Relaxation of Floodplain Management Provisions was reviewed.
- d. A Flood Plain Map (See attached) has been prepared based on the provincial flood plain mapping. The site is at the edge of the two maps and the portions of them nearest the subject property were spliced together and enlarged in order to be able to do a detailed review of the floodplain and geodetic contours in the immediate vicinity of project site. This site plan does not show the proposed building location or the distance to the top of bank of the Oyster River and the property lines are approximate. A Flood Plain Detail Map (See attached) has also been prepared showing the approximate proposed dwelling location and approximate distances to the Present Natural Boundary (PNB).
- e. Aerial photographs from the Regional Districts IMAP System were reviewed (See attached Aerial Photograph).
- f. Site reviews were conducted by walking the site on two occasions (See Photographs).

**EMERALD SEA ENGINEERING**

Flood Plain Exemption Assessment  
Lot 22, 9570 Sarmma Road  
August 27, 2019, Revised September 24, 2019

**6. Site Conditions**

- a. The lot has about a 2 to 3 m high rocky bank along the river front that is quite bluff and then the lot is relatively flat or gently sloping up towards Sarmma Road. The elevation is approximately 81 to 82 m geodetic datum along the PNB, 82 to 84 along the top of bank, 84 to 85 m for most of the area up to the road and then rises more rapidly about 3 to 4 m to Sarmma Road..
- b. The site is partially cleared with gravel access roads to camping areas nearer the shoreline and proposed building site. The remaining forested areas are low density growths of conifers. Site is well vegetated with no signs of erosion or drainage problems.
- c. Near surface soils appear to be rocky, gravelly sand with some clay and silt.
- d. Bedrock and large to medium boulders are existing along the river front and appear quite stable.

**7. Floodplain Bylaw**

- a. The Floodplain Management Bylaw requires that the Flood Construction Level (the bottom of a wood finished floor or top of a concrete slab) be as per the Provincial Floodplain Mapping.
- b. The project location is on the Provincial Preliminary Floodplain Mapping for Oyster River, 1984, Drawing Numbers 5532-2 & 3.
- c. The Floodplain Map shows that the 200 year floodplain elevation is approximately 83 m Geodetic Datum at the upstream side of the lot and 82 m at the downstream side of the lot. This includes freeboard above the estimated flood water level. The 20 year flood level is almost a metre lower (See attached Flood Plain Map).
- d. The Floodplain Management Bylaw requires that the house be setback 60m from the natural boundary of the Oyster River unless an exemption is granted. At its nearest point, the dwelling will be located approximately 30 m from the Top of Bank of the Oyster River formed by existing bedrock (See attached Flood Plain Detail Map). The Present Natural Boundary is about a couple of metres below the elevation of the proposed building location. The riverbank at the northwest corner of the lot nearest the proposed dwelling site is composed of a near vertical massive bedrock outcropping

**EMERALD SEA ENGINEERING**

Flood Plain Exemption Assessment  
Lot 22, 9570 Samma Road  
August 27, 2019, Revised September 24, 2019

(See attached Photographs 1<sup>st</sup> page).

- f. The existing grade at the proposed dwelling location is about 84 to 86 m. The 200 year flood level is approximately a metre below the 84 m elevation of the lower corner of the proposed building location. The floor elevation of the main portion of the dwelling will be significantly above this and is well above the estimated flood construction elevation of about 83 m. Flood water flows at this location are already obstructed by the bedrock outcropping at the northwest corner of the property and by shrubs and timber growth (See attached Photographs). Flood depths are expected to be zero at the proposed dwelling location at the northwest portion of the lot and less than 1m along the 30 m setback line at the central and east portions of the lot for the one in 200 year flood event and no flooding above the top of bank is expected for a 20 year flood event. The location is out of the main stream current of the river, protected by the rock outcropping and flood depths will be shallow so flood velocities are expected to be slow. As a result it is not expected that the new construction will restrict the flow capacity of the floodway.
- g. The case for granting a Flood Plain Exemption reducing the setback from 60 m down to 30 m appears to be strong from the review of the above mapping. However, the 30 m contour is quite close to the 200 year flood contour and with the scale of the provincial mapping and the accuracy of the contouring it was felt that the level of confidence in this analysis was not high and that it was prudent to have a more detailed topographic survey completed of the lot. This is presented in the attached Recommended Flood Construction Levels (FCLs) and Setbacks.
- h. The proposed construction setback from the PNB is 30m, shown in orange on the above drawing. The FCL from the province is shown in red and is close to the top of bank so no flooding would be expected under normal circumstances at the 30m setback line but there may be some risk as climate change progresses. The 30 m setback also provides a healthy setback from the river for habitat and biological concerns.
- i. The influence of Climate Change on these FCLs is not fully understood at this time. I understand that the Regional District is proceeding with an updated flood plain study of the Oyster River, but it is unlikely that this location would be within the area to be

**EMERALD SEA ENGINEERING**

Flood Plain Exemption Assessment  
 Lot 22, 9570 Samma Road  
 August 27, 2019, Revised September 24, 2019

updated as efforts will be focused on the higher risk areas nearer Highway 19A. While the expected 100 year increase in rainfall is only about 5-10%, it is unclear when this rainfall would occur and recent storms seem to indicate that the rainfall may occur as more intense "tropical" type storms. If the increased rainfall from these storms occur during the summer when the lakes, surface storage and groundwater levels are low they may not have a high impact. However, if they occur after several months of rain late in the winter season when water levels are high, the impacts on flooding could be significant. As a result, it is considered prudent to add an additional safety factor of 1 m to the FCL estimated by the province. This is the Recommended FCL shown in green on the Plan and ranges from 83 m to 84 m geodetic. As a result, it is not expected that any raising of floor level would be required in the western side of the lot behind the 30 m setback but that buildings built on the east side of the lot within 30-70m from the PNB would required raised foundations and or fill to prevent flooding. Appropriate foundation construction should be implemented to insure protection of the foundations from rare, shallow, low velocity flooding in these areas. Since this area is protected from mainstream river currents by the rock outcropping at the northwest corner, it is not expected that constructing a building in this area would have a significant impact on upstream flooding.

#### **8. Floodplain Exemption Precedents in the Area**

Much of the development along the Oyster River, especially along the lower reaches, does not comply with the 60 m flood plain setback. While much of this development may have occurred prior to requirements for this setback and not have formal exemptions, it demonstrates that an exemption or relaxation for this project will not be out of character with the area. In addition, I have worked on two other exemptions for house construction along the Oyster River which were granted within the last about 10 years. A flood plain exemption was granted for 2267 Glenmore Road for house construction in approximately 2008. More recently (2011-2012 construction pending) a flood plain reduction setback of 30m has been granted for a house at Lot 2 Plan 32882 Block 29 Land District 15 at the corner of York and Woodhouse Roads across the river from this site (See first two photos of nearby houses on the page 3 of the photos). There is also another house slightly upstream from the latter project that is shown in the

**EMERALD SEA ENGINEERING**

Flood Plain Exemption Assessment  
 Lot 22, 9570 Samma Road  
 August 27, 2019, Revised September 24, 2019

last picture. While no measurements were made of setbacks, it shows that a large house easily visible from the river is not out of character with the area and the building site for this project is much more sheltered and screened than either of the houses across the river. Lot 21 next to Lot 22 has also recently been granted a floodplain setback exemption and is significantly lower lying than this property.

**9. Request for Relaxation of Floodplain Management Provisions**

It is requested that the owner be allowed a Flood Plain Setback Exemption since there is exposed stable bedrock rock and stable large boulder and cobble shoreline along the Natural Boundary. Even if the areas that don't have exposed bedrock were to erode, the bedrock below is at a shallow depth and it is expected that the erosion would not progress more than a metre or so from the current Natural Boundary. In addition the upstream corner of the property has a massive rock outcropping that deflects high velocity river flows away from the boulder and cobble shorelines farther downstream. Any construction outside the proposed 30 m setback will not have a significant obstruction of flood flows and construction closer to the river than the standard 60 m flood plain setback is consistent with the required riparian setback, the adjacent development and other Flood Plain Exemptions granted along the Oyster River.

**10. Conclusions and Recommendations**

I hereby certify that the location of the new house at Lot 22 Samma Road is safe and suitable for the use intended, that being a single family dwelling and is in accordance with the Comox Strathcona Regional District Floodplain Management Bylaw 2005 by and Section 56 of the Community Charter. No special conditions are required for mitigating the risks of increased flooding for this project as any construction will be 30 m from the Natural Boundary and in the backwater of the large rock outcropping at the upstream side of the property. Normal anchorage and construction practices are acceptable.

**11. Acknowledgements**

This report may be used by the Comox Valley Regional District as a reference for purposes of granting a building permit and/or a Floodplain Exemption as per the Comox

**EMERALD SEA ENGINEERING**

Flood Plain Exemption Assessment  
Lot 22, 9570 Sarmma Road  
August 27, 2019, Revised September 24, 2019

Valley Regional District Floodplain Management Bylaw 2005 and Section 56 of the Community Charter. We acknowledge that this report has been prepared solely for, and at the expense of the owner. We have not acted for or as an agent of the Comox Valley Regional District in the preparation of this report.

**12. Limitations**

- a. The conclusions and recommendations submitted in this report are based upon the data obtained from a limited number of observations. The nature and extent of variations may not become evident until construction or further investigation. If unanticipated conditions are discovered, Emerald Sea Engineering should be contacted immediately to allow reassessment of the recommendations provided herein.
- b. The report applies to the subject lot only and no warranty is made, expressed or implied. Emerald Sea Engineering accepts no responsibility for decisions made by an unauthorized third party using this report.

**13. Closure**

- a. Emerald Sea Engineering prepared this report for and at the expense of Chris Roberston for his express purpose of applying to the Comox Valley Regional District for Relaxation of the Floodplain Management Provisions by a Site Specific Exemption as per Section 524 of the Local Government Act and for issuance of a Building Permit.
- b. Emerald Sea Engineering and Jim Mitchell, PEng have not acted for or as an agent of the Comox Valley Regional District in the preparation of this report.
- c. Attached is an EGBC Flood Assurance Statement.
- d. A Request for Relaxation of Floodplain Management Provisions is attached.
- e. This report was prepared by Jim Mitchell, a Professional Engineer in good standing with the Association of Engineers and Geoscientists of British Columbia and has adequate experience to provide this report.

We trust that this report meets your needs. Please contact us at if you require additional information or clarifications.

**EMERALD SEA ENGINEERING**

Flood Plain Exemption Assessment  
Lot 22, 9570 Samma Road  
August 27, 2019, Revised September 24, 2019

I certify this to be a report prepared by Jim Mitchell, PEng

Sincerely,

Jim Mitchell, MSc, PEng  
Emerald Sea Engineering

Attachments:

- Location Plan
- Aerial Photo
- Sheet 1 Flood Plain Map
- Sheet 2 Flood Plain Detail Map
- Recommended Flood Construction Levels and Setbacks
- Photographs
- EGBC Flood Assurance Statement
- CVRD Request for Relaxation of Floodplain Management Provisions

**EMERALD SEA ENGINEERING**

**Flood Plain Exemption Assessment  
Lot 22, 9570 Samma Road  
August 27, 2019, Revised September 24, 2019**

I certify this to be a report prepared by Jim Mitchell, PEng

Sincerely,



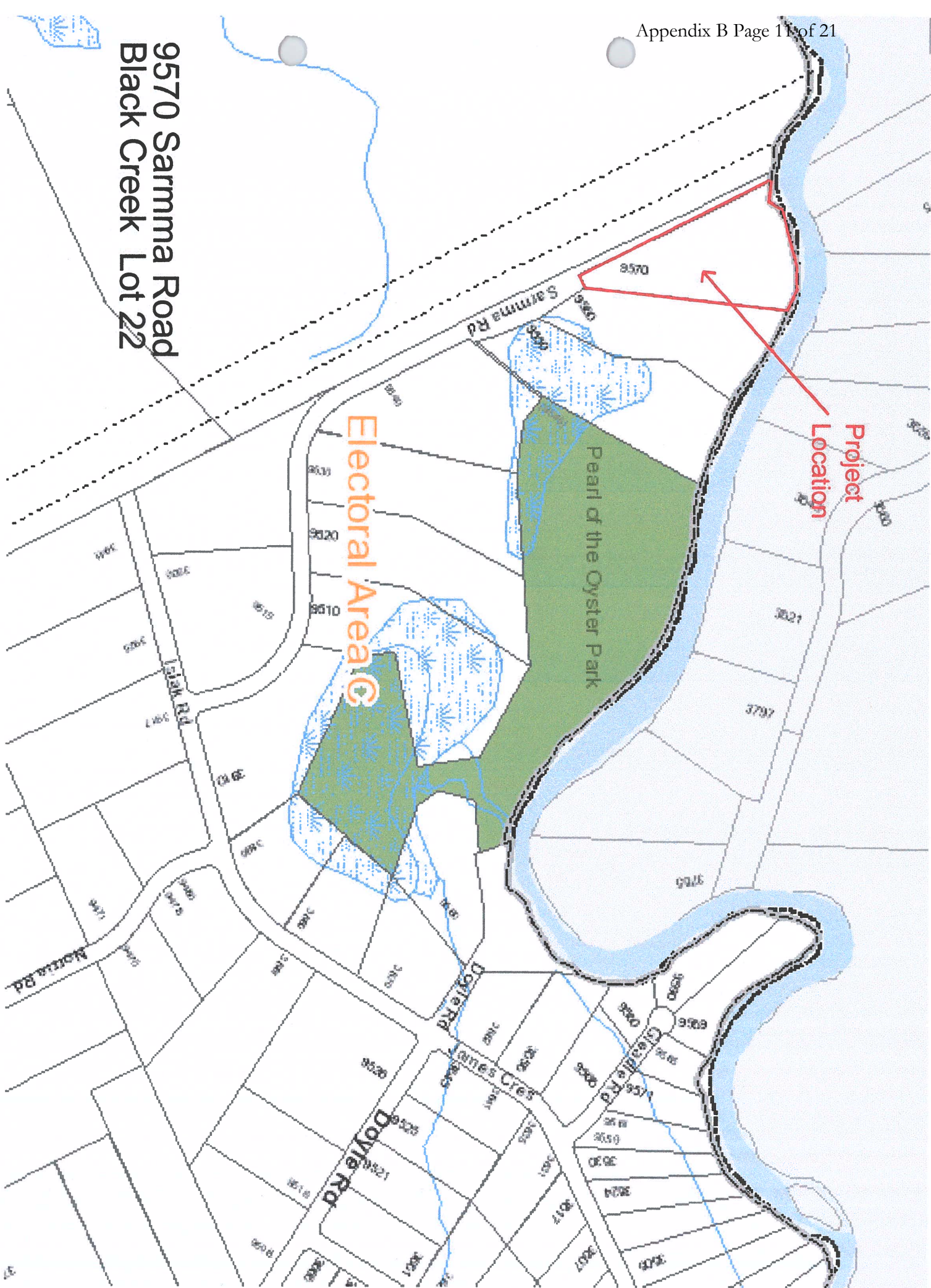
Jim Mitchell, MSc, PEng  
Emerald Sea Engineering

**Attachments:**

Location Plan  
Aerial Photo  
Sheet 1 Flood Plain Map  
Sheet 2 Flood Plain Detail Map  
Recommended Flood Construction Levels and Setbacks  
Photographs  
EGBC Flood Assurance Statement  
CVRD Request for Relaxation of Floodplain Management Provisions



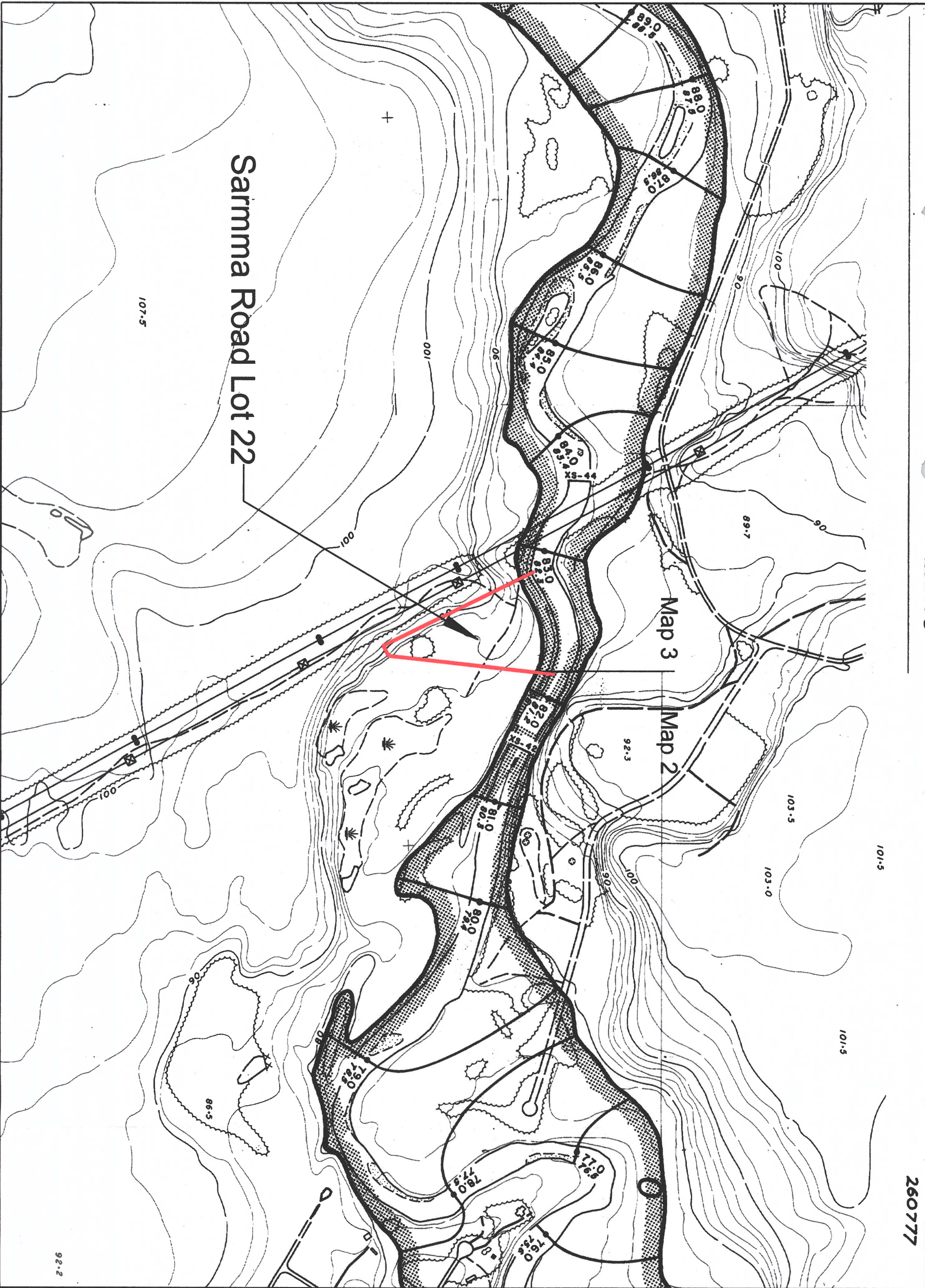






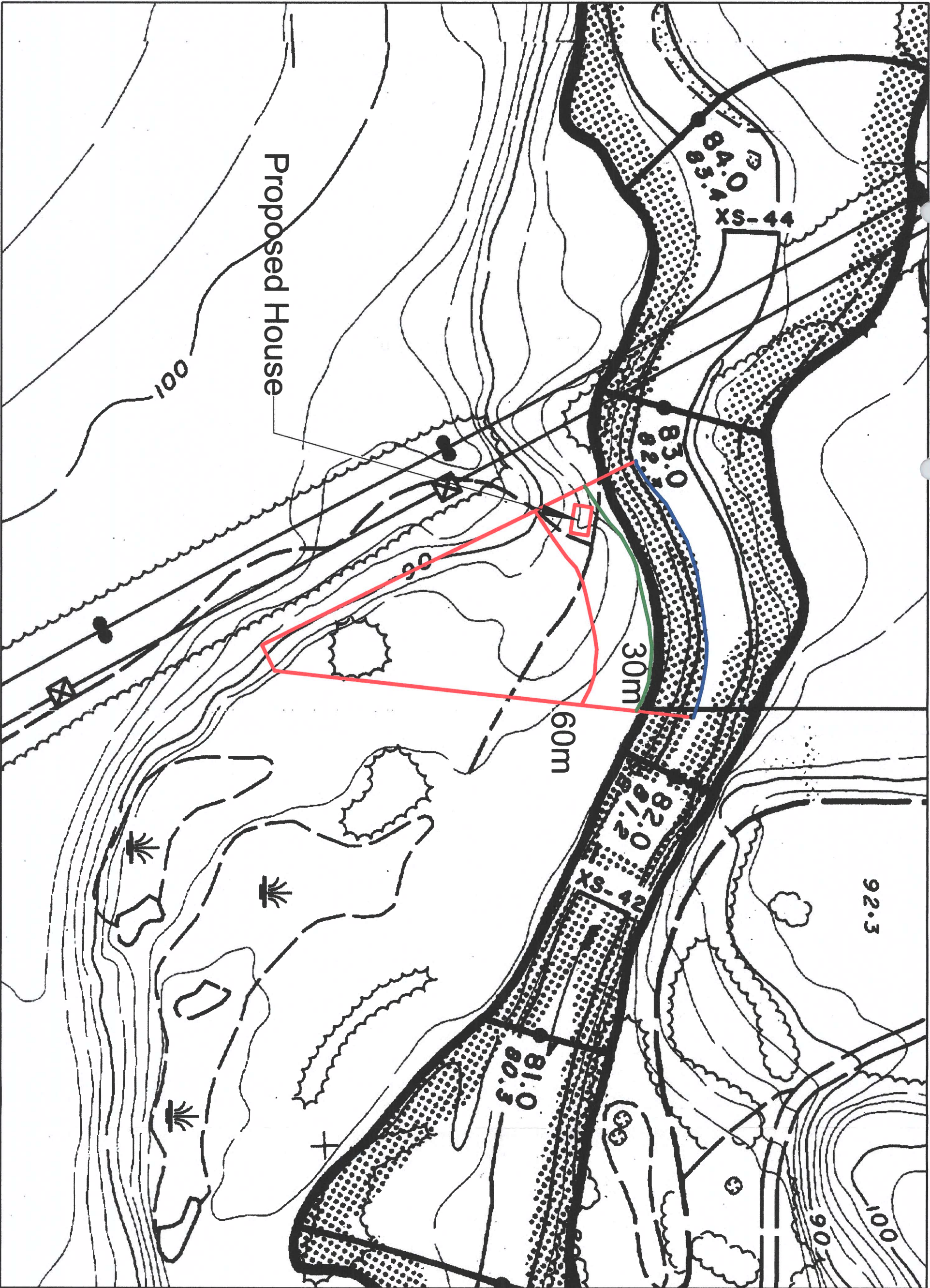






| REVISIONS BY              |  |                    |
|---------------------------|--|--------------------|
|                           |  |                    |
|                           |  |                    |
|                           |  |                    |
| Emerald Sea Engineering   |  | Sarmma Road Lot 22 |
| 4920 Island Highway North |  | Flood Plain Map    |
| Courtenay, BC V9N 5Z1     |  |                    |
| 250-338-0882              |  |                    |
| jim.eseng@gmail.com       |  |                    |
| DATE: 31 July 18          |  |                    |
| Scale: 1:5000             |  |                    |
| Drawn: JAM                |  |                    |
| Sarmma Lot 22             |  |                    |
| Sheet 1                   |  |                    |
| of 2 Sheets               |  |                    |





| REVISIONS BY  |  |  |  |  |
|---|--|--|--|--|
|   |  |  |  |  |
|   |  |  |  |  |
| Emerald Sea Engineering   |  |  |  |  |
| 4920 Island Highway North<br>Courtenay, BC V9N 5Z1<br>250-338-0882<br>jim.eseng@gmail.com |  |  |  |  |
| Sarmma Lot 22<br>Flood Plan Detail Map  |  |  |  |  |
| DATE: 31 July 18  |  |  |  |  |
| Scale: 1:2000   |  |  |  |  |
| Drawn: JAM  |  |  |  |  |
| Sarmma Lot 22   |  |  |  |  |
| Sheet 2   |  |  |  |  |
| of 2 Sheets   |  |  |  |  |



TOPOGRAPHIC PLAN OF:  
LOT 22, BLOCK 29, COMOX DISTRICT, PLAN VIP79847.

CIVIC: 9570 SARMMA ROAD, BLACK CREEK. BC.  
P.I.D.: 026-477-866

Scale 1:1000

0 10 20 40 60 80 100  
The intended plot size of this plan is 279mm in width by 432mm in height (11"x17")  
when plotted at a scale of 1:1000.

LEGEND

Elevations are in meters and are Geodetic.  
Contour interval 0.5m

- indicates standard iron post found
- P N B indicates Present Natural Boundary
- ▲ indicates wood stake placed

Recommended FCL 84

ERODED AREA

IP DISTURBED ELEV 81.12

CAMPING AREA

ELEV 85.72

ELEV 87.66

ELEV 85.08

ELEV 84.88

ELEV 84.22

ELEV 86.22

4.0m WIDE GRAVEL DRIVEWAY

GRAVEL DRIVEWAY

IP MISSING

ROAD

GRAVEL DRIVEWAY

GRAVEL DRIVEWAY

0.6m DIA CMP CULVERT

DITCH

0.4m DIA CULVERT

IP ELEV 87.39

IP ELEV 87.84

15.80

SARMMA ROAD

EDGE OF ASPHALT (TYP)

IP ELEV 85.27

214.55

GRAVEL DRIVEWAY

21

22

40m SET BACK

30m SET BACK

60m SET BACK

ELEV 82.55

ELEV 82.98

ELEV 82.64

ELEV 82.03

ELEV 82.45

ELEV 83.59

ELEV 84.23

ELEV 82.47

ELEV 82.64

ELEV 82.64

ELEV 82.55

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

ELEV 82.5

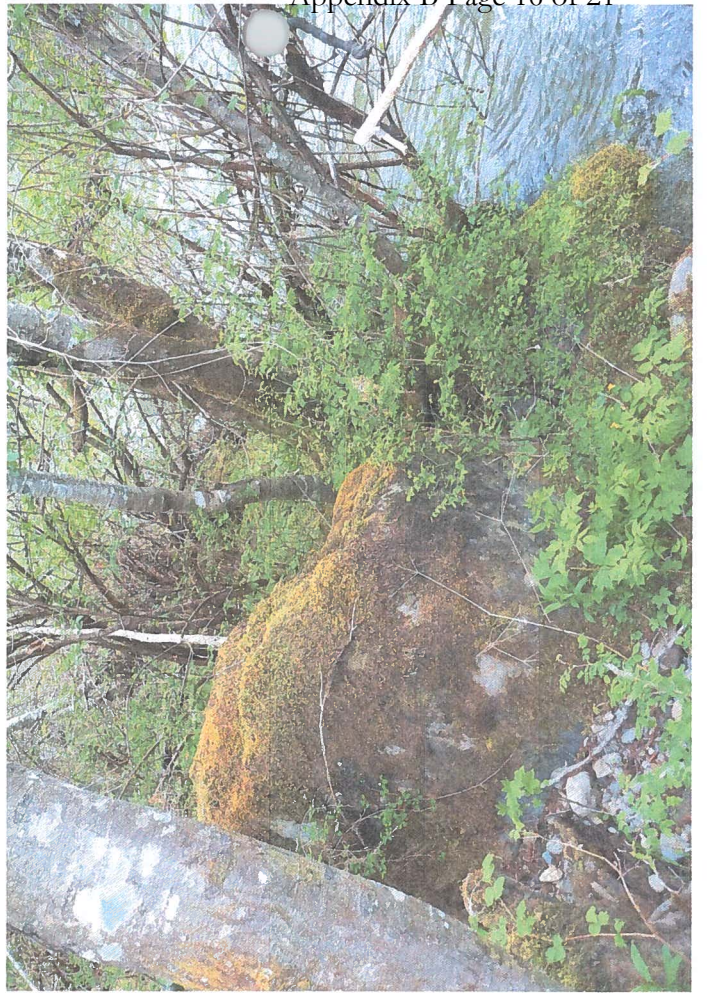
ELEV 82.5

ELEV 82.5

ELEV 82.5

Recommended Flood Construction  
Levels and Setbacks  
by Emerald Sea Engineering on Partial  
Survey by Anderson & Associates

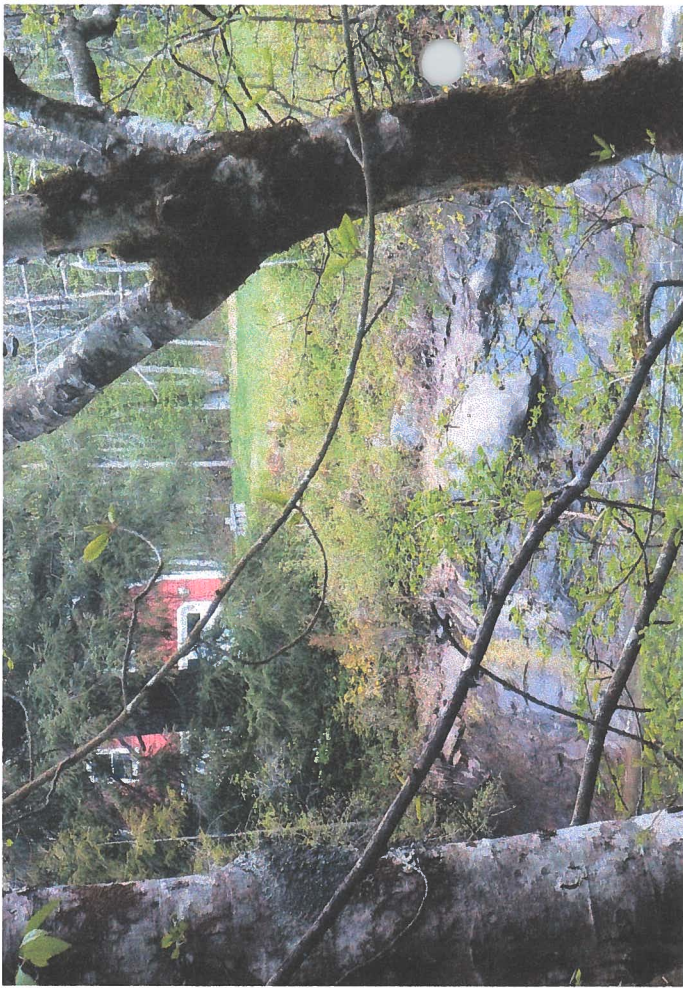














# FLOOD ASSURANCE STATEMENT

Note: This statement is to be read and completed in conjunction with the current Engineers and Geoscientists BC *Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC* ("the guidelines") and is to be provided for flood assessments for the purposes of the *Land Title Act*, *Community Charter*, or the *Local Government Act*. Defined terms are capitalized; see the Defined Terms section of the guidelines for definitions.

To: The Approving Authority

Date: Aug 27, 2019

Comox Valley Regional District

600 Comox Road, Courtenay, BC V9N 3P6

Jurisdiction and address

With reference to (CHECK ONE):

- ☐ *Land Title Act* (Section 86) – Subdivision Approval
- ☐ *Local Government Act* (Part 14, Division 7) – Development Permit
- ☐ *Community Charter* (Section 56) – Building Permit
- ☐ *Local Government Act* (Section 524) – Flood Plain Bylaw Variance
- ☒ *Local Government Act* (Section 524) – Flood Plain Bylaw Exemption

For the following property ("the Property"):

Lot 22, Block 29, Comox District, Plan 79847 9570 Sarmma Road , Black Creek, BC

Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a Qualified Professional and is a Professional Engineer or Professional Geoscientist who fulfils the education, training, and experience requirements as outlined in the guidelines.

I have signed, sealed, and dated, and thereby certified, the attached Flood Assessment Report on the Property in accordance with the guidelines. That report and this statement must be read in conjunction with each other. In preparing that Flood Assessment Report I have:

[CHECK TO THE LEFT OF APPLICABLE ITEMS]

- x 1. Consulted with representatives of the following government organizations:  
Comox Valley Regional District & BC Ministry of Environment
- x 2. Collected and reviewed appropriate background information
- x 3. Reviewed the Proposed Development on the Property
- x 4. Investigated the presence of Covenants on the Property, and reported any relevant information
- x 5. Conducted field work on and, if required, beyond the Property
- x 6. Reported on the results of the field work on and, if required, beyond the Property
- x 7. Considered any changed conditions on and, if required, beyond the Property
- 8. For a Flood Hazard analysis I have:
  - x 8.1 Reviewed and characterized, if appropriate, Flood Hazard that may affect the Property
  - x 8.2 Estimated the Flood Hazard on the Property
  - x 8.3 Considered (if appropriate) the effects of climate change and land use change
  - x 8.4 Relied on a previous Flood Hazard Assessment (FHA) by others
  - x 8.5 Identified any potential hazards that are not addressed by the Flood Assessment Report
- 9. For a Flood Risk analysis I have:
  - x 9.1 Estimated the Flood Risk on the Property
  - x 9.2 Identified existing and anticipated future Elements at Risk on and, if required, beyond the Property
  - x 9.3 Estimated the Consequences to those Elements at Risk

# FLOOD ASSURANCE STATEMENT

10. In order to mitigate the estimated Flood Hazard for the Property, the following approach is taken:
- ☒ 10.1 A standard-based approach
  - ☐ 10.2 A Risk-based approach
  - ☐ 10.3 The approach outlined in the guidelines, Appendix F: Flood Assessment Considerations for Development Approvals
  - ☐ 10.4 No mitigation is required because the completed flood assessment determined that the site is not subject to a Flood Hazard
11. Where the Approving Authority has adopted a specific level of Flood Hazard or Flood Risk tolerance, I have:
- ☐ 11.1 Made a finding on the level of Flood Hazard or Flood Risk on the Property
  - ☒ 11.2 Compared the level of Flood Hazard or Flood Risk tolerance adopted by the Approving Authority with my findings
  - ☐ 11.3 Made recommendations to reduce the Flood Hazard or Flood Risk on the Property
12. Where the Approving Authority has not adopted a level of Flood Hazard or Flood Risk tolerance, I have:
- ☐ 12.1 Described the method of Flood Hazard analysis or Flood Risk analysis used
  - ☐ 12.2 Referred to an appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk
  - ☐ 12.3 Made a finding on the level of Flood Hazard or Flood Risk tolerance on the Property
  - ☐ 12.4 Compared the guidelines with the findings of my flood assessment
  - ☐ 12.5 Made recommendations to reduce the Flood Hazard or Flood Risk
- ☒ 13. Considered the potential for transfer of Flood Risk and the potential impacts to adjacent properties
- ☒ 14. Reported on the requirements for implementation of the mitigation recommendations, including the need for subsequent professional certifications and future inspections.

Based on my comparison between:

[CHECK ONE]

- ☒ The findings from the flood assessment and the adopted level of Flood Hazard or Flood Risk tolerance (item 11.2 above)
- ☐ The findings from the flood assessment and the appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk tolerance (item 12.4 above)

I hereby give my assurance that, based on the conditions contained in the attached Flood Assessment Report:

[CHECK ONE]

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

[CHECK ONE]

- ☐ With one or more recommended registered Covenants.
  - ☐ Without any registered Covenant.
  - ☐ For a development permit, as required by the *Local Government Act* (Part 14, Division 7), my Flood Assessment Report will "assist the local government in determining what conditions or requirements it will impose under subsection (2) of this section [Section 491 (4)]".
  - ☐ For a building permit, as required by the *Community Charter* (Section 56), "the land may be used safely for the use intended":
- [CHECK ONE]
- ☐ With one or more recommended registered Covenants.
  - ☐ Without any registered Covenant.
  - ☐ For flood plain bylaw variance, as required by the *Flood Hazard Area Land Use Management Guidelines* and the *Amendment Section 3.5 and 3.6* associated with the *Local Government Act* (Section 524), "the development may occur safely".
  - ☒ For flood plain bylaw exemption, as required by the *Local Government Act* (Section 524), "the land may be used safely for the use intended".

## FLOOD ASSURANCE STATEMENT

I certify that I am a Qualified Professional as defined below.

August 27, 2019

Date

James A Mitchell

Prepared by

James A Mitchell

Name (print)

Signature

4920 Island Highway North

Address

Courtenay, BC V9N 5Z1

250-338-0882

Telephone

jim.eseng@gmail.com

Email

Reviewed by

Name (print)

Signature

(Affix PROFESSIONAL SEAL here)

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

I am a member of the firm Emerald Sea Engineering

and I sign this letter on behalf of the firm.

(Name of firm)