



ALBERNI-CLAYOQUOT REGIONAL DISTRICT

3008 Fifth Avenue, Port Alberni BC, CANADA V9Y 2E3 Telephone (250) 720-2700 Fax (250) 723-1327

Rezoning Application

MEETING DATE: October 23, 2019

ACRD FILE NO.: RF19008

APPLICANTS: Ronald & Dianne Crema

LEGAL

DESCRIPTION: LOT A DISTRICT LOT 95 ALBERNI DISTRICT PLAN EPP24890

LOCATION: 6088 Renton Rd. S

ELECTORAL AREA: "F" Cherry Creek

Applicant's Intention: The property owners have applied to rezone the 0.909 ha (2.246 ac) parcel from Small Holdings (A 1) District to Acreage Residential (RA 3) District to facilitate a two (2) lot subdivision, which includes a 0.607 ha (1.5 ac) parcel and a remainder 0.283 ha (0.7 ac) parcel.

Recommendations:

- THAT Bylaw P1400, Regional District of Alberni-Clayoquot Zoning Atlas Amendment Bylaw be read a first time;
- THAT the public hearing for Bylaw P1400 be delegated to the Director for Electoral Area 'F', the Alternate Director or the Chairperson of the Regional District;
- THAT the Board of Directors confirm that adoption of Bylaws and P1400 is subject to:
 - a. Meeting technical referral agency requirements.

Observations:

- i) **Status of Property:** The 0.909 ha (2.246 ac) parcel is mostly flat, apart from a gradual slope down from east to west at the rear of the property, and a slight undulation from the eastern edge of the proposed lot towards the neighbours driveway. It is covered by second growth forest and scrub on the westernmost three quarters and a single family dwelling and cleared front yard on the easternmost quarter. The property is bordered by rural residential properties to the north, south, and across Renton Road to the east and an undeveloped acreage residential property to west.

RF19008

ii) Services

- a. **Sewage Disposal:** On-site sewage disposal. The property owner has been in contact with a Registered On-Site Wastewater Practitioner to confirm that the proposed lot is capable of accommodating on-site sewage.
- b. **Water Supply:** Cherry Creek community water system.
- c. **Fire Protection:** Cherry Creek fire protection area.
- d. **Access:** Access for the property is off Renton Road. The applicant has been communicating with the neighbor to the north to widen the driveway on the northern edge of the property to gain access to the proposed lot.

iii) Existing Planning Policies Affecting the Site

- a. **Agricultural Land Reserve:** Not within the Agricultural Land Reserve.
- b. **Official Community Plan:** The Cherry Creek Official Community Plan designates the property as "Residential Use". This designation permits a minimum parcel size of 0.24 hectares (0.6 acres) for properties with access to a community water system. The property is within the Cherry Creek Waterworks District.

The Cherry Creek OCP recognizes that there may be need for additional housing and a diversity of housing types to increase supply an affordability. This proposal provides an opportunity for infill development.

The subject property is not within a Development Permit Area.

The proposal complies with the policies and objectives of the Cherry Creek Official Community Plan.

- c. **Zoning:** The property is zoned Small Holdings District (A 1) and the property owner is applying to rezone to Acreage Residential District (RA 3).

	A 1 District (existing)	RA 3 District (proposed)
Minimum Lot Area:	2 acres	0.6 acre
Minimum Lot Width:	165 feet	98.425 feet
Lot Coverage:	-	15%
Minimum Setbacks		
Front:	25 feet	49.21 feet
Rear:	30 feet	32.8 feet
Side:	5 feet	16.4 feet

The applicant intends to rezone the property to allow for a two (2) lot subdivision of the 0.909 ha (2.246 ac) parcel. Rezoning the property from Small Holdings (A 1) District to Acreage Residential (RA 3) would allow the property to be subdivided into the proposed ha 0.607 (1.5 ac) parcel and a remainder 0.283 ha (0.7 ac) parcel.

RF19008

The proposed development requires a rezoning of the subject property from Small Holdings (A 1) District to Acreage Residential (RA 3).

Comments:

- The proposed Zoning Bylaw map and text amendments are necessary to facilitate the applicants intended subdivision plan for a 0.607 ha (1.5 ac) parcel and a remainder 0.283 ha (0.7 ac) parcel. The applicant intends to build a house towards the front of the new lot, maintaining a treed buffer between the new home and the existing dwelling. While this proposal requires some clearing for driveway access, the applicant intends to keep many of the mature hemlock and cedar trees.
- The applicant has proposed to gain access to the new lot by widening the northern neighbour's existing driveway along the northern property line and accessing the proposed house near the front of the proposed new lot. The neighbouring property owner is amenable to this proposal.
- The approving officer will determine if the applicant needs to develop Tebo Avenue at the subdivision stage.
- The westernmost property line is boarders DPA I – Riparian Areas. A Development Permit may be necessary at the subdivision stage for the area covered under DPA I – Riparian Areas on the right-of-way. The location of this low-lying wetland and the environmental values that it affords, may reduce the desirability of developing Tebo Avenue.
- Confirmation from a Registered Onsite Waterwater Practitioner stating that the proposed lot meets the intent of septic and subdivision standards will be required at the subdivision stage.
- The proposal complies with the requirements of the Cherry Creek OCP, would not be out of character in this area, and provides a good opportunity for infill development

Submitted by:



Sarah Holden, Junior Planner

Reviewed by:



Mike Irg, MCIP, RPP
Manager of Planning & Development

Approved by:



Douglas Holmes, BBA, CPA, CA
Chief Administrative Officer

RF19008

RF19008 CREMA SITE VISIT IMAGES



View from Renton looking west down neighbours driveway on northern border of property. Applicants intend to use driveway to access proposed subdivision.



View facing east from proposed building site.



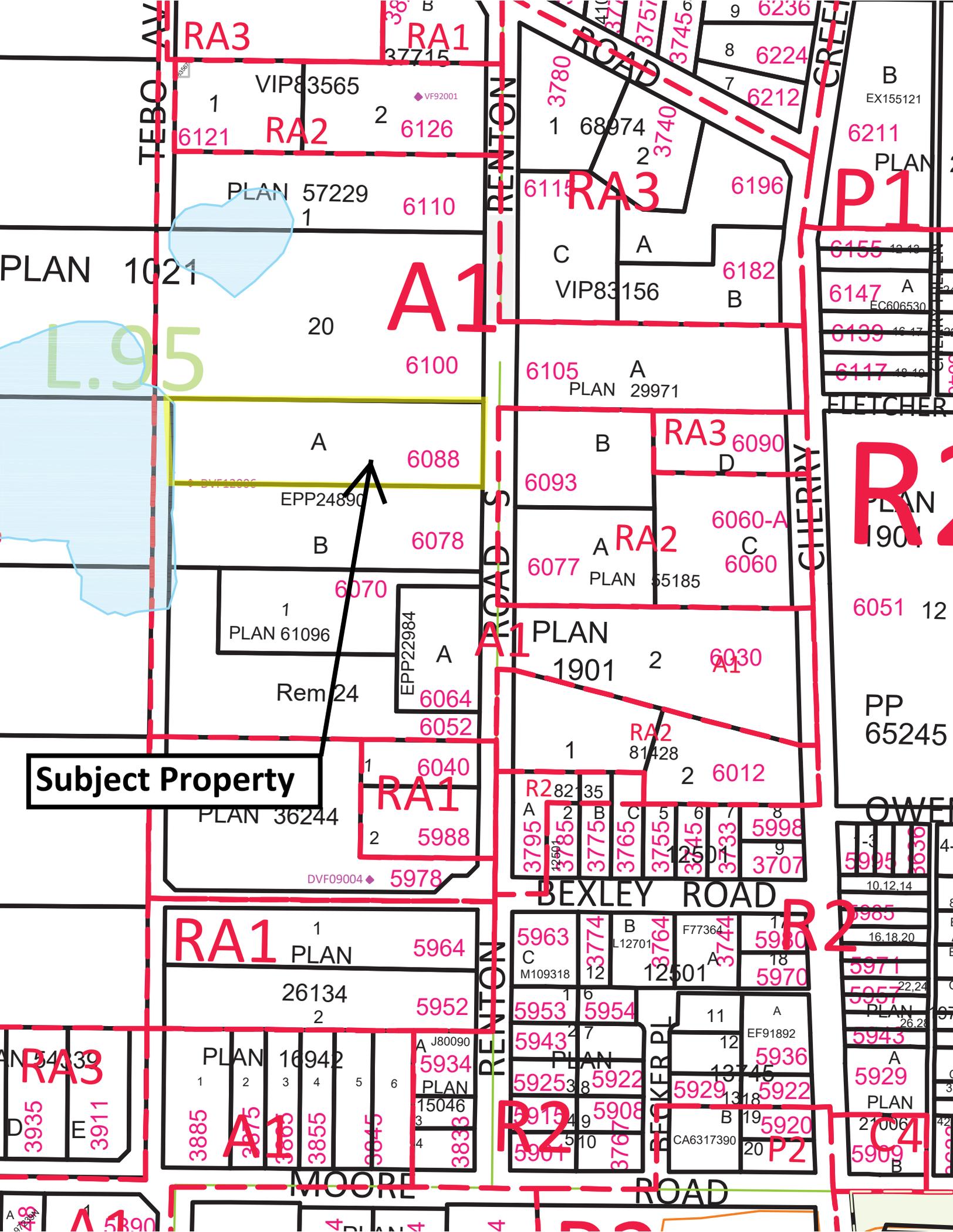
View facing north from proposed building site.



View of existing house from Renton road looking west. Proposed new lot starts within tree stand behind home.



Edge of tree line around eastern extent of proposed lot. Land undulates from trees north towards neighbours driveway.



RA3

RA1

6121

RA2

6126

PLAN 57229

6110

RA3

6196

P1

PLAN 1021

A1

6100

6105

PLAN 29971

RA3

6090

R2

A

6088

6093

B

EPP24890

B

6078

A

RA2

6060-A

6060

6070

6077

PLAN 55185

PLAN 61096

A

A1

PLAN 1901

2

6030

Rem 24

EPP22984

6064

6052

RA2

81428

6012

Subject Property

RA1

6040

PLAN 36244

6020

5988

R2

82135

5998

DVF09004

5978

3795

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RA1

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PLAN

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3774

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26134

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PLAN 16942

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5943

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5936

5922

PLAN 15046

3833

5925

5908

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5922

PLAN 3885

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5915

3767

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5920

PLAN 3885

3875

5901

3767

5929

5920



ALBERNI-CLAYOQUOT REGIONAL DISTRICT

3008 Fifth Avenue, Port Alberni, BC V9Y 2E3

Phone: (250) 720-2700 Fax: (250) 723-1327

APPLICATION FOR DEVELOPMENT

RF19008
PL20190055

- Official Community Plan Amendment
- Zoning Map Amendment
- Zoning Text Amendment
- Development Permit
- Development Variance

- Minimum Parcel Frontage Waiver
- Board of Variance Application
- Temporary Commercial Use Permit
- Temporary Industrial Use Permit
- Other: _____

RECEIVED

AUG 07 2019

Applicant/Property Owner Information	Agent Information (if applicable)
Name: <u>Ron Crema</u>	Name:
Mailing Address: <u>6088 Renton Rd. S</u>	Mailing Address:
Telephone: <u>778-419-0118</u>	Telephone:
Fax:	Fax:
Cell: <u>250-735-5172</u>	Cell:
Email: <u>roncrema@gmail.com</u>	Email:

• Legal Description: 6088 Renton Rd S / Lot A, EPP24890

PID: 028-976-631

• Particulars of Proposed Development:

➤ Existing OCP Designation: Residential

➤ Proposed OCP Designation: n/a

➤ Text Amendment: n/a

➤ Existing Zone: A1

➤ Proposed Zone: RA3

➤ Within the Agricultural Land Reserve (ALR)?: No Yes

➤ Within a Development Permit Area?: No Yes

➤ Method of Sewage Disposal: Community System Onsite Septic System Other

➤ Method of Water Supply: Community System Onsite Water System Other

• Other (explain): _____

• Describe the existing land use of the subject property: Residential

- Describe the existing land use of lands adjacent to the subject property:

North: Residential

South: "

East: "

West: "

- Describe the proposed development of the subject property (attach additional pages if necessary):

Subdivision of property to create 2 lots.

- Reasons and comments in support of the application (attach additional pages if necessary):

- The following information is required. Failure to provide any of the following may delay the application.

A sketch/plan of the subject property showing:

- the legal boundaries and dimensions of the subject property;
- boundaries, dimensions, and area of any proposed lot (if subdivision is being proposed);
- the location of permanent building and structures on the subject property with distances to property lines;
- the location of any proposed building, structures, or additions hereto, with distances to property lines;
- the location of any existing sewage disposal systems and/or property water source; and
- topographic features (rock outcroppings, etc.).

- Additional or more detailed information may be requested by the Regional District following review of your application.

If the Regional District believes it to be necessary for the property boundaries and the location of buildings and structures to be more accurately defined, a plan prepared by a registered BC Land Surveyor may be required.

I accept responsibility for delays in processing caused by incorrect or insufficient submission. Personal information contained on this form is collected under the *Local Government Act*. Contact the Planning Department if you have any further questions.

I hereby grant Regional District staff full right of access to the subject property, during the hours of 8:00 am until 4:30 pm, Monday to Friday, except statutory holidays, while this application is in effect; and

I/We hereby declare that the information provided in this application is, to the best of my/our knowledge, true and correct in all respects, and I/we enclose the required fee with this application.

NOTE: All items submitted as part of the application will not be returned to the applicant and are subject to the *Freedom of Information and Privacy Act*. All relevant correspondence will be provided to both the applicant and the agent when applicable.

Applicant/Owner Signature: *H.V. Crema*

Applicant/Owner Signature: _____

Date: June 27, 2019



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Septic Systems and Treatment Plants / Service and Maintenance
 Inspections and Assessments / Permits and Design

August 12, 2020

RCE File: 2031-20-00

Ronald and Dianne Crema
 6088 Renton Road South
 Port Alberni V9Y 8R8

Re: Assessment of Proposed Subdivision Lot Suitability for Sewage Disposal

Civic Address: 6066 Renton Road , Port Alberni, BC
 Legal Description: Lot A, DL 95, ALBERNI DISTRICT, PLAN EPP24890

1.0 Introduction

For the sewage system feasibility noted above, this report carries out an assessment of sewage system for the subject lot. This includes both vertical separation and horizontal setback distances, and other system requirements relative to the BC Standard Practice Manual (SPM) Version 3. As a qualified Authorized Person, I have reviewed these requirements based on project-specific and site-specific analysis.

1.1 Background and Context

I understand you are proposing to create a new lot with a remainder lot by subdividing Lot A, DL 95, ALBERNI DISTRICT, PLAN EPP24890 at 6066 Renton Road , Port Alberni, into two parcels (see Fig 2) The current lot size is 0.89 ha / 2.2 acres and the proposed lot "B" size to be 0.60ha / 1.5 acres. The remainder lot "A" would be 0.28ha / 0.7 acres. It is necessary to evaluate the proposed new lots as part of the subdivision application to insure technically and economically viable septic systems can be installed. This is to include a statement of the existing sewage system at 6088 Renton Road South, to ensure that it is not posing a public health hazard.

Tobin Laughlin, ROWP, Rock Creek Environmental, has been retained to complete a site feasibility for an onsite sewage system with the proposed development in mind.

Table 1: Property and Project Summary

PROPERTY SUMMARY

Landowner: Ronald and Dianne Crema
 Location: Map: See Figure 1 in Appendix 3
 Civic Address: 6066 Renton Road South, Port Alberni, BC
 Legal Description: Lot A, DL 95, ALBERNI DISTRICT, PLAN EPP24890
 PID: 028-976-631

CONTACTS	Name & Affiliation	Address	Phone
ROWP Consultant	Tobin Laughlin	Comox	250-897-1661

Proposed LOT A (Remainder)

SITE SERVICES	Existing	Planned
Land Use:		Same
Structures:	Single Family dwelling	Same
Water Supply:	Cherry Creek Improvement District	

SEWAGE	Existing Sewage System	Existing Sewage System
Design Flows:	Unknown	
Treatment:	Septic tank, approx 2727L	
Discharge:	Gravity	
Regulation	Unknown	
Design Guides:	Unknown	

Proposed LOT B
SITE SERVICES

Proposed Planned

Land Use:
Structures:
Water Supply: Cherry Creek Improvement District

SEWAGE

Proposed Sewage System

Design Flows:	1312 Lpd – estimated peak day flow rate
Treatment:	Septic tank, 4546L filter, 2727L Pump chamber
Discharge:	Pressure – yet to be confirmed
Regulation	BC Sewerage System Regulation
Design Guides:	BC Standard Practice Manual, Version 3

SUMMARY OF PROJECT & OBJECTIVES

1.2 Objectives

The purpose of my site reconnaissance and analysis was to advise of the feasibility of an onsite sewage system on this property. The specific objectives of this review were as follows:

Project Summary

The purpose of my site reconnaissance and report is to advise of the feasibility of an onsite sewage system on this property, for a three bedroom dwelling with detached shop and one bedroom. The specific objectives of this report are as follows:

- 1) Advise on the probability of a health hazard resulting from setback distances.
- 2) Advise on minimum allowable Vertical and Horizontal Separation, for this particular project and site.
- 3) Determine suitable areas for onsite sewage effluent disposal.
- 4) Provide the rationale that supports the approved setback distances.
- 5) Provide recommendations for the most appropriate disposal system.
- 6) Determine either the proposed or the maximum effluent flows that can be disposed of on-site and therefore the size of home that can be constructed.
- 7) Provide a preliminary estimate of the cost of the sewage disposal system. Specify design, operation, and maintenance.

1.3 Limitations and Responsibilities

This report is intended to provide feasible design parameters relative to the BC Standard Practice Manual (SPM), Version 3, based on the review of the site. Mr. Tobin Laughlin, ROWP, is the Authorized Person under the BC Sewerage System Regulation and, as such, is responsible for the site evaluation report, any design drawings, specifications, registration (filing), and field reviews of the installation. This letter is subject to the attached Statement of General Conditions (Appendix 1).

2.0 Soil Testing

Soils were reviewed on June 4th, 2020 by Tobin Laughlin of Rock Creek Environmental. I reviewed 6 test pits on the same date within the typical wet season monitoring periods and conditions. Groundwater conditions were observed on the same date after moderate rainfall.

Six 70cm to 1.1m deep test pits were dug on site (see Fig 2). Soil characteristics have been confirmed to be a few inches of topsoil and forest litter over a shallow layer of brown sandy loam / loam varying from 20 cm to 80cm deep over compacted silty/ clay and till of low permeability.

2.1. Summary of Site Evaluation

On June 4th, 2020 Mr. Laughlin tested evaluated site and soil conditions. Following site visits were included for well locations. The following table is a summary of the site evaluation.

Table 3: Site Evaluation Summary

Land Slope:	10% average.
# of soil test sites:	6
Typical soil at infiltration surface where Tested	
Texture:	Sandy Loam / Loam
Structure:	Single-grain moderate grade slight graininess
Consistence:	Firm
Typical soil profile	
A:	Brown Sandy loam SG-0 to GR-2, loose.
B:	Olive Gray silt loam, M, firm.
C:	Silt, heavy seepage
Typical depths in the selected dispersal area	
Roots:	65cm- 70cm
Mottling:	few distinct mottles at 0.70cm
Seasonal Water Table:	>0.70cm
Reference:	WL measured by TL
Soil Permeability	
# of CHBP:	6 constant head borehole permeameter
Shallow Soils	
Measured K(fs):	mm/d median value, shallow soil depth of 20 to 30 cm
-or, in mm/d	>460mm/d design value based on median
Deeper Soils	
Measured k(fs):	310mm/d median value, soil depth of 45 to 50cm
Interpretation	
FRH:	>75cm Flow Restrictive Horizon
SHWT:	>70m Seasonal High Water Table

2.2 Soil Permeability

Permeability tests were conducted within the locations shown near proposed areas for future disposal fields on Lots A(remainder) & lot B (see Fig 2). The permeabilities KFS ranged between 260mm/day-420mm/day amongst the areas tested within the the proposed area.

of CHBP tests: 4 Constant head borehole permeameter

SHALLOW SOILS

Measured K(fs): cm/d median value, shallow soil depth of 20 to 30 cm.

-or,inmm/d: 310 mm/d Design value based on median

2.3 Groundwater

Seasonal High Water Table (SHWT) conditions are concern with in the Cherry Creek area and with the area wet from recent rainfall. The site has vary drainage areas and most drainage had reasonable amounts of running or standing water. The site soils and test pits did indicate signs of a SHWT, however, there was no indication that the SHWT was beyond what a properly designed sewage system could not meet the SPM. The soil and ground water conditions at this site are still indicative that a standard Type 1 gravity system is not appropriate for this site. However, a Type I pressure system can met the Vertical seperation required under the SPM guidelines.

3.0 Sewage System Selection

3.1 Existing System

The existing septic tank is located on the west rear side of the property and on the proposed reminding Lot A. This tank collects the sewage from the existing dwelling located on the upper slope east on the lot. The dispersal field for is located behind the existing dwelling. The dispersal field will continue to service the existing dwelling as it is functioning and is located on the remainder Lot A. No VIHA or documents could be found for the existing dwelling. There is no signs of the existing sewage system to be malfunction or creating a public health hazzard.

3.2 Proposed Lot System Selection

Following the Sewage System Standard Practice Manual Version 3, the options for an onsite wastewater system at a location with high groundwater conditions that do not meet the SPM vertical separation standards are sand mound, raised bed and/or package systems, see Fig 4. The preferred alternative is to establish the feasibility of a Type 1 pressure distribution system with timed or micro dosing to a raised bed or sand mound. This system is relatively simple, has a low level of treatment and is easy to maintain. The main additional expense for this system over a standard Type 1 gravity or pressure system is the sand fill and timed dosing. A sand mound system requires a minimum of 10" (25 cm) of Vertical Separation (VS) to groundwater. A site drainage system is recommended to achieve as much vertical separation as possible. It is noted that it will be the responsibility of the designated professional or qualified persons for the final design for construction that will determine if this is required and other systems or approaches may be used. This report only evaluates the feasibility of such a system being installed economically.

Table II-17 allows the use of a Type 1 Sand Mound System with timed dosing and pressure distribution. The vertical separation (VS) required for this system is 10" (25cm) per SPM Table II-17. The table requires a minimum of 45cm of sand media thickness and a minimum as constructed Vertical Separation 75cm. This would require the system for this site to have a minimum of 30cm of sand media and minimum 20cm of approved aggregate to meet the minimum required vertical separation (VS) as per Table II-17 and specifications in Table II-51.

3.3 Daily Design Flow and Septic Tank

The Subdivision Regulations allow for the development to be based on the subject properties' local zoning bylaw. A typical three bedroom home has been selected to outline a conceptual design to prove the site's feasibility to treat residential strength sewage. Thus, it is prudent to design for the allowed uses on a lot. The zoning is RA1 and allows a primary single family dwelling. As a result, using a a Daily Design Flow for a three bedroom house will be used for this report. This results in a Daily Design Flow of 1312 liters/per/day from Table II-9 of the SPM. The planned dwelling requires a minimum 3900 liter septic tank as per SPM Table II-32 and Section III-6.4. A pump chamber tank of 2600L for dosing will be required for dosing and pumping as per Table II-46 and Sec. III 6.12. Should the dwelling size change then the qualified person is to follow the required design section under the Standards they choose to follow.

3.4 Infiltration Area

The design of a sand mound system is completed in two stages.

The first is to insure that there is adequate length and area for initial infiltration of the Type 1 effluent into the sand mound.

The second is to insure adequate area and length to infiltrate the effluent from the sand mound (now considered Type II effluent due to treatment in the sand mound) into the existing ground.

- The Hydraulic Loading Rate for Type I effluent infiltrating into the required specified sand in the mound is 40 l/day/m² as per SPM Table II-24.
- The Hydraulic Loading Rate (LLR) for Type I I with a 310 KFS Range (MM/Day) or a perc rate of 15-20min/inch is 23 l/day/m) as per SPM Table II-22 & II-23.
- The Linear Loading Rate for loamy, sand at a 10% slope is 45cm l/day/m² as per SPM Table II-27. A system length of 32.5m, a sand AIS infiltration area of 40m² and a basal infiltration area of 32.5m² is required to meet these criteria for both proposed Lot B. That's suggested an area of area of 100m²
- NOTE: Reduced Sand Media Thickness can be reduced when the designer follows the design standards of Table II-17 as per the SPM.

NOTE: A raised pressure bed would also meet the requirements of the SPM for a sewage system at this site. A mound dispersal system has been shown as an example of what could be built, should an area located on the site require the minimum vertical separation due to SHWT.

3.5 Horizontal Separation:

There is adequate area to provide for primary and secondary dispersal fields and meet the following horizontal separations as per the SPM:

The absorption fields shall be located not less than:

- three metres (ten feet) from a building
- three metres (ten feet) from a parcel boundary
- three metres (ten feet) from an uphill interceptor drain
- thirty metres (100 feet) from a source of domestic water
- thirty metres (100 feet) from a permanent fresh water body

- three metres (ten feet) from a domestic water pipeline
- fifteen metres (50 feet) from any Marine water body or a breakout (ditch, natural spring or seepage)

The septic tank shall be located not less than:

- one metre (three feet) from a building
- one metre (three feet) from a parcel boundary
- Thirty metres (100 feet) from a source of domestic water three metres (ten feet) from a domestic water pipeline

4.0 Site Drainage

To achieve greater separation it is recommended that groundwater levels be controlled on the newly proposed lot by the installation of a curtain drain to intercept groundwater above the proposed location of a new system of this type. This shall be composed of a 4" perforated pipe keyed into the till and bedded in gravel running along the slope contour above the proposed drain field and then draining to 4" solid pipe for downhill runs and runs below the field to eliminate the risk of breakout to the site groundwater drainage system. The use of interceptor drains for installations of this nature is very effective since the capacity of the trench drains is much larger than the capacity for groundwater flow.

Drain Pipes

Piping that is less than 7.5m down-slope or side slope from proposed disposal area should be solid wall pipe so no potential breakout point is created. The dispersal field, interceptor drain and hard piping for site drainage should be clearly identified on the onsite wastewater disposal plan and should be considered part of the system for purposes of responsibility and maintenance.

5.0 Requirement and Responsibility for Maintenance of Sewerage System

The following is an excerpt from Section II-7 & III-7 SPM regarding the responsibilities of the owner of a sewerage treatment:

"Section 10 of the SSR* requires that an owner of a sewerage system

- ensure that the system is maintained in accordance with the maintenance plan; and
- keeps a record of all maintenance service performed on the system;

Under the "SSR, the system must be maintained by an 'AP', so the owner commits an offence under the SSR if they maintain it without proper qualifications. The owner must also ensure that they are in compliance with all other requirements under the SSR and with local government by-laws."

***Sewerage System Regulation **Authorized Professional**

Since the responsibilities for maintenance are clearly defined in the regulations for allowing a system to be installed, there are no concerns about requiring legal responsibility for maintenance of the sewerage system as a part of the subdivision process.

6.0 Budget

Cost Differential

It is expected that the initial cost for a pressure system will be approximately \$12,000.00 -15,000.00 If we allow another \$3,500.00 for the sand mound fill we have a total that is less than \$20,000.00

This may be as much as \$10,000.00 more than a simple gravity Type I system due to the extra tanks, pumps and controls and fill. However, the cost of installing small diameter pressure piping is often less expensive than large diameter gravity pipe and no excavation of trenching is required which may partially offset this additional cost.

In addition, the drainage system should be installed as part of the onsite wastewater system to further ensure both the vertical separation and the protection of ground water. It is understood that the drainage system may not be needed or may even conflict with future proposed systems if another alternative system and or location is selected for final design. It is expected that the system designer is to follow all sections of the SPM and its requirements. Upslope drainage is not a requirement of the SPM, if the required vertical separation can be met based on the system design selected. However, it is a code of good practice to install additional drainage where above grade systems are designed to ensure the protection of ground water.

7.0 Summary and Conclusions

1. The proposed Lot "B" and the Remainder Lot "A" have adequate area with suitable site and soil conditions for the installation of a Type 1 (pressure distribution) sewerage system as defined in the BC Sewerage System Regulations, Standard Practice Manual (SPM). This includes primary and reserve area for proposed Lot "B" and reserve area for the Remainder lot "A".
2. A sand mound system with a minimum of 30cm of C33 sand and timed/micro-dosing pressure dosing in accordance with the SPM exceeds the requirements of the Site Capability Table II-17. However, some form of a raised pressure system is necessary to meet the SPM's vertical separation standards.
3. A restrictive covenant for the dispersal area is not required for either lot.
4. Available unsaturated native mineral soil depth is 65-70cm (above estimated seasonal high water table). This does not meet the VIHA standard of (Table B). There is however adequate native soil depth to install a Type 1 sewerage system in accordance with the SPM.
5. The proposed Lot "B" area of 0.6 ha / 1.5 acre is considered adequate to construct a residence, install and provide a sufficient area for treatment of sewage. Increasing the lot size will not result in any change or improvement of area for effluent dispersal and treatment and therefore offers no additional benefit to the protection of public health or the environment.
6. Operation and maintenance of the proposed system will be simple and low cost to the homeowner.
7. If installed and maintained in accordance with the SPM, a Type 1 system (as noted above) will not cause, nor contribute to a health hazard.
8. Based on the proposed lot sizes and available area, the registration of restrictive covenants for the dispersal areas does not appear to be required.
9. In summary I conclude that the proposed lots can be effectively and safely served by an onsite wastewater system as described above.

I trust the foregoing meets your needs at this time. If you have any questions or require anything further please feel free to contact the undersigned.

Yours truly,

ROCK CREEK ENVIRONMENTAL



Tobin Laughlin
BA, ROWP (BC)
Reg. #OW0007

Appendices

- 1) Statement of General Conditions
- 2) References and Information Retained on File / Field Notes and Tables
- 3) Figures
- 4) Homeowner Declaration



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Septic Systems and Treatment Plants / Service and Maintenance
Inspections and Assessments / Permits and Design

Appendix 1: Statement of General Conditions

Scope of this Report

This review report satisfies only those objectives stated in the introduction. Tobin Laughlin, Rock Creek Environmental has not conducted a Hydrogeology Study, Environmental Impact Assessment or survey.

Use of this Report

This Tobin Laughlin Rock Creek Environmental (RCE) report pertains only to a specific project. If the project is modified, then our client will allow us to confirm that the report is still valid. We prepared this report only for the benefit of our Client and those agencies authorized by law to regulate our Client's activities. No others may use any part of this report without our written consent. To understand the content of this report, the reader must refer to the entire, signed report. We cannot be responsible for the consequences of anyone using only a part of the report, or referring only to a draft report. This report reflects our best judgement based on information available at the time. Any use of this report, or reliance on this report, by a third party is the responsibility of that third party. We accept no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions taken based on this report.

Reliance on Provided Information

RCE has relied on the accuracy and completeness of information provided by its client and by other professionals. We are not responsible for any deficiency in this document that results from a deficiency in this information.

Logs of Test Holes or Wells and Subsurface Interpretations

Ground and ground water conditions always vary across a site and vary with time. Test hole and well logs show subsurface conditions only at the locations of the test hole or well. The precision with which geological reports show subsurface conditions depends on the method of excavation or drilling, the frequency and methods of sampling and testing, and the uniformity of subsurface conditions.

Descriptions of Geological Materials and Water Wells

This report includes descriptions of natural geological materials, including soil, rock, and ground water. RCE based these descriptions on observations at the time of the study. Unless otherwise noted, we based the report's conclusions and recommendations on these observed conditions.

Changed Conditions

Conditions encountered by others at this site may differ significantly from what we encountered, either due to natural variability of subsurface conditions, or as a result of construction activities. Our client will inform us about any such changes, and will give us an opportunity to review our recommendations. Recognizing changed soil and rock conditions, or changed well conditions, requires experience. Therefore, during construction or remediation, a qualified Person/professional should be employed to visit the site with sufficient frequency to observe whether conditions have changed significantly.

Risks and Liability

We recommend that our client engage RCE to review all design drawings and constructed works that are based on our conclusions and recommendations.

Standard of Care

We exercise a standard of care consistent with that level of skill and care ordinarily exercised by qualified persons/professionals currently practising under similar conditions.

Appendix 2: Information Retained on File

In addition to the references listed above, RCE has retained the following documents on file:

- Field Notes
- Calculations and Tables II-8 to II-51

Table II- 8. Minimum Daily Design Flow (DDF) for Residences

NUMBER OF BEDROOMS	MAXIMUM FLOOR AREA (M ²)	DDF LITRES/DAY
1	140	700
2	240	1,000
3	280	1,300
4	330	1,600
5	420	1,900
6	520	2,200
Additional bedroom, add		300
Additional 1m ²		3

Notes:

- Use the total floor area that is living space.

Table II- 17. For sand mounds and sand lined trenches and beds

SOIL TYPE	TYPE OF DOSING	EFFLUENT TYPE (HLR)	MINIMUM VS IN NATIVE SOIL	MINIMUM SAND MEDIA THICKNESS	MINIMUM AS CONSTRUCTED VS
All soil types	Demand dosing	1	25 cm	60 cm	85 cm
		1	25 cm	45 cm	75 cm
	Low frequency Timed dosing	1	25 cm	60 cm	85 cm
		1 or 3	25 cm	30 cm	60 cm
	Micro-dosing	2	25 cm	45 cm	75 cm

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Table II- 22. Maximum allowable HLR based on soil type

SOIL TEXTURE GROUP	STRUCTURE AND CONSISTENCE CATEGORY	TYPE 1 (L/DAY/M ²)	TYPE 2 (L/DAY/M ²)	TYPE 3 (L/DAY/M ²)
Very or Extremely Gravelly Sands	F or P	45	65	150
	F	40	65	130
Gravelly Sands and Coarse Sand	P	35	65	120
	F	30	60	90
Sand, Loamy Sand	P	27	50	80
	F	27	50	80
Fine Sands, Loamy Fine Sands, Sandy Loams	P	23	45	70
	VP	17	40	50
	F	23	40	70
Loam, Silt Loam, Silt	P	15	30	50
	VP	12	25	35
	F	15	25	40
Clay Loam, Sandy Clay Loam, Silty Clay Loam	P	12	15	20
	VP	NA	NA	NA
	F	12	15	20
Sandy Clay, Silty Clay, Clay	P	NA	15	15
	VP	NA	NA	NA
	F	12	15	20

Note: See Section II- 4.1.2 for adjustments for coarse fragment content and for special soil and system selection considerations.

Table II- 24. Maximum allowable sand Media Hydraulic Loading Rates

SAND MEDIA TYPE	EFFLUENT TYPE		
	TYPE 1 (L/DAY/M ²)	TYPE 2* (L/DAY/M ²)	TYPE 3* (L/DAY/M ²)
Clean Coarse Sand	30	50	90
Mound Sand	40	65	120
Sand filter coarse sand**	50	90	150

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Table II- 27. LLR based on soil type (L/day/m)

SOIL TEXTURE GROUP	CATEGORY	SLOPE 0 TO < 5%				SLOPE 5 TO < 10%				SLOPE 10% TO < 15%				SLOPE ≥ 15%			
		SOIL DEPTH BELOW INFILTRATIVE SURFACE (CM)				SOIL DEPTH BELOW INFILTRATIVE SURFACE (CM)				SOIL DEPTH BELOW INFILTRATIVE SURFACE (CM)				SOIL DEPTH BELOW INFILTRATIVE SURFACE (CM)			
		25 – 45	45 – 60	60 – 90	≥ 90	25 – 45	45 – 60	60 – 90	≥ 90	25 – 45	45 – 60	60 – 90	≥ 90	25 – 45	45 – 60	60 – 90	≥ 90
Very or Extremely Gravelly Sands	F or P	150	260	340	400	290	400	400	400	400	400	400	400	400	400	400	400
Gravelly Sands and Coarse Sand	F	85	140	180	250	150	250	330	400	260	400	400	400	360	400	400	400
	P	50	80	110	140	80	140	180	250	140	240	310	400	200	330	400	400
Sand, Loamy Sand	F	45	60	70	90	55	85	110	150	90	140	180	240	120	190	240	340
	P	45	55	70	70	50	60	75	90	60	90	110	140	80	120	150	200
Fine Sands, Loamy Fine Sands, Sandy Loams	F	45	55	70	70	50	60	75	75	60	75	90	100	75	90	110	130
	P	40	45	55	55	45	50	55	60	50	55	60	65	60	65	75	80
	VP	25	30	35	35	25	35	40	40	30	35	40	40	35	45	50	50
Loam, Silt Loam, Silt	F	40	45	55	55	45	50	55	60	50	55	60	65	60	65	75	80
	P	30	35	40	40	35	40	45	45	35	45	50	55	45	50	60	65
	VP	17	22	26	26	19	24	28	28	21	25	30	30	25	30	35	35
Clay Loam, Sandy Clay Loam, Silty Clay Loam	F	30	35	40	40	35	40	45	45	35	45	50	55	45	50	60	65
	P	25	30	35	35	25	35	40	40	30	35	40	40	35	45	50	50
	VP	NA	NA	NA	NA												
Sandy Clay, Silty Clay, Clay	F	25	30	35	35	25	35	40	40	30	35	40	40	35	45	50	50
	P	17	22	26	26	19	24	28	28	21	25	30	30	25	30	35	35
	VP	NA	NA	NA	NA												

Table II- 46. Pump chambers (tanks)

Pump disconnect	<ul style="list-style-type: none"> Install a pump disconnect fitting so that the maintenance provider can remove the pump. Install a rope (> 1 cm diameter), cable or chain to remove the pump.
Float switch or level sensor	To attach the float switch or level sensor, install a bracket, float tree, or other independent support.
Access	Install the fittings, rope, and bracket (above) so that that a maintenance provider can reach them within 15 cm of the top of the riser.
Pump and float wiring connections	<ul style="list-style-type: none"> Connect all wiring according to the BC Electrical Code. Seal all openings where cables enter the riser. Provide an adequate length of cable to allow removing the float switches and pump without disconnecting the wiring.
Alarm	<ul style="list-style-type: none"> Install a system to trigger an alarm when the fluid level reaches a specified height. Use an alarm that is visible (usually a flashing light) and audible over a distance of at least 30 metres. Connect the alarm to a different electrical circuit from the pump.
Timed dose systems, override (lag) event	<ul style="list-style-type: none"> Specify the override event so that dosing does not exceed DDF unless the override event is triggered with or after the alarm. Specify the override event as a timed dose event (not as demand dosing).
Timed dose systems, equalization volume	Install the dosing pump controls so that the equalization volume is at least 67% of the Daily Design Flow, for DDF less than 9100 L/day.
Alarm reserve	For demand dosing and timed dosing, plan for the tank holding volume, above the high level alarm, to be at least 50% of the Daily Design Flow volume.

Note: The alarm reserve volume may include surcharge volume in treatment tanks, if the tanks are suitably vented. The "alarm reserve" is the holding volume of the tank, or connected tanks, that is above the high level alarm and is below the point at which the sewage would back up to the building sewer, or overflow.

II- 6.4 Tanks, septic tanks and effluent filters, treatment systems

For standards specific to Combined Treatment and Dispersal Systems (CTDS) see Section II- 6.16.

Table II- 32. Septic tanks and effluent filters

Effluent filter mesh	Filter particles greater than or equal to 3.2 mm (1/8"). For pumped discharge from a septic tank, provide a screen with a minimum wetted open area of 0.25 m ² .
Effluent filter intake (center of clear zone).	Center the filter intake at 60 – 70% of the working volume depth of the tank, measured from tank floor.
Effluent filter alarm	Provide a filter alarm on all systems where sewage is pumped into the septic tank. Specify an alarm that meets the dosing system standards in Section II- 6.12.
Effluent filter minimum capacity	Specify a filter that needs be cleaned once every two years, or less often.
Pumped discharge from septic tank	For systems that pump effluent from a septic tank, specify: <ul style="list-style-type: none"> o A filtered (screened) vault with the inlet at the center of the clear zone. o A maximum pumping rate of 190 L/min. o A maximum drawdown of 10% of the tank working volume. o An alarm reserve volume of at least 50% of the DDF, measured to the tank lid base (without backup into building). Alternately, a second or third compartment of a septic tank may be used as a pump chamber, provided that compartment is not counted as part of the septic tank working volume.
Tank specification	Specify the following: <ul style="list-style-type: none"> o Inlet and outlet baffles or tees. o For tanks with 2 compartments, use tanks with 3/4 to 1/2 of the total working volume in the first compartment. o Tanks with no air space may be used as an alternate to the CSA B66 air space standard, provided the tank is vented.
Septic tank working volume, for a DDF of up to 9100 L/day	Specify a tank with working volume at least 3 times the DDF.
Septic tank working volume, for a DDF over 9100 L/day	Specify a tank with a working volume of at least 15,000 L + (DDF in litres × 1.34), or as otherwise determined by the design professional.

Note: The effluent filter may be at the tank outlet, in a separate filter chamber or as a screened vault for the pump or siphon. A secondary filter may also be used after the pump (in the discharge line).

II- 6.15.3 SPECIFICATION AND INSTALLATION

Table II- 51. Sand Mounds and sand lined trenches or beds

Maximum dispersal bed width	<ul style="list-style-type: none"> o 3.0 m (10 ft) for a sand mound or sand lined bed. o 90 cm (36 in.) for a sand lined trench.
Bed level	<ul style="list-style-type: none"> o Bed level to ± 1.25 cm (± 0.5 in.). o Not necessary for subsurface drip dispersal.
Spacing, minimum	<ul style="list-style-type: none"> o For trenches, follow the trench spacing standards in Table II- 37 (page II- 48). o For sand lined beds, follow the seepage bed standards in Table II- 38 (page II-49). o For sand mounds, provide 2 m spacing between the edges of the cover soil. o Except provide 6 m spacing between the edges of cover soil for mounds on Clay Loam and Clay textured soils.
Aggregate for bed (note that gravelless systems may also be used)	<ul style="list-style-type: none"> o Use drain rock or pea gravel. o For drain rock, use a nominal gravel size of 19 mm (3/4") and meeting the standards of Table II- 35 (page II-46). o For pea gravel, use a size range of 3 to 12 mm (1/8" – 1/2"), washed and with <1% by weight passing the #200 (75µm) sieve, and meeting the standards of Table II- 35 (page II-46).
Aggregate depth (pressure distribution system)	Install aggregate to the following minimum depths: <ul style="list-style-type: none"> o For pea gravel, provide min. 10 cm (4 in.) under the distribution piping and 2.5 cm (1 in.) over the piping. o For drain rock, provide min. 15 cm (6 in.) under the distribution piping and 5 cm (2 in.) over the piping.
Sand media	Specify and supply sand meeting Table II- 25 (page II-37).
Permeable fill media for sand mound toe, toe blanket or mantle	<ul style="list-style-type: none"> o Test the sand to confirm a minimum Kfs of 3000 mm/day or a perc rate faster than 3 min/inch after settling. o Install the sand following the same procedure as for Mound Sand o See Volume III for guidance on toe blankets and sand mantle sand mounds.
Observation port, completed to aggregate bed infiltrative surface	Minimum two ports, install at minimum 10 cm from the distribution pipe.
Observation port, completed to the soil infiltrative surface	<ul style="list-style-type: none"> o Minimum 2, located 1/6 of length of bed from ends of bed, on downslope side of bed (or on opposing sides for flat site), and half way between the bed and the toe of the mound. o Place observation ports at least 30 cm from the nearest orifice.

Appendix 3

Figure 1 Location of Subject Property

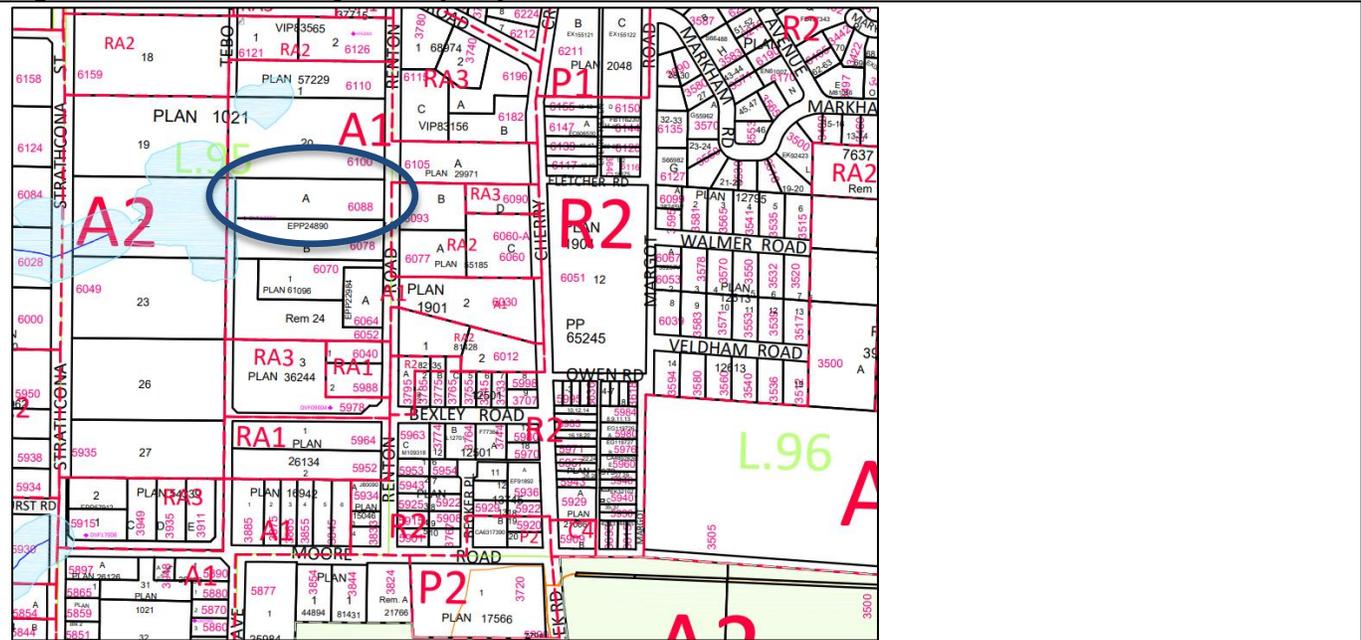


Figure 2

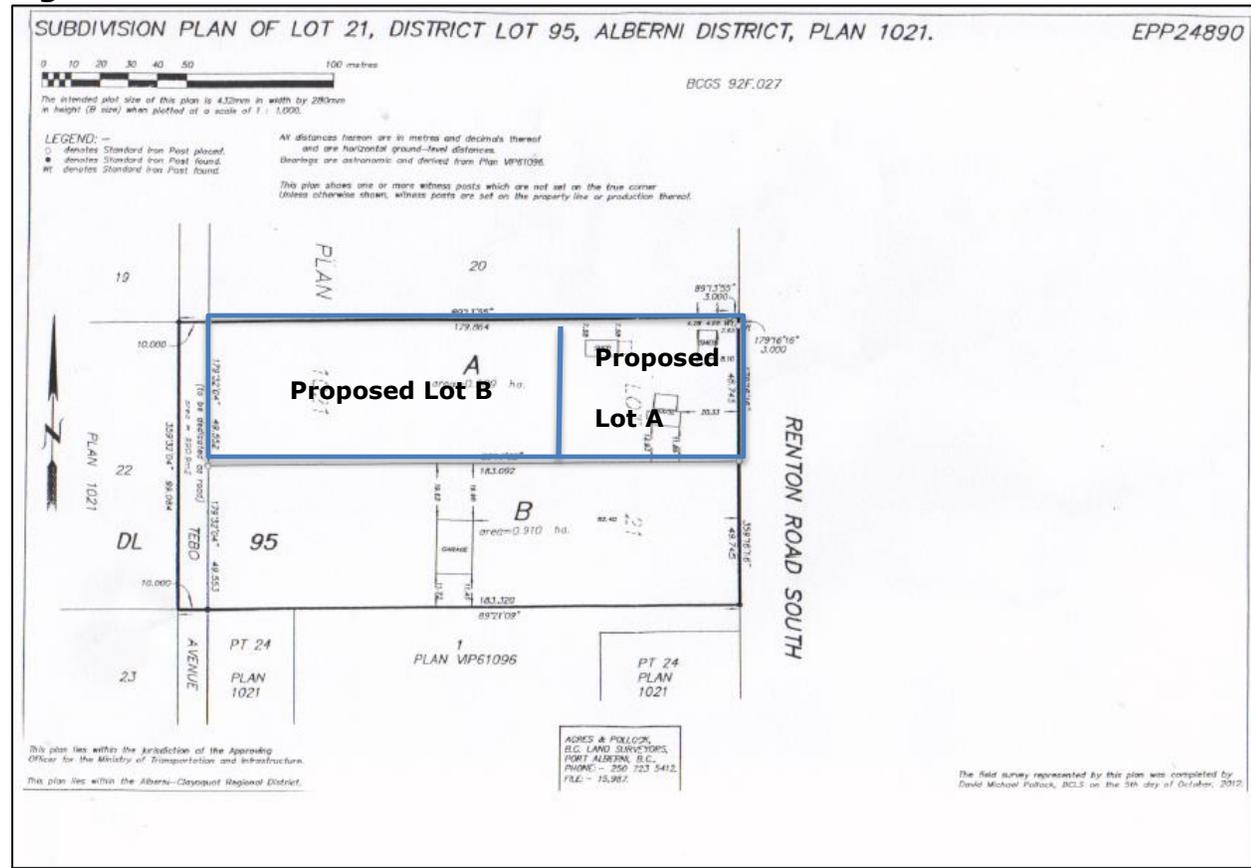


Figure 3 A Test Pit Areas



Figure 3 B Test Pit Areas

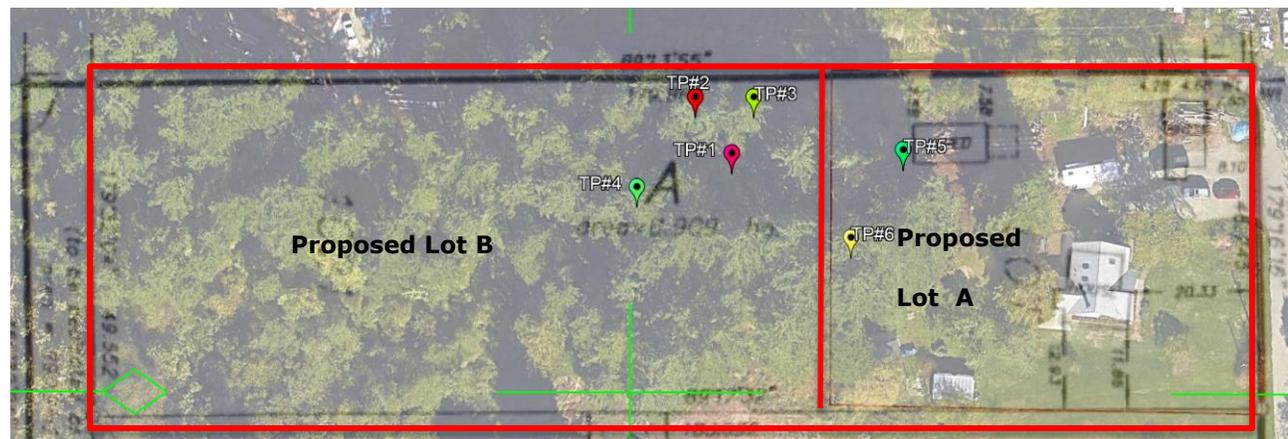


Figure 4: Typical Layout - Sand Mound (to be located in test pit area)

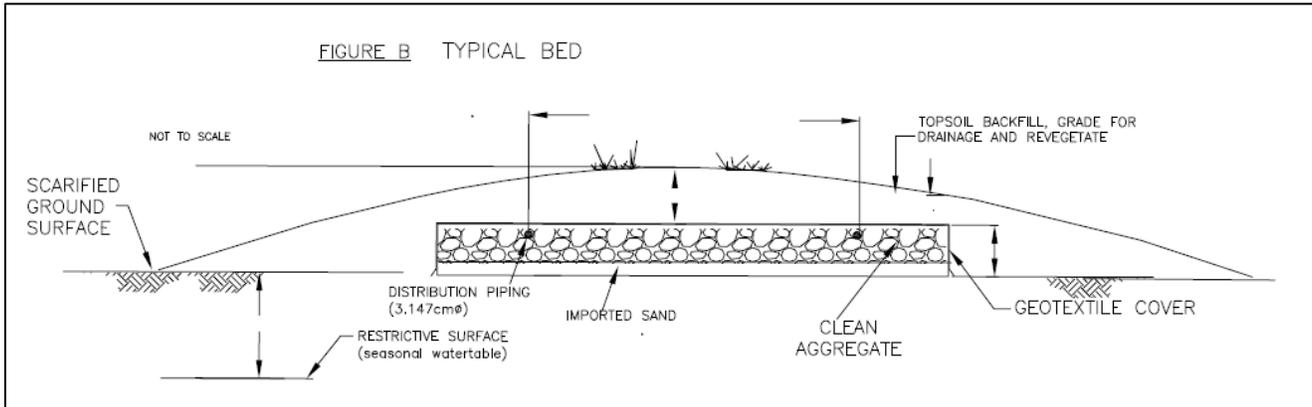
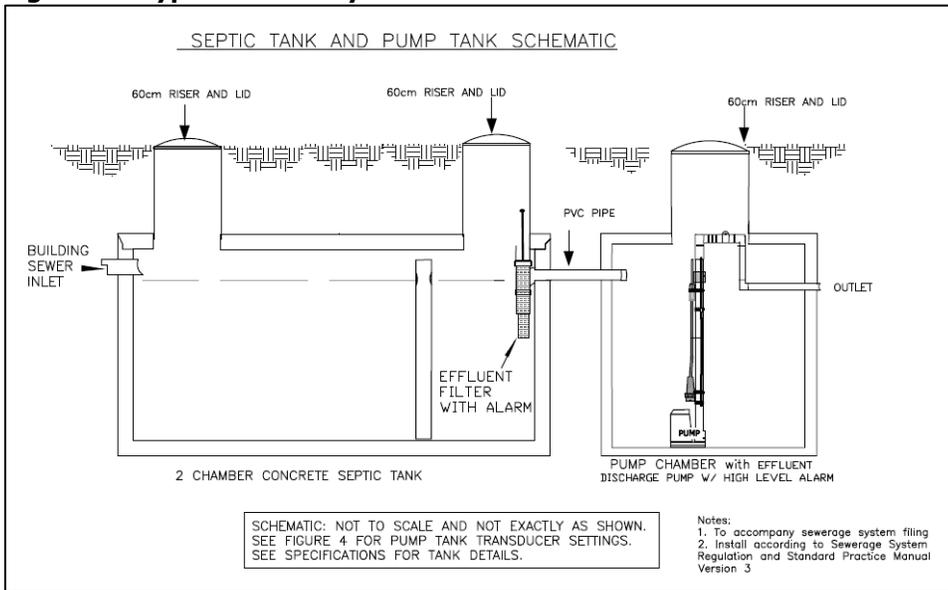


Figure 5: Typical Tank Layout



APPENDIX 4



Box 3147, Courtenay, B.C. V9N 5N4
 (250) 897-1661

1-877-898-7625
 rockcreekofc@shaw.ca

Septic Systems and Treatment Plants / Service and Maintenance
 Inspections and Assessments / Permits and Design

Property Owner's Declaration

FOR:

- 1) **SITE ASSESSMENTS** as required for planning, designing, and construction of an onsite sewage system
- OR
- 2) **COMPLIANCE INSPECTIONS** as required by Regional District Building Department
- OR
- 3) **PERFORMANCE INSPECTIONS**

Property Information

Legal Description: LOT A DISTRICT LOT 95 ALBERNI DISTRICT PLAN EPP24890

Civic Address: 6066 Renton Road South, Port Alberni, BC, V9Y 8R8

Lot Size: Current Lot Size 2.2 Acres. Proposed lot size ~ 1.5 Acres

Property Tax Information:

P.I.D. #028-976-631

Folio. #770 001129.010

Owner Information

Legal owner's name: Ronald V Crema, Dianne E Crema

Owner's mailing address: , 6088 Renton Road South, Port Alberni, BC V9Y 8R8

Residence Phone: (778) 419-0118

Cell: (250) 735-5172

Work:

Email: roncrema@gmail.com _____

Building Information

Type of Facility (check one): Residence ___ Other (describe) _____

Size of Building:	Residence Living Area		Other Facility (Total Area)	
	FEET ²	M ²	FEET ²	M ²
Total area	2400	222.97		
# of bedrooms	3			

Planned Uses

- 1. If the basement is unfinished, what is its intended use? Storage
- 2. Does the basement have plumbing or electrical provisions to add a separate living suite? No
- 3. Do you plan on having a Bed and Breakfast or suite? If yes, please provide details: No

4. Do you plan on having an in-sink garbage disposal unit? No, but currently use SS fine mesh filter strainer
5. Do you plan on having a water softener? No

Other Information

Do or will you have a well? No

If No, source of domestic drinking water is: Cherry Creek Improvement District Water

If Yes, what is its location? N/A

Location of neighbouring wells (if known): N/A

Does this or any other building on this property have a greywater pit? No

Are there any covenants or easements on property? No

Items to be Provided by Owner

The following items are to be provided by the Owner prior to the start of an onsite inspection or a site assessment and the Owner agrees herein to supply them at their expense:

1. Plans and specifications of building, site access and landscaping plans.
2. **Plot plan or lot survey**
3. Land Title's Search results
4. Reference plans and terms of any covenants or easements
5. Location of all existing services.
6. Copies of any/all registered covenants or easements

Additional Comments:

Copies of the above requested items will be provided (by hard copy) to Rock Creek Environmental prior to the start of an onsite inspection or a site assessment.

Rezoning from A1 to RA3 has met unanimous approval of the Cherry Creek Advisory Planning Commission and has passed First Reading at the Alberni Clayoquot Regional District Board.

Declaration Statement

I/We, the undersigned declare that I/we are legal owners of the above described property and the information given above is true and accurate.

Signature of Owner(s)

Ron Crema
PRINT NAME

Dianne Crema
PRINT NAME

Date of Declaration: NOV. 11, 2019

R.V. Crema
SIGNATURE

[Signature]
SIGNATURE

Please email to rockcreekofc@shaw.ca or Fax to 250-890-1054