



Galiano Island Local Trust Committee Regular Meeting Agenda

Date: October 15, 2018
Time: 12:30 pm
Location: North Community Hall
22790 Porlier Pass Road, Galiano Island, BC

			Pages
1.	CALL TO ORDER	12:30 PM - 12:30 AM	
2.	APPROVAL OF AGENDA		
3.	TOWN HALL AND QUESTIONS	12:30 PM - 12:50 PM	
4.	COMMUNITY INFORMATION MEETING		
	none		
5.	PUBLIC HEARING		
	none		
6.	MINUTES	12:50 PM - 1:00 PM	
6.1	Local Trust Committee Minutes Dated September 17, 2018 (for Adoption)		4 - 14
6.1.1	<u>Public Hearing Record Dated Sept 17, 2018 (for Receipt)</u>		15 - 17
6.2	Section 26 Resolutions Without Meeting Report		
	none		
6.3	Advisory Planning Commission Adopted Minutes Dated May 28 & September 12, 2018 (for Receipt)		18 - 23
7.	BUSINESS ARISING FROM MINUTES		
7.1	Follow-up Action List Dated October 2018		24 - 25
8.	DELEGATIONS		
	none		

9. CORRESPONDENCE

Correspondence received concerning current applications or projects is posted to the LTC webpage

none

10. APPLICATIONS AND REFERRALS

1:00 PM - 2:00 PM

10.1 Salt Spring Island Local Trust Committee Bylaws No. 510 & 511 Referral (attached) 26 - 28
for response

10.2 GL-DVP-2018.3 (Ingram) - Staff Report (attached) 29 - 124

10.3 GL-DP-2018.1 (Galiano Green) - Staff Report (attached) 125 - 167

10.4 GL-DVP-2018.1 (Galiano Green) - Staff Report (attached) 168 - 174

11. LOCAL TRUST COMMITTEE PROJECTS

2:00 PM - 2:30 PM

11.1 Affordable Housing - APC Referral Report (attached) 175 - 198

12. REPORTS

2:30 PM - 2:45 PM

12.1 Work Program Reports (attached)

12.1.1 Top Priorities Report Dated October 2018 199 - 199

12.1.2 Projects List Report Dated October 2018 200 - 201

12.2 Applications Report Dated October 2018 (attached) 202 - 206

12.3 Trustee and Local Expense Report Dated July 2018 (attached) 207 - 207

12.4 Adopted Policies and Standing Resolutions (attached) 208 - 209

12.5 Local Trust Committee Webpage

12.6 Chair's Report

12.7 Trustee Report

12.8 Islands Trust Conservancy Report

none

13. NEW BUSINESS

none

14. UPCOMING MEETINGS

**14.1 Next Regular Meeting Scheduled for December 3, 2018 at the North Community Hall,
Galiano Island**

November 5, 2018 Regular Scheduled Meeting - CANCELLED

15. TOWN HALL 2:45 PM - 3:00 PM

16. CLOSED MEETING

none

17. ADJOURNMENT 3:00 PM - 3:00 PM



DRAFT

Local Trust Committee
Minutes Subject to Approval By
the Local Trust Committee

Galiano Island Local Trust Committee

Minutes of Regular Meeting

Date: September 17, 2018
Location: Galiano South Community Hall
141 Sturdies Bay Road, Galiano Island, BC

Members Present: Laura Busheikin, Chair
George Harris, Local Trustee
Sandy Pottle, Local Trustee

Staff Present: Robert Kojima, Regional Planning Manager
Colleen Doty, Minute-taker

Public Present: There were approximately 35 members of the public present.

1. CALL TO ORDER

Chair Busheikin called the meeting to order at 12:30 p.m. She acknowledged the meeting was being held in territory of the Coast Salish First Nations.

2. APPROVAL OF AGENDA

The following items were proposed to be added to the agenda:

- An email, received by Mr. Paul Kopas, would be added as item 10.1.
- Street lights in the village, added as 14.5 under New Business, Advocacy.

By general consent the agenda was approved as amended.

3. TOWN HALL AND QUESTIONS

Chair Busheikin noted that this Town Hall would address items on the agenda; she explained that members of the public would have an opportunity to ask questions and present their views with respect to the Mignault application at the Community Information Meeting and at the Public Hearing.

Andrew Loveridge congratulated the society that had recently formed to undertake the latest initiative for affordable housing. He supported having options available to people. He presented two letters in support of the Mignault application.

In response to a comment from the public, Chair Busheikin explained the legislation around post public hearings.

A recess was called at 12:38 p.m.

The meeting reconvened at 12:40 p.m.

Roger Pettit asked for greater clarification and background on the Staff Report with respect to the proposed regulation of cannabis retail sales.

Regional Planning Manager Robert Kojima explained that the initiative did not come from the Local Trust Committee, but was mandated by the Province. He explained that in BC, the wholesale distribution of non-medical cannabis will be solely through the Liquor Distribution Branch (LDB). The LDB will be the operator of government-run retail stores and the Liquor and Cannabis Regulation Branch (LCRB) will be responsible for licensing and monitoring the retail sector using a mixed public/private model. Local governments are required, by the referral process, to comment on licensing applications, and to obtain community input by local consultation. The fees are an attempt to recoup some of these costs. Some applications can be quite complex because of potential impacts on neighbours.

Diana Lilly wanted to thank Sandy Pottle for her work as Trustee.

Trustee Pottle thanked the community for their appreciation.

Don Robson requested the Trustees to make enquiries with respect to two street lights that had been decommissioned on Sturdies Bay Road at the village. He expressed concerns about the darkness and associated hazards.

Chair Busheikin noted this topic would be discussed as new business.

Claude Latour asked what jurisdiction the LTC has on the north end of Galiano, on the Penelakut Reserve.

RPM Kojima noted that the reserve falls under federal jurisdiction.

4. GL-RZ-2018.2 (Mignault)

4.1 GL-RZ-2017.2 (Mignault) Donation Information - Staff Report (attached)

A review of the Staff Report was provided.

5. COMMUNITY INFORMATION MEETING

5.1 Galiano Island Local Trust Committee Bylaws No. 267 & 268 (Mignault)

Chair Busheikin noted that the Community Information Meeting (CIM) was an opportunity for the public to ask questions with respect to the application. A summary of the bylaws was provided.

Sheila Anderson asked about the Regional Conservation Plan, and noted the area's importance in protecting forest values. She didn't see the aforementioned plan referenced in the staff reports and wondered if consideration were given to it. She asked why it doesn't have a higher profile when an application comes in dealing with an area that is significant.

RPM Kojima noted that there is a section in the Staff Report that addresses conservation plans, and recalled it being discussed at the LTC table. The Regional Conservation Plan would be discussed in further detail under 14.1.

Keith Carlson asked about the Home Occupation regulations, with respect to bylaw enforcement on the Mignault property.

RPM Kojima explained that the owner-manager must live on the property in order to have a home occupation of running a Short Term Vacation Rental. Regulations are in the Land Use Bylaw.

Trustee Pottle noted there were events taking place on the Mignault property.

Claude Latour asked what the exact definition of Home Occupations was. Kojima noted that under the Land Use Bylaw one has to be resident while running the home occupation.

A break was called at 1:09 p.m.

The meeting reconvened at 1:31 p.m.

Item 9.1 was addressed, given that the meeting was ahead of schedule.

The meeting was recessed at 2:06 p.m. for the Public Hearing.

6. PUBLIC HEARING

6.1 Recess for Public Hearing

6.1.1 Galiano Island Local Trust Committee Bylaws No. 267 & 268 (Mignault)

Please refer to Public Hearing Record of September 17, 2018.

6.2 Recall to order

The Regular Business meeting was recalled to order at 2:37 p.m.

7. MINUTES

7.1 Local Trust Committee Minutes Dated July 9, 2018 (for Adoption)

By general consent the Local Trust Committee meeting minutes of July 9, 2018 were adopted.

7.2 Public Hearing Record Dated July 9, 2018 (for Receipt)

The Public Hearing Record of July 9, 2018, was received.

7.3 Section 26 Resolutions Without Meeting Report

None

7.4 Advisory Planning Commission Minutes

None

8. BUSINESS ARISING FROM MINUTES

8.1 Follow-up Action List Dated September 2018

The Follow-up Action List will be distributed by email later, as it was not included in the agenda package.

9. DELEGATIONS

9.1 Richard Dewinetz – Affordable Housing Project

Richard Dewinetz provided a brief presentation, including architectural sketches, on the latest affordable housing project. Along with other members of the community, including Jane Wolverton and Mike Hoebel, Mr. Dewinetz has formed the non-profit Gulf Islands Affordable Housing Society. The Galiano Club is donating five acres for the project. Mr. Dewinetz reported they have received confirmation of available water on site. Partial funding is available from BC Housing. The project also has the support of the Galiano Club, Chamber of Commerce, Galiano Green, and MLA Adam Olson.

The project entails building a six-plex containing one, two, and three-bedroom units for rent. Rental rates are dependent upon receiving funding and would be set according to the income of applicants.

Two costly issues were identified: getting power to the site and building an access road to the Ministry of Transportation and Infrastructure (MOTI) standards.

Diana Lilly asked about a possibility of solar, and if the roof were south-facing.

Mr. Dewinetz reported that the architect has looked at it. Solar is a consideration, just not at this first go-round.

Keith Carlson enquired about storage space for prospective residents.

Mr. Dewinetz said they would consider suggestions with respect to storage. The existing concept for the community building included space for recycling and garbage collection.

Mr. Dewinetz stated that their long term plan was to build 10 buildings around the island, with a minimum of 90 units for Galiano. This current project is a proto-type.

In response to a question from **Avis Seads**, Mr. Dewinetz clarified the location is coming out of Heritage Forest.

Jane Wolverton clarified that there was a zone set aside of approximately 17 acres, of which 5 would be reserved for community housing.

It was also clarified that the project will be owned by the affordable housing society, managed by the society, and would be not-for-profit.

The project would provide long-term, secure housing. There will be a rezoning process.

10. CORRESPONDENCE

Correspondence received concerning current applications or projects is posted to the LTC webpage

10.1 The LTC received email correspondence from Paul Kopas.

11. APPLICATIONS AND REFERRALS

11.1 GL-RZ-2018.2 (Mignault) - Staff Report & Bylaws No.267 & 268

GL-2018-58

It was Moved and Seconded,

that the Galiano Island Local Trust Committee Bylaw No. 267, cited as “Galiano Island Official Community Plan Bylaw No. 108, 1995, Amendment No. 1, 2017”, be read a second time.

CARRIED

GL-2018-59

It was Moved and Seconded,

that the Galiano Island Local Trust Committee Bylaw No. 268, cited as “Galiano Island Land Use Bylaw, 1999, Amendment No. 1, 2017”, be read a second time.

CARRIED

GL-2018-60

It was Moved and Seconded,

that the Galiano Island Local Trust Committee Bylaw No. 267, cited as “Galiano Island Official Community Plan Bylaw No. 108, 1995, Amendment No. 1, 2017”, be read a third time.

CARRIED

GL-2018-61

It was Moved and Seconded,

that the Galiano Island Local Trust Committee Bylaw No. 268, cited as “Galiano Island Land Use Bylaw, 1999, Amendment No. 1, 2017”, be read a third time.

CARRIED

GL-2018-62

It was Moved and Seconded,

that Galiano Island Local Trust Committee proposed Bylaws No. 267 and 268 be forwarded to the Secretary of the Islands Trust for Executive Committee Approval.

CARRIED

GL-2018-63

It was Moved and Seconded,

that Galiano Island Local Trust Committee proposed Bylaw No. 267 be forwarded to the Minister of Municipal Affairs and Housing for approval.

CARRIED

11.2 GL-RZ-2017.1 (Stevens) s. 219 covenant - Staff Report (attached)

Trustee Pottle said she could not support the covenant. She noted several concerns, including:

- The scales of the maps provided, which made it difficult to determine if there was connectivity between emergency access routes;
- Whether the owners of DL 38 were aware of the proposed emergency access routes;
- Lack of certainty about the timing of securing emergency accesses across the lots;
- Potential undermining of the Road Network Plan;
- Not having a standalone Community Information Meeting to discuss the proposed covenant;
- The extent to which the Islands Trust Policy Statement Section 5.3.5 is being upheld.

RPM Kojima provided the following comments:

- Surveyor Peter Thomson had explained (July 9, 2018) that the proposed emergency access route followed existing logging roads, connecting to DL 38, which is the intervening lot to the old access road. Both routes would connect.
- The covenant will be registered and will require that, at any time, the Ministry of Transportation and Infrastructure (MOTI) can take all or some of those reservations for highway and any that they don't take, will be reserved for emergency access and trails. If and when MOTI take the highway dedication, we will get the emergency access.

Chair Busheikin noted that, through this covenant, the LTC do not have the power to force an organization to take on the creation of an emergency access road.

Trustee Harris acknowledged the frustration that this dedication will exist on paper but not in reality. He noted that we don't have the mechanisms to have that road built.

Trustee Pottle stated that, in return for the rezoning, the applicant could have the road built. She stated the covenant should be redone so that it complies with the Road Network Plan. She would like staff to do further analysis on the covenant to enable the community to have an emergency access road. She stated that Islands Trust Policy Statement section 5.3.5 was left blank when it went to Executive Committee.

Chair Busheikin reported that section 5.3.5 was discussed at E.C.

Chair Busheikin referred to the map and asked RPM Kojima, whether the covenant could be easily altered to create the connection, seeing how it connects on the RNP on DL 37.

RPM Kojima explained that the covenant could be altered with the agreement of the land owner, but given what the surveyor said, the creek intervenes, and there are

steeper grades to consider. The surveyor thought the better connection would be on DL 38.

Trustee Harris enquired, whether it were possible, if the community could build an emergency access route, once dedicated. RPM Kojima noted that once a statutory right of way is registered an organization could build an emergency access route. If Highways doesn't take some sort of dedication, permission of the owner could be sought in order to build an access route.

GL-2018-64

It was Moved and Seconded,

that the Galiano Island Local Trust Committee accept the draft covenant, attached to the staff report in the agenda of the September 17, 2018 LTC meeting, under section 219 of the Land Title Act from the registered owners of District Lot 37, Galiano Island, Cowichan District that would reserve future highway dedication and statutory rights-of-way in the locations shown on the plans prepared by Peter Thomson, BCLS, prohibit future subdivision of the lot, and restrict hours of operation, and designate the Chair of the Local Trust Committee to sign the covenant.

CARRIED

Trustee Pottle Opposed

12. LOCAL TRUST COMMITTEE PROJECTS

12.1 Telecommunication Strategy Project - Staff Report (attached)

Chair Busheikin thanked the Special Advisory Planning Commission on Telecommunications and staff for their work on this project.

GL-2018-65

It was Moved and Seconded,

that the Galiano Island Local Trust Committee adopt the Galiano Island Antenna System Siting & Consultation Protocol as the tool for the review and consideration of antenna system proposals within the Galiano Island Local Trust Area.

CARRIED

13. REPORTS

13.1 Work Program Reports (attached)

13.1.1 Top Priorities Report Dated September 2018

Information as provided.

13.1.2 Projects List Report Dated September 2018

Information as provided.

13.2 Applications Report Dated September 2018 (attached)

It was reported that a response from the Province with respect to GL-RZ-2016.2 was anticipated within the next month.

13.3 Trustee and Local Expense Report Dated June 2018 (attached)

Information as provided.

13.4 Adopted Policies and Standing Resolutions (attached)

Information as provided.

13.5 Local Trust Committee Webpage

n/a

13.6 Chair's Report

Trust Council was scheduled for Keats Island, September 18th. Information will be coming out soon as to updates with respect to the Union of BC Municipalities' meetings. Chair Busheikin reported that the Minister of Municipal Affairs is taking longer to review OCP amendments, as they wish to ensure due diligence with respect to FN consultation. Trust staff have been commended for the high level of FN consultation.

Akasha Forest asked about the hydrologist report and wondered if there could be coordination of BC Water Regulations. There is interest in obtaining a copy of the presentation. It was noted there is a possibility of bringing the hydrologist back again.

13.7 Trustee Report

Trustee Harris reported that he did not get many visitors this summer. He is running again for Trustee. He referred to emerging case law on FN consultations.

Trustee Pottle reported that, on Aug. 23, she had a tele-meeting where the Coastal Douglas Fir strategy was discussed, with 10 strategies discussed, and they signed on to the Regional Conservation Strategy. She noted the importance of working with this organization. Of particular interest, the LTC agenda model is being looked at, with the proposal that the Town Hall sessions be optional, and that they take place at the end, not at the beginning of the regular business meeting. She is concerned about the public voice. She has been diligently reviewing the Road Network Plan and Transportation policies. Islands Trust Amendment Acts are coming forward and she noted interest in these as well.

Chair Busheikin noted that the agenda publication practice of seven (7) calendar days prior to the meeting is the same throughout the Trust area.

Trustee Pottle wondered if it were possible to get Staff Reports on issues earlier.

The Chair responded that this would require staff to report back on the feasibility of having an earlier release of staff reports.

13.8 Electoral Area Director's Report

n/a

13.9 Islands Trust Conservancy Board Report Dated July 2018 (attached)

The board vacancy has been filled by Linda Adams.

14. NEW BUSINESS

14.1 Islands Trust Conservancy, Incorporating the Regional Conservation Plan into Land Use Planning - Staff Briefing (attached)

Information as provided.

14.2 Retail Cannabis Licensing - Staff Report (attached)

RPM Kojima noted that Canada doesn't distinguish between cannabis retail versus other retail use. Of the southern LTC's, one island deferred, another island chose to increase the fees.

Trustee Harris proposed deferring it or sending it to the APC to get their opinion.

GL-2018-66

It was Moved and Seconded,

that the Galiano Island Local Trust Committee send the Regulation of Cannabis Production and Retail Sales and Non-Medical Cannabis Retail License Application Fees Staff Report to the APC for their analysis, and that the APC focus on:

- The draft standing resolution in recommendation #1.
- The fee for referrals, in recommendation #2.
- Whether the LTC should consider amending its zoning to prohibit cannabis retail sales and thus require proponents to also apply to rezone.

CARRIED

Staff could be available by phone for the APC.

14.3 Housing Needs Assessment Report - Staff Report (attached)

GL-2018-67

It was Moved and Seconded,

that the Galiano Island Local Trust Committee receive the "Southern Gulf Islands Housing Needs Assessment", report by JG Consulting Services Ltd dated February 2018.

CARRIED

GL-2018-68

It was Moved and Seconded,

that the Galiano Island Local Trust Committee request Staff to publish the "Southern Gulf Islands Housing Needs Assessment , report by JG Consulting Services Ltd dated February 2018 on the Islands Trust website.

CARRIED

14.4 Trust Programs Committee, Service Integration - Staff Briefing (attached)

Received for information.

14.5 Advocacy

There was consensus that further information was required with respect to which particular street lights were no longer active, and why. Trustee Harris would follow up Don Robson, who brought the issue forward. Enquires would be made with Mainroad Contracting and then with Sean Hayley.

15. UPCOMING MEETINGS

15.1 Next Regular Meeting Scheduled for October 15, 2018, at the North Community Hall, Galiano Island

GL-2018-69

It was Moved and Seconded,

that the Galiano Island Local Trust Committee cancel the November 5, 2018 Galiano LTC meeting.

CARRIED

16. TOWN HALL

Rose Marie Umana submitted a letter dated September 17, 2018 to the Chair.

17. CLOSED MEETING

None

18. ADJOURNMENT

By general consent the meeting was adjourned at 4:15 pm.

Laura Busheikin, Chair

Certified Correct:

Colleen Doty, Recorder



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**Public Hearing
Record Subject to Approval
By the Local Trust Committee**

Galiano Island Local Trust Committee Record of Public Hearing

Date: September 17, 2018
Location: South Community Hall
141 Sturdies Bay Road, Galiano Island, BC

Members Present: Laura Busheikin, Chair
George Harris, Local Trustee
Sandy Pottle, Local Trustee

Staff Present: Robert Kojima, Regional Planning Manager
Colleen Doty, Minute-taker

Others Present: 35 members of the public

6.1 Recess for Public Hearing

6.1.1 Galiano Island Local Trust Committee Bylaws No. 267 & 268 (Mignault)

Chair Busheikin called the Public Hearing to order at 2:06 p.m. and acknowledged the meeting was being held on territory of Coast Salish First Nations. She gave notice and stated procedure and rules for the Hearing, explaining that this was a quasi-judicial meeting. She explained that written submissions could be given until the close of this meeting. Once the Public Hearing is concluded, the LTC is not permitted to receive more input on the bylaws.

Mike Hoebel, 798 Georgeson Bay Road, supported the proposed rezoning.

Bowie Keefer, 120 Manastee Road, spoke in favour of the application, noting that the applicants have managed it in a beautiful, safe manner. They have donated lands to BC Parks, for the trail, and he supports a logical resolution of the situation.

Joanne Rundle, 1506 Ellis Road, supported the application. Years ago, she joined the fight to protect Mount Galiano and is proud of the community that protected Galiano from development. However, she noted the island is still divided. The applicants bought here to build a home for their family, but have been caught in the cross-fire. She stated that the applicants need some security. Each rezoning application is unique. She stated it was time to put the MacBlo' years behind.

Jeff Inverarity, 1506 Ellis Road, spoke in support of Mignault's application. He had been disheartened to attend the LTC meeting of July 9th, and to witness what he described as delay tactics. He urged the LTC to move on. Every application should be approached with its unique merits. The applicants have suffered from a radical re-shifting of the goal posts. He urged the Trustees to approach the Mignault application with compassion and common sense so that one family would find some closure and peace.

Dave Cochrane, Montague Harbour Road, spoke in support of the application.

A member of the public read a letter in support of the applicant.

Paul Leblond, 110 Eagle Lane, referred to a previous support letter and congratulated the LTC staff for suggesting a fair-minded solution.

A member of the applicant's family read out six different letters of support from individuals, some of whom were unable to attend. Community members writing in support were identified as: **Kris Krug, Krista Thornhill, Bernie and Marlene Angelopoulos, Celeste Howell, Don Robson, and Deborah McKechnie.**

Claude Latour, 391 Cain Road, referred to a previous letter of support. He supported the application.

Tom Hennessy, 637 Southwind, spoke in support of the application. He was at the meeting where the Trust decided to change the zoning of the lots because of concerns about sub-divisions, changing them from acres to hectares.

Roger Pettit, 222 Vineyard Way, supported the application. He stated he didn't understand the objections. He referred to the presence of overwhelming support from members of the community.

Diana Lilly, 174 Morgan Road, agreed with many of the comments. However, she was in favour of keeping the F2 zoning designation to protect the forest canopy in the face of climate change.

Louise Decario spoke in support of the change in uses, but did not support the change to the Rural Residential zone. She felt strongly that we should keep the property zoned as Forestry.

Sheila Anderson, 176 Gustin Road, wrote a submission and wanted it on record that she opposed the bylaws because she would like to keep it in Forestry 2. She didn't think that doing an STVR is enough to keep it out of F2; the better solution would have been to add a cottage provision to F2. She agreed with other speakers about what a wonderful job the applicants have done. She stated that land zoning is forever. She was not concerned about the forest in the hands of the present owners. R2 allows farm use and overrides protections on the forest. She was not opposed to a cottage provision, but was opposed to it

leaving the Forest designation and expressed concern of the option [adding a cottage provision to F2], as it didn't get explored thoroughly. The applicants don't want farming.

Tamara Nile, Montague Harbour Road, spoke in favour of the application. She expressed concern about the costs, at a community level, of the long-standing divisions, and hoped that the issue would be resolved. She stated that the applicants have been excellent stewards of the land.

Brigitte Finnie, 2851 Montague Harbour Road, supported the application.

Doug Latta, 1029 Montague Harbour Road, reminded Trustees that each application is judged on its own merits. He supported the rezoning.

Avis Seads, 172 Ellis Road, supported having a cottage but did not support the rezoning.

Roger Pettit noted that there are more ways to protecting forest than through zoning. He added that there's nothing permanent to zoning. Further, he stated, the parcel is too small and protected; nor is it a flat piece of land. He reiterated that he doesn't understand the objections.

Nan Vernon, Ganner Drive, spoke in support of the rezoning.

Don Robson noted that the whole area was logged off in the 1950s. The trees have now all grown back.

There being no further comments, Chair Busheikin closed the Public Hearing at 2:36 p.m.

I CERTIFY THAT THIS IS A FAIR AND ACCURATE SUMMARY OF THE NATURE OF REPRESENTATIONS RESPECTING THE MEETING HELD

Laura Busheikin, Chair

Certified Correct:

Colleen Doty, Recorder



**Galiano Island
Advisory Planning Commission
Record of Meeting**

Date: May 28, 2018
Location: Islands Trust Office
Madrona Drive, Galiano Island, BC
1:30 p.m.

Members Present: Sheila Anderson (Chair)
Jenna Falk
Bowie Keefer
Barry New
Judith Parrack

Members Absent: Akasha Forest (Regrets)
Dave Koster (Regrets)

Staff Present: Colleen Doty, Recorder

Members of the Public: Two

1. CALL TO ORDER

The meeting was called to order at 1:37 p.m.

2. APPROVAL OF THE AGENDA

Additions to the agenda: Parents Advisory Council President Meghan MacKay would be attending at 2:30pm to speak to housing impacts on the school community. It was noted that Joy Wilson, Page Drive Board member, has been invited to attend at a future date.

By **general consent** the agenda was approved as amended.

3. APPROVAL OF THE MINUTES

It was moved and seconded that the minutes of May 14, 2018 be adopted.

CARRIED

4. AFFORDABLE HOUSING

A. Discussion:

APC members discussed the Southern Gulf Islands Housing Needs Assessment Report and the CRD Staff Report which were recently circulated by Islands Trust staff and available online at <http://www.islandstrust.bc.ca/media/345732/southern-gulf-islands-housing-needs-assessment.pdf>. The purpose of the report was to “establish baseline data to support long-term planning needs, to provide evidence of need to support applications for funding and provide data to guide policy and bylaw development” (page 5, Gulf Islands Housing Needs Assessment Report). There was general consensus that the report provided useful information and context for discussions about affordable housing.

General observations and comments about the affordable housing report:

- The many tables and statistics were helpful.
- It was noted that building starts are down.
- Inter-island and inter-jurisdictional comparisons were useful.
- Survey results versus statistics were noted.
- Galiano has the highest percentage of homes requiring major repairs (Table 25).

Advisory Planning Commission (APC) members discussed the issue of Short Term Vacation Rentals (STVR's) on Galiano. It was noted that other islands have more restrictive rules compared to Galiano about STVR's. Table 4, entitled “Mobility and Migration” illustrates that Galiano has the highest percentage of migrants (from elsewhere) and movers within the Southern Gulf Islands (SGI). Consideration was given as to the extent to which STVR's may be connected to these numbers.

Possible strategies for supporting affordable housing on Galiano were discussed and included:

- Increasing regulations for STVR's;
- Encouraging long-term projects to create purpose-built affordable housing. Van City's Social Real Estate Fund was mentioned.
- Having an Affordable Housing zone and allowing people to split into it.

The Commission considered how the Housing Needs Assessment could be reflected in their report to the Local Trust Committee (LTC). Specifics included:

- The Housing Needs Assessment provides contextual data with respect to the rising cost of property, which is driving the need for affordable housing.
- Statistics from the report could be cited to bolster efforts of managing STVR's.
- It was agreed to have a section in the APC report on the Housing Needs Assessment.

B. Presentation by Parents Advisory Council (PAC) (2:30pm):

Following an analysis of the Galiano school population, PAC President Meghan Mackay estimated that a third of the families and students (including the kindergarten intake for September 2018) have either both parents together renting, or, one of the parents renting. Access to housing is also an issue for high school students and families. Housing for staff is less of an issue as a greater proportion of staff own. Recent additions to the school

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population reflect a high percentage of families from elsewhere that have purchased homes on Galiano.

Ms. Mackay provided some ideas and possible strategies:

- Creating a housing trust/society (or a similar type structure) for protecting existing rental housing stock that is for sale on the market;
- Having access to low mortgage rates for either improvements to, or purchasing of, affordable housing would be helpful;
- Creating a land-holding entity or commission within the Trust, with representatives from all the islands. There was some discussion about a similar initiative on Salt Spring Island.
- There is a perception that most people would not chose to be in an apartment-like setting but would prefer more private accommodations surrounded by the natural environment. Creating small rental housing units that might be duplexes, for example, dispersed throughout different neighbourhoods;
- Integrating and dispersing housing throughout the island would also spread out services and demands on water and other infrastructure.

C. Comments from the Public:

- A member of the public suggested the LTC could create monetary/tax incentives to encourage longer term rentals and permanent low cost housing. He questioned the efficacy of punitive strategies.
- Debbie Holmes suggested consideration of changing the prohibition of Land Use Bylaw 2.3.2 on mobile home parks. Mobile homes allow for instant, home-owner solutions for individuals and working families. Mobile homes are a traditional way of providing housing. She suggested Heritage Forest and Galiano Green, as examples of possible locations for a mobile home park that would facilitate less density and encourage more privacy (between pads/units), noting mobile homes can be very sophisticated. Mobile home parks are eligible for grants and mortgages and could be managed to a high, government standard. Ms. Holmes would not want to change the residential density as specified in the bylaws. Mobile home sites would need to be managed independently by a society on land that is held by a government body or zoned for affordable housing.

6. **THE NEXT MEETING** on this referral will take place Tuesday, June 12, 2018 at 1:00 p.m.

7. **ADJOURNMENT**

By general consent the meeting was adjourned at 3:20pm.

CHAIR

DATE

DRAFT

CERTIFIED CORRECT:

Colleen Doty, Recording Secretary



ADOPTED



**Galiano Island
Advisory Planning Commission
Record of Meeting**

Date: September 12, 2018
Location: Islands Trust Office
Madrona Drive, Galiano Island, BC
1:00 p.m.



Members Present: Sheila Anderson (Chair)
Jenna Falk
Akasha Forest
Barry New
Judith Parrack

Regrets: Bowie Keefer
Dave Koster

Staff Present: Colleen Doty, Recorder

Members of the Public: none

1. CALL TO ORDER

The meeting was called to order at 1:02 p.m.

2. APPROVAL OF THE AGENDA

By **general consent** the agenda was approved.

3. APPROVAL OF THE MINUTES

It was **moved and seconded** that the minutes of July 18, 2018 be adopted.

CARRIED

ADOPTED

4. AFFORDABLE HOUSING

Comments on the GIAPC Draft Affordable Housing Report

Discussion occurred with respect to suggested final edits on the latest draft. Comments had been sent, via email, from members unable to attend. Final edits, as discussed, will be made, and it is anticipated that the final report will be submitted on Friday, September 14th, 2018.

It was **moved** and **seconded** that the draft report be approved as amended.

CARRIED

5. ADJOURNMENT

By **general consent** the meeting was adjourned at 2:30 pm.

CHAIR

DATE

CERTIFIED CORRECT:

Colleen Doty, Recording Secretary

Follow Up Action Report

Galiano Island

17-Sep-2018

Activity	Responsibility	Target Date	Status
7.1 Minutes adopted as presented	Maple Hung	21-Sep-2018	Done
7.2 Public Hearing record - adopted	Maple Hung	21-Sep-2018	Done
11.1 Bylaws 267 and 268 (Mignault) - second and third reading, forwarded to EC (Done) and Minister (267)	Sharon Lloyd-deRosario Kim Stockdill	21-Sep-2018	On Going
11.2 - Covenant for GL_RZ-2017.1 (stevens) endorsed by LTC, to be executed by applicants, MoTI and Chair	Robert Kojima	28-Sep-2018	On Going
12.1 Telecommunications Strategy - adopted by LTC	Robert Kojima Kim Stockdill	28-Sep-2018	Done
14.2 - Cannabis Retail sales - refer to APC with report and request that APC provide advice on: 1. Adoption of standing resolution for referrals 2. Amendment of fees bylaw 3. Whether the LTC should consider amendments to zoning to prohibit cannabis retail sales and thus require proponents to rezone	Kim Stockdill	05-Oct-2018	On Going
14.3 Housing Needs Assessment report: received by LTC and request to post link on webpage	Robert Kojima	14-Sep-2018	Done

Follow Up Action Report

15.1 - Cancel November regular meeting	Maple Hung	21-Sep-2018	Done
10.1 Correspondence from P. Kopas received by LTC, no further action	Maple Hung	18-Sep-2018	Done



Islands Trust

BYLAW REFERRAL FORM

1-500 Lower Ganges Road
Salt Spring Island, BC BC V8K 2N8
Ph: (250) 537-9144
ssiinfo@islandstrust.bc.ca
www.islandstrust.bc.ca

Island: Salt Spring Island Trust Area **Bylaw No.:** 510 and 511 **Date:** August 29, 2018

You are requested to comment on the attached Bylaw for potential effect on your agency's interests. We would appreciate your response within 30 days. If no response is received within that time, it will be assumed that your agency's interests are unaffected.

APPLICANTS NAME / ADDRESS:

David Q. Brown and Esther Evanik / 480 Mt. Belcher Hts., Salt Spring Island, BC V8K 2J6

PURPOSE OF BYLAW:

Bylaw 511 will rezone two adjacent Rainbow Road properties from Residential 6 (R6) to a Commercial 2 (C2) zone variant to allow a range of commercial and residential uses. Bylaw 510 amends the SSI Official Community Plan to change the Land Use Designation of one of the subject properties from Agriculture (A) to Ganges Village Core (GVC) and to add both subject properties to Development Permit Area 1 (DPA1) for the management of the form and character of village development.

GENERAL LOCATION:

155 Rainbow Road, Salt Spring Island, BC

LEGAL DESCRIPTION:

PID: 005-888-387
That Part of Block D, Section 1, Range 3 East, North Salt Spring Island, Cowichan District, Plan 1371, Lying Between Lots 6 and 7, Plan 5827, and to the North of a Straight Boundary Extending from the South East Corner of Lot 7 of Said Plan to the South West Corner of Lot 6 of Said Plan; and,

PID 005-893-194
Lot 7, Section 1, Range 3 East, North Salt Spring Island, Cowichan District, Plan 5827

SIZE OF PROPERTY AFFECTED:

0.04 ha and 0.08 ha

ALR STATUS:

Adjacent to

OFFICIAL COMMUNITY PLAN DESIGNATION:

Agriculture (A) and Ganges Village Core (GVC)

OTHER INFORMATION:

Please call for further information.

Please fill out the Response Summary on the back of this form. If your agency's interests are "Unaffected", no further information is necessary. In all other cases, we would appreciate receiving additional information to substantiate your position and, if necessary, outline any conditions related to your position. Please note any legislation or official government policy which would affect our consideration of this Bylaw.

(Signature)

Name: Jason Youmans

Title: Island Planner

This referral has been sent to the following agencies:

Federal Agencies

None

First Nations

Cowichan Tribes
Halalt First Nation
Lake Cowichan First Nation
Lyackson First Nation
Penelakut Tribe
Stz'uminus First Nation
Malahat First Nation
Pauquachin First Nation
Tsartlip First Nation
Tsawout First Nation
Tseycum First Nation
Semiahmoo First Nation
Tsawwassen First Nation

Hul'qumi'num Treaty Group (for information only)
Te'Mexw Treaty Association (for information only)

Regional Agencies

CRD – All Referrals & K. Campbell (SSI Senior Manager)
CRD – SSI Economic Development Commission
CRD – SSI Parks and Recreation
CRD – SSI Transportation Commission
CRD – Ganges Water & Sewer Commission

Non-Agency Referrals

North Salt Spring Waterworks District
School District No. 64
SSI Chamber of Commerce
SSI Fire-Rescue
Partners Creating Pathways

Provincial Agencies

BC Assessment Authority
Ministry of Transportation & Infrastructure
Ministry of Forest Lands, Natural Resource Operations and Rural
Development – Front Counter BC
Front Counter BC

Adjacent Local Trust Committees and Municipalities

Galiano Island Local Trust Committee
Mayne Island Local Trust Committee
North Pender Island Local Trust Committee
Thetis Island Local Trust Committee
Cowichan Valley Regional District

BYLAW REFERRAL FORM RESPONSE SUMMARY

☐

Approval Recommended for Reasons Outlined Below

☐

Approval Recommended Subject to Conditions Outlined Below

☐

Interests Unaffected by Bylaw

☐

Approval Not Recommended Due to Reason Outlined Below

Salt Spring Island Trust Area
(Island)

(Signature)

(Date)

510 and 511
(Bylaw Number)

(Title)

(Agency)



DATE OF MEETING: October 15, 2018

TO: Galiano Island Local Trust Committee

FROM: Kim Stockdill, Island Planner
Southern Team

COPY: Robert Kojima, Regional Planning Manager

SUBJECT: Report subject: Development Variance Permit (GL-DVP-2018.3 Ingram)
Applicant: Terry Ingram & Ruby Munro
Location: 1645 Sturdies Bay Road (Lot A, Section 7, Galiano Island, Cowichan District, Plan 11815)

RECOMMENDATION

1. That the Galiano Island Local Trust Committee approve issuance of Development Variance Permit GL-DVP-2018.3 (Ingram).

REPORT SUMMARY

This report is to consider a Development Variance Permit (DVP) application to vary the 30 metre setback from a well and the natural boundary of the sea for a proposed septic absorption field.

BACKGROUND

The proposal is to vary a provision of the Galiano Island Land Use Bylaw No. 127, 1999 (LUB) that regulates the minimum distance from a septic absorption field to a well and the natural boundary of the sea. Specifically, the permit will vary:

- a) Section 2.15 which states that sewage absorption fields must be sited at least 30.0 metres from the natural boundary of the sea and from any well.

The applicants are potential future property owners for this bare land property. Their intent is to construct a three bedroom single family dwelling unit. Due to the physical constraints of the lot (steep slope and narrow lot), they have applied for a variance to decrease the setback for the siting of a septic field from 30 metres to 17.3 metres from the natural boundary of the sea and from 30 metres to 19.0 metres from a well. One of the contingencies of the sale of the property is approval of the Development Variance Permit.

The rationale for the variance and the need for a treatment system is due to the physical constraints and the width of the property, and the distance to an existing well on a neighbouring property to the west (108 New Road).

As stated above, the treatment system is designed by a registered Engineer Brent Dennis, P.Eng., from BWD Engineering Inc. (see Onsite Wastewater System Construction Package – Attachment 5) and the applicant has a submitted Vancouver Island Health Authority (VIHA) Record of Sewerage System (Attachments 6). The applicant has also provided a Hydrogeological Review prepared by Bryer Manwell, P. Eng., from BWD Engineering Inc. (see Z:\09 Current Planning\04 GL\3190 DVP\25 Applications (P)\2018\GL-DVP-2018.3 (Ingram)\Staff reports\GL-DVP-2018.3 (Ingram) Staff Report.docx

Attachment 4). The reduced separation from the well on the neighbouring property and from the natural boundary of the sea and from the well to the dispersal field is endorsed by the Hydrogeological Review.

A copy of the notice and proposed GL- DVP-2018.3 (Ingram) permit are Attachments 9 & 10.

ANALYSIS

Issues and Opportunities

The applicant has provided the following rationale for the variance:

Due to the [limited] width of the lot and the closeness of to the neighbouring welling, a reduction to the 30 metre setback is requested. We have hired engineers to design and prepare a Hydrogeological Review in support of our application.

The Overall Intent of the Regulation (s) being Varied

The overall purpose of the regulation for separation between a septic absorption field and a well and the natural boundary of the sea is to minimize impacts related to:

- Safeguarding the safe drinking water supply for the well on the subject property and on adjacent properties.
- Ensuring no detriment effects of the marine sensitive ecosystem;
- Mitigating the potential impact from nutrient and bacteria to the receiving environments;
- Establishing a regulation that is consistent with the standards of other regulating bodies, particularly the provincial Ministry of Health, Island Health, and the *Sewerage System Regulation*.

Potential Impacts of Granting the Variance

Granting a variance can potentially create an expectation in the community with regard to future applications. As variances consider the unique circumstances pertaining to a particular situation that may warrant the relaxation of a specific zoning regulation each application should be evaluated on its own merits.

Engineer's Report

As stated above, the application is supported by a Hydrogeological Review by a groundwater engineer. The report analysed the physical conditions and limitations of the site, gave options and recommended the proposed system.

The report includes a number of design modifications recommendations in order to mitigate potential pollution from the proposed septic system and may improve the quality of near-surface groundwater prior to entering Whaler Bay. The report also states to ensure the proposed septic systems does not contribute to further water quality degradation of Whaler Bay, the Professional Engineer recommends an on-going monitoring of the design boundary (downgrading of the proposed septic field) which is considered a performance-based approach. The performance-based water quality objectives must be included in the maintenance plan. Home owners are obligated, by law (*Sewerage System Regulation*), to ensure the performance monitoring is completed through the operational life of the septic system.

The report summarizes that from the data evaluated, it is the Engineer's opinion that the wastewater treatment system and dispersal field with the recommended design modifications does not pose a significant risk to health or the receiving environment and fish values.

Consultation

DVP Notices were circulated to surrounding property owners and residents. The notification period will end at 4:30 p.m. October 12, 2018.

No submissions have been received to date. Any other submissions received prior to the LTC meeting will be forwarded to Trustees and reported at the meeting.

Agencies

A referral was sent to the VIHA to comment on the Hydrogeological Review and the draft variance permit. In a letter dated September 19, 2018 (Attachment 7), Heather Florence, VIHA Regional Environmental Health Consultant, expressed concerns with the Hydrogeological Review as she believed some points made in the review required a more complete discussion of underlying data or exploratory work and expressed concerns with the water quality monitoring approach. As such, Ms. Florence recommended the DVP not be granted.

After discussions between the professional Engineer (Bryer Manwell) and Ms. Florence from VIHA, Ms. Florence came to the conclusion that her early expressed concerns were adequately addressed by Ms. Manwell and she was satisfied that the proposed DVP would not represent any direct risk to the subject well (see emails – Attachment 8) therefore the DVP can proceed.

Information Note: VIHA's role when dealing with sewerage systems is to receive filing documents from authorized professionals (Professional Engineer or a Registered Onsite Wastewater Practitioner) and to ensure those documents meet the minimum submission criteria i.e. did the authorized professional correctly complete the Filing form, provide plans and specification and provide a site plan drawn to scale. It is the full responsibility of the authorized professional to ensure the sewerage system design meets standard practice and to ensure that the system is suitable for its intended purpose. Excerpt from <https://www.islandhealth.ca/learn-about-health/environment/sewerage-subdivision>

Rationale for Recommendation

Staff recommend approval based on the following: the reasonableness of the applicant's rationale particularly the physical constraints of the property; the minimal impacts on neighbouring properties; the sewage treatment system and septic field has been designed and certified by a groundwater Engineer; and notification has been sent to neighbouring properties.

Also, based on the recommendations and summary from the Hydrogeological Review and comments from VIHA's Regional Environmental Health Consultant, staff recommend approving the Development Variance Permit.

It should be noted that Development Variance Permits cannot be approved with conditions. For example, the DVP could not be approved with the condition that all recommendations outlined in the Hydrogeological Review are met. A DVP is either approved or denied. Staff note that if the DVP is approved, and the applicants move forward with the construction of the sewerage system, they are obligated to meet the *Sewerage System Regulation* that requires the owner to ensure that the sewerage system is maintained in accordance with the maintenance plan provided in respect of the sewerage system.

ALTERNATIVES

1. Request further information

The LTC may request further information prior to making a decision. If selecting this alternative, the LTC should be advised to describe the specific information needed and the rationale for this request.

Resolution:

That the Galiano Island Local Trust Committee request that the applicant submit to the Islands Trust

_____.

2. Deny the application

The LTC may deny the application.

Resolution:

That the Galiano Island Local Trust Committee deny application GL-DVP-2018.3 (Ingram).

NEXT STEPS

Describe the next steps in the process, if applicable.

Submitted By:	Kim Stockdill, Island Planner	October 4, 2018
Concurrence:	Robert Kojima, Regional Planning Manager	October 4, 2018

ATTACHMENTS

1. Site Context
2. Maps, Plans, Photographs
3. Site Survey
4. Hydrogeological Review
5. Onsite Wastewater System Construction Package
6. VIHA Record of Sewerage System
7. Referral Responses
8. Email Responses between H. Florence & B. Manwell
9. Notice
10. Development Variance Permit

ATTACHMENT 1 – SITE CONTEXT

LOCATION

Legal Description	LOT A, SECTION 7, GALIANO ISLAND, COWICHAN DISTRICT, PLAN 11815
PID	000-641-227
Civic Address	1645 STURDIES BAY RD

LAND USE

Current Land Use	Bare land, residential
Surrounding Land Use	Residential

HISTORICAL ACTIVITY

File No.	Purpose
GL-DVP-2006.1	A DVP was issued in April 2006 varying Section 2.13 of the LUB that requires sewage absorption fields not to be sited closer than 30 metres from the natural boundary of the sea. Section 2.13 was varied to permit the siting of a sewage absorption field 22.7 metres (74.5 feet) from the natural boundary of the sea. No development occurred therefore the DVP lapsed in April 2008.

POLICY/REGULATORY

Official Community Plan Designations	This property is designated Village Residential 2 (VR2). Portions of the property located in DPA 2 – Shoreline & Marine, and DPA 7 – Steep Slope (Moderate)
Land Use Bylaw	The property is zoned Village Residential 2 (VR2). The property is located within the Water Management Area (WMA).
Other Regulations	N/A
Covenants	None.
Bylaw Enforcement	There are no enforcement issues recorded for the property.

SITE INFLUENCES

Islands Trust Conservancy	This application has no considerations for the Islands Trust Conservancy.
Regional Conservation Strategy	This application has no considerations for the Regional Conservation Strategy.
Species at Risk	N/A
Sensitive Ecosystems	N/A
Hazard Areas	A portion of the property is located within DPA 7 – Steep Slope (Moderate)
Archaeological Sites	No archaeological sites are noted within the property or within 100 metres on the provincial RAAD database.

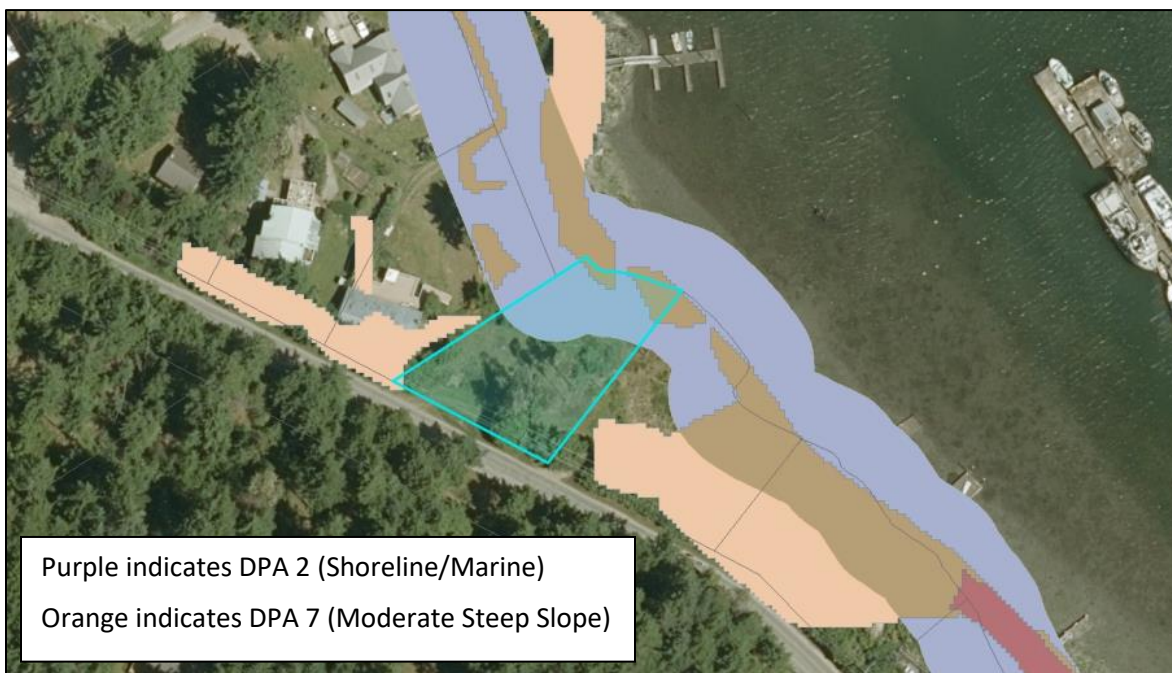
	Notwithstanding the foregoing, and by copy of this report, the owners and applicant should be aware that there is still a chance that the lot may contain previously unrecorded archaeological material that is protected under the <i>Heritage Conservation Act</i> . If such material is encountered during development, all work should cease and Archaeology Branch should be contacted immediately as a <i>Heritage Conservation Act</i> permit may be needed before further development is undertaken. This may involve the need to hire a qualified archaeologist to monitor the work.
Climate Change Adaptation and Mitigation	The Hydrogeological review outlined options to ensure no detriment effects of the marine sensitive ecosystem and recommendations to mitigate the potential impact from nutrient and bacteria to the receiving environments.
Shoreline Classification	Rock Shoreline - Low Rock/Boulder
Shoreline Data in TAPIS	N/A

ATTACHMENT 2 – MAPS, PLANS, DRAWINGS, PHOTOGRAPHS

2.1 ORTHO MAP



2.2 DPA MAP



2.3 PHOTOGRAPH



B.C. Land Surveyor's

Plan of proposed disposal field on:

Lot A, Section 7, Galiano Island,
Cowichan District, Plan 11815

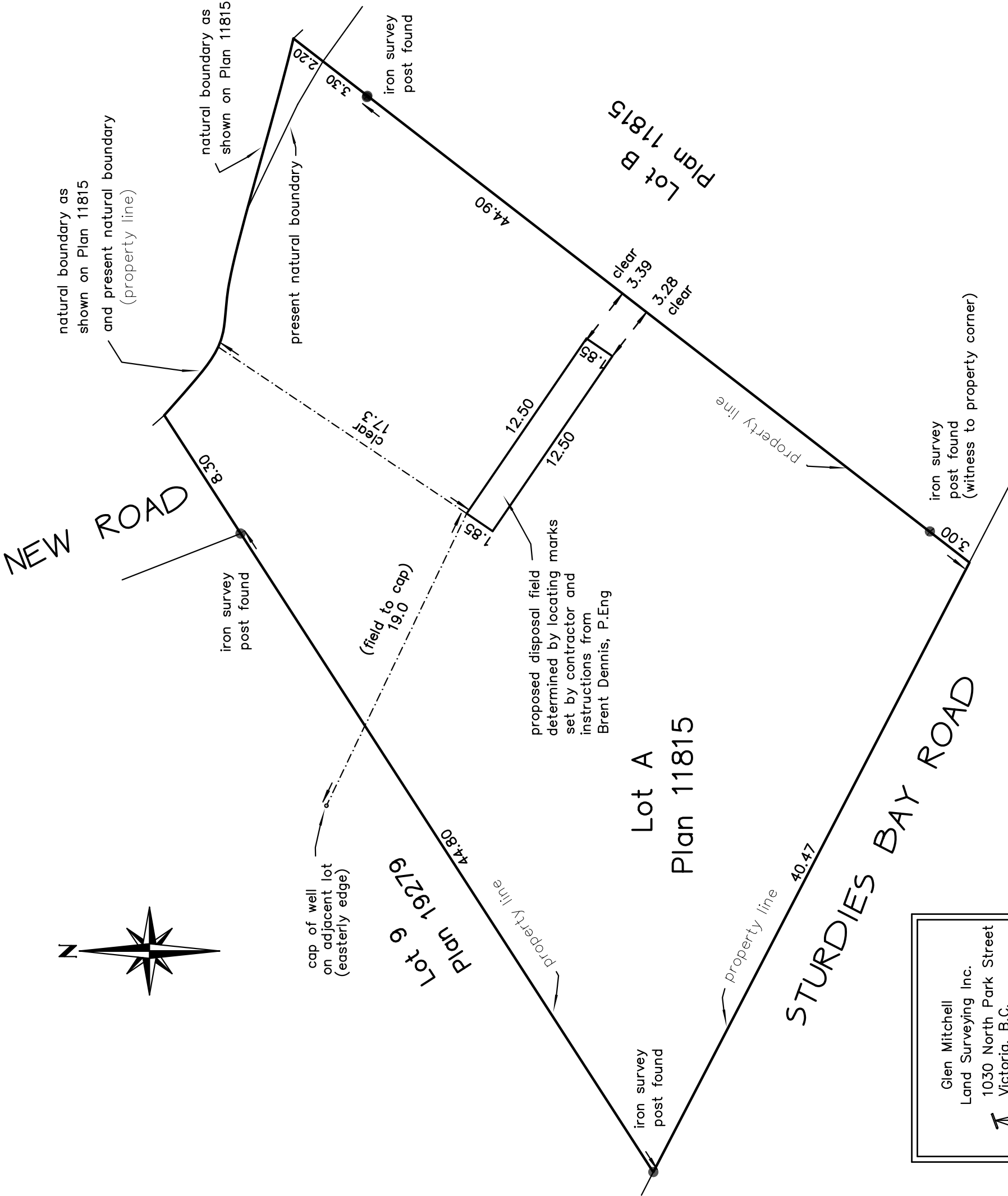


Scale 1: 250 (metric) All distances are in metres

Civic address: 1645 Sturdies Bay Road
Galiano Island, B.C.

Parcel Identifier Number 000–641–227

THIS DRAWING IS PREPARED TO ACCOMPANY A
VARIANCE APPLICATION



Glen Mitchell
Land Surveying Inc.
1030 North Park Street
Victoria, B.C.
V8T 1C6
tel 250–385–1712
email glen @ mitchellsurvey.ca



Certified correct this 30th day of August , 2018

B.C.L.S.

© This document is not valid unless originally signed and sealed
or electronic signature is attached.

July 31, 2018

18-071-01

Environmental Health Officer
Island Health
1952 Bay Street,
Victoria, BC, V8R 1J8

C/O
Terry Ingram and Janet Munro
1441 Walnut Ave.
Vancouver B.C. V6J 3R2
Via e-mail: terryingram@mac.ca / rubymunro@gmail.com

Re: HYDROGEOLOGICAL REVIEW IN SUPPORT OF PLANS TO INSTALL A TYPE 2 SEPTIC SYSTEM AT 1645 STURDIES BAY ROAD, GALIANO ISLAND, BC.

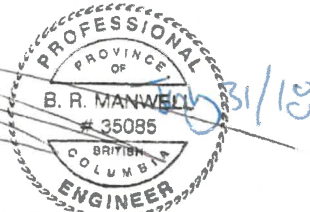
Western Water Associates Ltd. (WWAL) is pleased to provide this letter report detailing the hydrogeological assessment at the above noted property, herein referred to as the "site." This assessment pertains to the construction of a new private Type 2 septic disposal system at the site. This assessment will address recommend design modifications to address the septic system, which does not meet the horizontal separation standard of 30 m to the domestic water supply located at 108 New Road Galiano Island, BC as per the Sewerage System Regulation.

In closing, although the site presents design challenges, from our assessment the conditions for the development at the site are manageable. The wastewater treatment system will be engineered to reduce negative impacts to the natural environment. We trust this report meets your needs at this time, if you have any questions or concerns please contact the undersigned.

Yours truly,

WESTERN WATER ASSOCIATES LTD.

Reviewed by:

 
Bryer Manwell, M.Sc., P.Eng.
Hydrogeological Engineer

Douglas Geller, M.Sc., P.Geo
Senior Hydrogeologist

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Figures (following text)

Appendix A - Photos from site reconnaissance

Appendix B – Subject Well log (WTN 59397 - Miller Well)

Appendix C – Summary of Well Log Data from Water Wells in the Vicinity of Site, Galiano Island

Appendix D - Water Quality Laboratory Report

Project Understanding and Regulatory Consideration

We understand that Terry Ingram and Janet Munro are considering purchase of a lot and would like to build a Type 2, Geotextile Sand Filtration Eljen System at the above-noted site on Galiano Island, BC. The in-ground treatment and dispersal system for a three-bedroom home with a daily design flow of 1,300 L/day would need to be installed 19 m from the neighbour's well (Well Tag Number (WTN) 59397) at 108 New Road. The well is located cross-gradient to the proposed dispersal field, within the prescribed 30 m horizontal separation to a domestic water source as prescribed in the B.C. Sewerage System Regulation (B.C. Government 2010). The designer of the system reviewed in the current report is Brent Dennis, P.Eng. of BWD Engineering Inc. based in Surrey B.C.

The proposed Eljen GSF is not NSF 245 approved for N removal; prior to accepting the filing, the Heath Authority requires evidence to demonstrate and/or further clarification on how the performance objectives will be met at the design and compliance boundaries. From this hydrogeological assessment, we recognized the need to implement design modifications to address identified risk and further, performance-based monitoring to confirm compliance over the operational life of the proposed new septic systems will be required.

Scope of Work

The work plan is designed to address the concerns of Island Health. The scope of work involves a baseline hydrogeological review of the proposed development at the site. Further, recommendations will be provided addressing design modifications that will reduce nitrate and pathogen loading from the effluent prior to entering the ocean at Whaler Bay and ongoing performance-based monitoring that should occur.

Work included the following elements:

- Reviewing site maps and system design;
- Visiting the site;
- Assessing hydrogeology; drainage characteristics, seepage zones, springs and seasonally saturated areas, groundwater depth, assumed groundwater flow direction & pathways, and shallow bedrock;
- Assessing the potential impacts to the neighbouring well (WTN 59397- see Appendix B for copy of welllog), including assessment of the baseline water quality;
- Writing the current report, which included:
 - Providing multiple lines of design rationale including real-world data (nitrate concentrations), collected from water collected downgradient of the Type 2, GSF Eljen System with added Permeable Reactive Barrier (PRB);
 - Recommending design modifications to accommodate in-situ remediation of the onsite effluent plume that will migrate downgradient of the in-ground dispersal and treatment system; and
 - Recommending on-going performance monitoring, which will support the performance objectives for the operation of the septic system.

Location and Reconnaissance

The site is located along the southern arm of Whaler Bay on Galiano Island, BC (Figures 1 and 2). Galiano Island is a southern Gulf Island located east of Vancouver Island and on the western side of the Strait of Georgia. Galiano Island is 27.5 km in length and has an approximate population of 1,000 habitants and is within the Capital Regional District (CRD). The lot is currently vacant, and we understand the domestic water at the site will be supplied by a community water system operated by CRD.

A site visit was completed by Bryer Manwell P.Eng. (WWAL Hydrogeological Engineer) on June 23, 2018. The purpose of this site visit was to locate and record site features that could pose restrictions to the flow of subsurface effluent such as shallow bedrock or other breakout locations. The proposed septic field location, along with other relevant site features were recorded by GPS and are depicted on Figure 3. Further, during the site visit the actual horizontal separation from the proposed location of the dispersal field (Photo 1) to the neighbouring domestic water supply well, locations of neighbouring water wells, and the natural boundary of the sea were noted.

During the same visit, Ms. Manwell completed water quality sampling to document baseline geochemistry at the neighbouring well (WTN 59397), which is located 19 m from the proposed treatment and dispersal field and completed a foreshore investigation along the northwest property boundary (Figure 3).

Algal biomass was observed to be present at three locations along the shoreline of 108 New Road (Figure 3 and Appendix A – Photos 5 and 6). Presence of algae along the shoreline downgradient of existing septic systems indicates that the neighbouring septic systems are likely contributing to nutrient loading along the sensitive ocean shoreline and conidiation needs to be made for any new septic systems being installed, so as to not contribute to further nutrient loading.

As noted above, homes in the area including the subject property are supplied by a community drinking water system, except the neighbour to the north, who supplies his home with a groundwater well (WTN 59397 well log attached in Appendix B).

Physiography and Geology

The site is located in the southern arm of Whaler Bay on Galiano Island, BC. The site is bordered by private properties to the northwest and southeast, Sturdies Bay Road to the southwest and Whaler Bay to the northeast. Topography at the site is steeply sloping towards Whaler Bay, with two small terraces, one of which is where the proposed septic field would be located. Elevation of the site ranges from about 20 metres above sea level (m asl) at the southwest end of the site to sea level at the northeast property boundary.

From the site visit, we see that there is exposed bedrock located along the shoreline of the property. Test pit logs submitted by the design engineer indicated there is a thin, 5 cm thick, layer of organic material, followed by sandy silty loam to a depth of 45 cm (1.5 ft), where we assume bedrock was encountered. Water well logs from the area, (Figure 4 for locations of select provincially registered wells on Galiano Island, Appendix C provides a summary of nearby well log information), indicate that bedrock is present at shallow depths (from surface to 30 ft bgs).

Groundwater is found primarily in open fractures in the Cretaceous bedrock formations of Galiano Island where it is a critical resource for meeting domestic water supply requirements. The entire island can be considered part of a fractured and interconnected bedrock aquifer system in which variations in productivity and water quality occur spatially within the groundwater system (Kohnut and Johanson 1998)

Hydrogeology and Conceptual Model of Groundwater Flow

Kohut and Johanson (1998) describe twenty-one groundwater regions on Galiano Island so as to describe and compare groundwater conditions in various parts of the island. Areas of regional groundwater recharge and discharge have been delineated in each of the regions. In a number of instances, groundwater quality has been impacted by salt water intrusion. Other water quality problems observed locally on Galiano include elevated levels of: iron, manganese, fluoride, hydrogen sulphide and coliform bacteria (Kohut and Johanson 1998).

There is no mapped surficial aquifer beneath the site; however, there is a provincially mapped bedrock aquifer (320 IIB) underlying the site and is considered moderately vulnerable and of low productivity. The aquifer appears to be present from between about 40 m (160 ft) and 128 m (420 ft) bgs. With shallower water bearing zones not yielding enough water for domestic use (Appendix C).

The following section describes the conceptual model for groundwater flow beneath the site. The relatively thin veneer of unconsolidated sediments overlying bedrock on Galiano Island do not allow for the presence of a surficial aquifer to form. We expect groundwater present beneath the site to originate from precipitation in the upland area to the west of the site. Precipitation in the uplands likely infiltrates into the bedrock via upgradient weathered (fracture) zones and then may flow eastward, towards the sea.

Groundwater flow direction within bedrock aquifers can be unpredictable and related to fracture orientation and connectivity of the water bearing fracture zones to the atmosphere and to each other. Based on slightly elevated concentrations of chloride and sodium at the subject well (WTN 59397) (water quality discussed below), there could be some contribution of sea water to the bedrock groundwater system, through subsurface seawater migration into the bedrock.

From well logs in the area groundwater levels (the piezometric surface(s)) range from 2.4 m (8 ft) below ground surface (bgs) to 24 m (80 ft) bgs (Appendix C); these data indicate the bedrock aquifer is under pressure (confined) and potentially exhibits an upward hydraulic gradient (a natural barrier to flow from the surface). Further, from assessment of the nearby well logs, we see there is at least 24 m (80 ft), but more likely, about 49 m (160 ft) of competent bedrock above the source bedrock aquifer for the subject well (WTN 59397).

Fate of Effluent

As will be discussed below, we recommend modifications to the proposed septic design to mitigate the potential impact from nutrients and pathogenic bacteria to the receiving environment (the shallow fractured bedrock zone and Whaler Bay). Specifically, we recommend addition of a passive and permanent permeable reactive barrier (PRB) to the underlying sand layer below the GSF Eljen modules. As wastewater effluent migrates through the GSF Eljen modules and then through the recommend engineered material (PRB), nitrogen (in the form of ammonia, nitrite or most likely nitrate) and pathogens, which are

the parameters of concern from the septic system, will be sequestered prior to migrating toward the near-surface fractured bedrock and then onward towards Whaler Bay, downgradient of the system.

A bedrock outcrop (see Appendix A - Photo 4), is located along the shoreline (northwest), downgradient of the proposed dispersal field. This potential breakout location is located more than 15 m downgradient of the proposed new dispersal field.

Potential Impacts to Neighbouring Domestic Well (WTN 59397) and Baseline Water Quality Assessment

The well log for the neighbouring well (WTN 59397) indicates the well is completed at a depth of 61 m (200 ft) bgs, the piezometric surface is at 12.8 m (42 ft) bgs and bedrock was encountered at 1.5 m (5 ft) bgs. Further, the well log indicates the well is capable of yielding 12 USgpm, considered a high yield for a bedrock well. We understand the raw water is tested prior to consumption. During site reconnaissance, WWAL noted the location of the well head (Appendix A – Photo 3) and collected a water sample from the neighbouring well (WTN 59397), and the sample was submitted under Chain of Custody to CARO Analytical, in Kelowna, BC, within 48 hours of sampling.

Permission to access the neighbour's well was provided by the neighbour (Mr. Greg Miller – via e-mail). The sample was collected from the homeowner's outside tap, the tap was disinfected with alcoholic wipes before the sample was collected and gloves were worn by WWAL staff during the sampling event. The purpose of the sampling was to assess parameters associated with septic system operation (specifically chloride, nitrate, sodium and pathogenic bacteria), to establish background concentrations prior to commissioning the site septic system. Chloride is regarded as a conservative ion, associated with anthropogenic impact; however, for groundwater present near the sea, elevated chloride (along with sodium) can be present due to salt water intrusion effects, and this has already been noted in previous studies such as Kohut and Johanson (1998). From the results, this could potentially be occurring to some extent, although the water can still be considered fresh. The water quality report is attached (Appendix D) and select parameters of interest are summarized in Table I, below.

Table I – Summary of Water Quality Results for WTN 59397 (Miller Well),

Analyte	Units	Guidelines (I)	23-Jun-18
Alkalinity, Total as CaCO ₃	mg/L	N/A	111
Arsenic	mg/L	0.01	0.00071
Boron	mg/L	5	0.223
Calcium, total	mg/L	N/A	12.0
Chloride	mg/L	AO≤250	26.6
Conductivity (EC)	uS/cm	N/A	321
Fluoride	mg/L	1.5	1.34
Hardness, Total (Total as CaCO ₃)	mg/L	N/A	46.2
Iron, total	mg/L	AO≤0.3	0.032
Magnesium, total	mg/L	N/A	3.95
Manganese	mg/L	AO≤0.05	0.0173

Analyte	Units	Guidelines (1)	23-Jun-18
Nitrate as N	mg/L	10	< 0.010
Sodium, total	mg/L	AO≤200	59.9
Sulfate	mg/L	AO≤500	11.3
Coliforms, Total	CFU/100mL	MAC = 0	2
<i>E.Coli.</i>	CFU/100mL	MAC = 0	<1

Notes: 1 - Guidelines for Canadian Drinking Water Quality (Oct 2014)

MAC – Maximum Acceptable Concentration

AO – Aesthetic Objective

Total coliforms are in exceedance of GCDWQ MAC guidelines for Total Coliforms, this could be a result of animal waste present or other organisms in the soil. Total coliforms are not necessarily an indicator of contamination of fecal waste. None of the other lab tested parameters were elevated above applicable health-based drinking water guidelines. Sodium, and chloride have slightly elevated concentrations of 59.9 mg/L, and 26.6 mg/L, respectively. The elevated chloride and sodium suggest salt water intrusion may be occurring in the groundwater supply source. The total hardness measured is relatively low with a concentration of 46.2 mg/L indicating that the water present in WPN 59397 can be classified as soft water.

We understand the well owner is currently treating his groundwater supply. Further, we request that a copy of the water quality results (laboratory report found in Appendix D) be provided to the neighbour – Mr. Greg Miller).

Assessment of Risk of Locating the Dispersal Field within 30 m of the Domestic Well (WTN 59397)

Based on the upward hydraulic gradient of the domestic water supply, which creates a natural hydraulic barrier, and the fact the subject well is located cross-gradient to the proposed dispersal field, we believe the horizontal separation of 19 m from the water source to the proposed dispersal field does not pose considerable health risk. Further, well logs in the area indicate that the shallowest water bearing zone is at least 24 m (80 ft) below ground surface (Appendix C), and we assume competent (unfractured) bedrock exists between weathered bedrock at surface and fracture zones (confined aquifer). At its nearest point, the wastewater treatment system and dispersal field will be located approximately 26 m from the natural boundary of the sea, outside of the 15 m setback to the natural boundary of the sea (mean high tide for marine water) and the remainder of the neighbouring wells (except for WTN 59397) will be located more than 30 m away from the dispersal field. Note that the well record does not indicate the presence of a surface seal for the well, which is typical of wells drilled prior to 2005 in BC.

Recommended Mitigative Measures and Supporting Rationale

The successful filing of a new septic system with Island Health potentially provides home owners the ability to negatively impact the receiving environment if a septic system does not operate as intended, or the system is not maintained according to the maintenance plan over the operational life of the system. When a new septic system is required to be installed close to a groundwater well or surface

water body due to property area constraints, the risk of pollution can increase. This increased risk of impact to the receiving environment can be caused by several factors; including, but not limited to:

- reduced subsurface travel time due to the short distance before reaching the surface water body;
- fast migration of the effluent plume via advective groundwater flow due to high hydraulic conductivity of coarse grained sand and gravel associated with surface water depositional environments; and
- reduced vertical separation between the point of application and a confining unit (i.e. bedrock surface) or the groundwater table; thereby reducing time travel in the vadose (unsaturated) zone where renovation of septic effluent can occur.

The proposed septic system is planned as Type 2, which will address reduction of pathogenic bacteria (Donlin 2014); however, there will likely be elevated nitrate at the point of application if the system was installed according to the original filing (without a permeable reactive barrier). Ms. Manwell of WWAL has been working on addressing monitoring and renovation of nutrients (specifically nitrate derived from onsite wastewater, landfills and agricultural activity) in the foreshore waters for lakes, rivers and the ocean throughout B.C. and Alberta for 15 years. Within the last 4 years she has recognized the need to address the lack of nutrient removal prescribed for new septic systems which do not meet the 30 m horizontal separation, and new septic systems within 100 m of surface water bodies. Table 2 provides a summary of results from past performance monitoring; specifically, we provide nitrate, and pathogen bacteria (*E. Coli.*) concentrations at two locations which use the rationale for design modification of the current proposed septic system so as not to contribute to further nutrient loading along the Whaler Bay shoreline.

The first location provides data within the hyporheic water, one year after commissioning of a single-family home with a new Eljen GSF system (without added PRB), installed less than 10 m from the shoreline of Christina Lake. This first Christina Lake system shows that nitrate within the hyporheic zone was just below 10 mg/l, this is without the addition of a PRB. We believe, with the addition of a PRB, as outlined below (Recommended Design Modifications) that the concentration of nitrate and pathogenic bacteria over-time will remain well below the water quality objectives, as outlined in the next section which addresses performance monitoring at the design boundary.

The second site is for a larger Orenco ATU system serving about 11 homes and discharging effluent into a series of seven polishing and storage cells (subsurface wetlands treatment utilizing engineered material (PRB)) and vegetative growth, located about 150 m from Mara Lake. We have data collected from two sampling events (July 2017 and May 2018) from three locations for this second system; 1) effluent from the ATU (Eff), the initial dilution zone (IDZ) and after three treatment cells – considered near-surface groundwater (hyporheic water) (GW). The PRB utilized in this second system was able to renovate nitrate from 3 mg/l (July 2017) and 30 mg/l (May 2018) to below 0.01 mg/l in the near-surface groundwater (Table 3). Recall that nitrate is highly mobile within groundwater; therefore, we believe renovation of the nitrate is primarily the result of interaction of the nitrate rich effluent with the passive PRB.

A further line of rationale in support of the long-term capacity of PRBs ability to passively renovate nitrate from groundwater is provided in the peer-reviewed research paper *Nitrate Removal Rates in a 15-Year-Old Permeable Reactive Barrier Treating Septic System Nitrate Ground Water Monitoring & Remediation* (Robertson

et. al. 2008). Robertson shows that, even after 15 years of continuous operation, buried passive PRBs are able to maintain adequate renovation of nitrate so as not to create risk to human health or the environment.

Based on the past work of WWAL and research of Robertson et al, we recommend adding a passive PRB to the sand components of the Eljen GSF in the form of a carbonaceous material; details are provided below.

Table 2: Summary of Nitrate and Pathogen Removal

Brand of Advanced Treatment Unit and use of PRB	Distance to Lake (m)	Date Sampled	Nitrate (mg/l)			E. Coli. (CFU/100 ml)		
			Eff	IDZ	GW	Eff	IDZ	GW
Eljen (without PRB)	Christina Lake - 9.1	04-Apr-16	NA	NA	9.65			
Orenco (with PRB)	Mara Lake - 152	25-Jul-17	2.98	0.03	<0.010	46,000	3.6	<3.0
Orenco (with PRB)	Mara Lake - 152	24-May-18	32.5	0.871	<0.010	91	<3.0	<3.0

Notes: Eff = effluent from advanced treatment unit

IDZ = initial dilution zone

GW = near-surface groundwater (hyporheic water)

Recommended Design Modifications

We suggest, by incorporating the following design modifications, potential pollution from the proposed septic system will be mitigated, and may even improve the quality of near-surface groundwater (hyporheic waters) prior to entering Whaler Bay:

1. add at least 30 cm (12 inches) more of clean sand (mound sand or equivalent) beneath the Eljen GSF. Note, this additional 30 cm (12 inches) of sand is in addition to the existing sand required for the Eljen inground treatment and dispersal system;
2. Permeable Reactive Barrier: spread a 2.5 cm (1-inch) layer of hog fuel over the sand, then ***with a D-handled fork, twist dig the hog fuel approximately 6 inches into the sand, so there is no restriction to flow created by a continuous layer of hog fuel.***
3. Document the process of creating the PRB and provide the photos to WWAL to verify correct procedures are followed. Do not leave the 2.5 cm (1-inch) layer of hog fuel un-mixed as this tends to form a flow impeding layer; and
4. Field verify percolation rate of engineered material at three locations, record and provide the results to WWAL for confirmation that the design area remains adequate for the proposed DDF.

Monitoring of Performance Objectives at the Design Boundary

To ensure the proposed modified septic system does not contribute to further water quality degradation of Whaler Bay, we recommend on-going monitoring of the design boundary (downgradient of the proposed septic field). This monitoring is considered a performance-based approach, for the proposed new septic system as outlined in Civil and Transportation Infrastructure - Onsite Sewerage Systems Version 1.3 (EGBC 2018). To ensure the home owner is compliant with the recommendation, we refer to the Sewerage System Regulation (the law) Part 3 - Sewerage Systems, Section 10 (B.C. Government 2010), which states the following:

- (1) An owner must ensure that a sewerage system on the owner's land is maintained in accordance with the maintenance plan provided in respect of the sewerage system.
- (2) An owner must keep records of maintenance carried out under subsection (1).

This report, which prescribes the monitored performance water quality objectives program (discussed below), must be included in the maintenance plan provided by the design engineer to the home owner. In this way, the home owner is obligated, by law, to ensure the performance monitoring is completed through the operational life of the system.

Table 3 provides a summary of the performance objectives for the site; this table is adapted from EGBC (2018). The design boundary for the site is the near-surface groundwater (hyporheic water) as it enters the surface water (Okanagan Lake) downgradient of the proposed treatment and dispersal system.

**Table 3: WWAL Performance Objectives at Design Boundary
(Piezometers Downgradient of New Dispersal Field)
(adapted from EGBC 2018)**

Boundary	Water Quality Objectives	Water Sample Taken From	Notes
Flow Restrictive Horizon (shallow bedrock)	Coliform Bacteria: Median < 200 CFU/100 ml Total Nitrogen (ammonia, nitrite and nitrate: 15 mg/l)	Design boundary (for this site, piezometers 1 and 2, to be installed during system installation – see Figure 5).	Where water table does not form part of an aquifer used for drinking water supply

Recommended Performance Monitoring at the Design Boundary

1. During installation of the proposed septic system two piezometers (PZ 1 and PZ 2) must be installed downgradient of the dispersal field location as per the locations provided in Figure 5. The piezometers should be 2" Schedule 40 PVC capped at the bottom and perforated for 3 ft and installed to the depth of the bedrock surface. The piezometers should be capped at surface and marked for future access.
2. Further, the neighbouring well (WTN 59397) should be sampled once per year (in the spring).

3. Sampling and reporting of results should be performed by a qualified person with experience in water quality sampling.
4. PZ1, PZ2 and WTN 59397 should be sampled for the following parameters and submitted to an accredited laboratory under Chain-of-Custody and on ice within the specific hold time: ammonia, nitrite, nitrate and fecal coliform.
5. Monitoring frequency: The two piezometers should have water levels measurements made and be sampled 3 times within the first 12 months of system commissioning (after 3 months, after 6 months and after 12 months from the start of operation). After the first 12 months of operation the data should be assessed by a qualified person with recommendation to be provided regarding on-going operation of the system.
6. After the first 12 months of monitored operation; if water quality has been shown to meet the water quality objectives, the system is operating successfully and can remain in operation and subsequent monitoring should occur at least once per year in late August / early September for the entire operational life of the system. Sampling must occur in accordance with provincial standards.
7. Results of the monitoring must be retained with the Operation and Maintenance Manual (which will include a copy of this report), provided to the homeowner by the design engineer and the data must be assessed by a qualified person annually to provide ongoing recommendation on continued use of the system. If the Water Quality Objectives are not met during any point in the operational life of the system, this exceedance of the objective will trigger mitigative measures. Mitigative measures should entail ending in-ground disposal of the effluent and the septic tank would then be operated as holding tank and would require pump out on a regular basis.

Summary of Conclusions and Recommendations

1. From the data evaluated in the current study it is our opinion that locating the new Type 2 wastewater treatment system and dispersal field at the site with the recommend design modifications does not pose a significant risk to health or the receiving environment and fish values.
2. Modify the existing design by adding a passive PRB to the sand components of the Eljen GSF in the form of a carbonaceous material, details are provided above;
3. Install the PRB with the engineered sand as instructed above;
4. During installation, construct two piezometers as specified above (see Figure 5 for locations);
5. Engage in the annual prescribed based monitoring as detailed above;
6. Use only biodegradable products and low flow fixtures for best operation of the septic tank and dispersal field;
7. Include this report in the maintenance plan to be provided by the design engineer to the home owner; and
8. Engage in the prescribed maintenance schedule set out by the design engineer and perform the prescribed performed monitoring at the design boundary annual monitoring at the compliance boundary.

References

- British Columbia Ministry of Environment (MoE). 2018. Water Resources Atlas. Accessed on-line: http://www.env.gov.bc.ca/wsd/data_searches/wrbc/
- British Columbia Ministry of Health (MoH). 1995. SAFE WATER SUPPLY, Vital to Your Health. Accessed on-line: http://www.belcarra.ca/reports/Safe_Water_Supply_Vital_To_Your_Health.pdf
- British Columbia Government. 2010. Public Health Act – Sewerage System Regulation (SSR). Accessed online: http://www.bclaws.ca/civix/document/id/loo97/loo97/22_326_2004
- BWD Engineering. 2018. Ingram Lot A 1645 Strudies Bay Rd, Galiano Island, Onsite Wastewater System Construction Package.
- Donlin J. 2014. Letter Regarding Results of Eljen GSF/A42 Unit Testing. See Appendix E for a copy.
- Engineers and Geoscientists of British Columbia (EGBC). 2018. Civil and Transportation Infrastructure (Onsite Sewerage Systems Version 1.3. May 23, 2018. Accessed on-line at: <https://www.egbc.ca/getmedia/b69496e9-79bc-41b7-a28f-522f9b92957b/VI-3-Onsite-Sewerage-Systems.pdf.aspx>
- Kohut, A. and J. Johanson. 1998. Assessment of Groundwater Availability and Quality, Galiano Island. B.C. Ministry of Environment staff report.
- Robertson W.D., J.L. Vogan, and P.S. Lombardo. 2008. Nitrate Removal Rates in a 15-Year-Old Permeable Reactive Barrier Treating Septic System Nitrate. Ground Water Monitoring & Remediation 28, no. 3/ Summer 2008/pages 65–72

Figures

Ingram / Munro
1645 Sturdies Bay Rd Galiano Island
WWAL Ref: 18-071-01



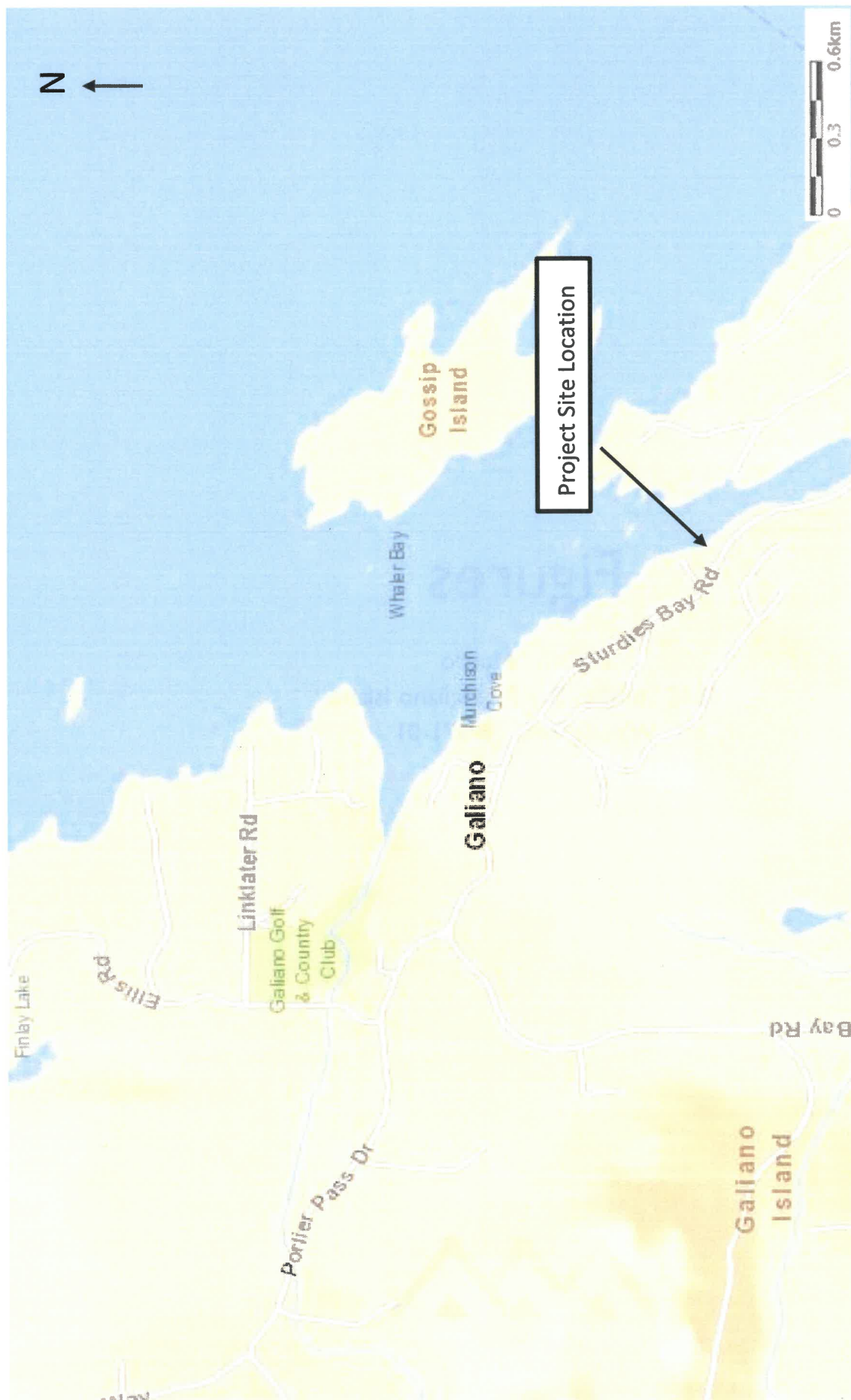
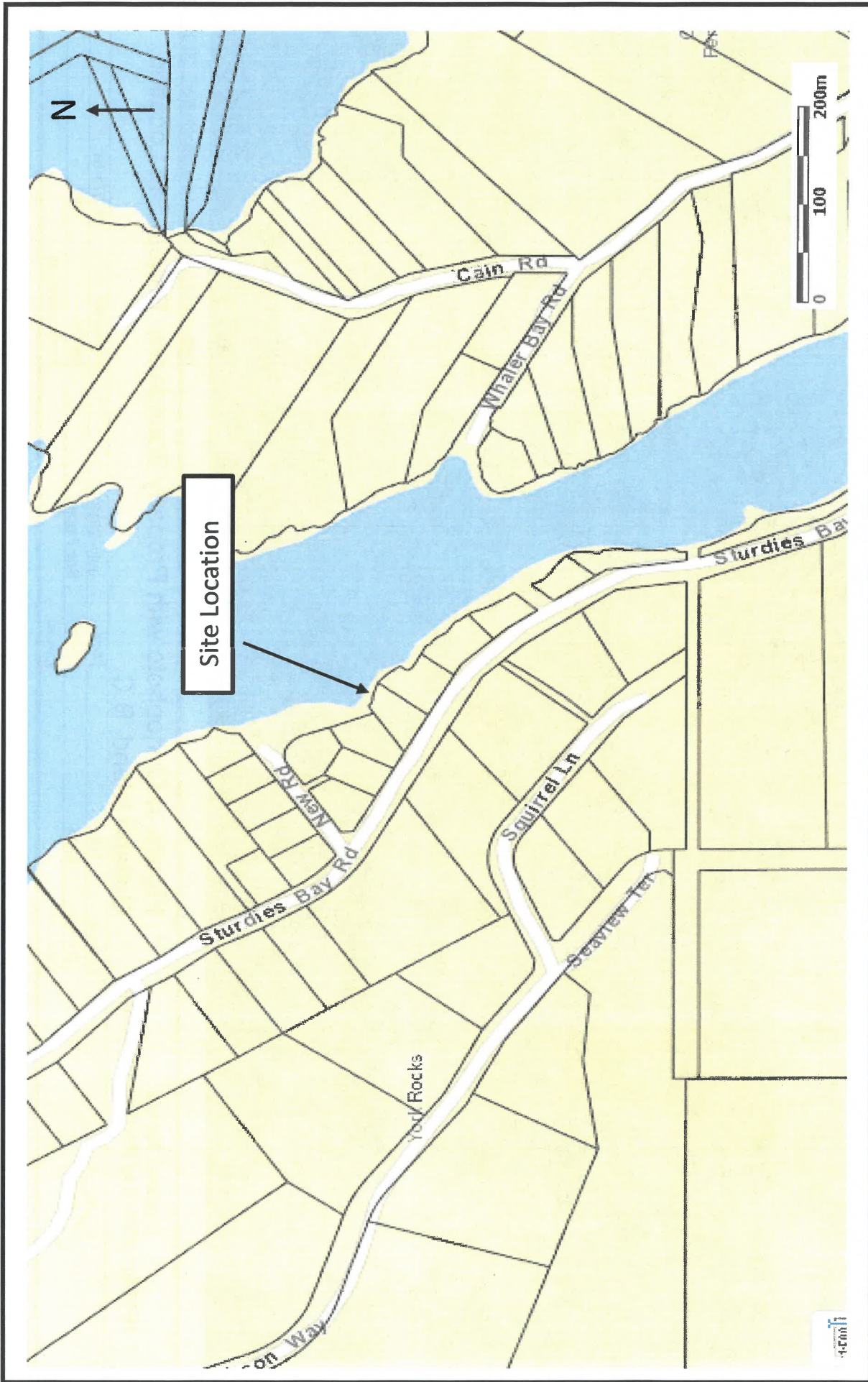


Figure 1: General Project Site Location, Galiano Island, B.C

Ingram / Munro 1645 Sturdies Bay Rd Galiano Island	TITLE			
	DRAWN	RA	DATE	PROJECT NO.
	CHECKED	BRM	SCALE	DWG. NO.
	REVIEWED		FILE NO.	FIGURE VERSION NO.
			July 2018	18-071-01
			See figure	na
				1



Ingram / Munro 1645 Sturdies Bay Rd Galiano Island	TITLE				Figure 2: General Project Site Location, Galiano Island, B.C			
	DRAWN	RA	DATE	PROJECT NO.	PROJECT NO.	18-071-01		
	CHECKED		SCALE	DWG. NO.	DWG. NO.	n/a		
	REVIEWED	DG	FILE NO.	FIGURE VERSION NO.	FIGURE VERSION NO.			



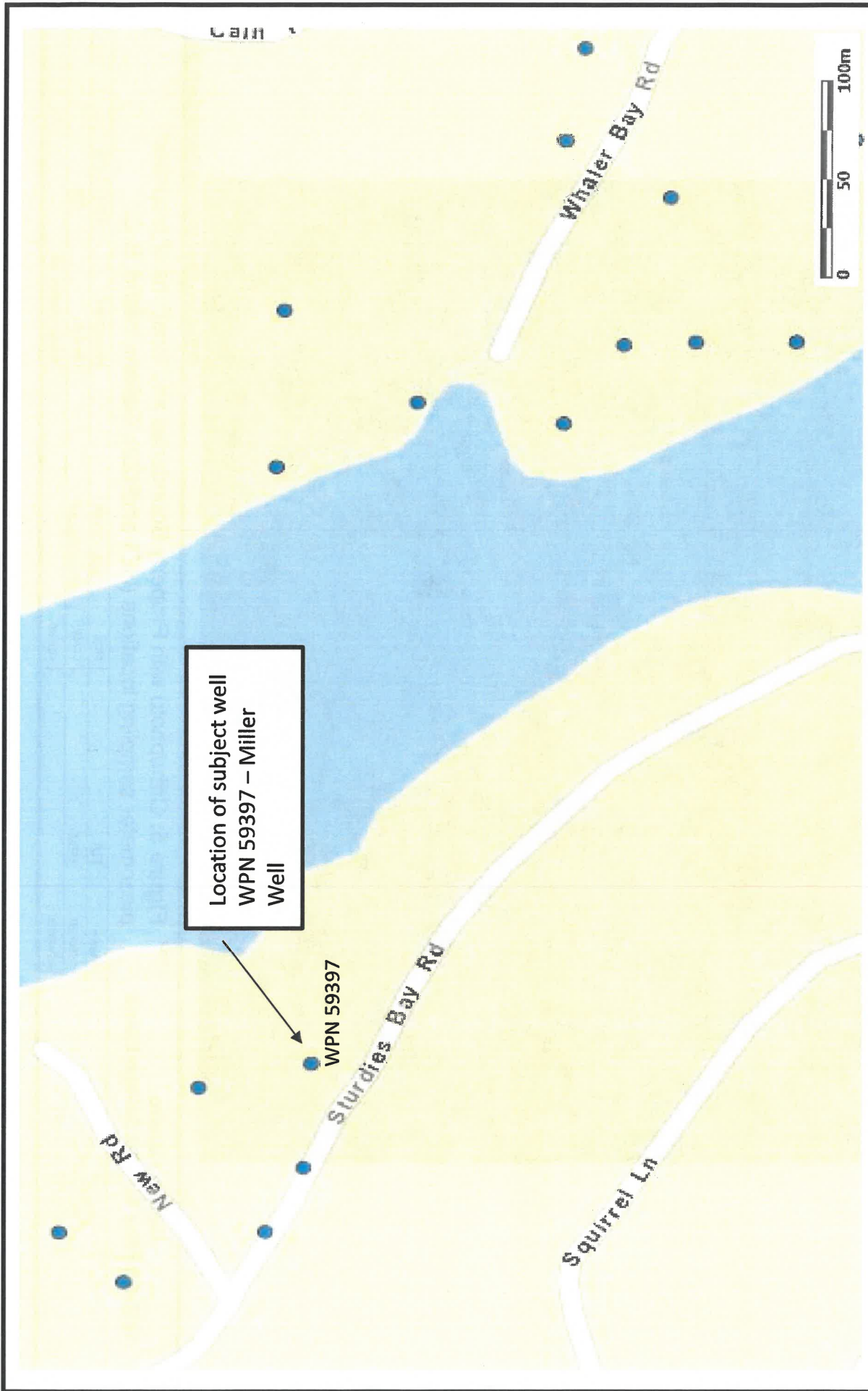
Orthophoto Base Map from Google Earth 2018.

Figure 3: Orthophoto with Property Boundaries Project Site Location, Galiano Island, B.C.

Ingram / Munro
1645 Sturdies Bay Rd Galiano Island



TITLE	DRAWN	RA	DATE	PROJECT NO.	18-071-01
	CHECKED	BRM	SCALE	DWG. NO.	n/a
	REVIEWED		FILE NO.	FIGURE VERSION NO.	



Ingram / Munro 1645 Sturdies Bay Rd Galiano Island	Figure 4: Location of subject well and provincially registered wells on Galiano Island, B.C.					
	TITLE					
	DRAWN	RA	DATE	July 2018	PROJECT NO.	18-071-01
	CHECKED	BRM	SCALE	See Figure	DWG. NO.	n/a
			REVIEWED	FILE NO.	FIGURE VERSION NO.	





Orthophoto Base Map from Google Earth 2018.

Figure 5: Orthophoto with Property Boundaries and locations of proposed piezometer sampling locations (HZ1 and HZ2), Galiano Island, B.C.

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DRAWN	RA	DATE	July 2018	PROJECT NO.	18-071-01
CHECKED	BRM	SCALE	See Figure	DWG. NO.	n/a
REVIEWED		FILE NO.		FIGURE VERSION NO.	

Appendix A

Photos of Site

Ingram / Munro
1645 Sturdies Bay Rd Galiano Island
WWAL Ref: 18-071-01



Appendix A: Photos of Site

Ingram / Munro / 30 m setback Galiano Island, BC
18-071-01

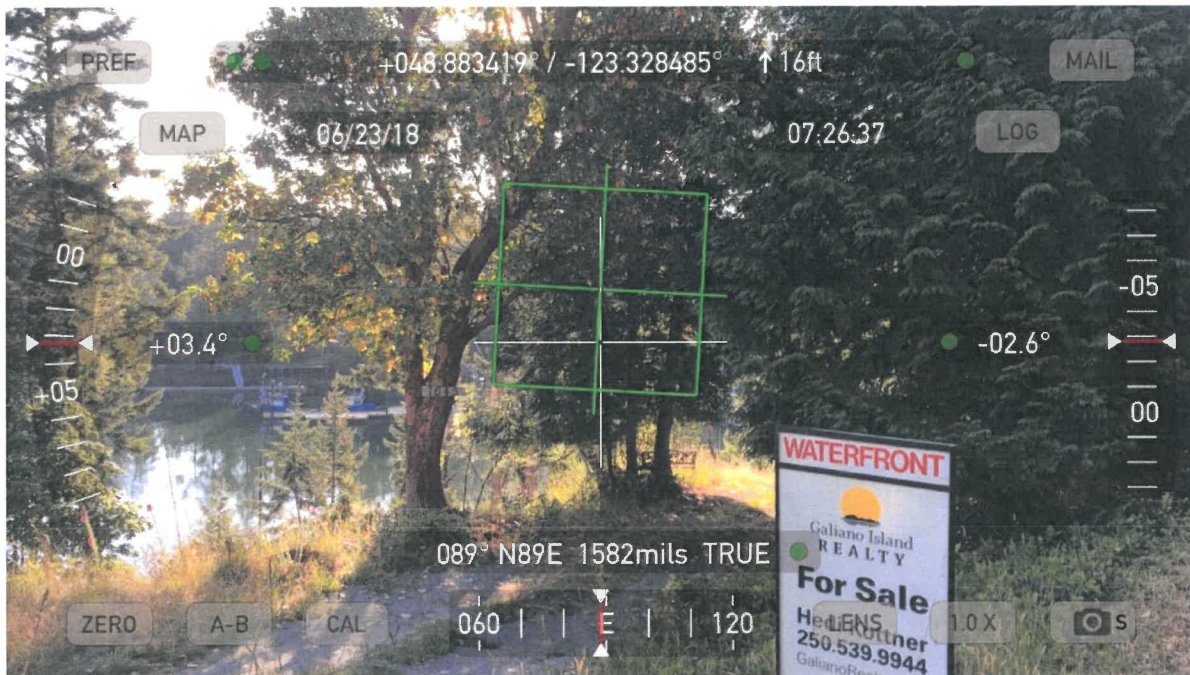


Photo 1. Site Location from Sturdies Bay Rd, facing east, towards Whaler Bay, at the top of the Site.



Photo 2. View of proposed treatment and dispersal field on the terrace, the subject well is located past the trees and is cross gradient to the proposed field, facing NW.

Appendix A: Photos of Site

Ingram / Munro / 30 m setback Galiano Island, BC
18-071-01

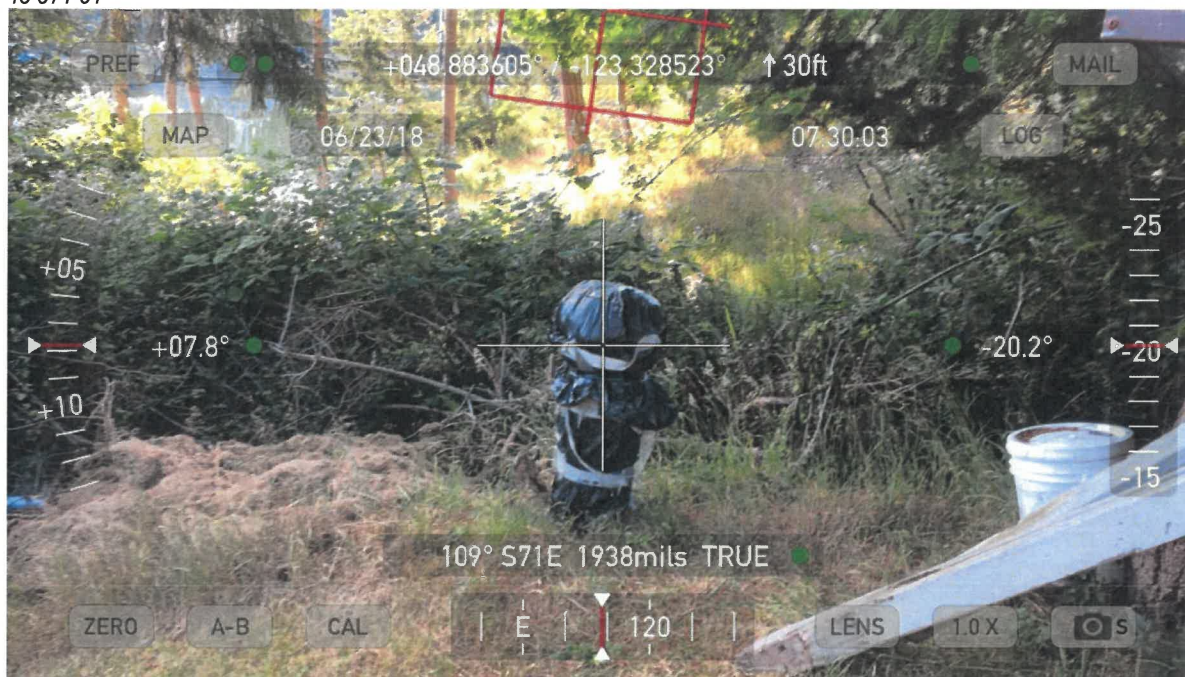


Photo 3. Subject well WPN 59397 located on I08 New Road, facing SE.



Photo 4. Bedrock outcrop located along shoreline of subject property, downgradient of proposed treatment and dispersal field, facing SW.

Appendix A: Photos of Site

Ingram / Munro / 30 m setback Galiano Island, BC
18-071-01

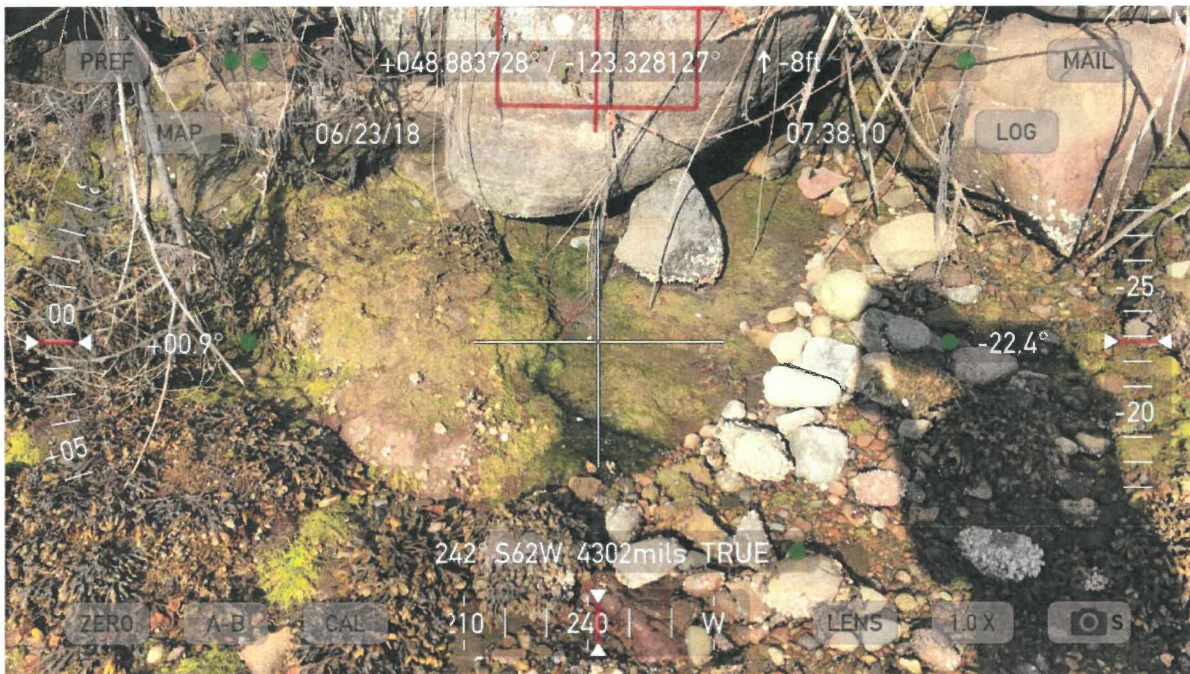


Photo 5. Algal bloom located on neighbouring property shoreline, facing SW.

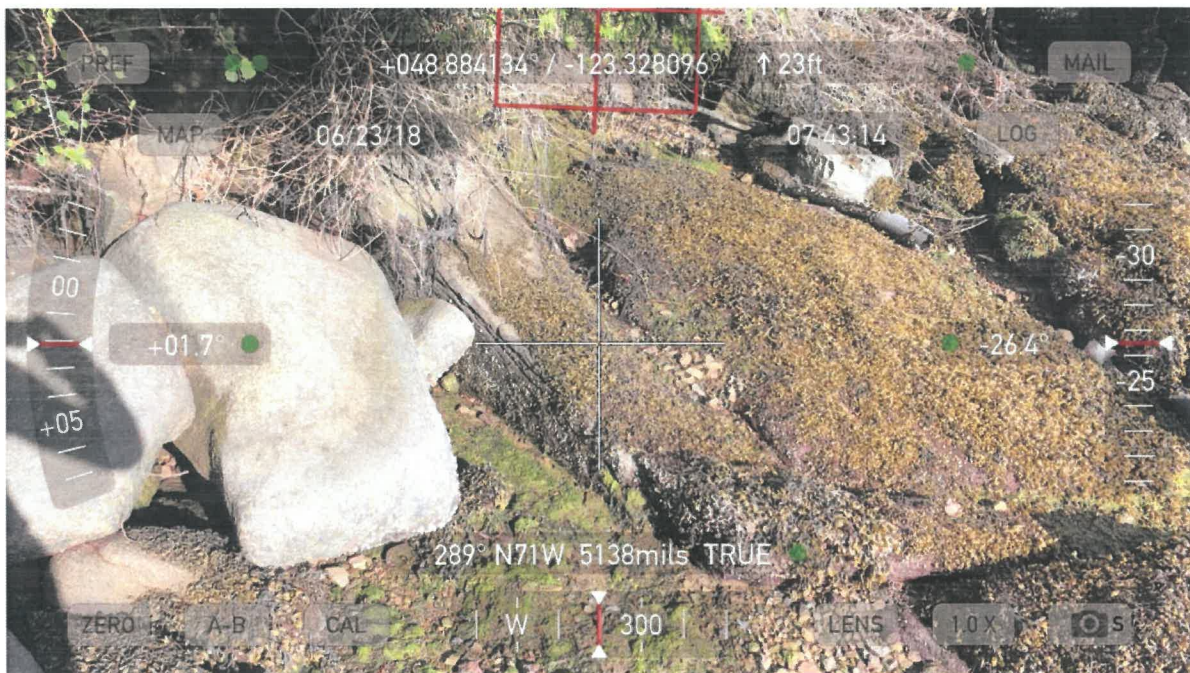


Photo 6. Algal bloom located on neighbouring property shoreline, facing NW.

Appendix A: Photos of Site

*Ingram / Munro / 30 m setback Galiano Island, BC
18-071-01*



Photo 7. Tap water quality sample was taken from located at 108 New Road.

Appendix B

Subject Well Log (WTN 59397)

Ingram / Munro
1645 Sturdies Bay Rd Galiano Island
WWAL Ref: 18-071-01





Report 1 - Detailed Well Record

Well Tag Number: 59397	Construction Date: 1990-07-10 00:00:00
Owner: KAREN MILLER	Driller: Island Well Drilling
Address: NEW RD.	Well Identification Plate Number:
Area: WHALER BAY	Plate Attached By:
	Where Plate Attached:
WELL LOCATION:	PRODUCTION DATA AT TIME OF DRILLING:
COWICHAN Land District	Well Yield: 12 (Driller's Estimate) Gallons per Minute (U.S./Imperial)
District Lot: Plan: 19279 Lot: 9	Development Method:
Township: Section: 7 Range:	Pump Test Info Flag:
Indian Reserve: Meridian: Block:	Artesian Flow:
Quarter:	Artesian Pressure (ft):
Island: GALIANO	Static Level: 42 feet
BCGS Number (NAD 83): 092B084341 Well: 35	WATER QUALITY:
Class of Well:	Character:
Subclass of Well:	Colour:
Orientation of Well:	Odour:
Status of Well: New	Well Disinfected: N
Licence General Status: UNLICENSED	EMS ID:
Well Use: Private Domestic	Water Chemistry Info Flag:
Observation Well Number:	Field Chemistry Info Flag:
Observation Well Status:	Site Info (SEAM):
Construction Method: Drilled	Water Utility:
Diameter: 6.0 inches	Water Supply System Name:
Casing drive shoe:	Water Supply System Well Name:
Well Depth: 200 feet	
Elevation: 0 feet (ASL)	SURFACE SEAL:
Final Casing Stick Up: inches	Flag:
Well Cap Type:	Material:
Bedrock Depth: 5 feet	Method:
Lithology Info Flag:	Depth (ft):
File Info Flag:	Thickness (in):

Sieve Info Flag:				
Screen Info Flag:	WELL CLOSURE INFORMATION:			
	Reason For Closure:			
Site Info Details:	Method of Closure:			
Other Info Flag:	Closure Sealant Material:			
Other Info Details:	Closure Backfill Material:			
	Details of Closure:			
Screen from	to feet	Type	Slot Size	
Casing from	to feet	Diameter	Material	Drive Shoe
GENERAL REMARKS:				
12 GPM AT 185 FT. WELL DRILLED FOR FORMER OWNER, JOHN BOYD				
LITHOLOGY INFORMATION:				
From 0 to 5 Ft. SANDY TILL				
From 5 to 8 Ft. BROWN SANDSTONE				
From 8 to 200 Ft. GREY SANDSTONE				

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Appendix C

Summary of Well Log Data from Water Wells in the Vicinity of Site, Galiano Island

Ingram / Munro
1645 Sturdies Bay Rd Galiano Island
WWAL Ref: 18-071-01



Summary of Well Log Data from Water Wells in the Vicinity of Site, Galiano Island

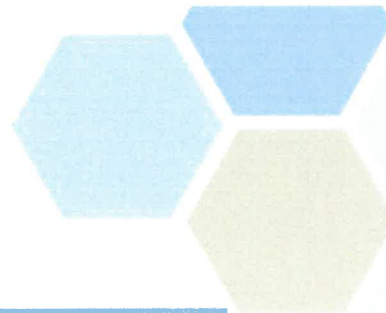
WLLTGN	STSTRT	WTRDPT H	BDRCKDP TH	DPTHWLL DRL	LDVL	LDNTDSCRPT	X	Y
7151				4	0		1196631	432923
7086	321 CAIN ROAD	8		14	0		1196601	433231.7
7373	CAIN RD	13		33.5	5	Gallons per Minute	1196567	433100.3
7350	CAIN RD			45	0		1196403	433424.3
3375		15	12	80	0.5	Gallons per Minute	1196691	433004.5
20553	NORTH END ROAD	22	30	82	3	Gallons per Minute	1196604	433010.9
25618		8	5	90	0.5	Gallons per Minute	1196492	432903.2
14066		36	10	90	1.2	Gallons per Minute	1196750	433005
29608		17	17	115	0.5	Gallons per Minute	1196426	433322.3
19432		8	12	120	0.5	Gallons per Minute	1196545	433326.3
20433	NORTH END & BURRILL RD			120	3	Gallons per Minute	1196431	432950.6
25278		60	4	130	1	Gallons per Minute	1196003	433483.5
21062		29	8	140	0.5	Gallons per Minute	1196762	432941.5
25732		20	12	140	1	Gallons per Minute	1196797	432937
27051	RR #1	43	3	150	0.8	Gallons per Minute	1196552	433164.6
62699				150			1196460	433301.7
14575		30	5	156	0.4	Gallons per Minute	1196618	433196.4
63036	CAIN RD	40	3	160	5	Gallons per Hour (	1196814	433183.7
105790	118 WORMALD ROAD	40		160	5	Gallons per Hour (	1196766	433296.6
31786		20	15	170	0.3	Gallons per Minute	1196705	432927.1
41086	NEW ROAD	65	4	175	1.5	Gallons per Minute	1196057	433465.7
19954		19	13	175	0.4	Gallons per Minute	1196522	433287.4
49030	CAIN DR		0	182	15	Gallons per Hour (	1196463	433239.9
54804	NEW DRIVE	40	6	182	15	Gallons per Minute	1196140	433442.2
63038	2470 STURDIES BAY ROAD	42		190	42	U.S. Gallons per M	1196781	432937.3
59397	NEW RD.	42	5	200	12	Gallons per Minute	1196151	433401.7
91540	STURDIES BAY ROAD	40		200	0.5	Gallons per Minute	1196734	432998.3
14062		10	7	210	0		1196432	433374.6
46640	POLIER PASS DR & CAIN RD	8	0	222	1	Gallons per Minute	1196811	432987.6
48246	PORLIER PASS DR & NEW RD		6	222	3.5	Gallons per Minute	1196080	433415.7
29210			8	222	20	Gallons per Minute	1196128	433524.7
56356	75 WHALER BAY ROAD	63	0	225	1.5	Gallons per Minute	1196462	433275.8
33773	CAIN RD		1	225	0.1	Gallons per Minute	1196549	433222.5
24409		33	29	225	0.1	Gallons per Minute	1196605	432971.9
91512	CAIN DRIVE			240	1.5	U.S. Gallons per M	1196584	433321
50455	NEW RD	65	3	242	0.5	Gallons per Minute	1196107	433402.9
28022			0	270	2	Gallons per Minute	1196077	433489.6
49277	CAIN DR	80	0	282	2	Gallons per Hour (	1196776	433022.1
51184	CAIN DR	75	0	300	1.5	Gallons per Minute	1196590	433130.2
63037	189 CAIN RD	80	3	305	20	Gallons per Hour (	1196642	433115.4
97042	140 CAIN ROAD		1	420	7	Gallons per Minute	1196820	433045.9

Appendix D

Water Quality Laboratory Report

Ingram / Munro
1645 Sturdies Bay Rd Galiano Island
WWAL Ref: 18-071-01





CERTIFICATE OF ANALYSIS

REPORTED TO Western Water Associates Ltd
106 - 5145 26th Street
Vernon, BC V1T 8G4

ATTENTION Bryer Manwell

PO NUMBER

PROJECT 18-071-01

PROJECT INFO Galiano

WORK ORDER 8062417

RECEIVED / TEMP 2018-06-26 08:00 / 9°C

REPORTED 2018-07-04 17:25

COC NUMBER B37946

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at jnobrega@caro.ca

Authorized By:

Jessica Nobrega, B.Sc.
Client Service Manager

1-888-311-8846 | www.caro.ca

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7



TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
18-071-01

WORK ORDER REPORTED 8062417
2018-07-04 17:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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Miller Well (8062417-01) | Matrix: Water | Sampled: 2018-06-23 08:30

Anions

Chloride	26.6	AO ≤ 250	0.10	mg/L	2018-06-27	
Fluoride	0.15	MAC = 1.5	0.10	mg/L	2018-06-27	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2018-06-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2018-06-27	
Sulfate	11.3	AO ≤ 500	1.0	mg/L	2018-06-27	

General Parameters

Alkalinity, Total (as CaCO ₃)	111	N/A	1.0	mg/L	2018-06-26	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2018-06-26	
Alkalinity, Bicarbonate (as CaCO ₃)	111	N/A	1.0	mg/L	2018-06-26	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2018-06-26	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2018-06-26	
Colour, True	23	AO ≤ 15	5.0	CU	2018-06-26	
Conductivity (EC)	321	N/A	2.0	µS/cm	2018-06-26	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2018-07-04	
pH	7.49	7.0-10.5	0.10	pH units	2018-06-26	HT2
Temperature, at pH	22.1	N/A		°C	2018-06-26	HT2
Turbidity	0.39	OG < 1	0.10	NTU	2018-06-26	

Calculated Parameters

Hardness, Total (as CaCO ₃)	46.2	None Required	0.500	mg/L	N/A	
Langelier Index	-0.8	N/A	-5.0	-	2018-07-04	
Solids, Total Dissolved	182	AO ≤ 500	1.00	mg/L	N/A	

Total Metals

Aluminum, total	0.0680	OG < 0.1	0.0050	mg/L	2018-06-29	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2018-06-29	
Arsenic, total	0.00071	MAC = 0.01	0.00050	mg/L	2018-06-29	
Barium, total	< 0.0050	MAC = 1	0.0050	mg/L	2018-06-29	
Boron, total	0.223	MAC = 5	0.0050	mg/L	2018-06-29	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2018-06-29	
Calcium, total	12.0	None Required	0.20	mg/L	2018-06-29	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2018-06-29	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2018-06-29	
Copper, total	0.0120	AO ≤ 1	0.00040	mg/L	2018-06-29	
Iron, total	0.032	AO ≤ 0.3	0.010	mg/L	2018-06-29	
Lead, total	0.00052	MAC = 0.01	0.00020	mg/L	2018-06-29	
Magnesium, total	3.95	None Required	0.010	mg/L	2018-06-29	
Manganese, total	0.0173	AO ≤ 0.05	0.00020	mg/L	2018-06-29	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2018-07-03	
Molybdenum, total	0.00105	N/A	0.00010	mg/L	2018-06-29	
Nickel, total	0.00062	N/A	0.00040	mg/L	2018-06-29	
Potassium, total	0.65	N/A	0.10	mg/L	2018-06-29	



TEST RESULTS

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18-071-01

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2018-07-04 17:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Miller Well (8062417-01) Matrix: Water Sampled: 2018-06-23 08:30, Continued						
Total Metals, Continued						
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2018-06-29	
Sodium, total	59.9	AO ≤ 200	0.10	mg/L	2018-06-29	
Strontium, total	0.102	N/A	0.0010	mg/L	2018-06-29	
Uranium, total	0.000523	MAC = 0.02	0.000020	mg/L	2018-06-29	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2018-06-29	
Microbiological Parameters						
Coliforms, Total	2	MAC = 0	1	CFU/100 mL	2018-06-26	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2018-06-26	HT3

Sample Qualifiers:

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
- HT3 Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Western Water Associates Ltd
18-071-01

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2018-07-04 17:25

Analysis Description	Method Ref.	Technique	Location
Alkalinity in Water	SM 2320 B* (2011)	Titration with H ₂ SO ₄	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Coliforms, Total in Water	SM 9222* (2006)	Membrane Filtration / Chromocult Agar	Kelowna
Colour, True in Water	SM 2120 C (2011)	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	SM 2510 B (2011)	Conductivity Meter	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	Kelowna
E. coli in Water	SM 9222* (2006)	Membrane Filtration / Chromocult Agar	Kelowna
Hardness in Water	SM 2340 B* (2011)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	N/A
Langelier Index in Water	SM 2330 B (2010)	Calculation	N/A
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2011)	Calculation: 100 x ([Cations]-[Anions])/([Cations]+[Anions])	N/A
Total Metals in Water	EPA 200.2* / EPA 6020B	HNO ₃ +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
Turbidity in Water	SM 2130 B (2011)	Nephelometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (BLK):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS):** A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS):** A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM):** A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Anions, Batch B8F2164

Blank (B8F2164-BLK1)

Prepared: 2018-06-27, Analyzed: 2018-06-27

Chloride	< 0.10	0.10 mg/L
Fluoride	< 0.10	0.10 mg/L
Nitrate (as N)	< 0.010	0.010 mg/L
Nitrite (as N)	< 0.010	0.010 mg/L
Sulfate	< 1.0	1.0 mg/L

LCS (B8F2164-BS1)

Prepared: 2018-06-27, Analyzed: 2018-06-27

Chloride	16.1	0.10 mg/L	16.0	101	90-110
Fluoride	3.68	0.10 mg/L	4.00	92	88-108
Nitrate (as N)	3.93	0.010 mg/L	4.00	98	93-108
Nitrite (as N)	1.92	0.010 mg/L	2.00	96	85-114
Sulfate	14.8	1.0 mg/L	16.0	92	91-109

General Parameters, Batch B8F2149

Blank (B8F2149-BLK1)

Prepared: 2018-06-26, Analyzed: 2018-06-26

Turbidity	< 0.10	0.10 NTU
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LCS (B8F2149-BS1)

Prepared: 2018-06-26, Analyzed: 2018-06-26

Turbidity	38.2	0.10 NTU	40.0	96	90-110
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General Parameters, Batch B8F2176

Blank (B8F2176-BLK1)

Prepared: 2018-06-26, Analyzed: 2018-06-26

Colour, True	< 5.0	5.0 CU
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LCS (B8F2176-BS1)

Prepared: 2018-06-26, Analyzed: 2018-06-26

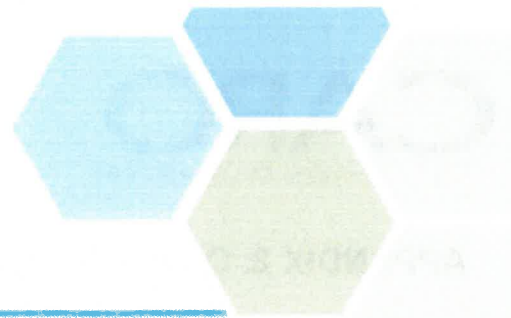
Colour, True	10	5.0 CU	10.0	104	85-115
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General Parameters, Batch B8F2199

Blank (B8F2199-BLK1)

Prepared: 2018-06-26, Analyzed: 2018-06-26

Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L



APPENDIX 2: QUALITY CONTROL RESULTS

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18-071-01

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2018-07-04 17:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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General Parameters, Batch B8F2199, Continued

Blank (B8F2199-BLK1), Continued			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Blank (B8F2199-BLK2)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
LCS (B8F2199-BS1)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Alkalinity, Total (as CaCO ₃)	99.0	1.0 mg/L	100		99	92-106			
LCS (B8F2199-BS2)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Alkalinity, Total (as CaCO ₃)	99.6	1.0 mg/L	100		100	92-106			
LCS (B8F2199-BS3)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Conductivity (EC)	1400	2.0 µS/cm	1410		99	95-104			
LCS (B8F2199-BS4)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Conductivity (EC)	1390	2.0 µS/cm	1410		99	95-104			
Reference (B8F2199-SRM1)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
pH	7.01	0.10 pH units	7.01		100	98-102			
Reference (B8F2199-SRM2)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
pH	7.01	0.10 pH units	7.01		100	98-102			

General Parameters, Batch B8G0086

Blank (B8G0086-BLK1)			Prepared: 2018-07-04, Analyzed: 2018-07-04						
Cyanide, Total	< 0.0020	0.0020 mg/L							
LCS (B8G0086-BS1)			Prepared: 2018-07-04, Analyzed: 2018-07-04						
Cyanide, Total	0.0207	0.0020 mg/L	0.0200		104	82-120			
LCS Dup (B8G0086-BSD1)			Prepared: 2018-07-04, Analyzed: 2018-07-04						
Cyanide, Total	0.0205	0.0020 mg/L	0.0200		102	82-120	1	10	

Microbiological Parameters, Batch B8F2102

Blank (B8F2102-BLK1)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLK2)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLK3)			Prepared: 2018-06-26, Analyzed: 2018-06-26						
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							



APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Parameters, Batch B8F2102, Continued									
Blank (B8F2102-BLK4)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLK5)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLK6)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLK7)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLK8)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLK9)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLKA)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLKB)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLKC)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLKD)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B8F2102-BLKE)					Prepared: 2018-06-26, Analyzed: 2018-06-26				
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							

Total Metals, Batch B8F2460

Blank (B8F2460-BLK1)			Prepared: 2018-06-29, Analyzed: 2018-06-29		
Aluminum, total	< 0.0050	0.0050 mg/L			
Antimony, total	< 0.00020	0.00020 mg/L			
Arsenic, total	< 0.00050	0.00050 mg/L			
Barium, total	< 0.0050	0.0050 mg/L			
Boron, total	< 0.0050	0.0050 mg/L			
Cadmium, total	< 0.000010	0.000010 mg/L			
Calcium, total	< 0.20	0.20 mg/L			
Chromium, total	< 0.00050	0.00050 mg/L			
Cobalt, total	< 0.00010	0.00010 mg/L			
Copper, total	< 0.00040	0.00040 mg/L			



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
18-071-01

WORK ORDER REPORTED 8062417
2018-07-04 17:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Total Metals, Batch B8F2460, Continued

Blank (B8F2460-BLK1), Continued

Prepared: 2018-06-29, Analyzed: 2018-06-29

Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							

LCS (B8F2460-BS1)

Prepared: 2018-06-29, Analyzed: 2018-06-29

Aluminum, total	0.0220	0.0050 mg/L	0.0200	110	80-120
Antimony, total	0.0232	0.00020 mg/L	0.0200	116	80-120
Arsenic, total	0.0208	0.00050 mg/L	0.0200	104	80-120
Barium, total	0.0209	0.0050 mg/L	0.0200	104	80-120
Boron, total	0.0207	0.0050 mg/L	0.0200	104	80-120
Cadmium, total	0.0213	0.000010 mg/L	0.0200	106	80-120
Calcium, total	2.00	0.20 mg/L	2.00	100	80-120
Chromium, total	0.0207	0.00050 mg/L	0.0200	103	80-120
Cobalt, total	0.0211	0.00010 mg/L	0.0200	106	80-120
Copper, total	0.0208	0.00040 mg/L	0.0200	104	80-120
Iron, total	2.12	0.010 mg/L	2.00	106	80-120
Lead, total	0.0215	0.00020 mg/L	0.0200	108	80-120
Magnesium, total	2.24	0.010 mg/L	2.00	112	80-120
Manganese, total	0.0205	0.00020 mg/L	0.0200	102	80-120
Molybdenum, total	0.0220	0.00010 mg/L	0.0200	110	80-120
Nickel, total	0.0213	0.00040 mg/L	0.0200	106	80-120
Potassium, total	2.22	0.10 mg/L	2.00	111	80-120
Selenium, total	0.0216	0.00050 mg/L	0.0200	108	80-120
Sodium, total	2.24	0.10 mg/L	2.00	112	80-120
Strontium, total	0.0203	0.0010 mg/L	0.0200	101	80-120
Uranium, total	0.0218	0.000020 mg/L	0.0200	109	80-120
Zinc, total	0.0187	0.0040 mg/L	0.0200	94	80-120

Reference (B8F2460-SRM1)

Prepared: 2018-06-29, Analyzed: 2018-06-29

Aluminum, total	0.123	0.0050 mg/L	0.116	105	79-114
Antimony, total	0.0245	0.00020 mg/L	0.0215	114	89-123
Arsenic, total	0.235	0.00050 mg/L	0.219	107	87-113
Barium, total	1.78	0.0050 mg/L	1.68	106	85-114
Boron, total	0.917	0.0050 mg/L	0.870	105	79-117
Cadmium, total	0.121	0.000010 mg/L	0.112	108	89-112
Calcium, total	4.20	0.20 mg/L	3.84	109	85-120
Chromium, total	0.230	0.00050 mg/L	0.218	105	87-113
Cobalt, total	0.0704	0.00010 mg/L	0.0640	110	90-117
Copper, total	0.458	0.00040 mg/L	0.422	109	90-115
Iron, total	0.686	0.010 mg/L	0.645	106	86-112
Lead, total	0.0614	0.00020 mg/L	0.0560	110	90-113
Magnesium, total	3.78	0.010 mg/L	3.46	109	84-116
Manganese, total	0.184	0.00020 mg/L	0.172	106	85-113
Molybdenum, total	0.236	0.00010 mg/L	0.213	111	87-112
Nickel, total	0.458	0.00040 mg/L	0.420	109	90-114
Potassium, total	1.75	0.10 mg/L	1.60	110	78-200
Selenium, total	0.0183	0.00050 mg/L	0.0166	111	89-123



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
18-071-01

WORK ORDER REPORTED 8062417
2018-07-04 17:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Total Metals, Batch B8F2460, Continued

Reference (B8F2460-SRM1), Continued

Prepared: 2018-06-29, Analyzed: 2018-06-29

Sodium, total	10.5	0.10 mg/L	9.55		110	81-117			
Strontium, total	0.471	0.0010 mg/L	0.458		103	82-111			
Uranium, total	0.141	0.000020 mg/L	0.133		106	87-113			
Zinc, total	0.469	0.0040 mg/L	0.440		106	88-114			

Total Metals, Batch B8G0015

Blank (B8G0015-BLK1)

Prepared: 2018-07-02, Analyzed: 2018-07-03

Mercury, total	< 0.000010	0.000010 mg/L							
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Duplicate (B8G0015-DUP1)

Source: 8062417-01

Prepared: 2018-07-02, Analyzed: 2018-07-03

Mercury, total	< 0.000010	0.000010 mg/L		< 0.000010				20	
----------------	------------	---------------	--	------------	--	--	--	----	--

Reference (B8G0015-SRM1)

Prepared: 2018-07-02, Analyzed: 2018-07-03

Mercury, total	0.00463	0.000010 mg/L	0.00489		95	80-120			
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Appendix E

Donlin J. 2014. Letter Regarding Results of Eljen GSF/A42 Unit Testing

Ingram / Munro
1645 Sturdies Bay Rd Galiano Island
WWAL Ref: 18-071-01





**Massachusetts Alternative Septic System Test Center
Air Station Cape Cod, Massachusetts 02542
Telephone: 508-563-6757**

February 13, 2014

Mr. Jim Donlin
Eljen Corporation
125 McKee Street
East Hartford, Connecticut

Dear Jim:

Per your request, I am providing the calculated statistics for the parameters Carbonaceous 5-Day Biochemical Oxygen Demand (CBOD_{5-day}), Total Suspended Solids (TSS), *Escherichia coli* and fecal coliform for the Eljen™ GSF/A42 unit tested at our facility under gravity mode between October 23, 2012 and November 20, 2013.

	cBOD (mg/L)			TSS (mg/L)		
	Mean (sample size)	Standard Deviation	95% Confidence Limits	Mean (sample size)	Standard Deviation	95% Confidence Limits
Wastewater Influent	233 (80)	18.0	215-251	193 (80)	30.0	164-223
Eljen™ GSF/A42	1.2 (80)	0.97	1.0-1.4	2.4 (80)	0.50	1.9-2.9
Percent removal	~ 99.5%			~ 98.8%		

	<i>Escherichia coli</i> (CFU/100 ml)		Fecal coliform (CFU/100 ml)	
	Mean (sample size)	95% Confidence Limits	Mean (sample size)	95% Confidence Limits
Wastewater Influent	3.75×10^6 (78)	3.28×10^6 - 4.29×10^6	3.99×10^6 (78)	3.52×10^6 - 4.53×10^6
Eljen™ GSF/A42	51 (78)	32-81	66 (78)	40-108
Range % removal	99.693% - 99.999%		99.724% - 99.999%	

The fecal coliform statistics were compiled by first transforming the data to the logarithm value, conducting the specified statistical function (mean, standard deviation, confidence limits) and subsequently transforming the result back to the standard number format.

I certify that I represent the Massachusetts Alternative Septic System Test Center, a project of the Barnstable County Department of Health and Environment, Barnstable County Massachusetts. I further certify that I am authorized to report the testing results for this proprietary treatment product. I attest that the details described in this letter are true and accurate to the best of my knowledge.

If you have any questions regarding the contents of this letter, please do not hesitate to ask.

Sincerely

George Heufelder, M.S., R.S.
Director, Barnstable County Department of Health and Environment
Massachusetts Alternative Septic System Test Center

Western Water Associates Ltd. Standard Report Limitations

1. This Document has been prepared for the particular purpose outlined in the work scope that has been mutually agreed to with the Client.
2. The scope and the period of service provided by Western Water Associates Ltd are subject to restrictions and limitations outlined in subsequent numbered limitations.
3. A complete assessment of all possible conditions or circumstances that may exist at the Site or within the Study Area referenced, has not been undertaken. Therefore, if a service is not expressly indicated, it has not been provided and if a matter is not addressed, no determination has been made by Western Water Associates Ltd. in regards to it.
4. Conditions may exist which were undetectable given the limited nature of the enquiry that Western Water Associates Ltd. was retained to undertake with respect to the assignment. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the Site, or Study Area, which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.
5. In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Western Water Associates Ltd's opinions are based upon information that existed at the time of the production of the Document. It is understood that the Services provided allowed Western Water Associates Ltd to form no more than an opinion of the actual conditions of the Site, or Study Area, at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the Site, or Study Area, nor the surroundings, or any laws or regulations.
6. Any assessments made in this Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either expressed or implied, that the actual conditions will conform exactly to the assessments contained in this Document.
7. Where data supplied by the Client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated.
8. No responsibility is accepted by Western Water Associates Ltd for incomplete or inaccurate data supplied by others.
9. The Client acknowledges that Western Water Associates Ltd may have retained sub-consultants affiliated to provide Services. Western Water Associates Ltd will be fully responsible to the Client for the Services and work done by all of its sub-consultants and subcontractors. The Client agrees that it will only assert claims against and seek to recover losses, damages or other liabilities from Western Water Associates Ltd.
10. This Document is provided for sole use by the Client and is confidential to it and its professional advisers. No responsibility whatsoever for the contents of this Document will be accepted to any person other than the Client. Any use which a third party makes of this Document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. Western Water Associates Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Document.



Groundwater Supply Development and Management

Source Water Assessment and Protection

Well Monitoring & Maintenance

Environmental & Water Quality Monitoring

Storm & Wastewater Disposal to Ground

Groundwater Modeling

Aquifer Test Design and Analysis

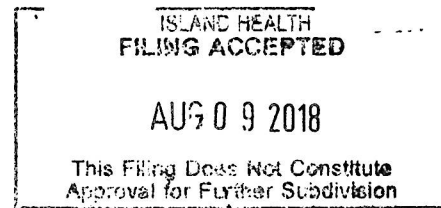
Geothermal / Geoexchange Systems

Policy and Guideline Development

Applied Research

Rural Subdivision Services

Environmental Assessment & Permitting

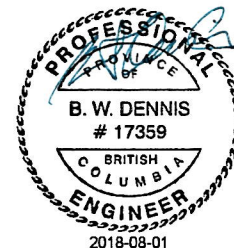


Ingram / Munro
Lot A - 1645 Sturdies Bay Road
Galiano Island, BC

Onsite Wastewater System
Construction Package

August 2018

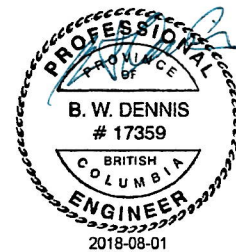
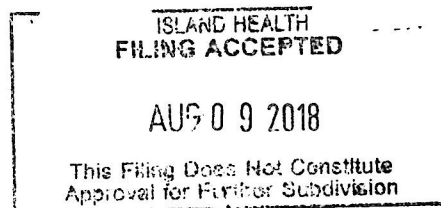
Project No. 18133



Prepared by:
BWD Engineering Inc.

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PROJECT	1
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PROJECT

Client	Ingram (Terry), Munro (Ruby)
Owner	Ingram (Terry), Munro (Ruby)
Project No.	18133
Project Name:	Lot A - 1645 Sturdies Bay Road, Galiano Island, BC

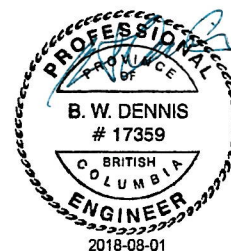
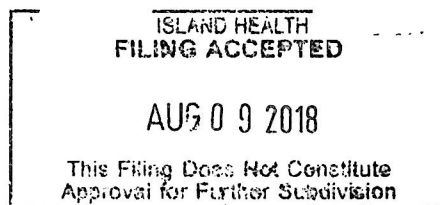
STRUCTURE(S) SERVICED

The wastewater system will service a 3-bedroom family residence. There are no future expansion plans.

PRINCIPLE DESIGN

SYSTEM PARAMETERS

DDF	1300 L/day (290 IG/d)
HLR	Mound Sand: 65 L/m ² /day, Native Soils: 50 L/m ² /day
LLR	90 L/m/day
Field Type	Sand Mound with Permeable Reactive Barrier
Treatment System	Type 2 – Combined Treatment and Dispersal system
Distribution	Pressure – Demand Dose



SYSTEM DESCRIPTION AND FUNCTION

A new single-family residence is being built. There is no existing septic system, as such no existing equipment is reused. A new septic system will service the new residence.

All sewerage from the house exits through a single line from the east corner of the building by gravity directly to the septic tank. The septic tank is two-chamber with an outlet filter and high-level alarm. The effluent then flows by gravity to the trip tank (Floating Outlet Tank). The effluent is delivered under pressure by gravity from the trip tank to the combined treatment and dispersal mound. The septic and trip tanks are vented to an acceptable location.

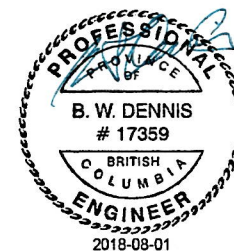
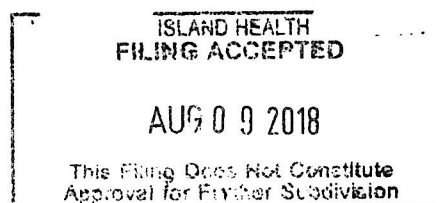
The secondary treatment is an Eljen In-Mound, Type 2, Combined Treatment and Dispersal System. This system incorporates two rows of Eljen GSF A42 modules. The Eljen GSF further moderates the dosing and insures that the effluent is properly treated prior to being released into the environment. The Eljen GSF also moderates the rate of infiltration further protecting the native soils.

Tertiary treatment for nutrient removal is provide by a Permeable Reactive Barrier (PRB) just below the Eljen CTDS. This barrier is instrumental in reduction of nutrients, specifically nitrogen. See WWAL report attached.

The distal lines in the field are equipped with a shut off valve at the proximal ends. There is a clean out at the distal ends of the lines as well. Also, the field has four combination Lysimeter Sampling Pans / Observation Ports located per the site plan, two pans installed at the Eljen Point of Application and two located at the base of the PRB.

There are two Piezometers located down gradient of the field, located per the site plan.

The electrical system design is by others. Components are only specified to meet the sewerage system regulation and the performance requirements of the design. The electrical contractor is responsible for all aspects of the electrical installation and power distribution.



PROJECT SPECIFIC NOTES

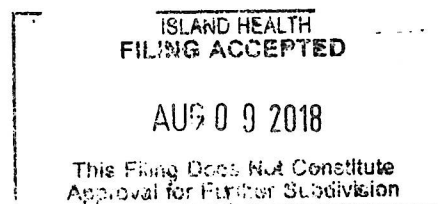
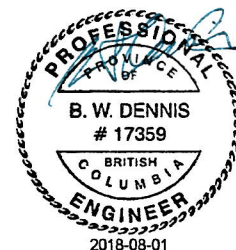
1. This system is NOT designed for backwash from a water softener, water filter or condensate drain from a high efficiency furnace.
2. This system is NOT designed for use of a garburator.
3. This system is NOT designed for uncontrolled water sources such as floor drains, roof down spouts or any other water source not specifically noted.
4. This system IS designed for residential wastewater only.

EQUIPMENT SPECIFICATIONS

Septic Tank	Canwest RKS1000 LP/2 c/w PL122 Filter Usable Volume: 4,540 L (1000 IG)
Trip Tank	Canwest RKFT 17 – c/w Dose Counter Dose Volume: 77L (17 IG)
Control Panel	Rhombus Tank Alert XT – c/w Filter Reed Switch
Treatment System	Eljen GSF – (20) A42 Modules c/w 4 Pan Lysimeter Sampling Devices (10 modules per row, 2 rows)

EQUIPMENT NOTES:

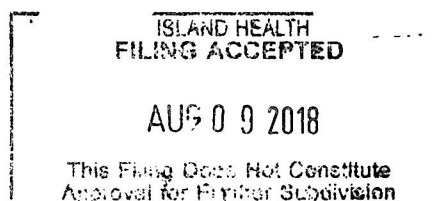
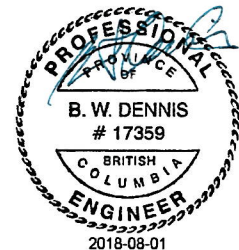
- All supplier drawings must be reviewed for acceptance by the Engineer prior to final commitment.
- Equivalent substitutions must be approved by the Engineer in writing.
- All equipment manuals to be retained and forwarded to the Engineer.



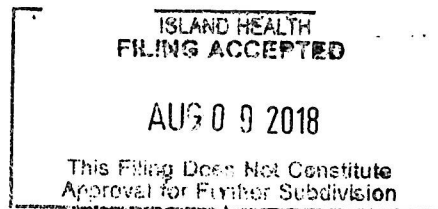
CONSTRUCTION NOTES

1. Construction Management by Owner
2. Site Meetings / Inspections:
 - a) Project review (kick off) meeting on site is required prior to construction.
 - b) Final Inspection and commissioning is required prior to the system being put into service.
 - c) Further inspections, if required, will be determined at the kick off meeting.

Note: Owner is responsible for scheduling site meetings and inspections.
3. All work to be completed by an ROWP Certified Installer unless approved by the Engineer in writing.
4. Any changes to the design must be approved by the Engineer in writing prior to installation.
5. **Electrical Notes:**
 - All electrical design is by others and must comply with BC Provincial Electrical Code.
 - **Electrical Design to be reviewed by the Engineer prior to installation.**
 - Junction Boxes are not to be located inside the septic tank or below grade with the exception of Orenco SBEX Splice Box.
 - All Conduit to be sealed at both ends.
 - Reed Switch from Septic Tank Filter to be wired to Tank Alert XT Panel.
 - Alarm Panel and all JB's to have cover from direct weather.
6. All building plumbing by others.
7. All septic plumbing to meet BC Plumbing Code and BC SPM-V3.
8. The pump is located directly on the floor of the pump tank. There is no riser block used.
9. When a Trip Tank is in use, the pressure main field header is equipped with a 2" full port air release valve directed into the 4" perforated line.
10. Dispersal Field Notes:
 - a) **Installer to refer to WWAL Hydrogeological Review Report on requirements for the Permeable Reactive Barrier and Piezometer construction and installation.**
 - b) Field construction to take place during dry weather only.
 - c) Organic Layer and any heavy overburden to be removed from basil area prior to fill placement. The soils to be removed may be reused as topsoil.
 - d) Basil Area to be gently scarified to remove smearing prior to system placement as required.
 - e) All fill and specified sand to meet Eljen 2018 Design and Installation Manual for BC and BC SPM-V3 specification for washed mound sand.
 - f) This system does not require venting.
 - g) Observation ports extend to Basil Area (native soil) per BC SPM-V3. Four required, located per the site plan.



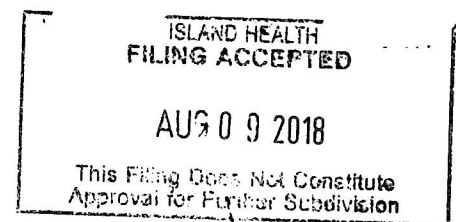
- h) Sampling Devices. Four required, located as noted on the site plan and installed per detailed drawing with observation ports.
 - i) Finished Landscaping to ensure surface water drains away from field and must avoid pooling.
 - j) Distribution piping is end fed.
11. All tanks to have sufficient cover and depth to water table to avoid floatation or concrete is to be substituted with anti-floatation flanges. Final installation to be approved by the manufacturer.
 12. All piping is PVC. All pressure mains are 2-inch schedule 40, all gravity lines are 4-inch sewerage class. Field piping per design drawings.
 13. This design complies with and must be installed in accordance with the February 2018 Eljen GSF Design and Installation Manual for BC and the BC SPM V3.
 14. Installer must follow project guidance on BWD Installer Information and Project Check List document provided under separate cover.
 15. Installer must complete and return BWD Installer's Letter of Certification, provided under separate cover.



ATTACHMENTS

DRAWINGS

18133-001 Sheet 1 of 7 rev 0	Site Plan
18133-001 Sheet 2 of 7 rev 0	Field Section
18133-001 Sheet 3 of 7 rev 0	Distribution Piping Detail
18133-001 Sheet 4 of 7 rev 0	Demand Does Trip Tank
18133-001 Sheet 5 of 7 rev 0	Pipe Trench Detail
18133-001 Sheet 6 of 7 rev 0	Pressure Main Vent Detail
18133-001 Sheet 7 of 7 rev 0	Pan Lysimeter / Observation Port

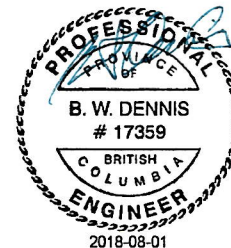


Professional Reports

Hydrogeological Review Report, 31 July 2018 - Western Water Associates Ltd.

SUPPLIERS

Canwest	RKS 1000LP/2 2-Chamber
Polylok	PL122 Outlet Filter
SJE Rhombus	Tank Alert XT
Canwest	RKFT 17
Eljen	GSF (for Eljen 2018 Design and Installation Manual BC, go to www.eljen.com)
Canwest	Pan Lysimeter

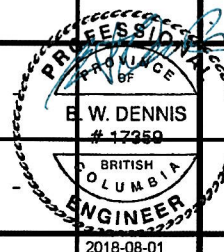


Note: Supplier Documentation is supplied for reference only. Third party designers and Installers must use manuals as supplied with equipment purchased and comply with the design criteria as set out herein this Construction Package. Should any discrepancy be found between documentation, the engineer must be consulted prior to issue of any design or commencement of construction.

BWD Engineering Inc.

Soil Profile DescriptionDate: 23-May-18Client: Ingram (Terry)Test Hole #: 1Location: Lot A - 1645 Sturdies Bay Road, Galiano Island

Depth (cm)	Texture	C.F. %	Structure			Consistency	Colour	Mottles			Roots	
			Type	Grade	Size			Quantity	Size	Contrast	Quantity	Size
0 - 5	Organic	-	-	-	-	-	-	-	-	-	-	-
5 - 45	Fine Sandy Loam	60% Fractured Rock	Blocky	Moderate	Medium	Very Friable	Brown	-	-	-	Many	Fine
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-



Redoximorphic features (mottling/gleying) present from _____ to _____
 Ground water table (seasonal / perched) present at: _____ cm
 Restrictive horizon present at: 45 cm
 Rooting depth to: 45 cm

None to _____
 None cm

Notes:

ISLAND HEALTH
 FILING ACCEPTED

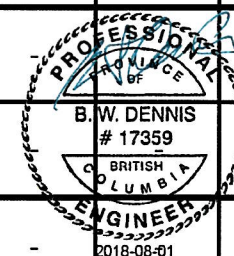
AUG 09 2018

This Filing Does Not Constitute
 Approval for Further Subdivision

BWD Engineering Inc.

Soil Profile DescriptionDate: 23-May-18Client: Ingram (Terry)Test Hole #: 2Location: Lot A - 1645 Sturdies Bay Road, Galiano Island

Depth (cm)	Texture	C.F. %	Structure			Consistency	Colour	Mottles			Roots	
			Type	Grade	Size			Quantity	Size	Contrast	Quantity	Size
0 - 5	Organic	-	-	-	-	-	-	-	-	-	-	-
5 - 45	Fine Sandy Loam	60% Fractured Rock	Blocky	Moderate	Medium	Very Friable	Brown	-	-	-	Many	Fine
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-



Redoximorphic features (mottling/gleying) present from _____
 Ground water table (seasonal / perched) present at: _____
 Restrictive horizon present at: 45 cm
 Rooting depth to: 45 cm

None to _____
 None cm

Notes:

ISLAND HEALTH
FILING ACCEPTED

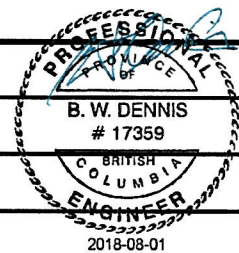
AUG 09 2018

This Filing Does Not Constitute
Approval for Further Subdivision

PERMEAMETER TEST

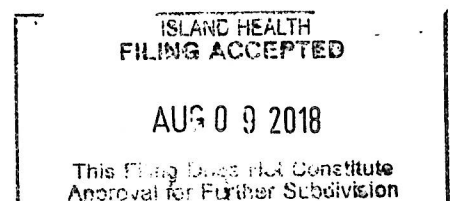
Client:	Ingram (Terry)	Date:	23-May-18
Location:	Lot A - 1645 Sturdies Bay Road, Galiano Island		
Weather:	AH #:	AH Location: See Dwg #	
AH Depth:	cm	AH Dia.:	cm

Time of Day	Elapsed Time	Interim Time minutes	Water Level mm	Drop In Level mm	Rate of Fall mm/min	Remarks
	0.0	0.0		---	---	
	0.5	0.5		0	0.0	
	1.0	0.5		0	0.0	
	1.5	0.5		0	0.0	
	Hydraulic testing not feasible, use soils evaluation for HLR.					
	0.5	0.5		0	0.0	
	1.0	0.5		0	0.0	
	1.5	0.5		0	0.0	
	2.0	0.5		0	0.0	
	2.5	0.5		0	0.0	

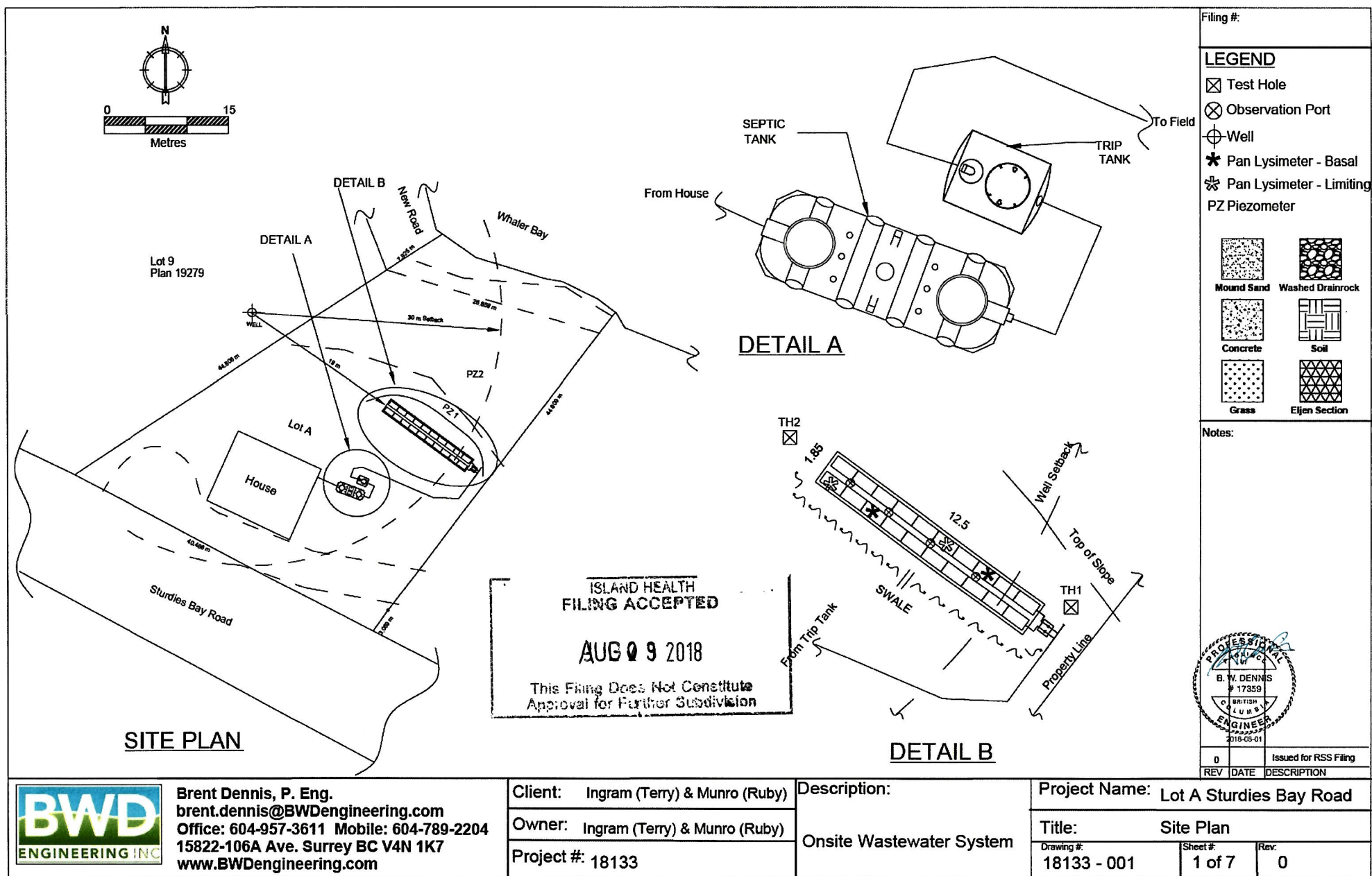


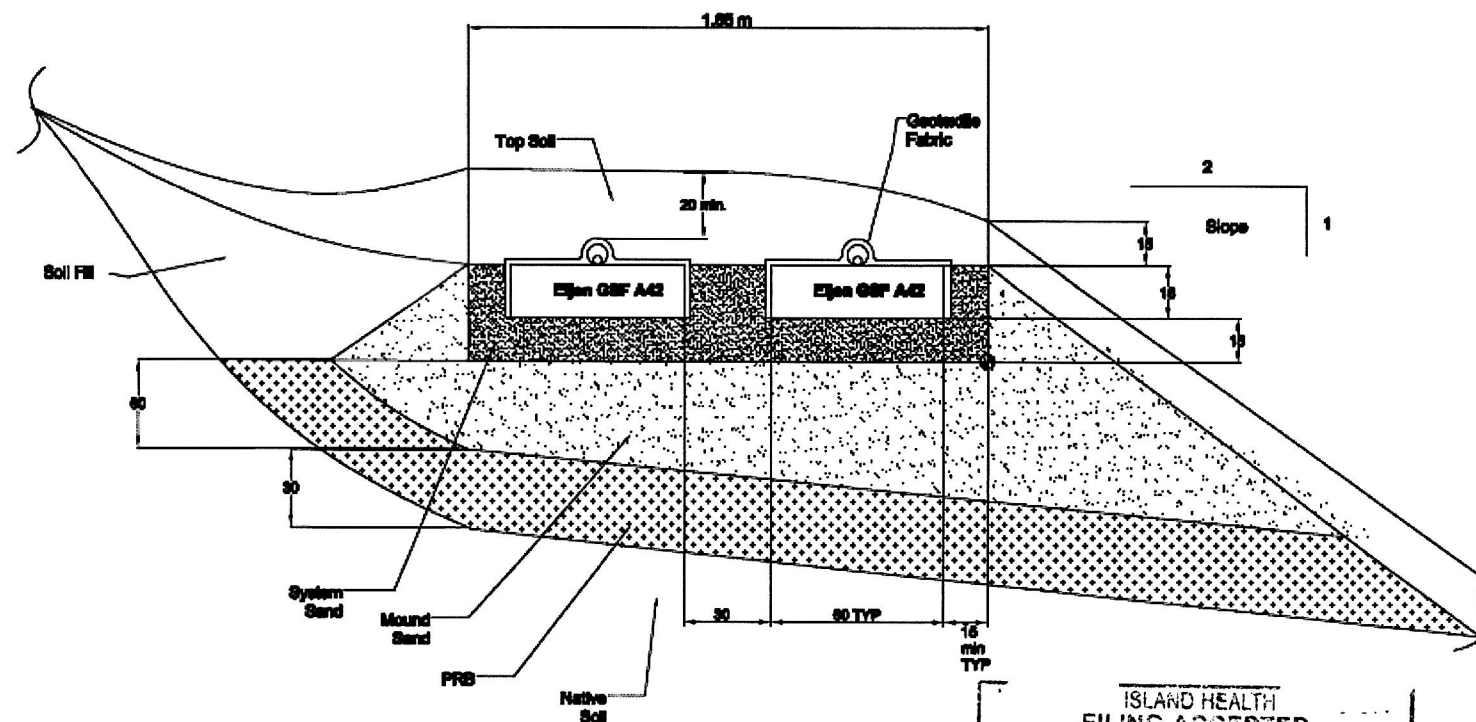
Stable rate of fall (mm/min) $\times$ (soil factor) = 0 K(fs)mm/day

Notes: Kfs of <60 denotes a Restrictive Layer



RECORD OF SEWERAGE SYSTEM				FILING # (OFFICE USE ONLY): GV18/288	
1. PROPERTY INFORMATION 	☒ NEW CONSTRUCTION	☐ ALTERATION	☐ REPAIR	☐ AMENDMENT – ORIGINAL FILING #:	
	TAX ASSESSMENT ROLL #: 01-764-02127.010			PID #: 000-641-227	
	LEGAL DESCRIPTION (PLAN, LOT, DISTRICT LOT, BLOCK NUMBERS): Lot A, Sec 7, Galiano Island, Cowichan District, Plan 11815				
	STREET (CIVIC) ADDRESS OR GENERAL LOCATION: 1645 Sturdies Bay Road			CITY: Galiano Island	
2. OWNER INFORMATION	NAME OF LEGAL OWNER: Terry Ingram			MAILING ADDRESS: 1441 Walnut Avenue	
	PHONE: 778-840-4137	CITY: Vancouver		PROV: BC	POSTAL CODE: V6J 3R2
3. AUTHORIZED PERSON INFORMATION	NAME OF AUTHORIZED PERSON: Brent Dennis, P. Eng.		REGISTRATION #: 17359	MAILING ADDRESS: 15822 - 106A Avenue	
	PHONE: 604-789-2204	EMAIL: brent.dennis@bwdengineering.com	CITY: Surrey	PROV: BC	POSTAL CODE: V4N 1K7
4. STRUCTURE INFORMATION	SEWERAGE SYSTEM WILL SERVE: ☒ SINGLE FAMILY DWELLING ☐ OTHER STRUCTURE (SPECIFY) ☐ OTHER DWELLING (SPECIFY)				
	THE DESIGN DAILY DOMESTIC SEWAGE FLOW IS (CHECK ONE): ☒ LESS THAN OR EQUAL TO 9 100 LITRES ☐ MORE THAN 9 100 LITRES BUT LESS THAN 22 700 LITRES				
5. SITE INFORMATION	DEPTH OF NATIVE SOIL TO SEASONAL HIGH WATER TABLE OR RESTRICTIVE LAYER (cm): 45		INFORMATION RESPECTING THE TYPE, DEPTH AND POROSITY OF THE SOIL IS ATTACHED ☒ YES ☐ NO		
	GPS LOCATION OF SYSTEM (DECIMAL DEGREES) LATITUDE: <u>48.883464</u> LONGITUDE: <u>-123.328132</u>				
	HORIZONTAL ACCURACY (m) ☒ G Earth ☐ RECREATIONAL GPS ☐ DIFFERENTIAL GPS				
6. DRINKING WATER PROTECTION	WILL THE SEWERAGE SYSTEM BE LOCATED LESS THAN 30m FROM A WELL? ☒ YES ☐ NO IF YES, ATTACH A PROFESSIONAL'S REPORT AND SPECIFY THE INTENDED DISTANCE <u>19</u> (m) DISTANCE OF PROPOSED SEWERAGE SYSTEM TO THE CLOSEST SURFACE WATER <u>25 (Marine)</u> (m)				
7. SYSTEM INFORMATION	SEWERAGE TREATMENT METHOD: ☐ TYPE 1 ☒ TYPE 2 ☐ TYPE 3				
8. LEGAL OR REGULATORY CONSIDERATIONS	☒ CONSTRUCTION OF THE PROPOSED SEWERAGE SYSTEM WILL NOT CONFLICT WITH LEGAL INSTRUMENTS REGISTERED ON THE PROPERTY.		IS THIS FILING SUBMITTED AS THE RESULT OF AN ORDER FROM THE HEALTH AUTHORITY? ☐ YES (ATTACH A COPY OF THE ORDER) ☒ NO		
9. PLOT PLAN AND SPECIFICATIONS	☒ PLOT PLAN (TO SCALE) AND SPECIFICATIONS ARE ATTACHED ☒ THE PLANS AND SPECIFICATIONS ARE CONSISTENT WITH STANDARD PRACTICE				WWAL Report
SOURCE OF STANDARD PRACTICE: ☒ MINISTRY OF HEALTH STANDARD PRACTICE MANUAL ☐ OTHER					
10. AUTHORIZED PERSON'S SIGNATURE	SIGNATURE: 		OFFICE USE ONLY		
	DATE: 1 August 2018		FILING ACCEPTED DATE: <u>August 9, 2018</u> RECEIPT NUMBER: <u>1808RAB61423</u>		





ISLAND HEALTH
FILING ACCEPTED

AUG 09 2018

This Filing Does Not Constitute
Approval for Further Subdivision

Notes:

- Top Soil To Be Sloped For Settling And Water Run Off

NOT TO SCALE; ALL DIMENSIONS IN CM

Filing #:

LEGEND

Point of Application



Mound Sand



Washed Drainrock



Concrete



Soil



Grass

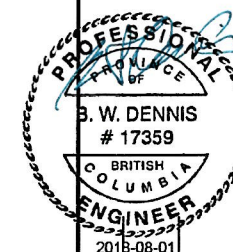


Eljen Section



Permeable
Reactive Barrier

Notes:



0 Issued For RSS Filing
Rev Date Description



Brent Dennis, P. Eng.
brent.dennis@BWDengineering.com
Office: 604-957-3611 Mobile: 604-789-2204
15822-106A Ave. Surrey BC V4N 1K7
www.BWDengineering.com

Client: **Ingram (Terry) & Munro (Ruby)**
Owner: **Ingram (Terry) & Munro (Ruby)**
Project #: **18133**

Description:
Onsite Wastewater System

Project: **Lot A Sturdies Bay Road**

Title: **Field Section-Eljen 2 Row Mnd w Sand**

Drawing #: **18133-001**

Sheet #: **2 of 7** Rev: **093**

NOTES:

1. One (1) Orifice every 1.2m drilled at 12 O'Clock
2. Every forth orifice drilled at 5 O'Clock
3. Orifice sizing to be determined by Engineer after pump purchase.

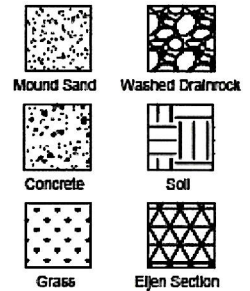
To Flush
Location
30 cm Min.
6" Valve Box

Duplex
Valve
Box
Header 2"
Sched 40

Filing #:

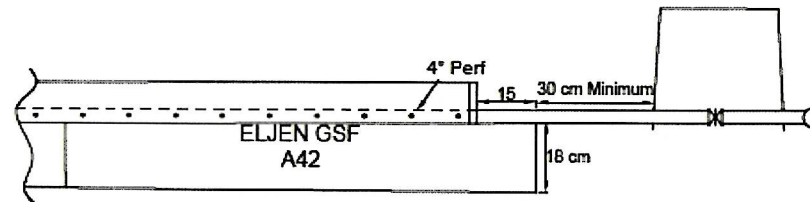
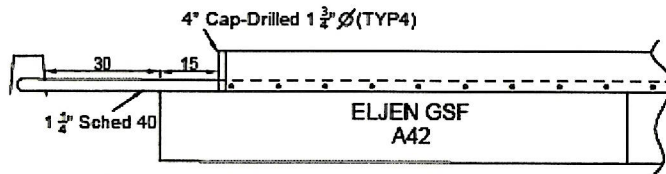
LEGEND

Point of Application



Notes:

PLAN



SECTION

DISTAL END

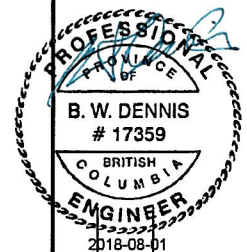
ISLAND HEALTH
FILING ACCEPTED

AUG 09 2018

This Filing Does Not Constitute
Approval for Further Subdivision

PROXIMAL END

ALL DIMENSIONS IN CM



0	Issued For RSS Filing
Rev	Date Description

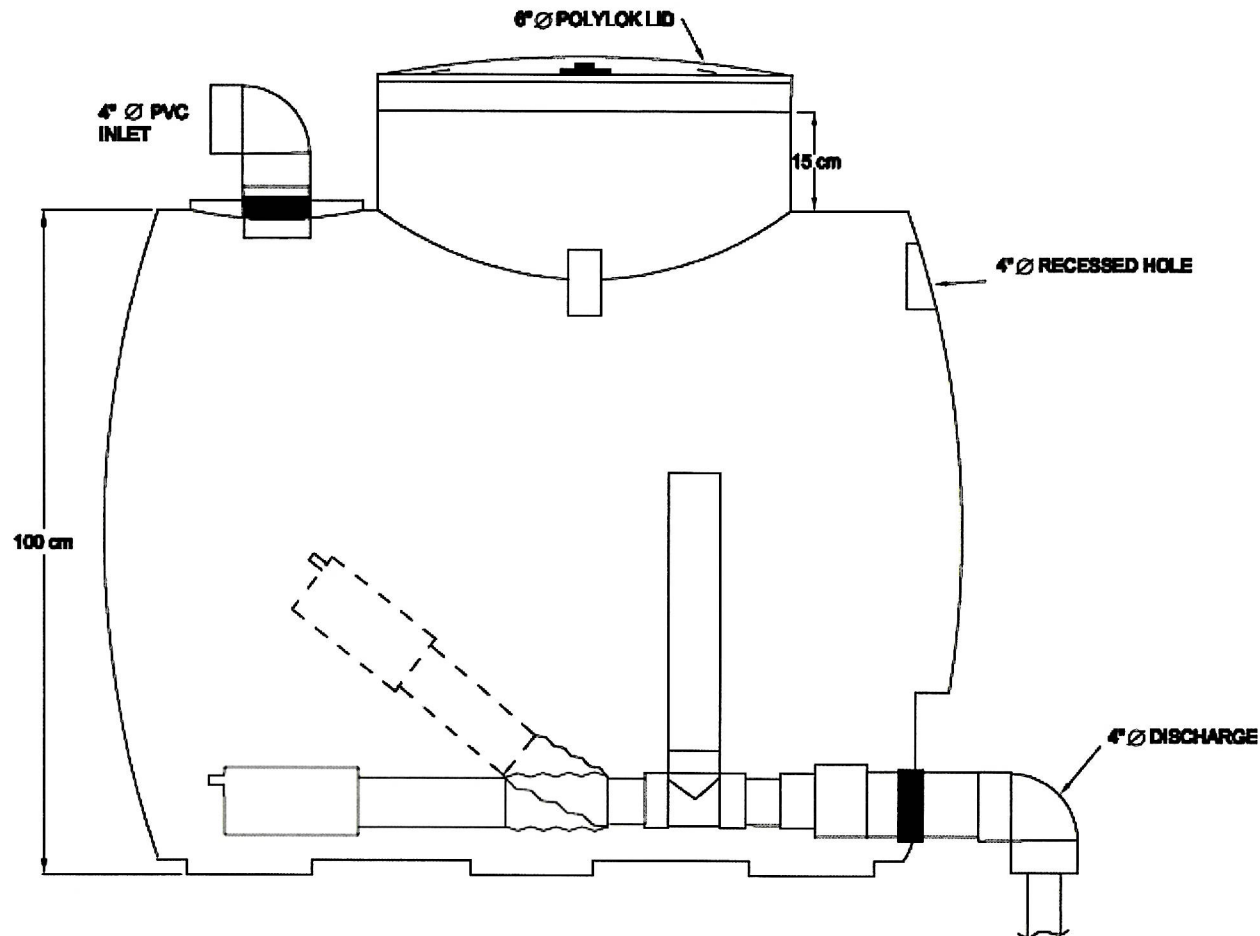


Brent Dennis, P. Eng.
brent.dennis@BWDengineering.com
Office: 604-957-3611 Mobile: 604-789-2204
15822-108A Ave. Surrey BC V4N 1K7
www.BWDengineering.com

Client: **Ingram (Terry) & Munro (Ruby)**
Owner: **Ingram (Terry) & Munro (Ruby)**
Project #: **18133**

Description:
Onsite Wastewater System

Project: **Lot A Sturdes Bay Road**
Title: **Distribution Piping Detail- Eljen End Feed**
Drawing #: **18133-001** Sheet #: **3 of 7** Rev: **094**



ISLAND HEALTH
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AUG 09 2018

This Filing Does Not Constitute
Approval for Further Subdivision

Filing #:

LEGEND

- ☒ Test Hole
- ⊗ Observation Port
- ⊕ Well
- * Sampling Device
- Point of Application



Mound Sand



Washed Drainrock



Concrete



Soil

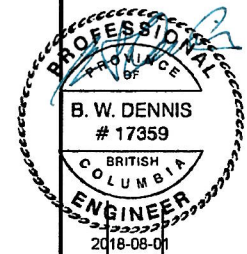


Grass



Eject Section

Notes:



0 Issued For RSS Filing

Rev Date Description

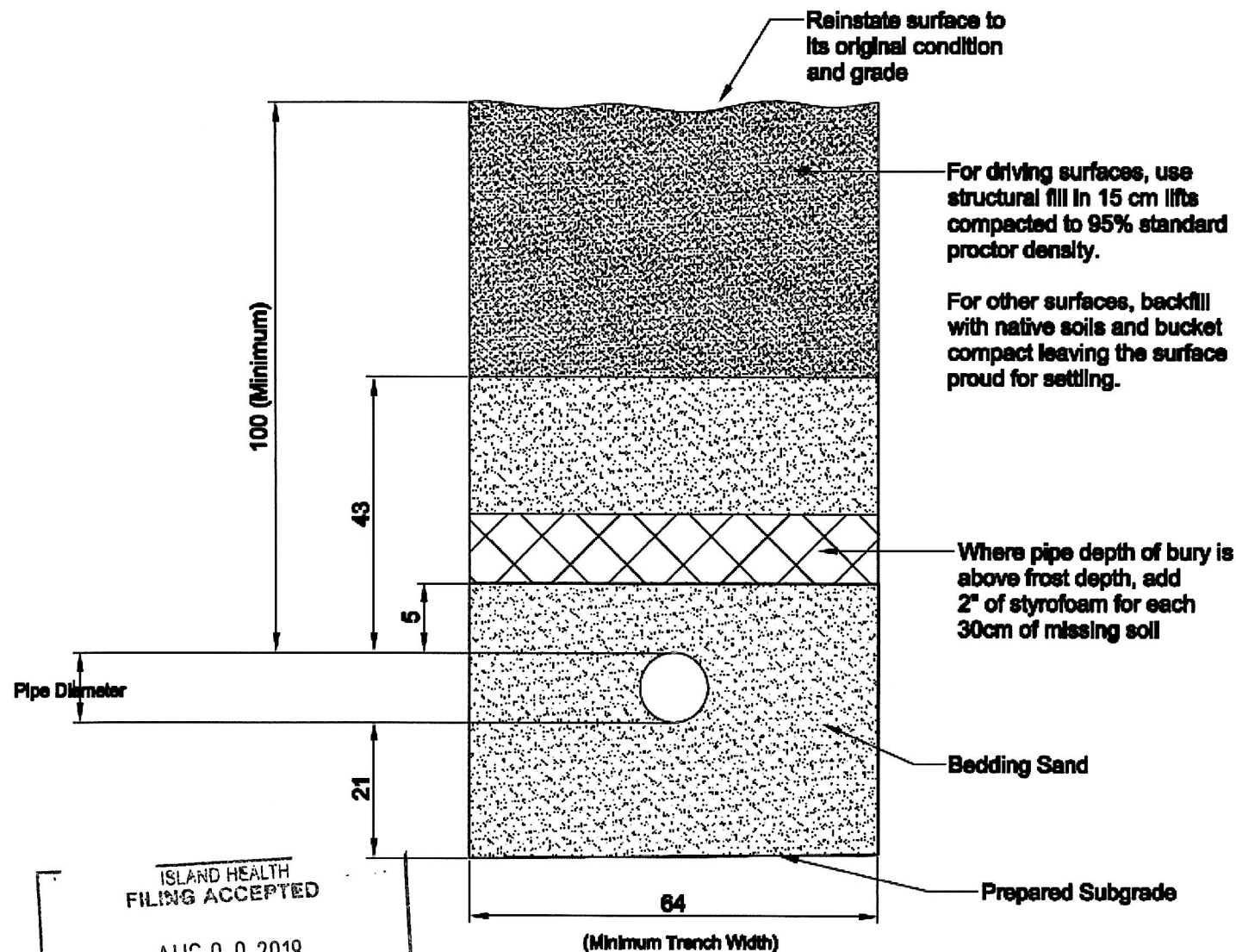


Brent Dennis, P. Eng.
brent.dennis@BWDengineering.com
Office: 604-957-3611 Mobile: 604-789-2204
15822-106A Ave. Surrey BC V4N 1K7
www.BWDengineering.com

Client: **Ingram (Terry) & Munro (Ruby)**
Owner: **Ingram (Terry) & Munro (Ruby)**
Project #: **18133**

Description:
Onsite Wastewater System

Project: **Lot A Sturdies Bay Road**
Title: **Demand Dose Control - Trip Tank**
Drawing #: **18133-001** Sheet #: **4 of 7** Rev: **095**



Filing #:

LEGEND

Point of Application



Mound Sand



Washed Drainrock



Concrete



Soil

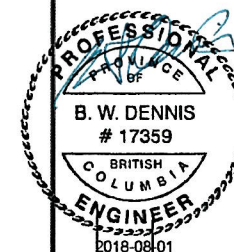


Grass



Eject Section

Notes:



NOT TO SCALE, DIMENSIONS IN CM

Rev	Date	Description
0		Issued For RSS Filing



Brent Dennis, P. Eng.
brent.dennis@BWDengineering.com
Office: 604-957-3811 Mobile: 604-789-2204
15822-108A Ave. Surrey BC V4N 1K7
www.BWDengineering.com

Client: **Ingram (Terry) & Munro (Ruby)**
Owner: **Ingram (Terry) & Munro (Ruby)**
Project #: **18133**

Description:
Onsite Wastewater System

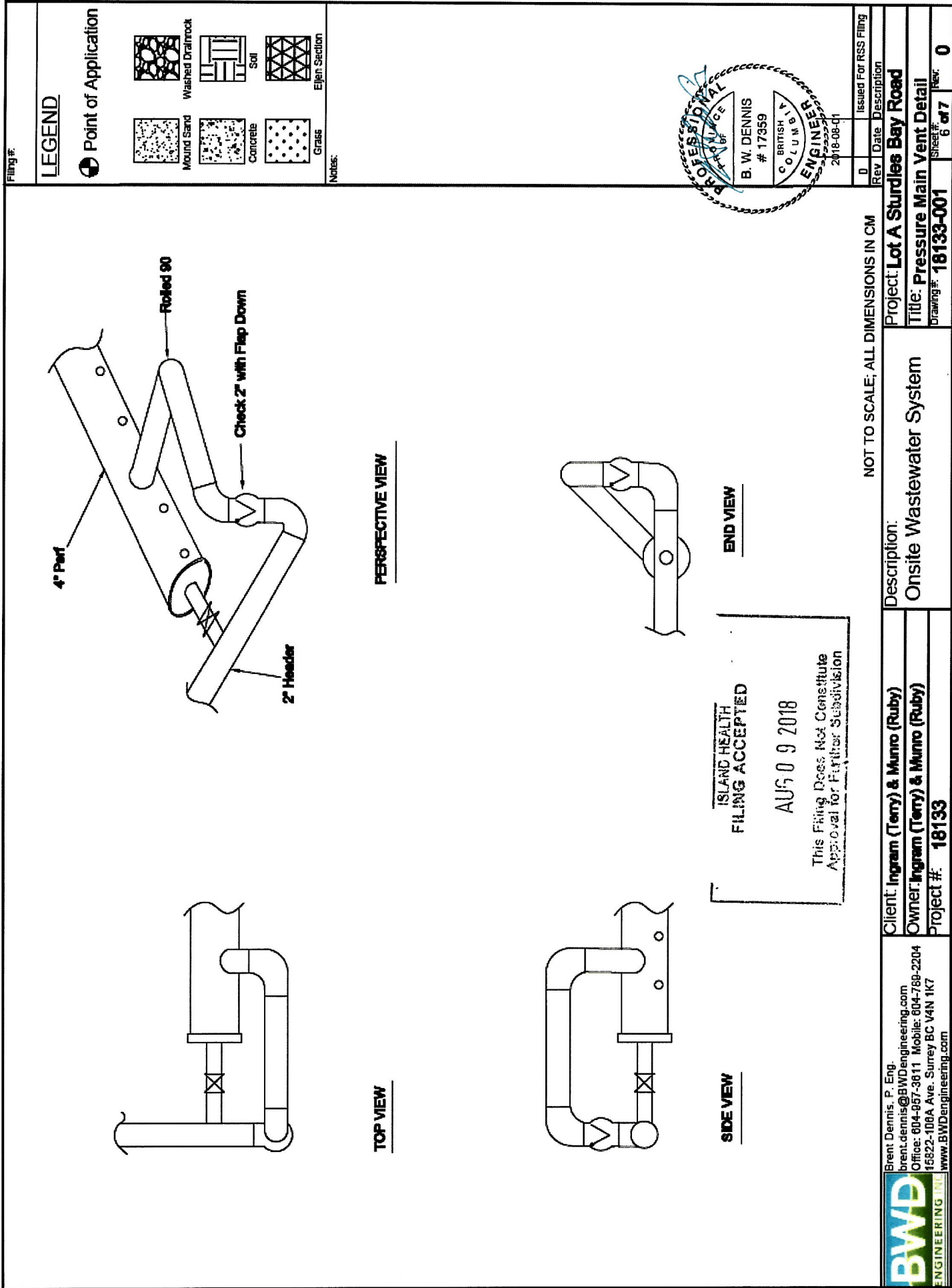
Project: **Lot A Sturdles Bay Road**

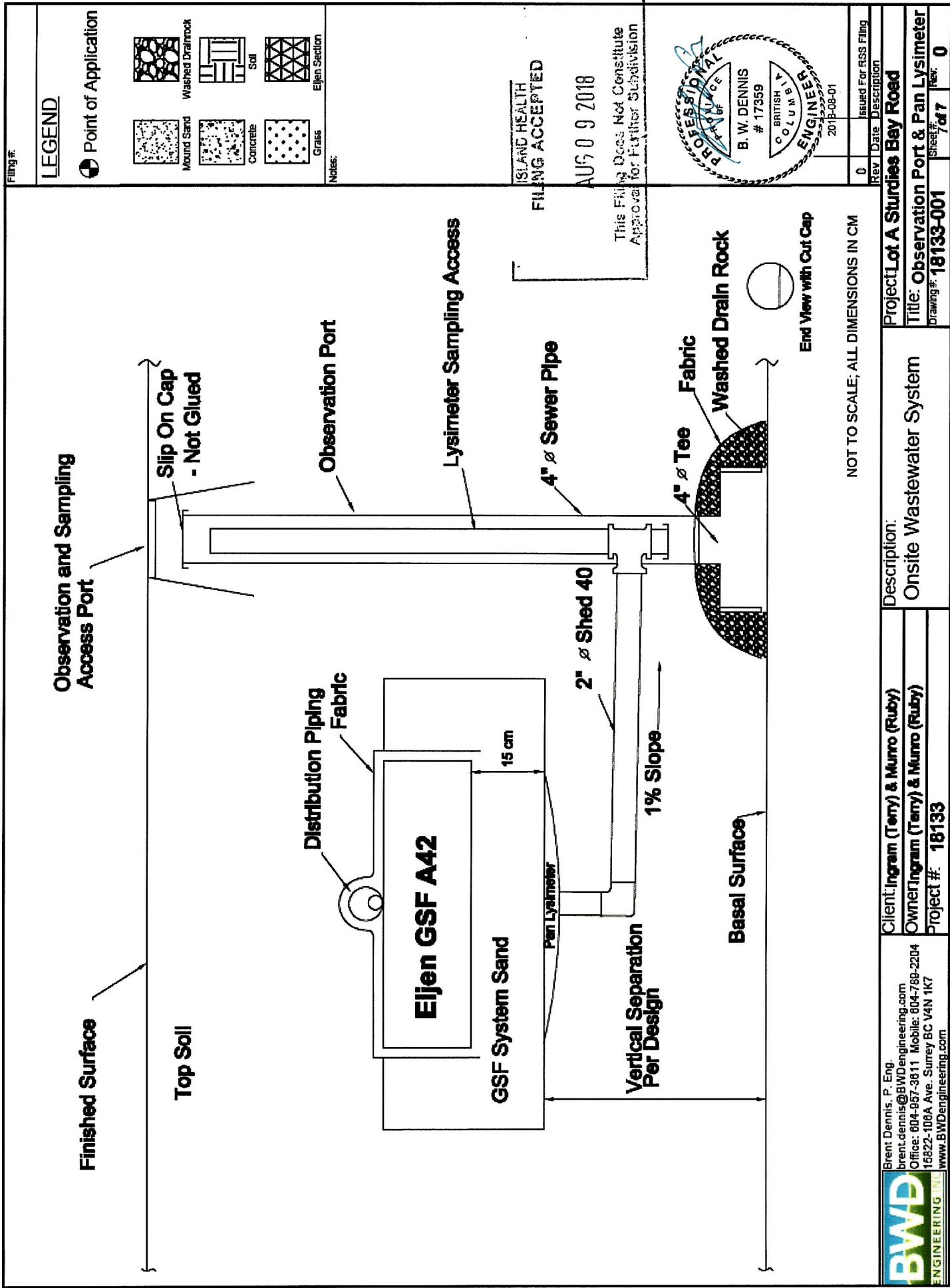
Title: **Pipe Trench Detail**

Drawing #: **18133-001**

Sheet #: **5 of 7**

Rev: **0.96**





Lot A & Lot B, Section 7, Galiano Island,
Cowichan District, Plan 11815

All distances are in feet and decimals thereof
Scale 1 inch = 20 feet

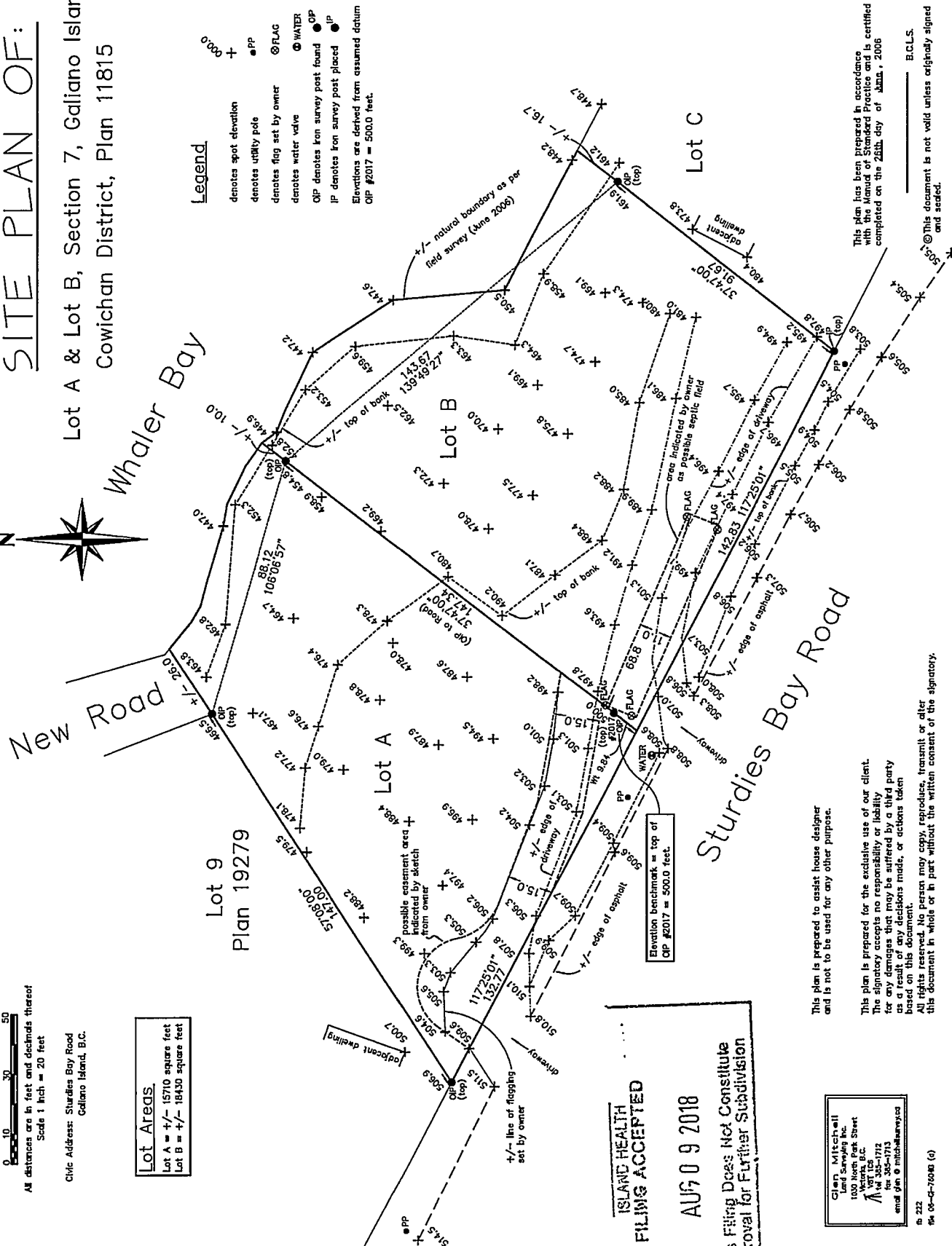
Civic Address: Sturdies Bay Road
Gallano Island, B.C.

Lot Areas

Lot A = +/- 15710 square feet
Lot B = +/- 18430 square feet

Legend

denotes spot elevation
+
● PP
denotes utility pole
denotes flag set by owner
⊗ FLAG
denotes water valve
⊗ WATER
● OP
● IP
OP denotes iron survey post found
IP denotes iron survey post placed
Elevations are derived from assumed datum
IP #2017 = 5000 feet.



This plan is prepared to assist house designer and is not to be used for any other purpose.

This plan is prepared for the exclusive use of our client. The signatory accepts no responsibility or liability for any damages that may be suffered by a third party as a result of any decisions made, or actions taken based on this document.

based on this document.

This plan has been prepared in accordance with the Manual of Standard Practice and is certified correct completed on the 26th day of June, 2006

_____ B.C.L.S.

ISLAND HEALTH
FILING ACCEPTED

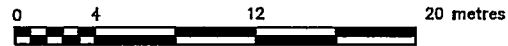
AUG 09 2018

**This Filing Does Not Constitute
Approval for Further Subdivision**

Glen Mitchell
Land Surveying Inc.
1030 North Park Street
Victoria, B.C.
V8T 1G8
tel 385-1712
fax 385-1713
email glen @ mitchellsurvey.co

Page 06-CF-760MB (d)

Civic address: Sturdies Bay Road
Victoria, B.C.



Scale 1: 200 (metric)

All distances are in metres

LEGEND

OIP denotes Iron survey post ● OIP

B.C. Land Surveyor's

Sketch Plan of:

Well Location on Lot adjoining
Lot A, Section 7, Galiano Island,
Cowichan District, Plan 11815



Tied center of well head
cap. User to confirm cap is
water source.

Well Location
clear 4.45

44.80

Lot 9
Plan 19279

Lot A
Plan 11815

New Road
property line

Whaler Bay

ISLAND HEALTH
FILING ACCEPTED

AUG 09 2018

This Filing Does Not Constitute
Approval for Further Subdivision

Glen Mitchell
Land Surveying Inc.
1030 North Park Street
Victoria, B.C.
V8T 1C6
tel 385-1712
fax 385-1713
email glen @ mitchellsurvey.ca

file 06-GI-7604X (a)

Sturdies Bay Road
property line



September 19, 2018
Kim Stockdill
Island Planner, Islands Trust
200 – 1627 Fort Street
Victoria, BC V8R 1H8

Dear Ms. Stockdill

RE: GL-DVP-2018.3 (Ingram) Referral

Thank you for the opportunity to comment on the potential Development Variance Permit for 1645 Sturdies Bay Road.

The hydrogeological report submitted by the sewerage system design engineer includes only minimal site specific information, and fails to present data that would indicate velocity and direction of groundwater flow or expected travel time for sewerage effluent to reach the neighboring well. Information on the well recharge area and cone of influence was not provided in the report, and information on physiography and geology of the site is stated to have been derived from test pit logs submitted by the design engineer and from well logs pertaining to other wells in the area.

Some statements within the report warrant a more complete discussion of the underlying data or exploratory work, such as:

- ...where we assume bedrock was encountered. (p2)
- We expect groundwater present beneath the site to originate from...(p3)
- The aquifer appears to be present... (p3)
- ...potentially exhibits an upward hydraulic gradient (p3)
- We assume competent (unfractured) bedrock exists...(p5)

The report details the Permeable Reactive Barrier (a 2.5 cm layer of hog fuel beneath the treatment modules) as being fundamental to risk mitigation. This is of great concern because engineered controls can fail and even without absolute failure, their effectiveness can diminish over time.

The report advises water quality monitoring, with identified impact leading to discontinuation of in ground disposal on the subject property. This approach is not protective of health because well water quality could be impacted in advance of changes being observed via monitoring.

It is the recommendation of this office that the Development Variance Permit to allow the siting of a sewage septic field within the 30 m setback from a well and the natural boundary of the sea not be granted.

Please contact this office if further information is required.

Sincerely

Heather Florence
Regional Environmental Health Consultant
e.c. Doug Watters (VIHA district EHO)
Gary Anderson (VIHA land use consultant)

**Duncan Office
Health Protection and Environmental Services**

4th Floor 238 Government Street, Duncan, BC V9L 1A5 • Phone: 250-737-2010 • Fax: 250-737-2008

Our Vision: Healthy People, Healthy Island Communities, Seamless Service

From: Robert Kojima
Sent: Friday, September 28, 2018 1:54 PM
To: Florence, Heather; 'Bryer Manwell'
Cc: Brent Dennis; Terry Ingram; Ruby Munro; Kim Stockdill; Anderson, Gary D
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Thanks Heather and Bryer,

Based on this email we are prepared to proceed with taking the variance to the Local Trust Committee for consideration of approval.

Robert Kojima
Regional Planning Manager, Southern Team
Islands Trust
Phone: 250-405-5159
Enquiry BC Toll-free call 1-800-663-7867
or from the lower mainland 604-660-2421

From: Florence, Heather [<mailto:Heather.Florence@viha.ca>]
Sent: Friday, September 28, 2018 1:50 PM
To: 'Bryer Manwell'
Cc: Brent Dennis; Terry Ingram; Ruby Munro; Kim Stockdill; Robert Kojima; Anderson, Gary D
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Hi Bryer,

Thank you for the additional discussion during this morning's call and summarized below.

As discussed, the focus on engineered measures and the ongoing monitoring of well water quality within the report was disconcerting, but being given the opportunity to hear your rationale and ask questions this morning alleviates these concerns. As we both agreed, there is always a certain measure of risk when developing onsite sewerage systems in the vicinity of water supply wells- and this can be true whether or not the 30m setback is maintained, depending on the site as well as the system and its maintenance over time.

However, based on the rationale provided, I am satisfied with your explanation that the proposed reduction in setback does not represent any direct risk to the subject well.

Regards,

Heather Florence, CPHI(C)
Regional Environmental Health Consultant
Island Health, Health Protection-Environmental Services
4th Floor, 238 Government Street | Duncan, BC V9L1A5
Ph: 250.737.2010 | Fax: 250.737.2008
Heather.Florence@viha.ca | www.viha.ca/mho



From: Bryer Manwell <bryer@westernwater.ca>
Sent: Friday, September 28, 2018 12:16 PM
To: Florence, Heather <Heather.Florence@viha.ca>
Cc: Brent Dennis <brent.dennis@BWDengineering.com>; Terry Ingram <terryingram@me.com>; Ruby Munro <rubymunro@gmail.com>; Kim Stockdill <kstockdill@islandstrust.bc.ca>; Robert Kojima <rkojima@islandstrust.bc.ca>; Anderson, Gary D <Gary.Anderson@viha.ca>
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Heather,

Thank you for taking the time to speak with me this morning; I hope I was able to provide sound rational. Further to our discussion, please find my response in bullet format (in black bold) to your concerns below. If you have further questions or comments, please let me know.

The report details the Permeable Reactive Barrier (a 2.5 cm layer of hog fuel beneath the treatment modules) as being fundamental to risk mitigation. This is of great concern because engineered controls can fail and even without absolute failure, their effectiveness can diminish over time.

- I was going to allow the design engineer, Brent Dennis, to address this concern in more detail. I believe this statement could be made for installation of all onsite wastewater systems; the SSR legally mandates that the home owners maintain their system according to the Maintain Plan provided by the designer. I have provided data to support the use of a PRB to remove nutrients and pathogens over-time. The use of a passive system is more reliable over-time compared to a mechanical system, as it requires less maintenance.
- Further, because the proposed system is to be placed in a sensitive environment, within the 30 m setback to a well, I have prescribed performance based monitoring, which is a provision made for engineers under our EGBC guidelines for design of onsite wastewater systems (<https://www.egbc.ca/getmedia/b69496e9-79bc-41b7-a28f-522f9b92957b/V1-3-Onsite-Sewerage-Systems.pdf.aspx>).

The report advises water quality monitoring, with identified impact leading to discontinuation of in ground disposal on the subject property. This approach is not protective of health because well water quality could be impacted in advance of changes being observed via monitoring.

- There is likely no hydraulic connection from the cross-gradient proposed septic system to the subject well. Due to a lack of exposure pathway, the risk to the well is not considered high. However, I am asking for ongoing monitoring of the well to confirm, over-time, that the well water remains potable. All well owners in the province of B.C.

should sample their groundwater supply at least once a year, regardless of site setting. If I did not request on-going monitoring of the Miller well over-time, I would not be doing my due diligence. Again, I expect there to be no impact to this well from the proposed new septic system, based on the multiple lines of rational provided.

Also, based on precautionary principles that would put public health as the primary consideration in decisions around development, it does not seem prudent to me to reduce the 30m setback in areas where there is already unpredictability of groundwater flow direction related to fracture orientation and connectivity of water bearing fracture zones (p5).

- **Groundwater flow in bedrock aquifers is often complex and unpredictable. However, we have established that there is a natural barrier to vertical flow from the surface into the bedrock aquifer, there is no exposure pathway from surface to groundwater source. We know there is a lack of exposure pathway as the well is artesian (piezometric surface is 42 ft / well completion depth is 200 ft) and the proposed septic system is to be installed cross-gradient (not upgradient) to the well in unsaturated surficial deposits (there is no surficial aquifer). The site conditions (lack of exposure pathway) prove that a reduction in setback of the proposed system to the subject well will make no difference in the risk to the well, compared to if the system was installed outside the 30 m setback.**

In your response below, you mention other existing septic systems within 30m of the subject well. I do not believe these were noted specifically in the report. I apologize if they were discussed and I somehow missed that. I would put forward though, that if the subject well is already encroached upon by other sewerage systems within 30m, it may not make sense from a public health standpoint to put water users further at risk by allowing additional development that also does not meet required setbacks.

- **The lot sizes in this area are such that the 30 m setback from wells to septic systems cannot be met for the proposed development or the septic system associated with the subject well lot itself. The Millers have operated their own septic system since the property was developed the 1990's. We see no influence on the Miller well water quality from the existing development that is located even closer to the subject well than the proposed development. Therefore, based on the site conditions and the current water quality of the Miler well (multiple lines of rational), there is likely no additional risk by allowing development that does not meet the required setback.**

Best regards,

Bryer Manwell, M.Sc., P.Eng.
Hydrogeological Engineer



#106-5145 26 Street, Vernon, BC V1T 8G4

W: westernwater.ca | P: 250-541-1030 | C: 250-878-2030
Vernon | Victoria | Prince George
OQM Certified by Engineers and Geoscientists BC

From: Florence, Heather <Heather.Florence@viha.ca>
Sent: Thursday, September 27, 2018 3:06 PM
To: 'Bryer Manwell'
Cc: Brent Dennis; Terry Ingram; Ruby Munro; Kim Stockdill; Robert Kojima; Anderson, Gary D
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Hi Bryer,

Thank you for contacting me to discuss my concerns.

I feel that a couple of key points from my letter were not addressed in your response, namely:

- **The report details the Permeable Reactive Barrier (a 2.5 cm layer of hog fuel beneath the treatment modules) as being fundamental to risk mitigation. This is of great concern because engineered controls can fail and even without absolute failure, their effectiveness can diminish over time.**
- **The report advises water quality monitoring, with identified impact leading to discontinuation of in ground disposal on the subject property. This approach is not protective of health because well water quality could be impacted in advance of changes being observed via monitoring.**

I would be interested on your response to those concerns.

Also, based on precautionary principles that would put public health as the primary consideration in decisions around development, it does not seem prudent to me to reduce the 30m setback in areas where there is already unpredictability of groundwater flow direction related to fracture orientation and connectivity of water bearing fracture zones (p5).

In your response below, you mention other existing septic systems within 30m of the subject well. I do not believe these were noted specifically in the report. I apologize if they were discussed and I somehow missed that. I would put forward though, that if the subject well is already encroached upon by other sewerage systems within 30m, it may not make sense from a public health standpoint to put water users further at risk by allowing additional development that also does not meet required setbacks.

Sincerely,

Heather Florence, CPHI(C)
Regional Environmental Health Consultant
Island Health, Health Protection-Environmental Services
4th Floor, 238 Government Street | Duncan, BC V9L1A5
Ph: 250.737.2010 | Fax: 250.737.2008
Heather.Florence@viha.ca | www.viha.ca/mho



From: Bryer Manwell <bryer@westernwater.ca>
Sent: Thursday, September 27, 2018 1:49 PM
To: Florence, Heather <Heather.Florence@viha.ca>
Cc: Brent Dennis <brent.dennis@BWDengineering.com>; Terry Ingram <terryingram@me.com>; Ruby Munro <rubymunro@gmail.com>; Kim Stockdill <kstockdill@islandstrust.bc.ca>; Robert Kojima <rkojima@islandstrust.bc.ca>
Subject: FW: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Heather,

For discussion purposes, please find below, my response to the statements made in the letter from you to Kim Stockdill, dated September 19, 2018 and attached for reference.

We assessed risk to the subject well (Miller well) from the reduced setback of a proposed private wastewater system based on two lines of reasoning: a physical assessment of the hydrogeological setting based on existing data (well logs in the area, historic hydrogeological reports and observed site features) and a geochemical assessment of the current subject well water.

From our physical assessment, we established that the subject well is topographically cross-gradient to the proposed septic dispersal field. Further, based on piezometric surface height, presented on the subject well log (42 ft below top of casing and a well completion depth of 200 ft), the well is completed in a confined bedrock aquifer. Based on these two facts, we have established that there is not likely to be hydraulic connection between the cross-gradient unsaturated surficial deposits (in which the dispersal field would be constructed) and the confined bedrock aquifer, which is the source aquifer for the subject well. Further, note that Table II-19 of the SPM Ver 3, which prescribes the minimum required horizontal separation distances, states the required distance to a marine water body from a dispersal system is 15 m, this setback is met for the current design.

From a geochemical perspective, the current bedrock water quality indicates no anthropogenic impact from operation of existing septic systems, located with 30 m of the subject well. This lack of anthropogenic influence provides further proof that there is not likely a hydraulic connection from land surface to the confined bedrock aquifer.

With the lack of hydraulic connection (lack of exposure pathway) between the unsaturated surficial deposits (which the proposed septic system will be constructed) and the subject well, groundwater flow velocity, travel-time and evaluation of the subject well capture zone within the bedrock aquifer are not applicable for the site conditions established.

If there are further questions, comments or concerns, please do contact me.

Best regards,

Bryer Manwell, M.Sc., P.Eng.
Hydrogeological Engineer



#106-5145 26 Street, Vernon, BC V1T 8G4
W: westernwater.ca | P: 250-541-1030 | C: 250-878-2030
Vernon | Victoria | Prince George
OQM Certified by Engineers and Geoscientists BC

The information contained in this message is confidential and is intended for the addressee(s) only. If you have received this message in error or there are any issues please notify the originator immediately and delete the message. The unauthorized use, disclosure, copying or alteration of this message is strictly forbidden.

From: Robert Kojima <rkojima@islandstrust.bc.ca>
Sent: September 27, 2018 12:41 PM
To: Bryer Manwell <bryer@westernwater.ca>
Cc: Kim Stockdill <kstockdill@islandstrust.bc.ca>; Brent Dennis <brent.dennis@BWDengineering.com>; Ruby Munro <rubymunro@gmail.com>; Terry Ingram <terryingram@me.com>
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Hi Bryer,

I think it would be best for to respond to Island Health directly as the concerns and questions were technical ones related to your report. There may need to be further clarification. Her contact information:

Heather Florence, CPHI(C)
Regional Environmental Health Consultant
Island Health, Health Protection-Environmental Services
4th Floor, 238 Government Street | Duncan, BC V9L1A5
Ph: 250.737.2010 | Fax: 250.737.2008
Heather.Florence@viha.ca | www.viha.ca/mho

Robert Kojima
Regional Planning Manager, Southern Team
Islands Trust
Phone: 250-405-5159
Enquiry BC Toll-free call 1-800-663-7867
or from the lower mainland 604-660-2421

From: Bryer Manwell [<mailto:bryer@westernwater.ca>]
Sent: Thursday, September 27, 2018 1:34 PM
To: Robert Kojima
Cc: Kim Stockdill; Brent Dennis; Ruby Munro; Terry Ingram
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Robert,

Point of clarification: I do not have the e-mail address for Heather Florence, Regional Environmental Health Consultant. Are you going to submit my response to her for consideration?

Regards,

Bryer Manwell
Cell: 250-878-2030

From: Robert Kojima <rkojima@islandstrust.bc.ca>
Sent: September 27, 2018 12:31 PM
To: Bryer Manwell <bryer@westernwater.ca>
Cc: Kim Stockdill <kstockdill@islandstrust.bc.ca>; Brent Dennis <brent.dennis@BWDengineering.com>; Ruby Munro <rubymunro@gmail.com>; Terry Ingram <terryingram@me.com>
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Thanks Bryer, this appears thorough to my non-hydrogeologist's eye. Hopefully this will address Island Health's concerns.

Robert Kojima
Regional Planning Manager, Southern Team
Islands Trust
Phone: 250-405-5159
Enquiry BC Toll-free call 1-800-663-7867
or from the lower mainland 604-660-2421

From: Bryer Manwell [<mailto:bryer@westernwater.ca>]
Sent: Thursday, September 27, 2018 12:38 PM
To: Robert Kojima; Terry Ingram
Cc: Kim Stockdill; Brent Dennis; Ruby Munro
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Robert,

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If there are further questions, comments or concerns, please do contact me.

Best regards,

Bryer Manwell
Cell: 250-878-2030

From: Robert Kojima <rkojima@islandstrust.bc.ca>
Sent: September 27, 2018 10:06 AM
To: Terry Ingram <terryingram@me.com>
Cc: Kim Stockdill <kstockdill@islandstrust.bc.ca>; Brent Dennis <brent.dennis@BWDengineering.com>;
Bryer Manwell <bryer@westernwater.ca>; Ruby Munro <rubymunro@gmail.com>
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Terry,

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Robert Kojima
Regional Planning Manager, Southern Team
Islands Trust
Phone: 250-405-5159
Enquiry BC Toll-free call 1-800-663-7867
or from the lower mainland 604-660-2421

From: Terry Ingram [<mailto:terryingram@me.com>]
Sent: Thursday, September 27, 2018 10:57 AM
To: Robert Kojima
Cc: Kim Stockdill; Brent Dennis; Bryer Manwell P.Eng.; Ruby Munro
Subject: Fwd: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Hi Robert

Does this response from Bryer answer your concerns?
Can you pass her email onto the Island Health?

Thanks
Terry
7788404137

Sent from my iPhone

Begin forwarded message:

From: Bryer Manwell <bryer@westernwater.ca>
Date: September 27, 2018 at 10:35:40 AM PDT
To: Kim Stockdill <kstockdill@islandstrust.bc.ca>
Cc: Brent Dennis <brent.dennis@bwdengineering.com>, Terry Ingram <terryingram@me.com>, Ruby Janet Munro <rubymunro@gmail.com>
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

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If you have further questions or concerns, let me know.

Regards,

Bryer Manwell, M.Sc., P.Eng.
Hydrogeological Engineer



#106-5145 26 Street, Vernon, BC V1T 8G4
W: westernwater.ca | P: 250-541-1030 | C: 250-878-2030
Vernon | Victoria | Prince George
OQM Certified by Engineers and Geoscientists BC

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From: Kim Stockdill <kstockdill@islandstrust.bc.ca>
Sent: September 14, 2018 12:12 PM
To: Bryer Manwell <bryer@westernwater.ca>
Subject: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Hi Bryer,

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Thank you,

Kim Stockdill

Island Planner

Islands Trust

200 – 1627 Fort Street

Victoria, BC V8R 1H8

Office: (250) 405-5194 Fax: (250) 405-5155

Enquiry BC Toll-Free 1-800-663-7867

Or from the lower mainland (604) 660-2421

Websites: www.islandstrust.bc.ca | www.islandstrustfund.bc.ca

Preserving Island communities, culture and environment since 1974

From: Florence, Heather <Heather.Florence@viha.ca>
Sent: Thursday, September 27, 2018 3:06 PM
To: 'Bryer Manwell'
Cc: Brent Dennis; Terry Ingram; Ruby Munro; Kim Stockdill; Robert Kojima; Anderson, Gary D
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Hi Bryer,

Thank you for contacting me to discuss my concerns.

I feel that a couple of key points from my letter were not addressed in your response, namely:

- **The report details the Permeable Reactive Barrier (a 2.5 cm layer of hog fuel beneath the treatment modules) as being fundamental to risk mitigation. This is of great concern because engineered controls can fail and even without absolute failure, their effectiveness can diminish over time.**
- **The report advises water quality monitoring, with identified impact leading to discontinuation of in ground disposal on the subject property. This approach is not protective of health because well water quality could be impacted in advance of changes being observed via monitoring.**

I would be interested on your response to those concerns.

Also, based on precautionary principles that would put public health as the primary consideration in decisions around development, it does not seem prudent to me to reduce the 30m setback in areas where there is already unpredictability of groundwater flow direction related to fracture orientation and connectivity of water bearing fracture zones (p5).

In your response below, you mention other existing septic systems within 30m of the subject well. I do not believe these were noted specifically in the report. I apologize if they were discussed and I somehow missed that. I would put forward though, that if the subject well is already encroached upon by other sewerage systems within 30m, it may not make sense from a public health standpoint to put water users further at risk by allowing additional development that also does not meet required setbacks.

Sincerely,

Heather Florence, CPHI(C)
Regional Environmental Health Consultant
Island Health, Health Protection-Environmental Services
4th Floor, 238 Government Street | Duncan, BC V9L1A5
Ph: 250.737.2010 | Fax: 250.737.2008
Heather.Florence@viha.ca | www.viha.ca/mho



From: Bryer Manwell <bryer@westernwater.ca>
Sent: Thursday, September 27, 2018 1:49 PM
To: Florence, Heather <Heather.Florence@viha.ca>
Cc: Brent Dennis <brent.dennis@BWDengineering.com>; Terry Ingram <terryingram@me.com>; Ruby Munro <rubymunro@gmail.com>; Kim Stockdill <kstockdill@islandstrust.bc.ca>; Robert Kojima <rkojima@islandstrust.bc.ca>
Subject: FW: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Heather,

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If there are further questions, comments or concerns, please do contact me.

Best regards,

Bryer Manwell, M.Sc., P.Eng.
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Sent: September 27, 2018 12:41 PM
To: Bryer Manwell <bryer@westernwater.ca>
Cc: Kim Stockdill <kstockdill@islandstrust.bc.ca>; Brent Dennis <brent.dennis@BWDengineering.com>; Ruby Munro <rubymunro@gmail.com>; Terry Ingram <terryingram@me.com>
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Hi Bryer,

I think it would be best for to respond to Island Health directly as the concerns and questions were technical ones related to your report. There may need to be further clarification. Her contact information:

Heather Florence, CPHI(C)
Regional Environmental Health Consultant
Island Health, Health Protection-Environmental Services
4th Floor, 238 Government Street | Duncan, BC V9L1A5
Ph: 250.737.2010 | Fax: 250.737.2008
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Cc: Kim Stockdill; Brent Dennis; Ruby Munro; Terry Ingram
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Robert,

Point of clarification: I do not have the e-mail address for Heather Florence, Regional Environmental Health Consultant. Are you going to submit my response to her for consideration?

Regards,

Bryer Manwell
Cell: 250-878-2030

From: Robert Kojima <rkojima@islandstrust.bc.ca>
Sent: September 27, 2018 12:31 PM
To: Bryer Manwell <bryer@westernwater.ca>
Cc: Kim Stockdill <kstockdill@islandstrust.bc.ca>; Brent Dennis <brent.dennis@BWDengineering.com>; Ruby Munro <rubymunro@gmail.com>; Terry Ingram <terryingram@me.com>
Subject: RE: Hydrogeological Report - 1645 Sturdies Bay Road, Galiano

Thanks Bryer, this appears thorough to my non-hydrogeologist's eye. Hopefully this will address Island Health's concerns.

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Kim Stockdill

Island Planner

Islands Trust

200 – 1627 Fort Street

Victoria, BC V8R 1H8

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Preserving Island communities, culture and environment since 1974

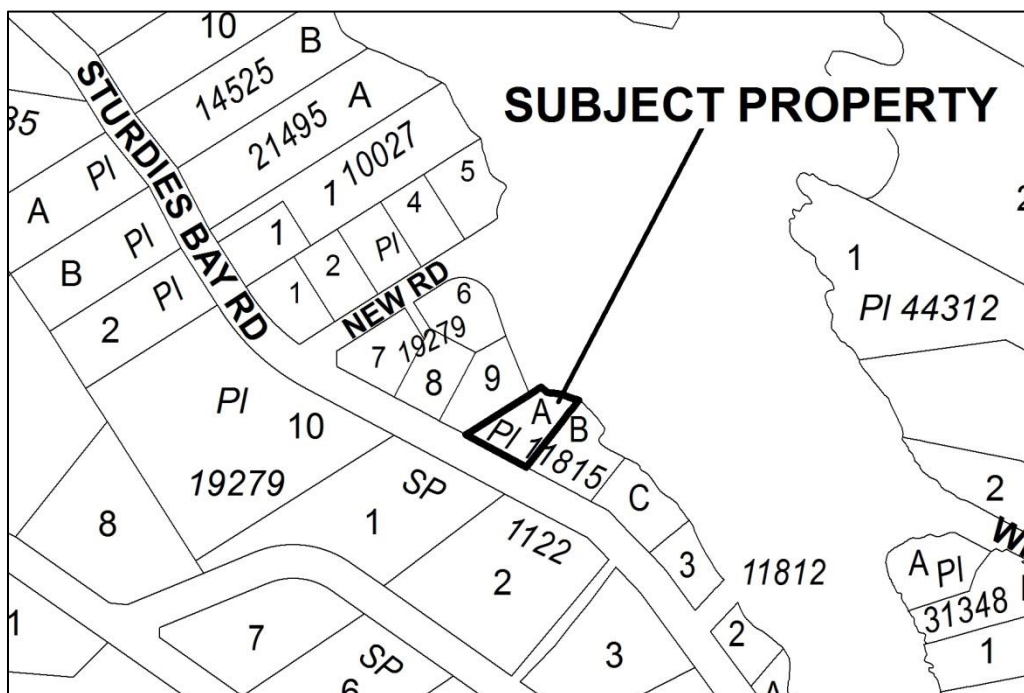
NOTICE
GL-DVP-2018.3
GALIANO ISLAND LOCAL TRUST COMMITTEE

NOTICE is hereby given that the Galiano Island Local Trust Committee will be considering a resolution allowing for the issuance of a Development Variance Permit, pursuant to Section 499 of the *Local Government Act*. The proposed permit would vary the Galiano Island Land Use Bylaw No.127, 1999, by varying:

- a) Section 2.15 which states that sewage absorption fields must be sited at least 30.0 metres from the natural boundary of the sea and for any well is varied to permit a sewage absorption field within 17.3 metres of the natural boundary of the sea and 19.0 metres from a well.

The property is located at **1645 Sturdies Bay Road** and is legally described as Lot A, Section 7, Galiano Island, Cowichan District, Plan 11815 (PID: 000-641-227).

The general location of the subject properties is shown on the following sketch.



A copy of the proposed permit may be inspected at the Islands Trust Office, 200 - 1627 Fort Street, Victoria, B.C. V8R 1H8 between the hours of 8:30 a.m. to 4:30 p.m. Monday to Friday inclusive, excluding statutory holidays, commencing **October 1, 2018** and continuing up to and including **October 12, 2018**.

For the convenience of the public only, and not to satisfy Section 499 (2) (c) of the *Local Government Act*, additional copies of the Proposed Permit may be inspected at various Notice Boards on Pender Island.

Enquiries or comments should be directed to Kim Stockdill, Island Planner at (250) 405-5194, for Toll Free Access, request a transfer via Enquiry BC: In Vancouver 660-2421 and elsewhere in BC 1-800-663-7867; or by fax (250) 405-5155; or by email to: information@islandstrust.bc.ca before 4:30 pm, **October 12, 2018**.

The Galiano Island Local Trust Committee may consider a resolution allowing for the issuance of the permit during the regular business meeting starting at **12:30 p.m., October 15, 2018**, at the **North Community Hall**, on Galiano Island.

All applications are available for review by the public. Written comments made in response to this notice will also be available for public review.



PROPOSED

GALIANO ISLAND LOCAL TRUST COMMITTEE DEVELOPMENT VARIANCE PERMIT GL- DVP-2018.3

To: Terry Ingram & Ruby Munro

1. This Development Variance Permit applies to the land described below:

Lot A, Section 7, Galiano Island, Cowichan District, Plan 11815
(PID: 000-641-227)

2. Galiano Island Land Use Bylaw 127, 1999 is varied as follows:

- a) Section 2.15 which states that sewage absorption fields must be sited at least 30.0 metres from the natural boundary of the sea and from any well is varied to permit a sewage absorption field within 17.3 metres of the natural boundary of the sea and 19.0 metres from a well as shown on Schedule 'A'.

The development shall be consistent with Schedule 'A' attached to and forming part of this permit.

3. This permit is not a building permit and does not remove any obligation on the part of the permittee to comply with all other requirements of the "Galiano Island Land Use Bylaw 127,1999" and to obtain other approvals necessary for completion of the proposed development, including approval of the Capital Regional District, Island Health and Ministry of Transportation and Infrastructure.

AUTHORIZING RESOLUTION PASSED BY THE GALIANO ISLAND LOCAL TRUST COMMITTEE THIS ##th DAY OF MONTH, YEAR.

Deputy Secretary, Islands Trust

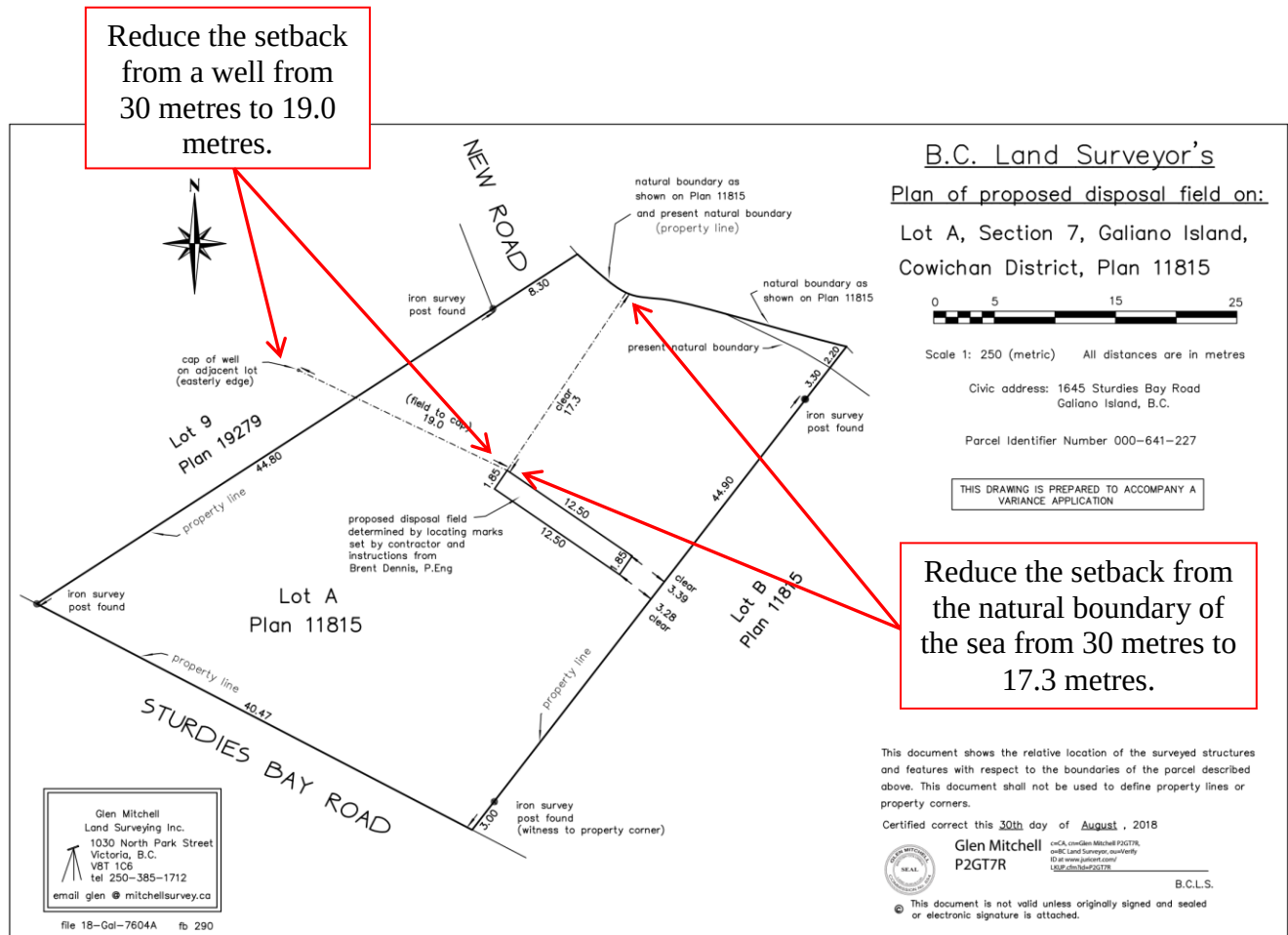
Date of Issuance

**IF THE DEVELOPMENT DESCRIBED HEREIN IS NOT COMMENCED BY THE ##th DAY OF MONTH, YEAR
, THIS PERMIT AUTOMATICALLY LAPSES.**

GALIANO ISLAND LOCAL TRUST COMMITTEE

GL-DVP-2018.3

SCHEDULE 'A'





File No.: GL-DP-2018.1 (Galiano Green)

DATE OF MEETING: October 15, 2018

TO: Galiano Island Local Trust Committee

FROM: Kim Stockdill, Island Planner
Southern Team

COPY: Robert Kojima, Regional Planning Manager

SUBJECT: Report subject: DPA 1 – Riparian Areas & DPA 5 – Sensitive Ecosystem
Applicant: Galiano Community Housing Association
Location: 409 Porlier Pass Road (Lot 1, District Lot 3, Galiano Island, Cowichan District, Plan 29196)

RECOMMENDATION

- 1. That the Galiano Island Local Trust Committee approve issuance of Development Permit GL-DP-2018.1 (Galiano Green).**

REPORT SUMMARY

This report is to consider a Development Permit (DP) application.

The application is required as the applicant is subdividing the property and requires a DP for Development Permit Area (DPA) 1 – Riparian Areas and DPA 5 – Sensitive Ecosystem (Riparian).

Copies of the Development Permit Area Checklist and proposed Development Permit GL-DP-2018.1 (Galiano Green) are attached.

In summary, the above recommendation is supported as the objectives and specific guidelines of the DPAs have been met, and all recommendations of a Riparian Areas Regulation (RAR) Assessment have been incorporated into the proposed DP.

BACKGROUND

The applicants have applied for a subdivision in order to create 20 bare land strata lots with common property and a park. As a condition for final subdivision, the applicants must receive a development permit.

The subject property is 4.05 ha in area and has access from both Porlier Pass Road and Georgeson Bay Road. Putter Creek runs along the north edge of the property and Porlier Pass Road. The subject property is currently bare land with an existing unused well.

There are three DPAs located on the property:

DPA 1 – Riparian Area;

DPA 5 – Sensitive Ecosystem (Riparian and Wetland) – Property exempt from Wetland DPA due to lack of sensitive ecosystem; and

DPA 7 – Steep Slope (Moderate) – Property exempt from this DPA.

The applicant has provided a Riparian Areas Regulation Assessment Report (dated September 7, 2018) prepared by Kathleen Reimer (attached).

ANALYSIS

Islands Trust Policy Statement:

3.1.3 Local Trust Committees and Island Municipalities shall, in their official community plans and regulatory bylaws, address the identification and protection of the environmentally sensitive areas and significant natural sites, features and landforms in their planning area.

3.1.4 Local Trust Committees and Island Municipalities shall, in their official community plans and regulatory bylaws, address the planning, establishment, and maintenance of a network of protected areas that preserve the representative ecosystems of their planning area and maintain their ecological integrity.

3.3.2 Local Trust Committees and Island Municipalities shall, in their official community plans and regulatory bylaws, address means to prevent further loss or degradation of freshwater bodies or watercourses, wetlands and riparian zones and to protect aquatic wildlife.

Official Community Plan:

The subject property is designated as **Community Housing (CH)** in the Galiano Island Official Community Plan Bylaw No. 108, 1995.

DPA 2 – Riparian Areas is designated on the property as shown in Attachment 2.3. The riparian area is located around Putter Creek along the northern border of the property. The applicant has provided a RAR Assessment report in support of the application.

DPA 5 – Sensitive Ecosystems (riparian and wetland) is designated on the property as shown in Attachment 2.4. The riparian sensitive ecosystem is located in the same location as the riparian area (DPA 1). DPA 5 notes a small wetland sensitive ecosystem in the middle of the property. After a site visit completed by staff and the applicant in early September, staff determined the absence of the wetland. Therefore the primary focus of DPA 5 will be for the riparian area. The RAR Assessment has been used to address this DPA.

DPA 7 – Steep Slopes (moderate) is designation on the property as shown in Attachment 2.5. This application does not address this DPA as subdivision is exempt. If any future land alteration is planned within the DPA, a development permit may be required.

A completed Development Permit Area Checklist is attached for both DPA 1 and DPA 5.

Land Use Bylaw:

The property is zoned as **Community Housing 1 (CH1)** in the Galiano Island Land Use Bylaw No. 127, 1999.

Issues and Opportunities

DPA Objectives & Guidelines:

The proposal is compliant with the overall objectives of the DPAs “to protect riparian areas from development so that the areas can provide natural features, functions and conditions that support fish life processes.”

Analysis of the proposal’s conformity with the guidelines of DPA 1 & 5 is contained within ‘DPA Checklist’ (Attachment 3).

Scope of Development

The proposed development is a 20 bare land strata lot subdivision. There is no land alteration proposed within the SPEA for the subdivision except for the maintenance of an existing access off of Porlier Pass Road. It was confirmed by the R.P.Bio (Kathleen Reimer) that driveways may be maintained within the SPEA but no further encroachment is permitted unless a supplementary RAR Assessment has been submitted.

RAR Assessment Report

As a requirement of provincial Riparian Areas Regulations, the RAR Assessment Report was prepared and submitted to the Province (Ministry of Forest, Lands, Natural Resource Operations & Rural Development) by Kathleen Reimer, R.P.Bio. (Attachment 5).

The RAR assessment report established the Streamside Protection and Enhancement Area (SPEA) on the property and measures for protection and enhancement of that area. The SPEA was assigned at 30 metres perpendicular from the high water mark of Putter Creek, a fish bearing stream. The SPEA is to remain in an undisturbed, natural state and therefore the R.P.Bio recommends the installation of a fence along the boundary of the SPEA (this has been added as a condition of the DP).

In the RAR Assessment report, the R.P.Bio states that the water supply for the subdivision is from a drilled well therefore no water will be used from the creek. Staff followed up with the R.P.Bio to clarify that the intent is for the subdivision (future dwelling units) to use rainwater catchment was the primary source of potable water, and if the R.P.Bio had any concerns with this in regards to the RAR stream. The R.P.Bio responded that she had no concerns related to rainwater collection but was more concerned with diverting storm water from the buildings and roads directly into Putter Creek. This concern has been addressed by adding a condition in the DP that states no storm water may be discharged directly into the SPEA.

The report prescribes protection measures for Danger Trees, Tree Protection, Encroachment, Sediment and Erosion Control, Storm water Management, and Monitoring. All of the relevant recommendations included in the RAR assessment report have been incorporated into the proposed DP.

Adherence to the conditions of the DP and monitoring will mitigate impacts from the proposed development to the riparian areas within the SPEA and benefit of the property as a whole. The report concluded the following:

If the SPEA identified in the Assessment Report is protected from the development proposed and the measures identified in this Assessment Report as necessary to protect the integrity of those areas from the effects of the development are implemented by the developer, there will be no harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes in the riparian assessment area in which the development is proposed.

Consultation

There is no public or agency consultation regularly associated with a Development Permit application. In addition, there is no statutory notification required.

Rationale for Recommendation

Based on the conclusions and recommendations of the RAR assessment report that complies with the DPA guidelines, staff is recommending that the LTC approve issuance of Development Permit GL-DP-2018.1 (Galiano Green) as per the resolution on Page 1.

ALTERNATIVES

1. Request further information

The LTC may request further information prior to making a decision. Staff advise that if selecting this alternative, the LTC should describe the specific information needed and the rationale for this request.

Recommended wording for the resolution is as follows:

That the Galiano Island Local Trust Committee request that the applicant submit to the Islands Trust - _____.

2. Deny the application

The LTC may deny the application if a DP guideline has not been met. If this alternative is selected, the LTC should state the guideline(s) that has not been met.

Recommended wording for the resolution is as follows:

That the Galiano Island Local Trust Committee deny application GL-DP-2018.1 (Galiano Green) as Guideline _____ of the Galiano Island Official Community Plan Bylaw No. 108, 1995 as not been met.

Submitted By:	Kim Stockdill, Island Planner	October 5, 2018
Concurrence:	Robert Kojima, Regional Planning Manager	October 9, 2018

ATTACHMENTS

1. Site Context
2. Maps & Photographs
3. DPA Checklist
4. QEP Checklist & Additional Comments
5. Riparian Areas Regulation (RAR) Assessment Report (Kathleen Reimer, September 7, 2018)
6. Development Permit

ATTACHMENT 1 – SITE CONTEXT

LOCATION

Legal Description	LOT 1, DISTRICT LOT 3, GALIANO ISLAND, COWICHAN DISTRICT, PLAN 29196
PID	001-416-987
Civic Address	409 PORLIER PASS RD

LAND USE

Current Land Use	Bare land, Community Housing 1 zoning
Surrounding Land Use	Agriculture, Rural Residential, Community Housing

HISTORICAL ACTIVITY

File No.	Purpose
GL-RZ-2011.1	Rezoned and re-designated the subject property to Community Housing for the purpose of allowing a rezoning that would provide for up to 20 affordable housing units constructed on 20 bare land strata lots.
GL-ALR-2011.1	To exclude a portion of the property from the ALR. Exclusion from the ALR was finalized in August 2018.
GL-SUB-2017.1	To subdivide the property into a 20 lot bare land strata. This application is in process.
GL-DVP-2018.1	To vary Section 13.24 of the Land Use Bylaw. This application is in process.

POLICY/REGULATORY

Official Community Plan Designations	North Pender Island Official Community Plan No.171, 2007: • CH – Community Housing designation and • Development Permit Area 1– Riparian Areas • Development Permit Area 5 – Sensitive Ecosystem • Development Permit Area 7 – Steep Slopes (Moderate)
Land Use Bylaw	The property is zoned Community Housing 1 (CH1) .
Other Regulations	Housing Agreement Bylaw 261
Covenants	CA6063082 – LTC Covenant CA6874957 & CA6874959 ALC Covenants
Bylaw Enforcement	N/A

SITE INFLUENCES

Islands Trust Fund	The proposal has no implications for the Island Trust Fund.
Regional Conservation Strategy	The proposal has no implications for the Regional Conservation Strategy.
Species at Risk	None identified through Riparian Area Regulations (RAR) Assessment Report (Biologist's report).
Sensitive Ecosystems	Riparian and Wetland. See DPA 5 Mapping (Attachment 2.4).
Hazard Areas	Areas of moderate slope hazard on the property (Attachment 2.5)

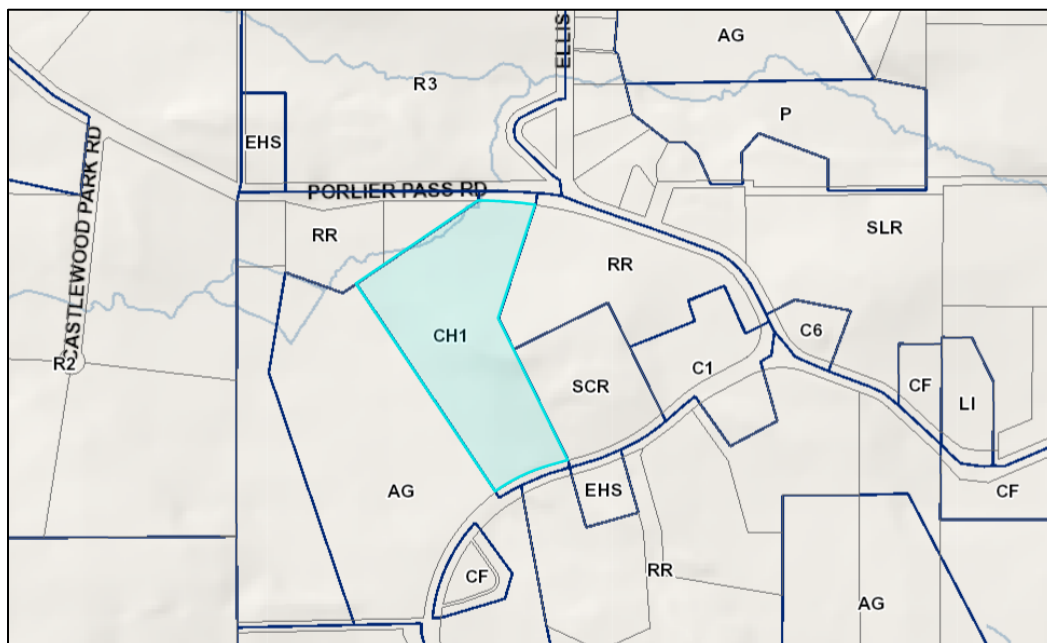
Archaeological Sites	There are no archaeological sites identified on the provincial RAAD site. Notwithstanding the foregoing, and by copy of this report, the owners and applicant should be aware that there is still a chance that the lot may contain previously unrecorded archaeological material that is protected under the <i>Heritage Conservation Act</i> . This would most likely be indicated by the presence of areas of dark-stained soils containing conspicuous amounts of fire-stained or fire-broken rock, artifacts such as arrowheads or other stone tools, or even buried human remains. If such material is encountered during development, all work should cease and Archaeology Branch should be contacted immediately as a <i>Heritage Conservation Act</i> permit may be needed before further development is undertaken. This may involve the need to hire a qualified archaeologist to monitor the work.
Climate Change Adaptation and Mitigation	The proposal is for establishing a 30 metre SPEA will help offset greenhouse gas emissions.
Shoreline Classification	Not Applicable
Shoreline Data in TAPIS	N/A

ATTACHMENT 2 – MAPS, PLANS, DRAWINGS, PHOTOGRAPHS

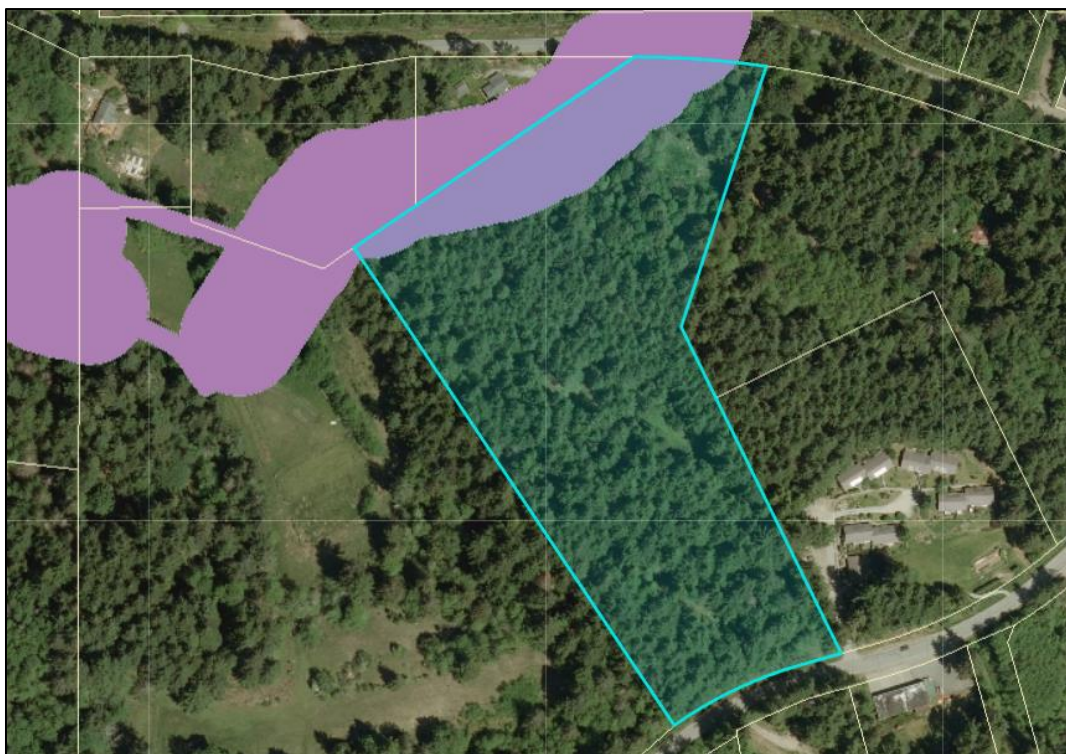
2.1 ORTHOPHOTO



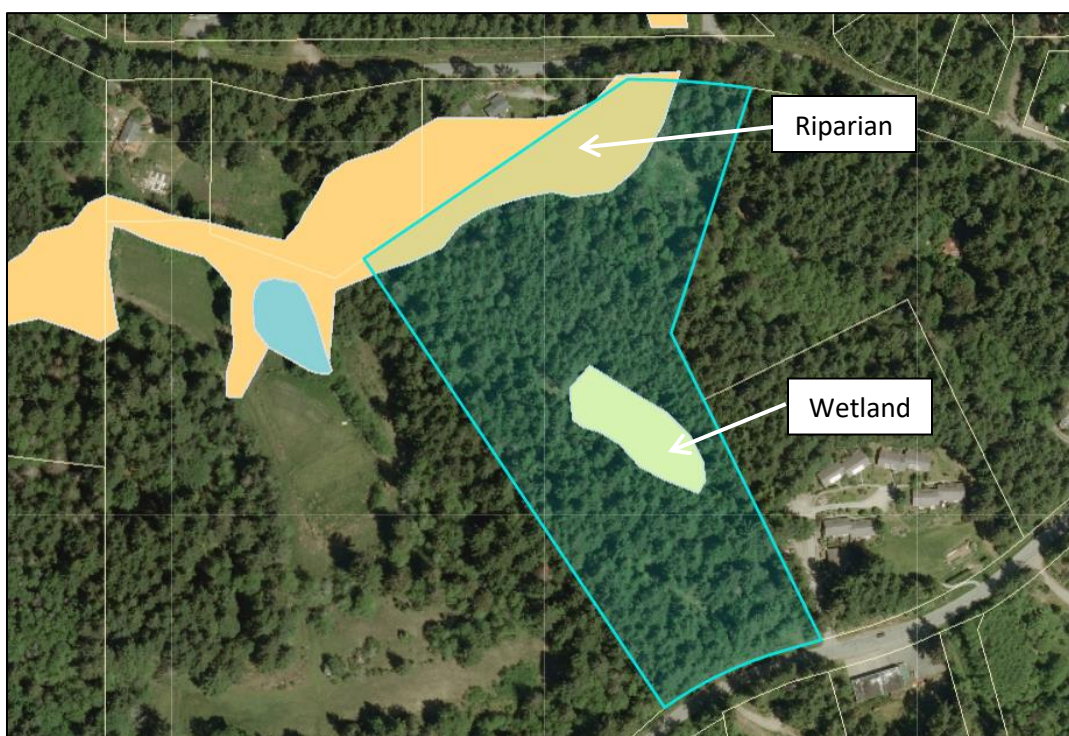
2.2 ZONING



2.3 DPA 1 – RIPARIAN AREAS



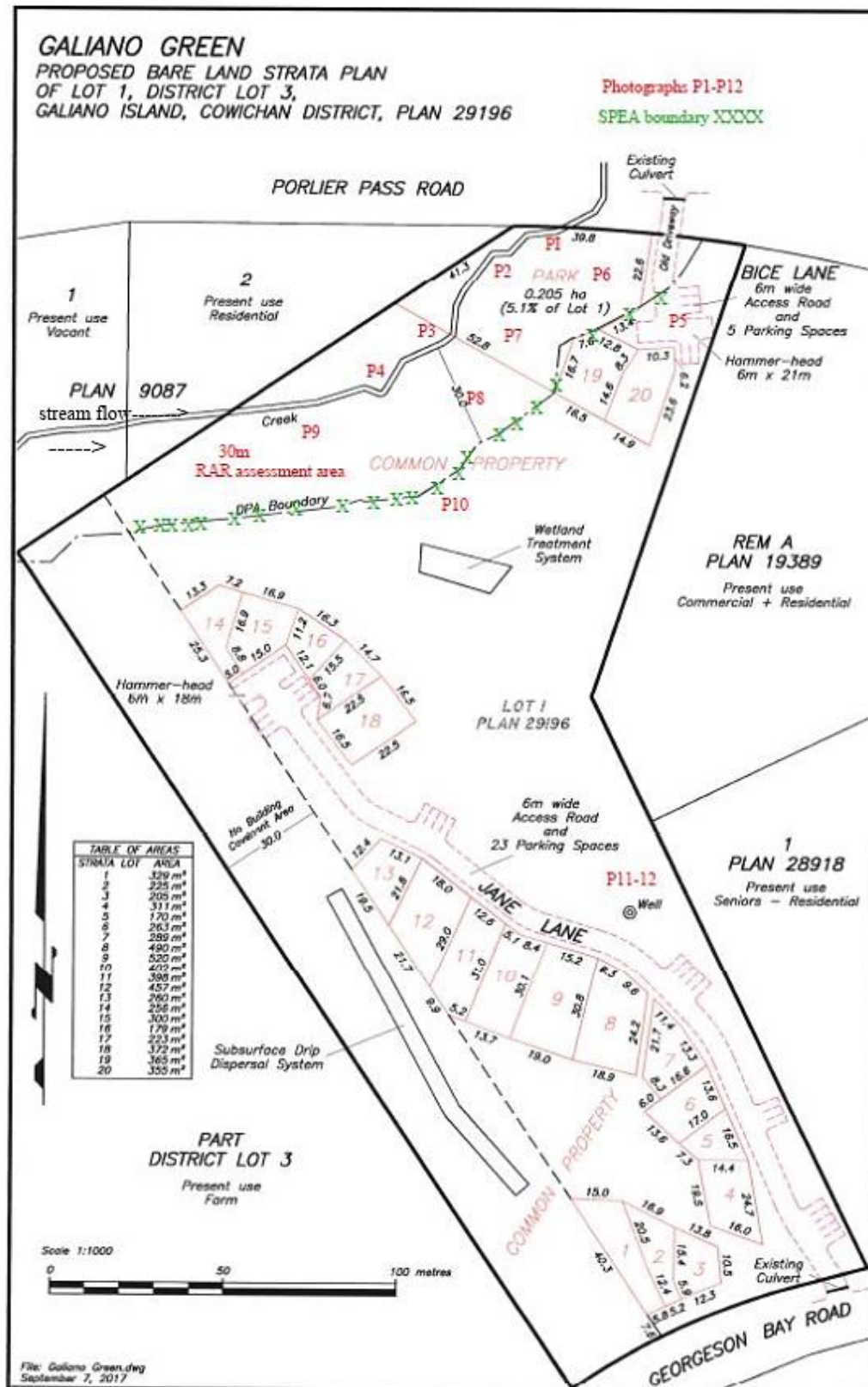
2.4 DPA 5 – SENSITIVE ECOSYSTEMS



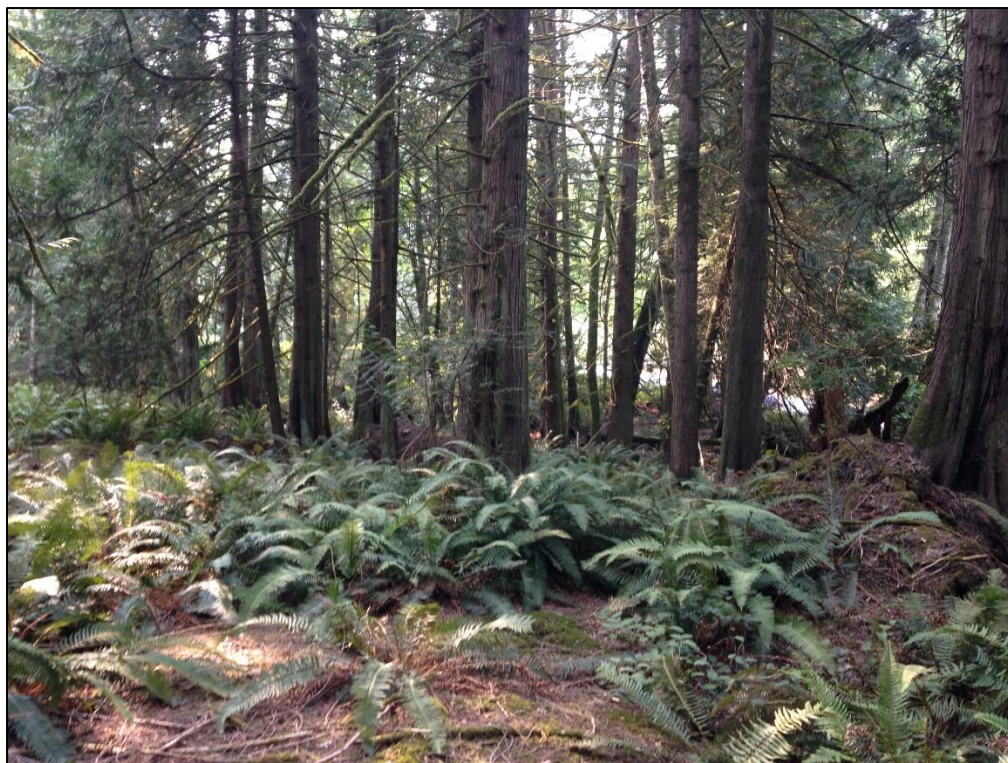
2.5 DPA 7 – STEEP SLOPES (MODERATE)



2.6 BIOLOGIST'S MAP



2.7 PHOTOGRAPHS



30 metre SPEA area (to be park)



RAR Stream-bed (photo taken in September 2018 during dry season)

2.6 PHOTOGRAPH S (CONTINUED)



RAR Stream-bed (photo taken in September 2018 during dry season)

ATTACHMENT 3 – DEVELOPMENT PERMIT AREA 1 CHECKLIST

Galiano Island
OCP Bylaw No. 108, 1995
Riparian Areas Development Permit Area (DPA 1)
Guideline Checklist

Guideline	Complies			Comments
	Yes	No	N/A	
Guideline a: In general, all development in this DPA should be undertaken in a manner that minimizes impact on the riparian area, water bodies and ecosystems. Where a Qualified Environmental Professional (QEP) or other professional has made recommendations for mitigation measures, enhancement or restoration in order to lessen impacts on the riparian area and ecosystems, the Local Trust Committee may impose permit conditions, including a requirement for security in the form of an irrevocable letter of credit, to ensure the protection of riparian areas and ecosystems consistent with the measures and recommendations described in the report.	☒	☐	☐	Riparian Areas Regulations (RAR) Assessment Report was prepared by Kathy Reimer, R.P.Bio. Conditions based on recommended measures in RAR Assessment Report have been placed in draft permit for Protection of Trees, Encroachment, Sediment and Erosion Control, Stormwater Management, and Monitoring.
Guideline b: The development permit should not allow any development activities, including the storage or application of pesticides and other chemicals for non-essential cosmetic purposes, to take place within any Streamside Protection and Enhancement Area (SPEA) identified by the QEP or riparian buffer recommended by another professional adjacent to a non-RAR applicable watercourse, lake or wetland, and the owner should be required to implement a plan for protecting the SPEA or riparian buffer over the long term through measures that may be implemented as conditions of the development permit	☒	☐	☐	Included in permit conditions.
Guideline c: Where the QEP or other professional's report describes an area as suitable for development with special mitigating measures, the development permit should only allow the development to occur in compliance with the measures described in the report. Monitoring and regular reporting by a QEP or other professional at the applicant's expense may be required during construction and development phases, as specified in a development permit.	☒	☐	☐	Annual monitoring is recommended to be completed by property owner. Condition included in permit.
Guideline d: The following guidelines are applicable to floats and associated structures within the development permit area: i) floats should not be placed in areas identified as important to fish life processes where installation of a float would compromise the functioning of the processes; ii) a ramp or float should not rest on the bed of the water body; iii) the use of treated wood in the water body should be avoided; iv) floatation material should be contained within a durable shell to prevent disintegration; v) pervious surfacing should be used on ramps and floats (e.g. grating or separated boards); vi) any areas disturbed during installation should be restored; vii) where a float is being replaced, all old materials should be removed from the riparian area.	☐	☐	☒	

Guideline	Complies			Comments
	Yes	No	N/A	
Guideline e: If the nature of the proposed project within the DPA changes after the professional report has been prepared such that it is reasonable to assume that the professional's assessment of the impact of the development may be affected, the Local Trust Committee may require the applicant to have the professional update the assessment at the applicant's expense and DP conditions may be amended accordingly.	☒	☐	☐	Included in permit (Point #3).
Guideline f: The Local Trust Committee may consider variances to subdivision or siting or size regulations where the variance may result in enhanced protection of a SPEA, riparian buffer or riparian ecosystem in compliance with recommendations of a professional's report	☐	☐	☒	

ATTACHMENT 3 – DEVELOPMENT PERMIT AREA 5 CHECKLIST

Galiano Island

OCP Bylaw No. 108, 1995

Sensitive Ecosystems Development Permit Area (DPA 5)

Guideline Checklist

Guideline	Complies			Comments
	Yes	No	N/A	
a) Avoid development being located in areas containing important, rare or fragile sensitive ecosystems or habitat where reasonable alternative sites exist.	☒	☐	☐	
b) Minimize the area cleared and disturbed for development.	☒	☐	☐	
c) Retain large, connected undisturbed areas, with connections and corridors providing continuity between sensitive ecosystems and important habitat.	☐	☐	☒	
d) Site buildings and associated infrastructure to allow sufficient undisturbed space around significant mature or established trees to protect root systems.	☐	☐	☒	
e) Retain undeveloped buffer areas around sensitive ecosystems, features or habitat where feasible. Buffer areas should be of sufficient width to limit access by invasive plants.	☒	☐	☐	30 metre SPEA around RAR stream.
f) Natural features may be retained through incorporation into the design of the development. In particular, unique or special natural features such as native grasses, rare plants, unique land forms, rock outcroppings, mature trees, spits and dunes should be protected.	☐	☐	☒	
g) Preserve native grasses, rare plants, and wildflower ecosystems and associated soils.	☐	☐	☒	
h) Avoid the planting or introduction of non-native plants. The use of drought resistant and native plants in landscaping should be encouraged.	☐	☐	☒	
i) Avoid removal of mature and old trees, dead and declining trees and the root systems of trees.	☒	☐	☐	Condition of permit for danger trees within SPEA.
j) Protect denning and nesting sites of rare, threatened or endangered species.	☐	☐	☒	
k) Minimize soil removal and deposit.	☒	☐	☐	Condition in permit.
l) Avoid alteration of natural drainage systems in ways that increase or decrease the amount of water available to a sensitive ecosystem.	☐	☐	☒	
m) Locate septic fields in a manner that minimizes potential impacts on sensitive ecosystems or habitat.	☐	☐	☒	
n) Limit driveways and other accesses to the number required for safe access, with shared driveway access where feasible. Driveway lengths and widths should be limited to the minimum necessary. The use of impervious surfaces should be discouraged.	☒	☐	☐	
o) Limit shoreline structural modifications in scale and extent to structures necessary to support or protect an existing use or structure.	☐	☐	☒	
p) Preference should be given to shoreline modifications that have a minimal impact or enhance ecological functions, including vegetation enhancement, upland drainage control, beach enhancement or nourishment, anchor trees, or gravel placement. Harder construction measures should be avoided.	☐	☐	☒	

Guideline	Complies			Comments
	Yes	No	N/A	
q) Shoreline stabilization should not interrupt natural processes solely to reduce erosion of undeveloped land. Vegetation which helps stabilise banks, reduce erosion and provides habitat should be retained or enhanced.	☐	☐	☒	
r) Limit stairs, walkways and other access within a sensitive ecosystem adjacent to the shoreline to those required for safe access, with shared access where feasible. Stairs should incorporate landings, follow the existing contours of the site, utilize small concrete pilings and have gaps between boards.	☐	☐	☒	
s) In addition to the other guidelines, the following guidelines apply specifically to applications within a woodland sensitive ecosystem:				
i) Protect large mature and old trees, trees containing cavities, the root systems of trees, rare plant species, native grasses and associated under-storey vegetation.	☐	☐	☒	
ii) Avoid unnecessary removal of dead or declining trees, downed logs, snags and leaf litter.	☐	☐	☒	
iii) Where feasible, cut dangerous trees to a level where they are safe rather than removed entirely.	☐	☐	☒	
t) In addition to the other guidelines, the following specific guidelines apply to applications within a wetland ecosystem:				
i) Avoid filling or draining of permanent or seasonally wet areas.	☐	☐	☒	
ii) Retain wetland vegetation and structure.				
iii) Avoid locating roads, driveways and utility corridors through wetland ecosystems; where crossings have to be located within the ecosystem the crossing should, to the extent feasible:	☐	☐	☒	
• Be narrow and perpendicular to a wetland ecosystem;	☐	☐	☒	
• Share facilities;	☐	☐	☒	
• Minimize impacts on water bodies;	☐	☐	☒	
• Conform to topography to minimize cut and fill;	☐	☐	☒	
• Not restrict the natural movement of surface and groundwater;	☐	☐	☒	
• Have appropriate native vegetation planted on shoulders to provide screening and assist soil stability.	☐	☐	☒	
iv) Conduct construction involving disturbance of soil in such a manner as to avoid direct run-off into wetlands.	☐	☐	☒	
v) Avoid disruption of natural hydrologic cycles and natural aquatic processes, including water flows, seasonal flooding, channel movements, windthrow or natural slope.	☐	☐	☒	
vi) Maintain vegetation cover which helps stabilize banks and reduce erosion and provides habitat.	☐	☐	☒	
vii) Avoid removal of vegetation that would reduce the natural functions of the sensitive ecosystem.	☐	☐	☒	
viii) Avoid alteration of vernal pools to create year-round water features.	☐	☐	☒	
u) In addition to the other guidelines, the following specific guidelines apply to applications within a cliff ecosystem:				
i) Maintain talus and rock debris that occurs at the base of rock outcroppings.	☐	☐	☒	
ii) Protect the faces of rock outcrops and cliffs.	☐	☐	☒	

Guideline	Complies			Comments
	Yes	No	N/A	
v) The following guidelines are applicable to any subdivision proposal within the Sensitive Ecosystem development permit area:				
i) Where feasible, protect sensitive ecosystems and habitat by clustering lots in areas with disturbed or modified ecosystems.	☒	☐	☐	
ii) Proposed lots containing sensitive ecosystems and habitats should be of sufficient size to accommodate the permitted level of development, including driveway access and septic disposal systems, while also avoiding alteration and fragmentation of the sensitive ecosystems and habitat.	☐	☐	☒	
iii) Protect sensitive ecosystems and habitat from clearing, grading and filling during the land development and construction phases of subdivision. Permit conditions may include requirements for fencing, signs and timing of work.	☒	☐	☐	Conditions in permit.
iv) Make provision for any recommended buffer areas adjacent to sensitive ecosystems and habitat.	☒	☐	☐	30 metres SPEA around Putter Creek.
v) Configure lots to minimize driveway lengths within sensitive ecosystems. The provision of shared driveways may be considered as a condition of a permit if it can reduce impacts on sensitive ecosystems and habitat.	☐	☐	☒	
vi) A community water system, as an alternative to individual wells, may be considered as a condition of a permit where this would result in reduced impacts on sensitive ecosystems and habitat.	☐	☐	☒	
vii) Locate septic disposal sites in a manner that minimizes potential impacts on sensitive ecosystems and habitat.	☒	☐	☐	
viii) Design storm water management systems, where proposed, in a manner that avoids the impacts of run-off on sensitive ecosystems and habitat.	☒	☐	☐	Condition of permit.
ix) Where applicable, configure lots to allow the siting of docks and stairs to the foreshore with minimal impact on sensitive shoreline and intertidal areas.	☐	☐	☒	
x) Pre-designation of building sites, septic disposal fields and driveways may be considered as a condition of a permit where this would result in reduced impacts on sensitive ecosystems and habitat.	☐	☐	☒	
w) In general, where a professional's report describes an area as suitable for development with special mitigating measures, the development permit should only allow the development to occur in compliance with the measures described in the report. Conditions of a permit may include:				
i) the designation of areas within which no development shall occur;	☒	☐	☐	30 metre SPEA.
ii) requirements of building siting, size, design or construction that would minimize impacts, protect or enhance sensitive ecosystems or habitat;	☐	☐	☒	
iii) use of native vegetation in landscaping;	☐	☐	☒	
iv) the use of pervious surfaces;	☐	☐	☒	
v) the placement of permanent or temporary fencing around sensitive features;	☒	☐	☐	Fencing of SPEA boundary condition of permit.
vi) fencing, flagging and posting of notices during construction;	☒	☐	☐	Fencing of SPEA boundary condition of permit.
vii) limits on blasting in sensitive areas;	☐	☐	☒	
viii) limits on construction timing;	☐	☐	☒	

Guideline	Complies			Comments
	Yes	No	N/A	
ix) provision of works to maintain or restore the quantity or quality of water reaching environmentally sensitive areas or habitat;	☒	☐	☐	Stormwater discharge a condition of permit.
x) restoration or enhancement of disturbed sensitive ecosystems and habitat;	☐	☐	☒	
xi) the layout of lots, including clustering, driveways, access routes, and septic disposal facilities in a plan of subdivision.	☒	☐	☐	
x) Where restoration or enhancement work is required as a condition of a permit, the applicant may be required to provide to the Islands Trust a security deposit, in the form of an irrevocable letter of credit, equal to 125% of the estimated costs of all materials and labour, as determined by a professional with relevant experience.	☐	☐	☒	
y) The Local Trust Committee may consider variances to subdivision or building siting or size regulations where the variance may result in protection of a sensitive ecosystem or habitat.	☐	☐	☒	

DPA CHECKLIST and QEP comments

RIPARIAN AREAS DEVELOPMENT PERMIT AREA (DPA 1)			Office Use only
	Information and Documentation Required	✓	
Site Plan	Professionally prepared plan at an appropriate scale and based on a legal survey, containing the following:	X	attached
	The proposed development and associated features	X	
	The development permit area boundary	X	surveyed on plan
	Existing buildings and structures		none
	Roads and driveways		partial
	Topographic features		
	The locations of the top of bank	X	30m from top of bank
	The high water mark		
	SPEA widths and the width of any zones of sensitivity		N/A simple assessment
	Where development would occur on slopes exceeding 20% grade: site profiles and cross sections demonstrating terrain conditions prior to disturbance		N/A
Site Inventory	A site inventory providing a description and evaluation of the riparian values, including species of fish that frequent the waterbody, and riparian features and habitat present	X	

1. Site Plan Comments

The attached Riparian Areas Assessment report and site plan show all the features of the proposed strata development. The 30m DPA boundary is also The Stream Protection and Enhancement (SPEA) boundary. A Simple Riparian Area assessment was completed as there is no further development planned for the Development Permit Area. There is an existing short section of the north driveway that is within the boundary.

The riparian area is at an elevation of approximately 30-36 meters above sea level and the streambed slopes are approximately 2-3%. There were no zones of sensitivity calculated since these are not required for a simple assessment.

There are no steep slopes near the riparian area.

2. Site Inventory

Putter Creek has a small population of cutthroat trout. These fish were identified when a former manager of the Golf Course noticed them in the ponds. These may be the same population as the sea run cutthroat that have been found in Murcheson Creek. Because there is no summer water on the section of the creek at the proposed housing project, the fish would rear in the existing ponds or in the estuary in Whaler Bay.

The Riparian vegetation consists of a pristine second growth Cedar forest with a salal and sword fern understory. There is no evidence of any erosion or unstable stream banks. At present there are no trails through the DPA. Any future trails would require input from a Riparian QEP.

Development Proposal	A description of the proposed development detailing construction, cut and fill, blasting, road or driveway construction, vegetation clearing, alteration to hydrological systems, alterations affecting the watercourse, septic field installation, landscaping, or other land alteration during or after the development phase. Alternative development options.		There is no new development planned inside the SPEA
Impact Assessment	An assessment of the nature and extent of the impact of the proposed development consisting of the following:		
	For a stream: the results of the riparian assessment, using a detailed or simple assessment as indicated in the Riparian Areas Regulation, and establishing the Streamside Protection and Enhancement Area (SPEA) width for the subject parcel.		RAR simple assessment was completed
	For other watercourses: an assessment of anticipated impacts on riparian habitat and features, the watercourse, and site hydrology.		
	The assessment should identify impacts stemming from the construction phase, the intended long-term use of the site, and any cumulative impacts of development		Fencing of the SPEA will prevent future damage

3. Development Proposal

There is no new development planned near or within the Riparian DPA. The south driveway is outside the 30m DPA, (SPEA) boundary. The existing driveway off Porlier Pass Road is already developed. It is 6m wide and passes through a corner of the future Park land dedication. One of the proposed lots- #19 will be adjacent to the SPEA on the park. There is no blasting planned near the DPA.

4. Impact Assessment

The present RAR report deals with the housing proposal only. Any future activity that could impact the riparian area within the SPEA on the strata property or in the new park would require a new assessment. A QEP should be consulted if any site plan changes are made that could impact the SPEA. For example trails are considered to be “development” under the Riparian Areas regulation.

Measures	For a stream: a description of all measures that will be taken to maintain and protect the SPEA from development, including, where appropriate, assessment and treatment of danger trees, windthrow, slope stability, tree protection during construction, encroachment and sediment and erosion control.	X	see the assessment report
	For other watercourses: recommended measures to limit, mitigate and manage the impacts of the proposed development on riparian habit and features, the watercourse, and site hydrology.		
Monitoring	Recommended monitoring requirements, identifying actions that will be taken to ensure all proposed activities are completed as described, including a monitoring schedule and process for resolving any non-compliance	X	A post development report should be submitted to the The Islands Trust

5. Measures to protect the SPEA.

The SPEA boundary (30m from the top of the stream bank) should be clearly identified and staked by a QEP or a land surveyor. The SPEA should also be appropriately fenced so future strata owners know exactly where the boundary is.

The RAR report mentions that only a certified RAR trained arborist should be consulted if a tree is considered dangerous. Trees within the SPEA can be trimmed to a safe height but the woody debris should be left to provide habitat within the protected area.

There is no evidence of windthrow on the site.

Tree protection, and especially protection of the roots of the trees within a SPEA is always a concern. At the present site, any activity near the SPEA boundary that could impact the SPEA trees should be carefully planned. This will be especially important during the preparation of the two building sites near Porlier Pass Road.

Sediment and erosion control involves prevention of any disposition of excavated or erodible material next to the SPEA boundary.

There must be no disposal of soils or garden waste materials into the SPEA.

There must be no stormwater diverted into the SPEA from the new house sites or any of the strata infrastructures.

6. Monitoring

Although there is no activity planned within the DPA a post development report should be submitted to the Islands Trust upon completion of the preparation of the strata lot building sites.

In the future the strata owners should incorporate monitoring of the covenant as part of their management practises.

RIPARIAN AREAS DEVELOPMENT PERMIT AREA (DPA 1)			Office Use only
	Information and Documentation Required	✓	
Restoration	Recommended actions to restore or enhance riparian functions or habitat that have been degraded prior to development or that would be impacted by the proposed development		There should be no new impacts at this site
Certification	For a stream, professional certification by the Qualified Environmental Professional(s) preparing the report that he or she is qualified to carry out the assessment, that the assessment methods have been followed, and providing his or her professional opinion that:		A RAR trained RPBiologist assessed the site and submitted the assessment report
	i. If the development is implemented as proposed there will be no harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes in the riparian assessment area, or		Yes
	i. If the streamside protection and enhancement areas identified in the report are protected from the development and the measures identified in the report as necessary to protect the integrity of those areas from the effects of the development are implemented by the developer, there will be no harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes in the riparian assessment area.		

FORM 1

Riparian Areas Regulation - Qualified Environmental Professional - Assessment Report

Riparian Areas Regulation: Assessment Report

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

Date **Sept. 7, 2018****I. Primary QEP Information**

First Name	Kathleen	Middle Name	Elaine
Last Name	Reimer		
Designation	RPBiologist	Company : Island Stream and Salmon Enhancement Society	
Registration #	1728	Email salmonkathy@gmail.com	
Address	PO Box 289 Ganges		
City	Salt Spring Island	Postal/Zip	V8K 2V9
Prov/state	BC	Country	Canada
		Phone #	250-537-7580

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

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

III. Developer Information

First Name	Tom	Middle Name	
Last Name	Hennessy		
Company	Galiano Community Housing Association		
Phone #	250-539-2969	Email: hennessyhammock@gmail.com	
Address	637 Southwind Drive		
City	Galiano Island	Postal/Zip	VON 1P0
Prov/state	BC	Country	Canada

IV. Development Information

Development Type	New subdivision		
Area of Development (ha)	2	Riparian Length (m)	150
Lot Area (ha)	4.04	Nature of Development	Strata lots created
Proposed Start Date	In progress	Proposed End Date	2020

V. Location of Proposed Development

Street Address (or nearest town)	409 Porlier Pass Road						
Local Government	Islands Trust				City: Galiano Island		
Stream Name	Putter Creek						
Legal Description (PID)	001-416-987				Region: South coast		
Stream/River Type	stream				DFO Area 18		
Watershed Code	925-3050-00						
Latitude	48	53	29	Longitude	123	20	54

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

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

(Provide as a minimum: Species present, type of fish habitat present, description of current riparian vegetation condition, connectivity to downstream habitats, nature of development, specific activities proposed, timelines)

Putter Creek flows from farm and forest land east into the sea at Whalers Bay (Map 1). This watercourse has a small population of Cutthroat Trout. The fish could be from the same population as the anadromous trout in the larger stream, Murcheson Creek (Map1) which also flows into Whalers Bay. Along Putter Creek there is some spawning habitat upstream of Porlier Pass Road, but on the subject site there is no water in the summer months.

Some of the fish have been reported to spend the summer in the ponds on the Golf Course located downstream of the subject site (P. Mack, personal communication).

The stream bed on the subject property is very natural with good woody debris and other fish habitat present. Upstream of the subject property on agricultural land the channel appears to have been ditched through the fields.

The Riparian Area is a pristine healthy second growth forest with Cedar, alder, and maple trees as well as sword ferns and other shrubs. See Photos 1-10.

The proposed development is for twenty lots of affordable public housing. It will be a strata subdivision with much of the property remaining as common land.

Eighteen of the strata lots will be along the south west side of the property away from the stream. Two lots will be located near Porlier Pass Road where there is an existing driveway. (See site plan Map 4)

The water supply is from a drilled well so there will be no water use from the creek.

The building sites will be partially treed. The run off from the houses will be infiltrated into the ground to prevent direct discharge into the riparian areas.

There will be a green technology waste management system with no discharge into the stream

The development of the lots and services will begin in 2019.

Section 2. Results of Simple Riparian Assessment

Refer to Chapter 2 and Appendix of the Assessment Methods.
Duplicate this form as needed for each assessment report.

Date: Sept. 9,
2018

Stream	☒
Wetland	☐
Lake	☐
Area	☐

1. Existing or Potential Vegetation Category

Trees

I, <u>Kathleen Reimer (RPBiologist)</u> , hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i> ; a) I am qualified to carry out this part of assessment of the development proposal made by the developer, <u>Tom Hennessy, Galiano Community Housing Association</u>
b) c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.

	Yes	No**
2. Fish bearing	☒	☐

**If non fish-bearing, insert non-fish bearing status report:

--

I, <u>Kathleen Reimer (RPBio)</u> , hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i> ; b) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u> ;
b) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and c) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.

3. Stream Flow	Permanent	Non Permanent*
	☒	☐

*If non permanent flow, indicate how this was determined:

--

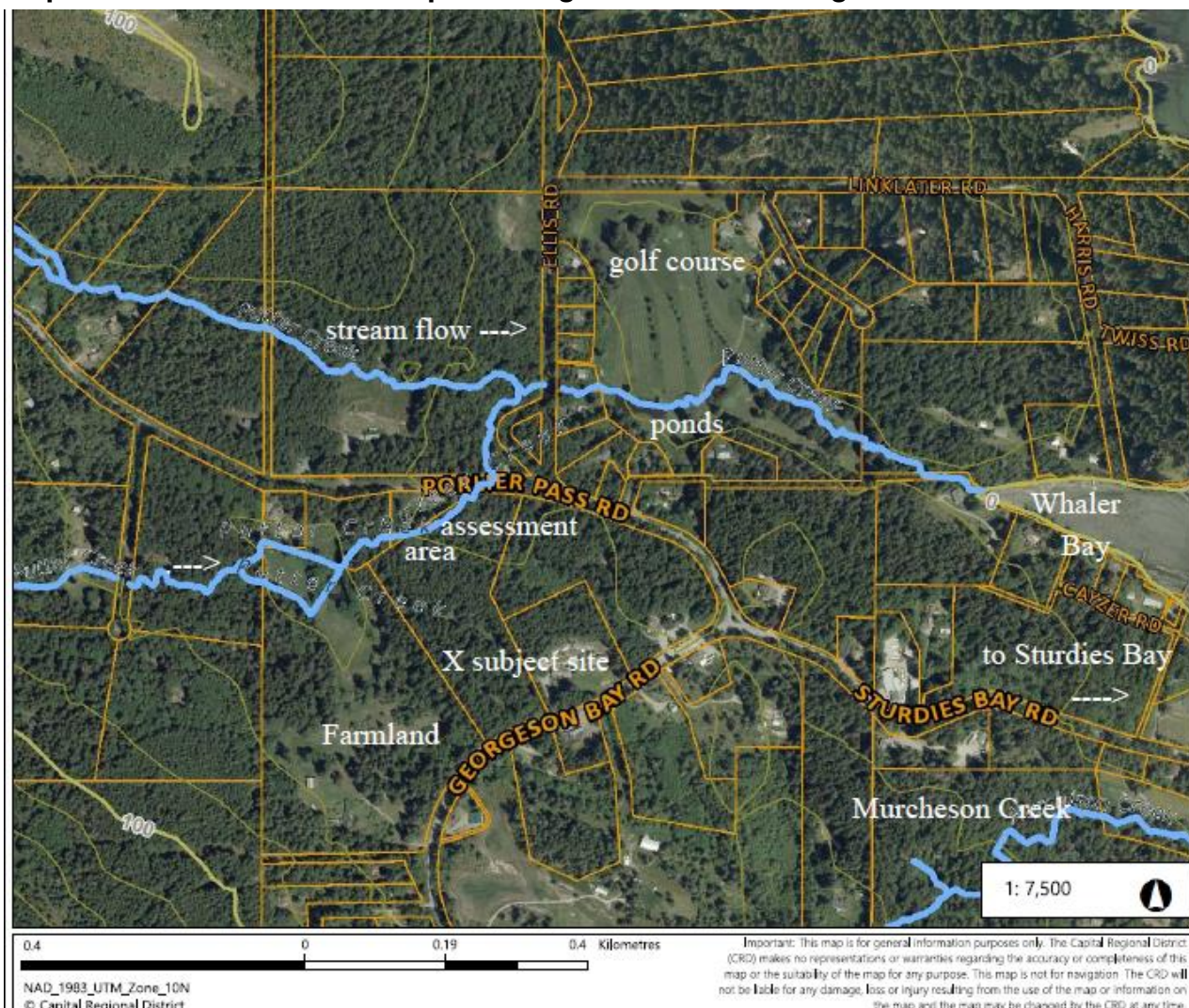
I, <u>Kathleen Reimer (RPBiologist)</u> , hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i> ; c) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u>
b) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and c) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.

4. SPEA Width (m)	30 m
-------------------	--

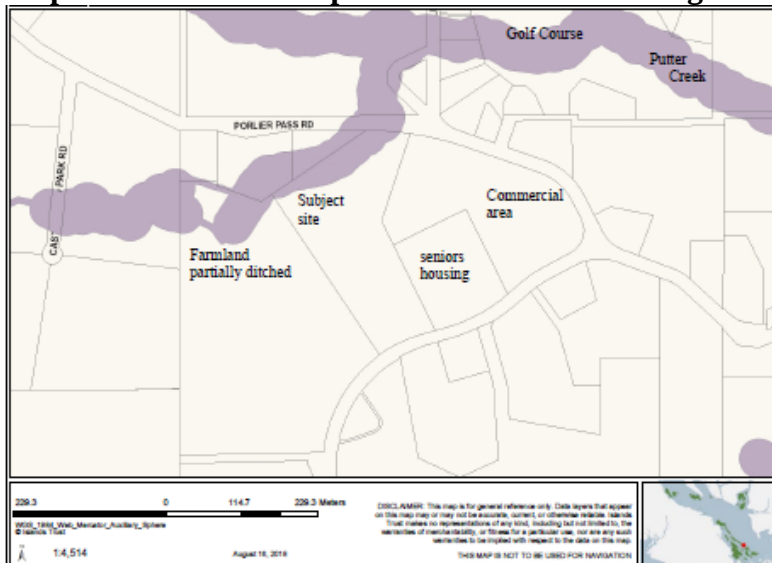
Comments

The 30m SPEA width is appropriate because of the increased density proposed for this property as well as the proximity to a community park. The large natural area will provide protection of the stream in the future when the surrounding land becomes inhabited by the new strata owners.

Map 1. CRD Natural Areas map showing site location and general area

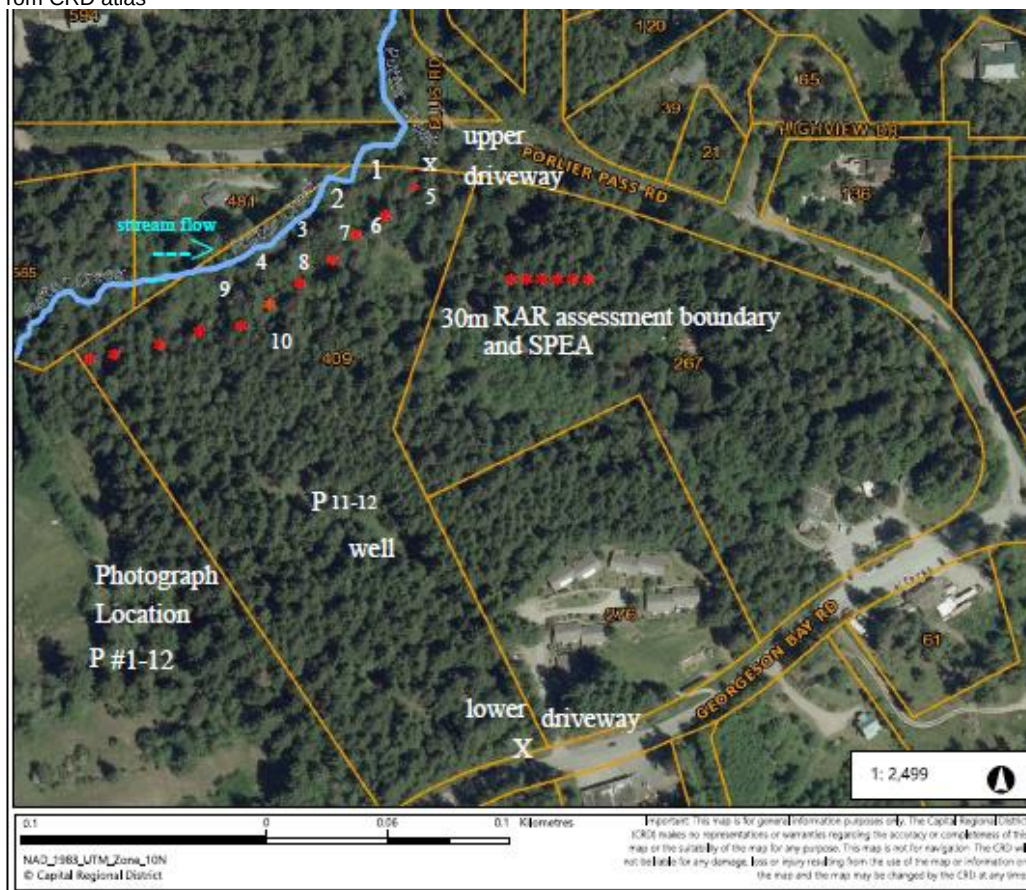


Map 2. Islands Trust Riparian Areas DPA showing Putter Creek



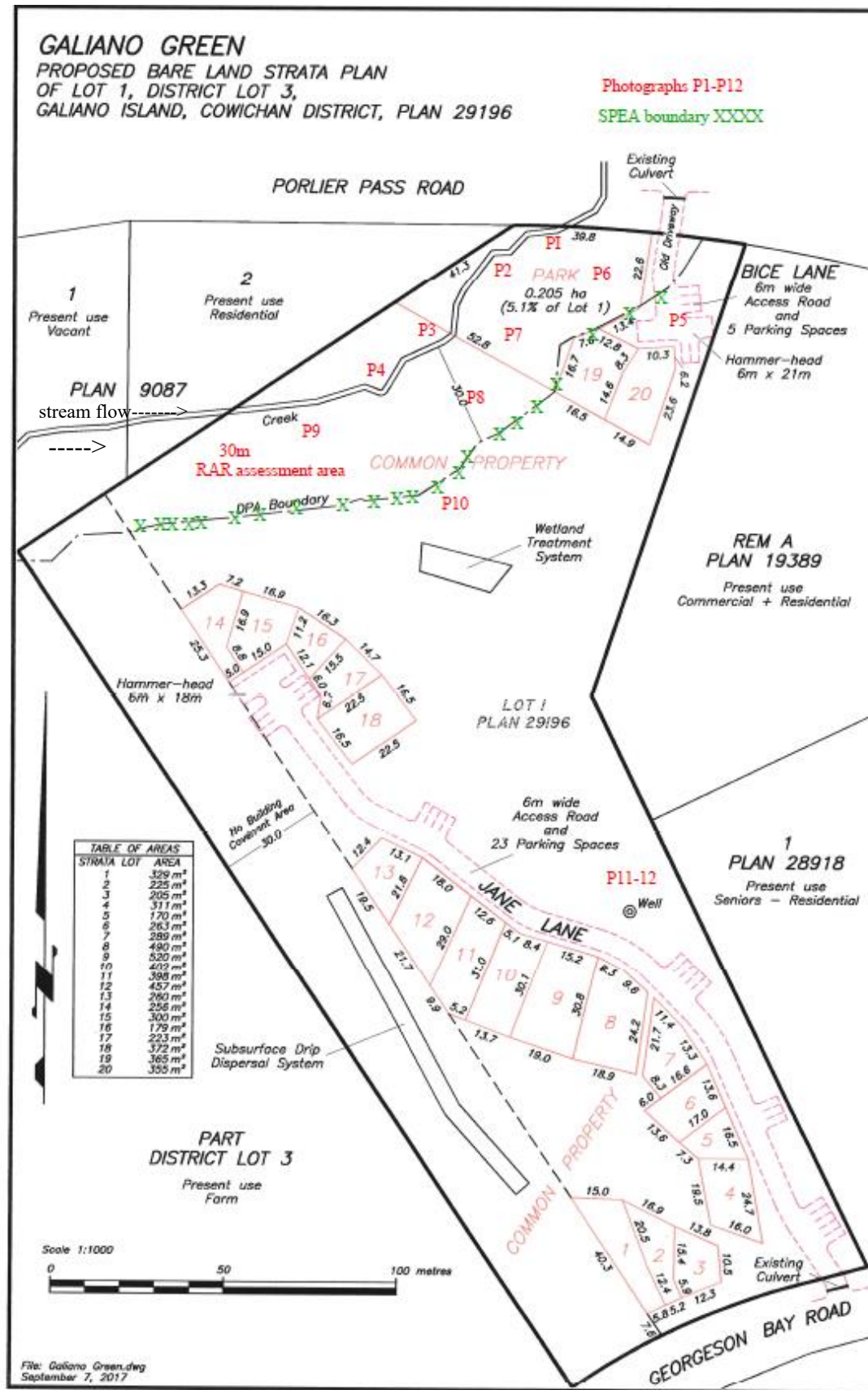
Map 3. CRD Orthophoto showing assessment area.

From CRD atlas

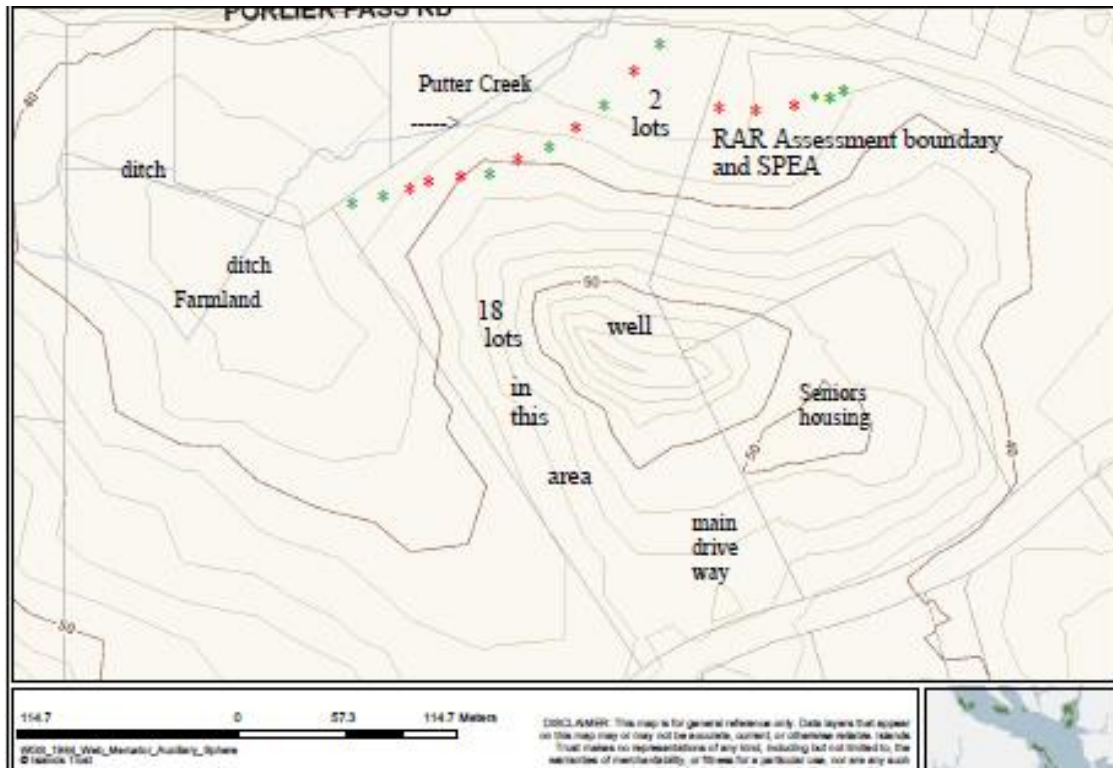


Map 4. Section 3.

Site Plan



Map 5. Islands Trust Contours map showing subject site and the proposed location of the strata lots.



Section 4. Measures to Protect and Maintain the SPEA

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

1. Danger Trees	If there is a tree inside the SPEA that has been proven to be dangerous by a RAR Certified Arborist, it may be trimmed to a safer height but not completely removed. The tree roots provide stability in the riparian area. The remaining woody debris from the trimming should be left in the protected area
I, <u>Kathleen Reimer RPBiologist</u> , hereby certify that: d) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i> ; e) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u> f) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	
2. Windthrow	There is no evidence of windthrow on the property and the land will only be partly cleared to provide the building sites.
I, <u>Kathleen Reimer RPBiologist</u> , hereby certify that:	

Form 4 Simple Assessment Form

Riparian Areas Regulation - Qualified Environmental Professional - Assessment Report

a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>; g) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u> b. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	
3. Slope Stability	There are no steep slopes in the riparian area and along the stream
I, <u>Kathleen Reimer RPBio</u>, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>; h) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u> b. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	
4. Protection of Trees	Eighteen of the building sites are over 20 meters from the SPEA. Two of the sites near Portlier Pass Road area are adjacent to the SPEA near the Park dedicated land and care must be taken to prevent damage to any trees within the protected area. The SPEA must be clearly marked and fenced. (See section 5-enroachment)
I, <u>Kathleen Reimer RPBio</u>, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>; i) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u> b. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	
5. Encroachment	There must be no trails constructed inside the SPEA. In order to ensure future protection of the riparian areas, the SPEA should be appropriately fenced. Split cedar rail fencing is preferable since this material does not disturb the soil and provides for wildlife corridors.
I, <u>Kathleen Reimer RPBio</u>, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>; j) I am qualified to carry out this part of the assessment of the development proposal made by the <u>Tom Hennessy, Galiano Community Housing Association</u> b. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	
6. Sediment and Erosion Control	There must be no deposit of excavated materials into the SPEA. If there is any storage of excavated soil materials near the SPEA boundary there must be a silt fence installed to prevent erosion.
I, <u>Kathleen Reimer RPBio</u>, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>; k) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u> b. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	
7. Stormwater Management	No stormwater may be discharged directly into the SPEA Run off from buildings and services must be infiltrated into the ground and not discharged directly into the SPEA
I, <u>Kathleen Reimer RPBio</u>, hereby certify that:	

Form 4 Simple Assessment Form

Riparian Areas Regulation - Qualified Environmental Professional - Assessment Report

a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>; l) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u> b. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	
8. Floodplain Concerns (highly mobile channel)	The stream is very small and there is no evidence of channel mobility, although the 30m SPEA can accommodate natural channel movement.
I, <u>Kathleen Reimer RPBio</u>, hereby certify that: a. I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i>; m) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Tom Hennessy, Galiano Community Housing Association</u> b. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation	

Section 5. Environmental Monitoring

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

As part of the Galiano Community Housing Society's Strata operations, the SPEA should be monitored after the development is completed and at least yearly after that so that any potential damage to the riparian areas can be prevented. The photographs attached to this report could serve as a baseline for future monitoring. The location of the photograph sites should be noted on the ground with some sort of staking, so in the future, any potential impacts from the housing development can be more easily detected and dealt with. The monitoring of this project is also important because other communities are interested in providing affordable and environmentally sustainable housing. Documenting this development in a report would help to provide a successful example for other non-profit societies to reference.

Section 6. Photos

Photograph 1. The 0.6m culvert under Porlier Pass Road



Photograph 2. Upstream from the culvert looking north, this section of the creek will be inside the proposed park



Photograph 3. Looking southwest from # 2.



Photograph 4. View looking west, shows pocket of gravel substrate and large woody debris



Photograph 5. View into the north part of the housing land from the driveway on Porlier Pass Road. There will be two building sites in this area that are outside the SPEA boundary.



Photograph 6. The Riparian area is an intact second growth forest



Photograph 7. Riparian area near the park boundary



Photograph 8. Thriving ferns and huckleberries inside the SPEA



Photograph 9. Riparian area near the northwest boundary of the property



Photograph 10. On the common land along the east side of the SPEA



Photograph 11. The well on the common property



Photograph 12. Looking north from the well



Section 7. Professional Opinion

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

Date

September 15, 2018

1. I, Kathleen Reimer, Registered Professional Biologist

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

hereby certify that:

- e) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the *Fish Protection Act*;
- f) I am qualified to carry out the assessment of the proposal made by the developer, Tom Hennessy, Galiano Community Housing Society, which proposal is described in section 3 of this Assessment Report (the "development proposal"),
- g) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and
- h) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation; AND

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

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

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

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

Submission Instructions

Riparian Areas Regulation – Qualified Environmental Professional – Assessment Report RAR-QEP-AR

Forms you will need to complete are

- Form 1 which has the database information, the description of the fisheries resources, development site plan, measures to protect and maintain the SPEA, and environmental monitoring.
- Form 2, if more QEPs are part of the project team.
- Either Form 3 the detailed assessment form(s) or Form 4 simple assessment form(s) which is for the results of the riparian assessment (SPEA width). Use enough copies of the form to complete the assessment of the site.
- Form 5 is the photo form(s). Duplicate for additional photos.

NB: See the Guidelines and the Assessment Methods for detailed instructions on the information required for completing the Assessment Report.

A complete Riparian Assessment Report based on the template forms must be converted to a *single* Portable Document Format PDF file prior to uploading onto the Notification System.

The Assessment Report must be complete, by submitting the information specified, and posted to provide notification to the local government, Ministry of Water, Land and Air Protection and the Department of Fisheries and Oceans Canada.

Tips for working with MS Word Template Forms

Using the forms

- Before beginning, print a hard copy of the form and the guidance files for reference
- Open the template
- Enter data into the shaded fields on the form
- Use TAB to move from one field to another; SHIFT-TAB to go in reverse
- Text and digital photos may be inserted from other applications
- The amount of text that can be entered in each box is limited and cannot be changed by the user; boxes with date information, for example, require input like: yyyy-mm-dd.

Saving the completed form

- Assign name to the completed form
- Save a word document (*.doc file)
- Do not overwrite the Template (*.dot file) with your completed form
- If you do overwrite the template, you can download a new copy from this web site



PROPOSED

GALIANO ISLAND LOCAL TRUST COMMITTEE DEVELOPMENT PERMIT GL-DP-2018.1

To: Galiano Community Housing Association

1. This Development Permit (the "Permit") applies to the land described below and all buildings, structures and other developments therein:

Lot 1, District Lot 3, Galiano Island, Cowichan District, Plan 29196
PID: 001-416-987

2. This Development Permit GL-DP-2018.1 authorizes the subdivision within Development Permit Area ("DPA") 1 – Riparian Area and DPA 5 – Sensitive Ecosystem, subject to the following requirements and conditions:

Tree Protection

- a. The Streamside Protection and Enhancement Area (SPEA) must be clearly marked and fenced to prevent damage to any trees within the protected area. The SPEA is delineated on Schedule 'A' attached to and forming part of this permit.
- b. Any dangerous trees within the SPEA identified by a Riparian Area Regulation (RAR) Certified Arborist, may be trimmed to a safer height but must not be completely removed.
- c. The area of the SPEA is to be left undisturbed in its natural state.

Encroachment

- d. No trails may be constructed inside the SPEA.
- e. The 30 metre boundary of the SPEA located on the subject property must be permanently fenced. Split cedar rail fencing is preferable as the material does not disturb the soil and provides for wildlife corridors.

Sediment and Erosion Control

- f. Deposit of excavated materials within the SPEA is not permitted.
- g. Storage of excavated soil materials near the SPEA boundary must be accompanied by the installation of silt fence to prevent erosion.

Stormwater Management

- h. No stormwater may be discharged directly into the SPEA.
- i. Stormwater run-off from buildings and structures must be infiltrated into the ground and not discharged directly into the SPEA.

Delineation of the SPEA

- j. The SPEA is established 30 metres from the natural boundary of Putter Creek.

Existing Access

- k. Existing access within SPEA may be maintained as long as the access does not further encroach into the SPEA.

Monitoring

- l. A post development report prepared by a R.P.Bio must be submitted to the Islands Trust upon completion of the preparation of all the strata lot buildings sites.
- 3. Any further development within designated Development Permit Areas will require a new Development Permit, or a Development Permit Amendment.
 - 4. This Permit does not remove any obligation on the Permittee to obtain other approvals or obligations necessary for the lawful completion of the proposed development.
 - 5. The area described herein shall be developed in accordance with the terms, conditions and provisions of this Permit, and any plans and specifications attached to this Permit, which shall form a part thereof.
 - 6. This permit does not relieve the applicant from complying with the provisions of the Galiano Island Land Use Bylaw unless varied by this Permit.

This permit is not a building permit and does not remove any obligation on the part of the permittee to comply with all other requirements of Galiano Island Land Use Bylaw No. 127, 1999 and to obtain other approvals necessary for completion of the proposed development.

AUTHORIZING RESOLUTION PASSED BY THE GALIANO ISLAND LOCAL TRUST COMMITTEE, THIS rd DAY
OF , 2018.

Deputy Secretary, Islands Trust

_____, 2018
Date Issued

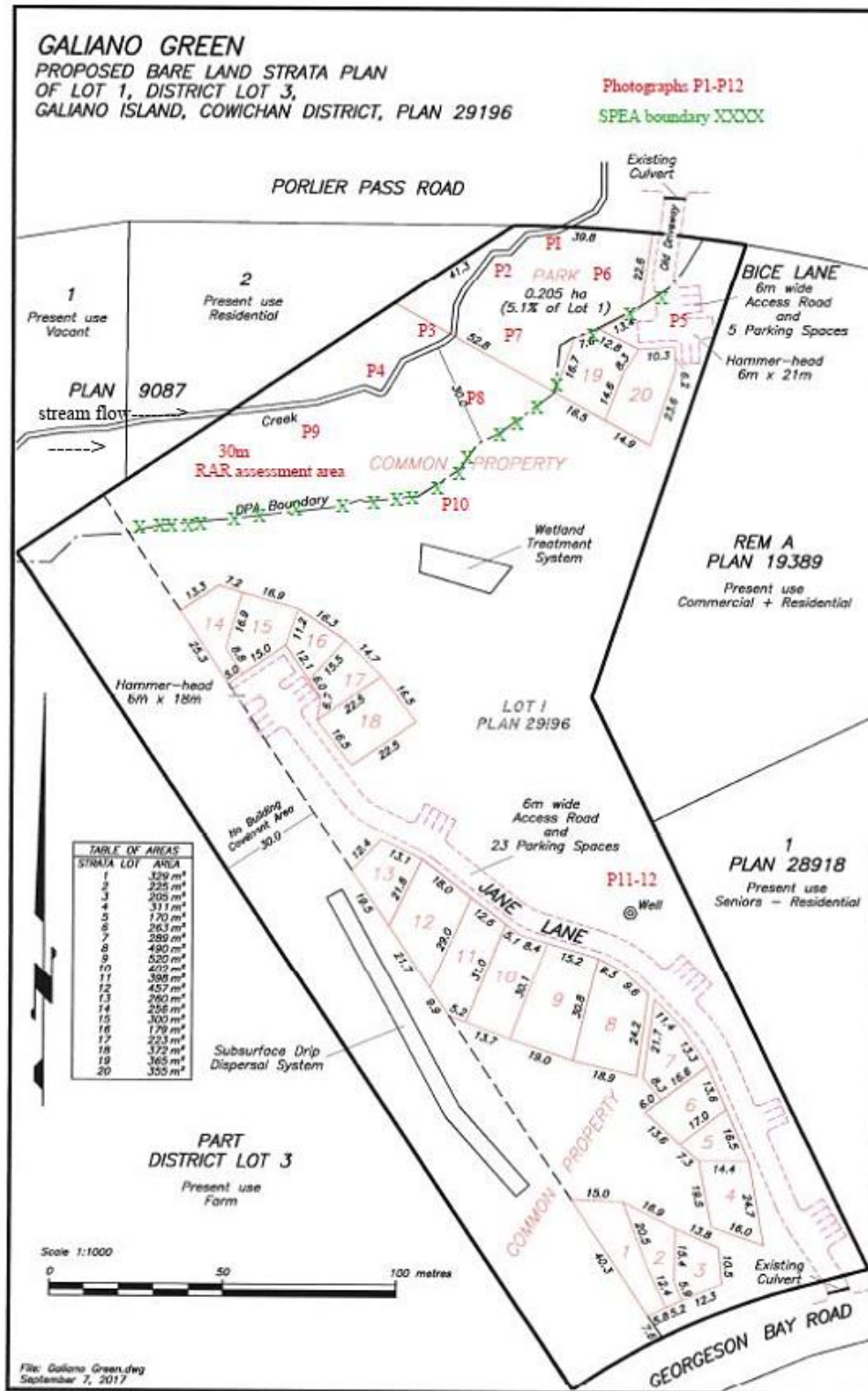
IF THE DEVELOPMENT HEREIN IS NOT COMMENCED BY THE ##th DAY OF MONTH, 201# THIS PERMIT
AUTOMATICALLY LAPSES.

GALIANO ISLAND LOCAL TRUST COMMITTEE

DEVELOPMENT PERMIT GL-DP-2018.1

Schedule "A"

Site Plan





File No.: GL-DVP-2018.1 (Galiano Green)

DATE OF MEETING: October 15, 2018

TO: Galiano Island Local Trust Committee

FROM: Kim Stockdill, Island Planner
Southern Team

COPY: Robert Kojima, Regional Planning Manager

SUBJECT: Report subject: Development Variance Permit (GL-DVP-2018.1 Galiano Green)
Applicant: Galiano Community Housing Association
Location: 409 Porlier Pass Road (Lot 1, District Lot 3, Galiano Island, Cowichan District, Plan 29196)

RECOMMENDATION

1. That the Galiano Island Local Trust Committee approve issuance of Development Variance Permit GL-DVP-2018.1 (Galiano Green).

REPORT SUMMARY

This report is to consider a Development Variance Permit (DVP) application to vary Section 13.24 in order to allow the approving officer to consider approval of the subdivision where the applicant will provide potable water through individual rainwater catchment systems installed in all dwelling units.

BACKGROUND

The applicants have applied for a subdivision in order to create 20 bare land strata lots with common property and a park. The intent is for each lot to be serviced with potable water by individual rainwater catchment systems to be installed on each dwelling unit. As a condition for final subdivision, the applicants must receive a development variance permit. The Galiano Island Land Use Bylaw No. 127, 1999 (LUB) includes subdivision regulations related to standards for potable water. Section 13.23 of the LUB outlines the minimum volume of water per use that must be provided by a water test if a well is proposed as a source of potable water. This section also requires proof the well water meets or exceeds the Guidelines for Canadian Drinking Water Quality. Section 13.24 of the LUB states that if Section 13.23 cannot be made, the approval officer may approve the subdivision in two circumstances: community water system, or when a covenant restricting development is placed on title.

In the case of this subdivision, the source of potable water is proposed to be from rainwater collection and not a well, therefore Section 13.23 is not applicable. Section 13.24, as mentioned above, outlines two circumstances where if Section 13.23 is not applicable, the approval officer can approve the subdivision. As rainwater collection is not included as one of the two circumstances, the proposed subdivision does not comply with Section 13.24 and subsequently requires a development variance permit to vary the regulation.

The proposal is to vary Section 13.24 of the LUB that states "if the certification referred to in section 13.23 cannot be made, the approving officer may nonetheless approve the subdivision in the following circumstances:

13.24.1 where the applicant provides a community water system complying with the requirements of this bylaw; or

13.24.2 where the applicant grants a covenant restricting the development of the subdivision to the buildings, structures and uses in respect of which a certification can be made under section 13.23.”

to allow the approving officer to approve the subdivision where the applicant will provide potable water through individual rainwater catchment systems installed in all dwelling units.

A copy of the notice and proposed GL- DVP-2018.1 (Galiano Green) permit are attached. Site Context and Maps can be found attached to GL-DP-2018.1 (Galiano Green) staff report.

ANALYSIS

Official Community Plan:

The subject property is designated as **Community Housing (CH)** in the Galiano Island Official Community Plan Bylaw No. 108, 1995. The property is located within the following DPAs:

- **DPA 2 – Riparian Areas**
- **DPA 5 – Sensitive Ecosystems (riparian and wetland)**
- **DPA 7 – Steep Slopes (moderate)**

Land Use Bylaw:

The property is zoned as **Community Housing 1 (CH1)** in the Galiano Island Land Use Bylaw No. 127, 1999.

Covenant (CA6063082):

As a condition of final approval of the rezoning application (GL-RZ-2011.1) that rezoned the subject property to Community Housing 1, a covenant was placed on title (CA6063082). Condition 7 of the covenant states the following:

“The Owner has stated the intention that all dwellings on the Land will provide potable water through individual rainwater catchment systems installed on buildings rather than by creating a community water system or individual wells. The Owner shall ensure that no dwelling is connected to the existing well and that no additional wells are drilled on the Land without providing to the satisfaction of the Local Trust Committee a report prepared by a professional engineer or geohydrologist with relevant experience certifying that there is in respect of each permitted dwelling an available supply of potable water in the amount of 2275 litres per day and meeting or exceeding the Guidelines for Canadian Drinking Water Quality, and that the extraction from the groundwater table of that amount of water in respect of each permitted dwelling will not adversely affect the quantity or quality of water obtainable from any existing well or surface water then used as a source of potable water.”

In other words the statement above says that if a dwelling unit on the property is to be connected to the existing well or a new drilled well, a report must be provided to the LTC ensuring the existing well will meet the requirement of 2275 litres/day for each connected dwelling unit, the water meets the Canadian drinking water standards, and there must be no adverse effects on existing wells. These are the same requirements outlined in Section 13.23 of the Land Use Bylaw.

Issues and Opportunities:

The Overall Intent of the Regulation (s) being Varied

The overall purpose of the local government regulations related to potable water supply at time of subdivision is to:

- Determine the quantity of safe drinking water for new lots during subdivision; and
- Ensure the groundwater meets or exceeds the Guidelines for Canadian Drinking Water Quality.

Potential Impacts of Granting the Variance

Granting a variance can potentially create an expectation in the community with regard to future applications. As variances consider the unique circumstances pertaining to a particular situation that may warrant the relaxation of a specific zoning regulation each application should be evaluated on its own merits.

Consultation

DVP Notices were circulated to surrounding property owners and residents. The notification period will end at 4:30 p.m. October 12, 2018.

One submission has been received to date (attached). Any other submissions received prior to the LTC meeting will be forwarded to Trustees and reported at the meeting.

Agencies

The draft permit was sent to the Ministry of Transportation and Infrastructure (MOTI) for comment. MOTI staff indicated that if the applicant would like to use rainwater catchment and bylaws allow them to do so, they would still be required to prove water quality and quantity for final subdivision approval. Whether they actually connect or not doesn't matter as much, so long as they prove that there is water available for connections by an approved means.

Islands Trust staff have sent the subdivision referral report to MOTI and recommended that a condition be included to the Preliminary Layout Approval (PLA) that requires the applicant to obtain a Development Variance Permit prior to final subdivision approval. MOTI is in the process of finalizing the PLA.

The Provincial Approving Officer (PAO) gives final approval to subdivision applications if the applicant has met all the conditions outlined in the PLA. Although a local government has the authority to regulate some subdivision regulations, the PAO has the authority to override decisions made by the local government and give final approval to a subdivision application. In most cases, the PAO includes all recommendation PLA conditions by the local government and requires the applicant to meet these conditions prior to final approval.

Rationale for Recommendation

Staff recommend approval in order to allow the subdivision application to proceed as intended: to use rainwater collection as a source of potable water. If the LTC approves the DVP, the subdivision application would still have to meet all the conditions outlined in the PLA and any additional requirements from the Approval Officer. MOTI has already provided preliminary comments stating that if the applicants wish to pursue rainwater catchment as the primary source of potable water, and approval was given by the local government (DVP was approved), the subdivision would still need to meet the quality and quantity water regulations as requested by MOTI for the well regardless if they connect the dwelling units to the well or not. It should be noted that the referral comments from MOTI are preliminary and the formal comments from MOTI on potable water requirements that will be outlined in the PLA have not been finalized to date.

If the LTC denies the variance, the subdivision application would not be able to proceed as intended (rainwater as a source of potable water) as it would not comply with the LUB. It would be the responsibility of the applicant to amend the subdivision application to ensure it meets the subdivision regulations outlined in the LUB (potable water by well, community water system, or covenant restricting development).

ALTERNATIVES

1. Request further information

The LTC may request further information prior to making a decision. If selecting this alternative, the LTC should be advised to describe the specific information needed and the rationale for this request.

Resolution:

That the Galiano Island Local Trust Committee request that the applicant submit to the Islands Trust
_____.

2. Deny the application

The LTC may deny the application.

Resolution:

That the Galiano Island Local Trust Committee deny application GL-DVP-2018.1 (Galiano Green).

NEXT STEPS

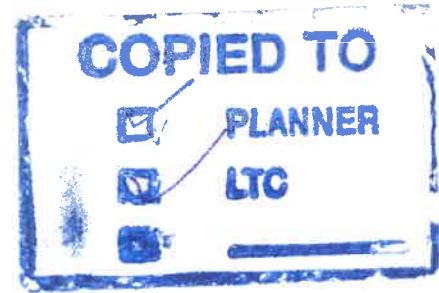
Describe the next steps in the process, if applicable.

Submitted By:	Kim Stockdill, Island Planner	October 9, 2018
Concurrence:	Robert Kojima, Regional Planning Manager	October 9, 2018

ATTACHMENTS

1. Proposed Subdivision Plan
2. Correspondence
3. Notice
4. Development Variance Permit

From: Mary Elliott [REDACTED]
Sent: Monday, October 01, 2018 3:14 PM
To: information
Subject: Galiano Island GL-DVP-2018.3



October 1, 2018

To Island Planner, Kim Stockdill, and to Galiano Island Local Trust Committee **re: GL-GVP-2018.1**

My agricultural property borders (for about 550 feet) the property in question located at 409 Porlier Pass Road.

The following are my comments on the planned subdivision of the Property at 409 Porlier Pass Road:

I am not in favour of issuing the Development Variance Permit GL-DVP-2018.3

Subdivision of land should not be allowed if there is insufficient ground water available on the land. Rainwater catchment prevents ground-water saturation into the aquifer. It is a question of quantity. How many gallons of water will have to be collected and how much is it going to rain.

This rainwater catchment system will affect the filling of the ground water aquifer of nearby properties. In my opinion, this particular subdivision is not the way to "preserve and protect" the island.

My other concern with the neighbouring property subdivision is the "planned" sewage system.

I am trying to protect several 600 year old Douglas Fir trees on my (neighbouring) property whose roots feed from the aquifer in the area.

For your interest, I was not in favour of the rezoning of this property either, mainly because of the fact that there was not enough ground water for the density proposed (especially in the summer and with global warming the situation is not getting any better).

Also, this proposed subdivision is in an already congested area which includes; two stores, a fire hall, the local pub, senior housing units and, two small (seasonal) restaurants which are all drawing water from wells located in the same area.

Also, there are other areas on Galiano Island which are better suited for "low cost housing" and have access to adequate ground water.

I hope you consider my comments.

Sincerely,

Mary Jean Elliott (Resident/Owner for 40 years).



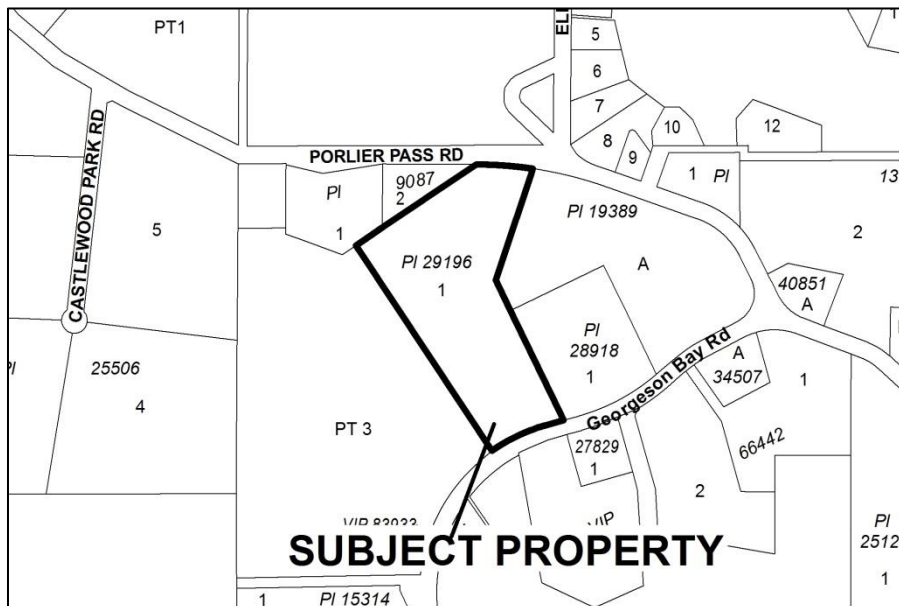
GL-DVP-2018.1
GALIANO ISLAND LOCAL TRUST COMMITTEE

NOTICE is hereby given that the Galiano Island Local Trust Committee will be considering a resolution allowing for the issuance of a Development Variance Permit, pursuant to Section 499 of the *Local Government Act*. The proposed permit would vary the Galiano Island Land Use Bylaw No.127, 1999, by varying:

- a) Section 13.24 which states “if the certification referred to in section 13.23 cannot be made, the approving officer may nonetheless approve the subdivision in the following circumstances:
- 13.24.1 where the applicant provides a community water system complying with the requirements of this bylaw;
 - or
 - 13.24.2 where the applicant grants a covenant restricting the development of the subdivision to the buildings, structures and uses in respect of which a certification can be made under section 13.23.”
- is varied to allow the approving officer to approve the subdivision where the applicant will provide potable water through individual rainwater catchment systems installed in all dwelling units.

The property is located at **409 Porlier Pass Road** and is legally described as Lot 1, District Lot 3, Galiano Island, Cowichan District, Plan 29196 (PID: 001-416-987).

The general location of the subject properties is shown on the following sketch.



A copy of the proposed permit may be inspected at the Islands Trust Office, 200 - 1627 Fort Street, Victoria, B.C. V8R 1H8 between the hours of 8:30 a.m. to 4:30 p.m. Monday to Friday inclusive, excluding statutory holidays, commencing **October 1, 2018** and continuing up to and including **October 12, 2018**.

For the convenience of the public only, and not to satisfy Section 499 (2) (c) of the *Local Government Act*, additional copies of the Proposed Permit may be inspected at various Notice Boards on Pender Island.

Enquiries or comments should be directed to Kim Stockdill, Island Planner at (250) 405-5194, for Toll Free Access, request a transfer via Enquiry BC: In Vancouver 660-2421 and elsewhere in BC 1-800-663-7867; or by fax (250) 405-5155; or by email to: information@islandstrust.bc.ca before 4:30 pm, **October 12, 2018**.

The Galiano Island Local Trust Committee may consider a resolution allowing for the issuance of the permit during the regular business meeting starting at **12:30 p.m., October 15, 2018**, at the **North Community Hall**, on Galiano Island.

All applications are available for review by the public. Written comments made in response to this notice will also be available for public review.

Sharon Lloyd-deRosario, Deputy Secretary 173



PROPOSED

GALIANO ISLAND LOCAL TRUST COMMITTEE DEVELOPMENT VARIANCE PERMIT GL- DVP-2018.1

To: Galiano Community Housing Association

1. This Development Variance Permit applies to the land described below:

Lot 1, District Lot 3, Galiano Island, Cowichan District, Plan 29196
(PID: 001-416-987)

2. Galiano Island Land Use Bylaw 127, 1999 is varied as follows:

- a) Section 13.24 which states "if the certification referred to in section 13.23 cannot be made, the approving officer may nonetheless approve the subdivision in the following circumstances:
- 13.24.1 where the applicant provides a community water system complying with the requirements of this bylaw; or
 - 13.24.2 where the applicant grants a covenant restricting the development of the subdivision to the buildings, structures and uses in respect of which a certification can be made under section 13.23."

is varied to allow
through individual rainwater catchment systems installed

provide potable water

3. This permit is not a building permit and does not remove any obligation on the part of the permittee to comply with all other requirements of _____ and to obtain other approvals necessary for completion of the proposed development, including approval of the _____ and Ministry of Transportation

AUTHORIZING RESOLUTION PASSED BY

**IF THE DEVELOPMENT DESCRIBED HEREIN IS NOT COMMENCED BY THE
, THIS PERMIT AUTOMATICALLY LAPSES.**

Galiano Island Advisory Planning Commission

Referral Report: Affordable Housing

September 2018

MOVING FORWARD WITH MORE
AFFORDABLE HOUSING FOR GALIANO ISLAND

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EXECUTIVE SUMMARY

What We See:

- There is no purpose-built affordable rental housing on Galiano Island.
- Over half of the homes on Galiano Island are not lived in full-time and many of these homes are not available for rent or purchase.
- Most rental housing options are repurposed summer homes, cottages or other structures that are not currently being used by the owners; these are often not available year-round or long-term and many are not adequate in size, not well-winterized or in need of major repairs.
- Insecure housing has ripple effects in our community—from instability for families to unpredictable participation in the workforce, the school and the community with increasing numbers of people living precariously in unsafe structures or situations.
- Economic factors, combined with increasing destination tourism in the Southern Gulf Islands, has encouraged the use of properties for investment purposes and for commercial use as Short Term Vacation Rentals (STVRs).
- Galiano Island has a seasonal tourism-based economy; seasonal workers have fewer options to access affordable rental housing or home ownership markets.

What We Need:

- There is a need for increased awareness and ongoing education on the topic of housing affordability in the Trust area, within the Islands Trust and other Government Agencies.
- There is a need for a Trust Policy statement that supports access to affordable community housing for residents of the Trust area as a guiding principle in land use decisions.
- There is a need for a comprehensive Trust-wide working definition of “affordable housing” to guide land use planning.
- There is a need for the Islands Trust to be able to hold housing agreements on behalf of Local Trust Committees.
- Affordable housing approaches are needed that reflect the diversity in the community and that are integrated widely within various neighbourhoods throughout Galiano.
- A lens of affordability needs to be integrated into land use planning processes for all rezoning and subdivisions in order to better balance the needs of the applicant with the community’s needs.

- Planning for affordable community housing needs to be based on the ability of groundwater regions and ecosystems to support the development.
- Comprehensive up-to-date data and tools are needed in order to have better options for monitoring and controlling the amount of Short Term Vacation Rentals (STVRs).

What the Local Trust Committee Can Do:

- Add a statement to the Galiano Official Community Plan (OCP) Principles section that supports affordable year-round housing as a basic principle for the sustainability of our Island community.
- Review and update OCP policy to highlight an objective of increasing the stock of affordable housing and update existing relevant OCP policies and Land Use Bylaw (LUB) regulations to ensure that issues of affordable housing are addressed in all development applications.
- Update and add to the Subdivision and Development Regulations in the LUB(Section 13) to require a percentage of smaller, more affordable lots be created through subdivision rather than allowing the maximum number of view or oceanfront lots for the higher-end real estate market.
- Add policy that would ensure that any future rezoning for commercial visitor accommodations provides some on-site housing for non-resident seasonal staff.
- Add to the OCP Community Housing Policy, Section 1.6, to include additional models or designs of affordable housing, integrated within neighbourhoods, and that are close to utilities and infrastructure.
- Support initiatives that would enable Local Trust Committees (LTCs) to use licensing as a way to manage and limit the number of STVRs operating in each Local Trust Area.
- Implement efficient ways to better assess applications for STVRs based on the carrying capacity of groundwater regions, existing density of other visitor accommodations in that region and the impact on health, safety and community services.
- Advocate for, and encourage, the creation of an Islands Trust “Housing Land Trust” to hold donations of land for affordable housing modelled on the current Islands Trust’s Land Conservancy Trust which holds donations of land for conservation.
- Advocate for, and work with other government agencies, to create tax policies that allow property owners to receive tax relief in exchange for providing affordable rental housing. An Affordable Housing Reserve (AHR) could be created based on existing models such as the Agricultural Land Reserve (ALR) or Private Managed Forest Land (PMFL) which provide tax relief in return for retaining and protecting agricultural land or forest lands.

1.0 INTRODUCTION:

This report is intended to describe the recommendations of the Galiano Island Advisory Planning Commission (GIAPC) to the Galiano Island Local Trust Committee (GILTC) regarding options for addressing the lack of long-term affordable housing in our community. These recommendations are guided by the Southern Gulf Islands Housing Needs Assessment (2018), APC research, Galiano Island's OCP, and the contributions of community members.

Our Official Community Plan (OCP) describes our Residential Objectives as:

"1) to maintain the rural character, minimize impacts to ecosystems and services they provide and support social diversity of the Galiano Island Local Trust Area, and

2) to encourage affordable, rental and special needs housing."

The GIAPC has kept these goals, among others set out in the OCP, in mind as we have developed the recommendations set out in this report. In addition, protecting groundwater resources is an important policy area central to all land use decisions, but especially important in cases of increased density.

2.0 SOUTHERN GULF ISLANDS HOUSING NEEDS ASSESSMENT- FEBRUARY 2018

The GIAPC reviewed and considered the findings of the *Southern Gulf Islands Housing Needs Assessment* ("HNA") by Janis Gauthier of JG Consulting Services Ltd which was submitted to the Capital Regional District (CRD) in February 2018.

The GIAPC agrees with the following summary contained in the report:

"All evidence clearly points to serious shortages in secure, appropriate and affordable housing for low to moderate income earners. Renters are particularly impacted as their incomes are insufficient to enter the homeownership market, and the limited number of rental properties is increasingly vacant seasonally or placed in the vacation rental market. Community members strongly described the housing situation as bordering on crisis, and as having serious impacts on themselves and their families, community well-being and economic sustainability" (Executive Summary – Page 1).

The GIAPC worked with the following definition of "housing affordability" taken from the HNA report which summarized the measures, often cited, to determine what constitutes affordable housing:

"Measuring housing affordability involves comparing total shelter costs with a household's ability to meet them, given their income. Shelter costs are considered to include basic utilities for renters, and for homeowners, this generally also includes taxes and insurance in

addition to mortgage payments. Typically, affordable shelter costs target 30% of a household's income.

For affordability calculations, housing is generally characterized as 'acceptable' if it is in good condition and is an adequate size for the household size and composition. While this is a somewhat subjective measure, Canada Mortgage and Housing Corporation (CMHC) defines acceptable housing as having three key features:

- *Adequate condition (not needing major repairs),*
- *Suitable size (given the size and composition of the household members), and*
- *Affordable (shelter costs less than 30% of before-tax household income).” (Page 20)*

The GIAPC reviewed the report and the following information, for Galiano Island and the Southern Gulf Island (SGI), was helpful in its deliberations:

Table 2-1: Notable Details from SGI Affordable Housing Report

Population 2016- Galiano Island	The total population is 1,040: 285 people are between ages of 25 to 54, and 580 people are between ages of 55 to 84. The population of our community is older than the general population in the CRD and in BC. (Tables 1 and 2 Pages 7 and 8)
Population Changes- SGI and Galiano Island	The population on Galiano has decreased from 2001 to 2016 by 3%, despite an increase of in-migration throughout the SGI. (Table 3-6 Pages 8-10)
Affordability by Household Type- Galiano Island	Household is defined in the HNA report as “a family”, “a group of unrelated persons living together” or “a single person”. The household is the “most relevant grouping for the analysis of housing affordability, as their composition and incomes are strongly related to housing need and affordability”. On Galiano Island there are 565 households that are used as main residences. Of these, 205 are families without children and 240 are one-person households. There are 55 households of families with children and 40 households with lone-parent families. (Table 8 Page 11)
Accessibility by Household Type and Income-SGI	It is appropriate to look at what is affordable by the type of household. For example, one-person households (35% of the population in the SGI) have the lowest median income (\$30,528), which would enable this person to pay rent of \$763 or to purchase a home in the range of \$145,000. Similarly, families with children (10% of the population in the SGI) have a median income of \$74,069 allowing for the payment of rent of \$1,852 or the purchase of a home in the range \$420,000. Looking at low-income earners, less than \$29,999, 575 units are needed at a rental rent less than \$625 across the SGI. (Tables 22-23 Pages 21-22)
Rentals and Ownership Data-Galiano Island	In 2016, of the 560 households reporting to Statistics Canada, there were 430 homes occupied by the owner and 130 home being rented on Galiano Island. According to this statistic, 23% of the households are rental units. Within this grouping of 560 households, there are 240 single-person households and 240 two-person households. (Tables 9-13 Pages 12-13)

Regional Income Disparity-SGI, CRD and BC	As noted “(H)ousing income is the best income indicator for evaluating housing affordability, because it relates to all persons residing in a single dwelling”. Generally, those living in the SGI have lower median incomes than their counterparts in the CRD and BC. In the SGI, there is a concentration of incomes between \$20,000 and \$49,999. Generally, there are a higher number of residents with very low incomes compared to the CRD and BC. There are also a higher number of children and youth living in low-income families as compared to the CRD and BC. The number of low-income seniors living within the SGI is similar to those living in the CRD and BC. (Tables 14-17/20 Pages 14-17)
Data Discrepancies on Housing Costs-Galiano Island	In 2016, Statistics Canada reported that 54% of renters on Galiano Island spent more than 30% of their income on housing. However the resident survey, included in the HNA report, reflects that more of the renters may be paying much higher rents than reported through Statistics Canada. Similarly, 23% of those who own their own homes are paying in excess of 30% of their income on housing costs. (Tables 53-57 Pages 40-42)
Income Sources-SGI	In 2016, 19% of the population of the SGI received their incomes from government transfers, 37% received income from private investments and 44% received their incomes from employment. (Table 19 Page 17)
Projected Regional Population Growth-SGI	It is anticipated that, between 2016 and 2041, there will be an increase in population growth of 15.8%, distributed within the SGI. Based on the average household size of 1.9 persons, this population growth rate should help determine the number and types of future housing units needed. It was noted that, for a variety of reasons, seniors might not remain within their communities “due to the lack of appropriate supported housing options as they age, and/or the lack of appropriate housing for support workers”. Determining the number of dwellings, and the type of dwelling, is complex and changes over time. (Table 21 Pages 18-20)
Housing Types and Quality-SGI and Galiano Island	The majority of homes in the SGI are single-detached dwellings. In 2016, Statistics Canada reported that 9% of the “housing stock” on Galiano Island, taken from a sample of all dwellings, required major repairs. Generally, renters in the SGI resided in homes that required significant repairs and lived in unhealthy conditions. (Tables 25-27 Page 24)
Construction and Renovation-SGI and Galiano Island	The building of new homes on Galiano Island has declined since 1981. Generally, within the SGI, renovations have also declined. This has an adverse impact on the local economy in terms of those who work in the construction industry and the contributions such workers make to the local economy and services. (Tables 30-33 Pages 25-27)
Non-resident Ownership-Galiano Island	Non-resident ownership may have an adverse impact on the community, both in terms of the housing stock available for year-round rentals and on such things as school enrollment, volunteerism and the availability of employees. Between 2006 and 2016 the number of dwellings occupied by “usual” residents declined. (Table 35 Pages 28-29)
Data Discrepancy on Rental Rates-SGI and Galiano Island	There is no central system of rental listings in the SGI. In 2006, on Galiano Island, there were 130 rental units available and a similar number available in 2016. Generally, in the SGI, the rental stock has declined. Statistics Canada reported that on Galiano Island the rental rate in 2006 was \$615 and in 2016 this had increased to \$674. However, the resident survey reflected that actual rental rates were higher. (Tables 37-39 Page 30-31)

Housing Subsidies-Galiano Island	There are 22 social housing units on Galiano Island (reported as of 2018), 6 of which are provided through rent subsidies. (Table 40 Pages 31-32)
STVR Impacts-SGI and Galiano Island	Short-term vacation rentals (“STVRs”) have had, and continue to have, an adverse impact on the availability of affordable rental housing. STVRs increase during the summer months and generally decline in the fall and winter months. (Table 44 Pages 33-34)
Unattainable Home Ownership-Galiano Island	Statistics gleaned from the MLS listings reflect that homes with lower prices are in higher demand. However, given the median cost of a home, as it relates to the median income of those residing on Galiano Island, home ownership is unattainable. (Tables 45-48/59-60 Pages 35-37/42-43)
Housing Supply Gaps-SGI and Galiano Island	It is important to identify the gaps in the housing supply (<i>“the difference between the existing supply of both rental and homeowner housing, and what would be affordable to residents based on their incomes”</i>) to determine housing priorities. Those with different levels of income face different challenges, which might necessitate differing responses. Such responses might include accessing government rent subsidies, focusing on entry-level low cost (less than \$180,000 to \$235,000) purchase housing, developing multi-family style dwellings and townhomes and increasing density (Pages 48-51)

Included in the HNA report was information gathered from community consultations, including through resident and employer surveys, discussions and correspondence. This information confirmed the gathered statistics that there is a shortage of affordable rental housing in the SGI, that this impacts the local economy, the retention of employees, and that young families and those at the lower end of the income scale are the most affected.

There is a concern that seniors will be unable to age-in-place given the increasing shortage of workers to assist with home maintenance and their personal care.

STVRs are seen as putting strong pressure on the availability of long-term affordable rental accommodation.

Eight hundred and sixty-five households in the SGI responded to general survey. Of these, 163 were from Galiano Island. Employers also completed a separate survey, 6 of these employers were located on Galiano Island. The information gathered for Galiano Island was not separately set out. We summarize some of the general responses here:

Table 2-2: SGI Survey Results Summary

Housing Situation-SGI	Seventy-three percent of the respondents own their own homes, 17% live in rental accommodation, 78% reside in single-family dwellings, 13% reside in a cabin or cottage, and 4% reside in mobile homes and/or suites. (Survey Results Tables 14-15 Pages 7)
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Housing Preferences-SGI	Although many respondents preferred to live in single-family dwellings, many would accept living in a duplex, townhouse, apartment or secondary suite. (Survey Results Tables 29 Page 13)
Housing Difficulties-SGI	Fifty percent of renters reported paying more than 30% of their income on rent. A greater number of renters were unsatisfied with their housing, with unhealthy condition being ranked as the highest concern, followed by affordability, availability, location and security of tenure (Survey Results Tables 19/21-23 Pages 9-11);
Housing Solutions Ideas-SGI	Fifty-five percent of the respondents provided suggestions for solutions to the housing issues, which included the building of smaller housing units, building purpose-built rental housing, tax and regulatory incentives, and addressing issues with STVRs including regulating them. (Survey Results Table 30 Page 14);
Long-term Housing Viability-SGI	Seventy-two percent of the respondents, who said that they might not remain living in the SGI, cited housing as being a factor in their decision. (Survey Results Tables 25-26 Page 12); Seniors, 65 and over, responded that they are certain or very likely to remain living in the SGI, with housing being a factor in their decision to remain in the SGI as they age. (Survey Results Tables 27-28 Page 12);
Income and Employment-SGI	Sixty-one percent of the employee respondents had one job, 29% had two jobs, and 10% had three jobs. 15% of the employees work in the trades, construction, real estate and property services. 62% of the jobs are year-round and 19% are seasonal. (Survey Results Tables 11-13 Pages 6-7); Employees were grouped in age between the ages 45-54 (the largest) and ages 35-44 (second largest). Most of those employees under 35 were employed on a seasonal basis. Those between the ages 35-54 had year round employment. (Survey Results Tables 37-38 Page 17)
Employer Survey-SGI	A majority of the employers in the SGI said that the availability of housing adversely affects their ability to hire the “right number of suitable employees” (43% responded yes and 36% responded sometimes). A majority also said that if there was more affordable housing they might expand their business or hire more staff. (Survey Results Tables 35-36 Pages 16-17) Some employers reported a willingness to work with others to develop solutions to the housing issues. When asked what solutions might be appropriate, their responses included removing regulatory barriers to development, providing tax incentives, building tiny homes and cabins and reducing and/or regulating STVRs. (Survey Results Tables 48-50 Pages 21-22) Seventy-six percent of the employers who responded do not provide housing for their employees and some reported their employees having difficulty finding affordable and appropriate accommodation. Some employers reported the loss employees due to the unavailability of affordable housing. (Tables 41-45 Page 19-20)

The GIAPC met with groups and individuals from the community, including delegations from Page Drive's Galiano Housing Society, Galiano Community School Parents Advisory Committee and the SGI Community Economic Sustainability Commission. Information provided by community representatives who appeared before the GIAPC was generally consistent with the findings of the HNA report.

3.0 PROVIDING A FRAMEWORK FOR VIABLE AND SUSTAINABLE COMMUNITY HOUSING PROJECTS IN OUR RURAL COMMUNITY

3.1 Framework Policies and Commentary

The GIAPC recommends that strong policy be in place and respected during any land use decisions, the most critical of which is groundwater protection. OCP policy should be referred to for guidance about the size, location and design of future affordable housing development.

Galiano OCP Community Housing Policies do address a lot of what we agree is important. However, we have found a few areas that could be improved upon, and these are set out in the recommendations section 3.3 below.

3.2 The Need for more Seniors and Special Needs Housing in our Future

As noted in the HNA report, in 2016, 19% of the population of the SGI received their incomes from government transfers. It can be assumed that some, if not the majority, of the income is paid to seniors residing in the SGI.

Further, given it is anticipated that there will be a 15.8% increase in population between 2016 and 2041, it can be assumed that some of this growth will be within the senior population. The HNA report noted that, for a variety of reasons, seniors might not remain within their communities "due to the lack of appropriate supported housing options and they age, and/or the lack of appropriate housing for support workers". However, in the resident survey completed and included in the HNA report, seniors 65 and over responded that they are certain or very likely to remain living in the SGI but housing remains a factor in their decision to do so.

3.3 Recommendations

3.3.1 The GIAPC recommends that all housing proposals and related policies contain strong principles which support diversity and integration of all families and individuals within our community.

3.3.2 The GIAPC recommends that new proposals for affordable community housing be developed based on aquifer and groundwater regions.

3.3.3 The GIAPC recommends that new proposals for affordable community housing for working families and individuals need to stay small in scale, be low impact and be dispersed island wide, within proximity of public road and hydro service as opposed to trying to keep it all at the south end.

3.3.4 The GIAPC recommends that new proposals for affordable community housing projects specific to Seniors or Special Needs housing may need to be located somewhat closer to the services at the south end of the Island.

3.3.5 The GIAPC recommends that new proposals for affordable community housing projects be designed to integrate within existing and new residential areas and fit in with Galiano Island's rural identity.

4.0 SUSTAINING GROUNDWATER AQUIFERS WHILE INCREASING DENSITY FOR AFFORDABLE COMMUNITY HOUSING

The GIAPC has included a detailed section on groundwater in this report. This is because, while affordable housing for our community is critically important to its diversity, cultural and economic sustainability, maintaining the health of our aquifers is equally critical to the long-term viability of our community.

“Community Housing”, the term used in the Galiano Island OCP, is defined in this section as purpose-built, rental and other affordable housing which increases density and intensity of land use.

Affordable community housing development intersects directly with Islands Trust Directive Policy 4.4.2 which states, *“Local trust committees and island municipalities shall, in their official community plans and regulatory bylaws, address measures that ensure: neither the density nor intensity of land use is increased in areas which are known to have a problem with the quality or quantity of the supply of freshwater, water quality is maintained, and existing, anticipated and seasonal demands for water are considered and allowed for.”*

The Crown's responsibility for groundwater is divested through several provincial and regional agencies that share management of water sources and supply. These include the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRO), Vancouver Island Health Authority (VIHA) and the Capital Regional District (CRD). The Islands Trust is responsible for the protection of groundwater from the effects of land use and must consult with a number of referral agencies, including First Nations. It does not have a role in approving water supply and systems.

The Waterline Galiano Groundwater Study of March 31, 2011 (Waterline Galiano 2011) and Galiano Groundwater Regulations Review of May 10, 2012 (Galiano Groundwater Regulations

2012) provide the most current review of groundwater conditions and guidance for land development that increases density and intensity of land use.

New BC water laws, evolving groundwater science, the public interest in groundwater protection, water supply regulations and the number of agencies involved all combine to create a daunting process for developing community housing proposals.

4.1 Expanding and Sharing Knowledge of Groundwater Resources:

A coordinated approach to groundwater protection is needed.

FLNRO, VIHA, the CRD and the Islands Trust need to increase collaboration; information needs to be shared across agencies. Criteria used by approval agencies to determine community housing water demand should be reviewed, updated and coordinated where possible. This is especially important given the increasing development pressures and demand for water, as well as environmental stressors such as lengthening periods of seasonal drought.

4.2 Groundwater Protection in Community Housing Rezoning Applications

The OCP's Water Supply section states this Objective as related to land development: *"to ensure that the local trust area develops only in a manner that utilizes the precautionary principle and the best information available regarding water resources, so that the resource will be preserved for current and future use"*

Community housing should be developed in reference to groundwater regions and the aquifer's capacity to support the number of dwelling units proposed. The Waterline Galiano Groundwater Report of 2011 provides a useful guide. Mapping shows groundwater recharge areas (Figure 2); areas where aquifers are stressed through overuse and saltwater intrusion (Figure 5); areas where water quality and well chemistry is a concern (Figure 9); and areas of the island where aquifers are rated at moderately high or at high risk of groundwater contamination (Figure 10).

Water supply should be the basis for planning community housing. Groundwater capacity should be confirmed prior to final adoption of rezoning bylaws. Where an unqualified statement cannot be made regarding the quantity and quality of groundwater available, there should be a "phased-in" approach to the number of dwelling units built. This would allow for groundwater capacity to guide land use. The option of controlling occupancy (density and intensity of land use) through legal mechanisms such as an affordable housing agreement or a restrictive covenant is not recommended because the Trust does not have a legislative tool to enforce occupancy.

Rainwater catchment is an effective and important conservation strategy and is recommended for supplementing non-potable water uses but should not be the prime, or sole, source of potable water for community housing. Current VIHA and CRD regulations for converting rainwater to potable water require engineering and other resources not easily available or affordable at this time.

The Galiano Groundwater 2012 recommends introducing a "Proposed Critical Groundwater Protection Development Permit Area (DPA)" in order to better plan land development and subdivision.

A groundwater DPA would provide clear guidelines for development of community housing in relation to the aquifer. It would also recognize the needs of ecosystems that rely on freshwater, promote measures that maintain groundwater recharge and protect the subsurface against possible pollution from land use activities.

4.3 Strengthening Governance of Aquifers

Groundwater is a natural resource that the Crown and its authorized agencies protect for the benefit of the public through a public trust framework. Groundwater cannot be alienated from the public interest for private and exclusive possession or purposes. *“Sustainability requires that decisions about groundwater are made transparently, through fully informed public participation and with full account taken of ecosystem needs, intergenerational equity, and the precautionary principle.”*—Linda Nowlan, Program on Water Governance, UBC.

The Islands Trust preserves the public’s interest through policy directives that require land development not cause damage to the groundwater resource. In the Trust area, land development is applicant-driven. A proposal is shaped with the applicant through a series of staff reports. The process allows for proposed land use bylaws and amendments to be included and presented almost simultaneously to Trustees and the public at public LTC meetings. This approach does not consider wider consultation and the sharing of knowledge in the early stages, or discussions and adequate review by Trustees prior to public presentation. Staff report recommendations are generally designed to keep the application moving forward. The process for engaging the community is at a public hearing that occurs towards the end of the process. At the close of public hearing, no further information may be heard by, or discussed with, the Trustees. Bylaws then receive final reading and approval. It is rare for bylaws to not be approved at this stage.

This process ensures orderly progress for the application but has obvious disadvantages. Gathering public comment at the end of a process does not achieve community engagement or adequate consideration of the public interest in community development and groundwater protection.

While the application process provides clear steps for a proposed development, there is no equally clear process for valuing ecosystems. “Cost-benefit” analysis is necessary for aquifers, otherwise the application process will tend to favour socio-economic interests over ecosystems and groundwater.

In light of these concerns the application process should be reviewed and amended.

4.4 Recommendations:

4.4.1 The GIAPC recommends that the GILTC request the Islands Trust engage in a review of Trust-wide groundwater protection policy to ensure that:

4.4.1.1 planning decisions are based on the best available groundwater data and best practices are in place for land development proposals, including community housing;

4.4.1.2 there is effective information sharing among agencies and clarity of water supply regulations for proponents of community housing;

4.4.1.3 groundwater mapping is updated and ongoing monitoring technology is expanded; and

4.4.1.4 groundwater data such as mapping and current research is made easily accessible to community organizations and persons involved in developing community housing proposals and the public commenting on those proposals.

4.4.2 The GIAPC recommends that the GILTC be briefed by the Hydrogeologist-on-staff regarding current groundwater research and issues on a regular basis so that the Trustees have the best available information on Galiano Island groundwater. This will enhance decision-making.

4.4.3 The GIAPC recommends that the GILTC require any site considered appropriate for community housing that allows increased density compared to the neighbourhood be located on land that has the carrying capacity for the number of dwellings proposed, and be able to provide adequate quantity of groundwater that will not endanger the long-term sustainability of the aquifer.

4.4.4 The GIAPC recommends that the GILTC require community housing not be located in groundwater regions where there is high risk for contamination of groundwater due to the characteristics of the aquifer, based on the “Galiano Island Intrinsic Groundwater susceptibility” map, Figure 10, page 22 of the Waterline Galiano 2011.

4.4.5 The GIAPC recommends that the GILTC require that where there is uncertainty of aquifer capacity due to factors beyond the scope of a hydrogeologist’s assessment, that the OCP’s precautionary principle be followed to require a “phased-in” approach to zone density and build out, with additional dwelling units added when groundwater monitoring evidence permits.

4.4.6 The GIAPC recommends that the GILTC review and adopt the Waterline Galiano 2011 recommendation that hydrogeology assessments for land development proposals that increase density and intensity of land use include cumulative, long-term (longer than 100 days) projections for groundwater withdrawals in order to address climate change impacts, in particular, lengthening periods of seasonal drought.

4.4.7 The GIAPC recommends that the GILTC require hydrogeology assessments include ongoing groundwater monitoring for contamination, overuse or failure to recharge.

4.4.8 The GIAPC recommends that GILTC adopt the Galiano Groundwater Regulation 2012 recommendation to introduce a Proposed Critical Groundwater Protection Development Permit Area (DPA).

4.4.9 The GIAPC recommends the GILTC review and amend the application process for land development, including community housing, before proposed bylaws are developed by staff, in order to:

4.4.9.1 support a consultative, collaborative approach and engagement of the public interest in community development and groundwater protection;

4.4.9.2 enhance decision-making through more timely, comprehensive information sharing with the GILTC and the public; and

4.4.9.3 include an assessment process for valuing ecosystem services (cost-benefit analysis) in order to address and balance socio-economic needs with sustainability of groundwater resources.

4.5 Conclusion:

Land use planning for community housing should be based on groundwater regions and aquifer capacity. Planning should be guided by best practices to protect groundwater. The application process should be refined to allow for more consultation and collaboration in the early stages of development proposal to support the public's interest in groundwater protection and community development.

Section 4 Notes:

The groundwater recommendations listed above are found in the Waterline Galiano 2011 and the Galiano Groundwater Regulation Review 2012 and are in accordance to standard hydrogeological practices.

The substance of Section 4.3 and recommendation 4.4.9 is based on a brief by the POLIS Water Sustainability Project – The Future of Water Law & Governance series, Legal Issues Brief 2010-1 by Oliver M. Brandes and Randy Christensen, in partnership with University of Victoria, and with the Program on Water Governance, Institute for Resources, the Environment and Sustainability and the Department of Geography, UBC.

5. PLANNING FOR AFFORDABILITY AND COMMUNITY HOUSING

5.1 Aiding the Acquisition of Land for Purpose Built Affordable Rental Housing:

5.1.1 Land Development as a Source

In the past, there have been efforts made to balance the need for community housing with development proposals for Forest zoned parcels. The first attempt was within the OCP Heritage Forest option. That land use option, now discontinued, allowed for a small percentage of the original Forest parcel area to be converted from Heritage Forest to affordable or seniors' housing. Since that option's removal, GILTCs have continued to support community housing through what is generally referred to as the 25/75 option for development on Forest land. In this type of proposal, modelled after the Heritage Forest concept, approximately 25% of the land goes to Residential zoning (RR) and 75% is protected from future development and kept as forestland. The GILTC's have allowed one extra serviced lot to be created from the 75% to be protected, and then sold by the applicant but the profits, after costs, are contributed to a community housing society on Galiano Island.

The GIAPC considered a variation on what has been done in the past. Instead of the applicant donating the profits from the sale of a newly developed extra lot, they could simply provide the serviced lot itself, by donation. The donated lot could be transferred directly to a community housing society and rezoned by the GILTC to a site-specific community-housing zone, or held in a holding zone for future use.

In another variation, the applicant is required to sell the extra serviced lot to the community housing society at cost. This way the applicant would not have any extra costs for the servicing infrastructure of a community housing lot. However, the disadvantage in this model is the possible delay until the land is transferred to a community housing society if funds to buy it need first to be raised.

Both these variations would serve to reduce the land and infrastructure costs for a community housing society. The housing society could then focus on raising funds for the construction of the dwelling or duplex on the lot, designing it to integrate or blend with the new residential neighbourhood area situated within Forest land.

5.1.2 Zoning to Designate and Hold Future Community Housing Land

The notion of creating a special zone in which to hold land for future use for community housing was discussed by the GIAPC. The consensus was that it might help to enable donations of land from all possible sources in support of community housing and to ensure it remained available for that purpose.

OCP policies would need to be developed to establish a set of criteria for suitable land donations for affordable housing. These criteria should include close proximity to an open public road, and to hydro and communications infrastructure. They should also include (and as per Section 4 of this report) a requirement that they NOT be in an area already identified to have groundwater quality or supply problems, or have highly susceptible aquifers.

The GIAPC agreed that a means by which donated land could be safely held in trust, until such time as a community housing project was funded and ready to proceed, would be extremely helpful. Lands held in trust for community housing could also be zoned accordingly in our LUB. Whether a donation of land arises from a rezoning for development in the Forest zone, or from some other private land source, it would be helpful to be able to accept the donation as a charitable donation. It was agreed that the Islands Trust should be encouraged to establish a Community Housing Land Trust with charitable status, and that the GILTC should create a zone for land held by such a land trust.

A rezoning process to put land into a zone for future affordable community housing projects is needed. Projects, when ready to proceed, would then need to be rezoned to a site-specific Community Housing zone.

5.2 Design Options to Reduce Development and Building Costs:

The GIAPC discussed and considered various housing type options that could increase affordability. The HNA report discussed these as well and those surveyed made suggestions for addressing housing options.

These housing options included tiny homes, cabins, co-op housing, co-housing, mobile home parks, employer-built accommodation for seasonal workers, purpose-built rental housing and secondary suites.

The OCP and LUB already allow secondary suites as an alternative to the cottage provision.

The current OCP Community Housing Policies for community housing proposals permit co-housing, co-op housing, clustered detached dwellings, duplexes or attached ground-oriented housing. Tenure can be by rent, lease, sale or shares but with fixed amounts below average rates within the region.

Mobile home parks specifically are not permitted. However, there could be exceptions in the case of community housing projects.

Tiny homes on wheels are not mentioned in the OCP. These should be considered for community housing and/or affordable rental housing purposes. The GIAPC considered whether, by special license (if and when the Islands Trust achieves that legislated tool), a tiny home on wheels could be permitted for a term of use if it met health and safety requirements. Such licensing could also be used in the case where recreational vehicles or travel trailers are being used for full time housing.

5.3. Creating Affordable Opportunities for Entry Level Residential Land Ownership

Under our LUB new subdivisions are expected to meet density of the lands zoning. Most residential zones have a lot size average and minimum lot size. There are also subdivision regulations in place for lot proportions.

However, if the Galiano Island community wants its residential lands to provide a diverse range of housing to reflect the diversity in its population, the community may need to guide the development processes of rezoning and subdivision with that goal specifically in mind. The subdivision regulations could direct that new lots be designed in a variety of sizes and values. At present this is an option, and possible, but not required.

Land development seeks to maximize profits by using attributes such as waterfront and/or views to the best advantage. Usually lot layout is designed so all lots benefit from higher valued attributes. Naturally, this influences the price. If the Galiano Island community wants to ensure some lots will be kept more affordable, OCP policy and LUB subdivision regulations could be revised to ensure a percentage of newly developed lots will be specifically designed for a lower price. This would mean requiring that some smaller lots be created within the permitted density average, and, if applicable, kept back from waterfront or views.

To ensure these newly created smaller lots remain more affordable over time, covenants could be used to restrict the size of dwelling and accessory buildings. This concept balances the needs of the proponent with the needs of the community. The impact on the profit margin may not be too significant as the lot averaging would mean that other lots with a view or waterfront would be larger and bring a higher price.

5.4 Dwelling sizes and affordability

The construction of excessively large homes in the Islands Trust region seems counter to many Islands Trust and local OCP provisions aimed at preserving the environment, the viability of communities and the affordability of housing for residents of the Trust Area. Now would be a good time to consider implementing an upper limit to the size of dwellings in the Galiano Trust Area.

But more directly relevant to affordable land and housing would be the addition of a means to have covenants on new lots that are developed to be more affordable, to limit the size of dwelling and accessory buildings. This measure could help preserve a base of more affordable starter homes in our residential land base.

5.5 Recommendations

5.5.1 The GIAPC recommends that the GILTC review and amend the OCP and LUB to direct that new subdivision proposals include a percentage or number of lots, to be donated, or sold at cost neutral, to an affordable housing society for building affordable rental housing.

5.5.2 The GIAPC recommends OCP 1.6 Community Housing be amended to allow mobile homes parks in the case of affordable community housing developments, provided scale and spacing are suitably limited to fit the rural characteristics of Galiano Island and that the LUB Prohibited Uses section 2.3.2 be amended to add an exemption for Community Housing.

5.5.3 The GIAPC recommends that the GILTC create policy and regulation directing that a percentage of any new lots being created must be designed to be more affordable, both in land price by way of NOT being waterfront or view, and/or by being on the smaller end of lot size for the average in the zone.

5.5.4 The GIAPC recommends that the GILTC consider using registered covenants to limit the building size/footprint on the required percentage of smaller, more affordable parcels as per recommendation 5.5.3.

5.5.5 The GIAPC recommends that the GILTC consider altering the lot proportion requirements for view and waterfront to improve the chances of an applicant keeping a percentage of new lots inland and more affordable.

5.5.6 The GIAPC recommends that the GILTC consider implementing policy and regulation to cap the size of dwellings, Island wide, proportionate to zoned lot size average.

5.5.7 The GIAPC recommends that the GILTC establish a special zone for land held in trust for future use as community housing.

5.5.8 The GIAPC recommends that the LTC advocate to Trust Council that the Islands Trust establish a Community Housing Land Trust with charitable status for the purpose of accepting land donations for community housing.

5.5.9 The GIAPC recommends that, as soon as licensing is available, policy and guidelines be made available to permit moveable tiny homes, motor homes or travel trailers to be used as affordable housing, and be subject to a term, and basic safety and health standards.

6. PLANNING FOR THE IMPACT OF COMMERCIAL ECONOMY, INCLUDING TOURISM, ON AFFORDABLE LONG-TERM RENTAL HOUSING AND COMMUNITY HOUSING.

In the Employer Survey, included in the HNA report, a majority of the employers in the SGI said that the availability of housing adversely affects their ability to hire the “right number of suitable employees” (43% responded yes and 36% responded sometimes). Seventy-six percent of the employers do not provide housing for their employees and some reported their

employees having difficulty finding affordable and appropriate accommodation. A majority of employers said that if there was more affordable housing they might expand their business or hire more staff.

Many of our local businesses are tourism-related and therefore seasonal. The peak demand period of June through September generates demand for seasonal workers, which is often only partly filled by local residents. Some businesses require additional staff and casual workers beyond what the Island resident community can provide so non-resident seasonal and regular employees are brought to the Island. This may put added pressure on our local long-term affordable rental housing resources during tourist season.

As noted in the survey, some employers reported a willingness to work with others to develop solutions to the housing issue.

6.1 Recommendations:

6.1.1 In all future rezoning or redevelopment tourism-related applications which create the need for off-island seasonal employees that the provision of staff accommodation should be a requirement.

7. CONSIDERATIONS FOR INCREASING THE AVAILABILITY OF LONG- TERM HOUSING RENTALS

The GIAPC considers STVR use of residential properties in the Galiano Trust Area to be a major contributing cause in the short supply of long-term rental opportunities in our community. While the shortage has been often felt over many years, it has seemed worse of late. The current provisions in our OCP and LUB have legalized STVR use as a home occupation, and made STVR uses by non-resident property owners possible by Temporary Use Permit (TUP). In the first five years of their use TUPs seem to have led to increased housing shortages. It seems to us that for the GILTC to take the housing shortage seriously it must take a closer look at STVRs and find ways to closely track, manage, and limit them.

Cottages were originally permitted as “guest cottages” only. Changes were subsequently made to our LUB to allow an increase in cottage size and also to legalize full time occupancy with the goal of increasing the affordable rental housing inventory. Further increases in the allowable size of cottages have since been made largely on the premise that this made a cottage more livable long term for a couple or even a small family. Increasing their appeal in the STVR market was never stated as a goal.

In 2013 further changes to our OCP and LUB made the use of cottages as STVRs legal as a home occupation. This seems to have coincided with an upswing in on-line advertising services such

as Airbnb. Online vacation rental sites have allowed property owners to access a large pool of tourists increasing their ability to offer STVRs with greater ease. This provides greater incentive to remove such properties from the general rental pool and, in particular, the more affordable rental cottages.

There are economic benefits to those operating STVRs. In some cases, STVRs allow property owners to enhance their incomes in the face of increasing costs and affordability. This may serve to infuse income into the Galiano Island economy both from tourists and/or from owners. However, this adversely affects the availability of long-term affordable rental housing. Many leases are now only available for off-season rentals of nine or ten months. (*Options for Affordable Housing: New Solutions to the Housing Crisis in the Islands Trust Area, Victoria 2013*). Our close proximity to large urban areas makes Galiano a convenient STVR destination. However, there is an urgent need to get control of STVR numbers and distribution before irreversible harm is done to our community diversity and culture.

The issue of availability of affordable, long-term rental housing is not a new issue on Galiano Island. Most of the members of the community, who made presentations to the GIAPC, noted that STVRs are having an adverse impact on the affordable and acceptable rental stock.

There are anecdotal stories of tenants being evicted, once the summer holiday arrives, as properties are rented for more money during peak tourist season. This anecdotal information was supported by the findings contained in the HNA report.

With increased tourism STVRs have increased in the recent years. However, affordable housing for those who work in the tourist industry has not increased. As noted in the HNA report, there is a shortage of seasonal rental accommodation.

In early 2017 the GIAPC considered the issue of STVRs in other referrals to it by the GILTC. The discussion of this issue continued in this referral. Our discussions and reports included the following observations:

- There has been no cumulative analysis of the impact of STVRs on the availability of affordable rental housing on Galiano Island.
- Data is required regarding the number of STVRs and where they are located on Galiano, and how many STVRs are operating without permit and in what areas.
- All STVRs should be licensed.
- To reduce impact on affordable rental housing, the GILTC may need to limit the number of STVRs generally and in specific areas. The GILTC should take steps to create maps illustrating the locations of all STVRs, which would provide the opportunity to regulate STVRs. The applicant for a TUP would be required to provide notice to neighbours of their application to operate a STVR. The purpose of limiting STVRs is to maintain the primary use of Galiano Island's residential zones.

- A complaint driven process to address STVR regulatory infractions is a problem. Galiano Island needs a proactive and funded system to investigate and enforce compliance.
- Owners of STVRs do not pay a commercial tax although they are using their dwelling(s) as a type of hotel accommodation. This is different from bed and breakfasts which are operated with the owner living in the dwelling.
- The GILTC should consider providing tax relief and/or financial incentives to owners providing long-term affordable rental accommodation similar to owners that keep natural areas or agricultural land intact.
- If there are two dwellings on one property, one dwelling is to be used as a residence, whether by a full-time renter or owner.

7.1 Recommendations

Our OCP contains Home Occupation Objectives. The second is *“to preserve the residential character of neighborhoods”*. In addition, our Commercial Objectives include *“3) to protect the character and integrity of quiet, residential and rural neighborhoods.”* The following recommendations strive to achieve those objectives by setting appropriate limits for STVR use of residential lands.

7.1.1 The GIAPC recommends that the GILTC immediately undertake a review and amend the current STVR TUP and Home Occupation STVR provisions.

7.1.2 The GIAPC recommends that the GILTC find means of establishing limits on the number of all types of STVR; and that the limits include a cap for the Galiano Trust Area, to ensure limits apply specifically to different neighbourhood areas, groundwater regions and Water Management Areas:

7.1.2.1 Limits could be established based on percentage of number of residential dwellings in Galiano Trust Area, set for a term (eg. 5 years , and reviewed at the end of that term;

7.1.2.2. Lower limits would be especially important in Water Management Areas and other areas that have water issues identified by the GILTC, the Galiano Waterline Study 2011, or by the community;

7.1.2.3 When an existing TUP expires the GILTC should not permit a renewal unless the total number of other STVR TUPs is under the cap set for the region or the island as a whole; and

7.1.2.4. A limit on the total number of years a given property can be used for STVR should be considered to give opportunities to other owners.

7.1.3 The GIAPC recommends that in order to monitor, gather data and enforce limits on STVRs, the GILTC consider requiring TUPs for ALL STVRs, including bed and breakfast accommodation until licensing becomes an option. (see for example the City of Nelson annual licensing and regulations).

7.1.4 The GIAPC recommends that the GILTC find resources to proactively enforce compliance with STVR limits and regulations. Fines should be sufficiently high to ensure compliance and/or act as a deterrent to others (for example the City of Nelson imposes fines of \$5000/day).

8.0 TAX INCENTIVES, FUNDING SOURCES AND SUPPORT

The GIAPC noted that STVRs provide an opportunity to homeowners to enhance their incomes. The GIAPC discussed that perhaps some form of tax incentive should be provided to those homeowners who provide affordable rental housing. In the surveys results reported in the HNA there was support for tax incentives to help improve the availability of affordable homes by providing home-owners with greater income. One community member made this suggestion in his presentation to the GIAPC. It was his view that this is a more effective approach than imposing penalties and may lead to a more stable and affordable rental housing market.

In the HNA Employers Survey, employers suggested that some options to address the shortage of affordable housing would be to both reduce regulatory barriers to development and to provide tax incentives to those providing affordable housing, including rental housing. The GIAPC noted that the “regulatory barriers to development” are not specified by these employers’ comments. Most regulations that apply to subdivision and development have a purpose linked to broad public interest.

An Affordable Housing Reserve (AHR) could be created. An AHR could provide tax incentives for landowners providing long-term affordable rental housing, similar to the way the Agricultural Land Reserve (ALR) and Private Managed Forest Land (PMFL) provide tax relief in return for protecting agricultural land or growing and harvesting timber on forest lands.

Tax breaks do exist already for non-profit societies that own and manage affordable or seniors housing. The GIAPC learned that they do not pay land taxes.

Community input received by the GIAPC informed us that:

- Having access to low mortgage rates for either improvements to, or purchasing of, affordable housing would be helpful.
- Creating a “Community Mortgage Investment Corporation”, would raise funds in the community that would be available to those on the island for the purchase of a home and/or for the building of affordable rental housing units.

- The CRD has a Regional Housing First Program in place and is working with other government agencies on funding new housing for the homeless.
- Creating a housing trust/society (or a similar type structure) may assist in protecting existing rental housing stock that is for sale.

The GIAPC also discussed establishing a “housing agency”, which would assist those both looking for, and those providing, affordable rental housing.

The GIAPC discussed the need to create an affordable housing society that could oversee the construction and management of affordable housing rental units and take advantage of available government funding. However, the difficulty is that Galiano Island is already heavily burdened with demands on our volunteer base for many of the community’s important functions. There is a concern that finding human resources in the community to keep affordable housing projects going will be difficult.

The GIAPC discussed the need for the Islands Trust to create an Islands Trust Community Housing Land Trust. This would affirm the principle that affordable housing is the basis for sustainable communities. It was also the first recommendation of the “Community Housing in the Trust area 2016-Final Recommendations” report.

8.1 Recommendations:

8.1.1 The GIAPC recommends that the GILTC support Trust-wide initiatives and Provincial tax incentives that benefit property owners who provide long -term affordable rental housing to residents.

8.1.2 The GIAPC recommends that affordable community housing projects or proposals should be designed to meet requirements to qualify for available CRD, Provincial and Federal funding support for affordable housing.

8.1.3 The GIAPC recommends that the GILTC explore taxation initiatives that would ensure STVR operators are taxed at a rate appropriate for the commercial use of their residential lands.

8.1.4 The GIAPC recommends that the GILTC advocate for the creation of an AHR – Affordable Housing Reserve. This would provide an incentive for landowners to rent long term affordable housing based on the models of the ALR and PMFL which provide tax relief for the protection of farmland and forest lands.

Top Priorities

Galiano Island

No.	Description	Activity	R/Initiated	Responsibility	Target Date
1	Telecommunication Strategy	Review telecommunication options, including policies for telecommunication towers, on Galiano Island.	01-Feb-2016	Kim Stockdill	01-Dec-2017
2	Affordable Housing Strategy	Special APC to review options	07-Mar-2016	Kim Stockdill	31-Oct-2018
3	Dock Review	Review issues regarding docks and new shoreline information and whether changes are required to the LUB.	07-Mar-2016	Kim Stockdill	31-Oct-2018

**Projects****Galiano Island**

Description	Activity	R/Initiated
Soil Removal and Deposit Bylaw	Review need and options for implementation of soil removal and deposit bylaw	12-Sep-2011
Comprehensive Watershed Planning	?	01-Oct-2016
Commercial Vacation Rental (TUP) Review	Review the Temporary Use Permit (TUP) guidelines in the Official Community Plan in relation to commercial vacation rentals.	05-Dec-2016
Review of split zonings.		05-Mar-2018
Amendments to Forest designation and F1 zone -	Consider options for amendments to Forest Land Designation and policies and F1 zoning for lands without Managed Forest Status. Draft bylaws have been prepared, project deferred at meeting of April/12	16-Apr-2012
Parking Issues	Issue for discussion with MoTI and public parking issues generated from associated islands. (see correspondence from P. Midgely on agenda of Apr/12)	23-Jul-2012
Bike Trails and Camping	Letter dated July 8, 2013 received from Galiano Parks and Recreation Commission regarding bike safety on Galiano roads (See Transportation policy U of Section 1.1) and for the allowance of non-commercial camping on private lots.	15-Jul-2013
Ocean Based Geo-Exchange Systems	Review of regulations for geo-thermal exchange use.	18-Nov-2013
Information Note Addition	Add in Information Note on Archeological Sites under General Regulations	18-Nov-2013
Light Industrial Zoning	A review and inventory assessment of existing and potential light industrial zones.	18-Nov-2013



Projects

Galiano Island

Description	Activity	R/Initiated
Land Use Bylaw Amendments	To review LUB for: any technical/administrative bylaw amendments (e.g. definition references and numbering), shoreline zoning wording, crown lot rezonings, and review park zoning (specifically to allow stairs in setbacks).	07-Jul-2014
Community Benefit Review for Forest Lands	Staff to prepare preliminary report for new LTC	08-Sep-2014
Consider amendments to re-designate and rezone crown owned Forest lots.- Bylaws 231, 232 at First Reading	re-refer to FLNRO for comment	



Islands Trust

Print Date: October 9, 2018

Applications

Development Permit

File Number	Applicant Name	Date Received	Purpose
GL-DP-2018.1	Galiano Community Housing Association Planner: Kim Stockdill	22-Aug-2018	Galiano Green Housing 20 Lot Subdivision
Planning Status			
Status Date: 09-Oct-2018 RAR received and staff report to be on October 15th, 2018 LTC agenda.			
Status Date: 07-Sep-2018 Waiting for RAR report.			
Status Date: 22-Aug-2018 Open File Process Cheque			

Development Variance Permit

File Number	Applicant Name	Date Received	Purpose
GL-DVP-2018.1	GALIANO COMMUNITY HOUSING ASSOCIATION Planner: Kim Stockdill	15-Aug-2018	Non-profit housing - 20 units
Planning Status			
Status Date: 09-Oct-2018 Application on Oct 15/18 LTC agenda.			
Status Date: 24-Aug-2018 File Opened. Receipt Issued. Handed to planner.			
File Number	Applicant Name	Date Received	Purpose
GL-DVP-2018.2	ERIK S MEDEN Planner: Phil Testemale	29-Aug-2018	4121 Porlier Pass Rd

Applications

Planning Status

Status Date: 04-Oct-2018

Applicant requested deferral to December LTC to address neighbour concerns and siting issues.

Status Date: 20-Sep-2018

Permit & Notice to DC for mailout and delivery. October 15 LTC agenda.

Status Date: 11-Sep-2018

Drafted DVP and Notice. Referred to CRD Robert Gutierrez for comments on BCBC and CRD Building Bylaws. 7 day request.

File Number	Applicant Name	Date Received	Purpose
GL-DVP-2018.3	JOHN P COATES	29-Aug-2018	1645 Sturdies Bay Rd

Planner: Kim Stockdill

Planning Status

Status Date: 09-Oct-2018

Application on Oct 15/18 LTC agenda.

Status Date: 31-Aug-2018

created application, processing fee, copied LTC, and forwarded to Planner

File Number	Applicant Name	Date Received	Purpose
GL-DVP-2018.4	GALIANO HEALTH CARE SOCIETY	28-Sep-2018	renovation and expansion project

Planner: Kim Stockdill

Planning Status

Status Date: 09-Oct-2018

Staff reviewing file.

Status Date: 28-Sep-2018

created application, fees received, copied LTC and forwarded to planner

Rezoning

File Number	Applicant Name	Date Received	Purpose
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Applications

GL-RZ-2014.1

Crystal Mountain
Society

28-Oct-2014

20300 PORLIER PASS RD

To allow for year round use of the Forest Retreat Centre

Planner: Kim Stockdill

Planning Status

Status Date: 01-May-2018

Applicants asked to have a preliminary subdivision layout plan prepared for review

Status Date: 25-Apr-2018

Applicants provide preliminary comments for staff review and s.99 subdivision for Trust Fund review

Status Date: 12-Mar-2018

Meeting with applicant representatives, more information and plans required before reporting back to LTC

File Number	Applicant Name	Date Received	Purpose
GL-RZ-2016.2	GALIANO CONSERVANCY ASSOCIATION	08-Aug-2016	DL 57 10825 Porlier Pass Rd Rezoning from Rural to Environmental Education use and Nature Protection.
Planner: Kim Stockdill			

Planning Status

Status Date: 01-Oct-2018

Received Minister's approval.

Status Date: 01-Jun-2018

Approval of trail SRW received from ALC with conditions.

Status Date: 24-Apr-2018

Forwarded to Minister's office

File Number	Applicant Name	Date Received	Purpose
GL-RZ-2017.1	DL37 Holdings, F. Stevens & I. Stevens	02-Aug-2017	Rezone DL37 from F1 to allow residential and industrial use
Planner: Robert Kojima			

Planning Status

Applications

Status Date: 17-Sep-2018

LTC endorsement of covenant

Status Date: 15-Aug-2018

EC approval of bylaws, Bylaw 265 forwarded to Minister

Status Date: 15-Aug-2018

Moti approval in principle of draft covenant

File Number	Applicant Name	Date Received	Purpose
GL-RZ-2017.2	BERNARD MIGNAULT	02-Nov-2017	Rezone from F1 to RR2
Planner: Kim Stockdill			
Planning Status			
Status Date: 09-Oct-2018			
Placed on EC agenda for October 10th.			
Status Date: 17-Sep-2018			
Second & Third Reading given.			
Status Date: 07-Sep-2018			
Further information on land donation received.			

Subdivision

File Number	Applicant Name	Date Received	Purpose
GL-SUB-2017.2	PETER THOMSON	22-Dec-2017	409 Porlier Pass Drive - proposed 20-lot bare land strata subdivision
Planner: Kim Stockdill			
Planning Status			
Status Date: 09-Aug-2018			
SD referral response sent to MOTI. Applicant required to apply for a DP and DVP.			
Status Date: 19-Jul-2018			
Emailed Applicant's completed Subd Ref Review form to LTC cc Planner, MoTI; gave folder to Planner.			
Status Date: 18-Jul-2018			
Created and emailed receipt letter and copy of receipt to Applicant; mailed originals.			



Applications

Islands Trust
 LTC EXP SUMMARY REPORT F2019
 Invoices posted to Month ending July 2018

625 Galiano	Invoices posted to Month ending July 2018	<u>Budget</u>	<u>Spent</u>	<u>Balance</u>
65000-625	LTC "Trustee Expenses"	750.00	0.00	750.00
LTC Local				
65200-625	LTC - Local Exp - LTC Meeting Expenses	5,500.00	1,835.09	3,664.91
65210-625	LTC - Local Exp - APC Meeting Expenses	500.00	1,139.13	-639.13
65220-625	LTC - Local Exp - Communications	250.00	409.50	-159.50
65230-625	LTC - Local Exp - Special Projects	500.00	0.00	500.00
TOTAL LTC Local Expense		<u>6,750.00</u>	<u>3,383.72</u>	<u>3,366.28</u>
Projects				
73001-625-4051	Galiano Affordable Housing	3,000.00	313.20	2,686.80
73001-625-4065	Galiano Dock Review	8,000.00	400.28	7,599.72
TOTAL Project Expenses		<u>11,000.00</u>	<u>713.48</u>	<u>10,286.52</u>

Galiano Island Local Trust Committee

POLICIES AND STANDING RESOLUTIONS

Updated: March 6, 2018

No	Meeting Date	Resolution No.	Issue	Policy
1.	May 11, 2009 / Amended February 3, 2014	GL-LTC-85-09 Amended:	Parks Commission Referral	That staff refer all applications adjacent to a park or ocean access to the Galiano Island Parks and Recreation Commission for comment
2.	October 18, 2010	GL-LTC-115-10	Publishing Notices beyond legal requirements	THAT the Galiano Island Local Trust Committee will advertise Public Hearing Notices in either the Active Page Magazine or Islands Tides Newspaper in addition to the legally required advertising in the Driftwood Newspaper.
3.	October 17, 2011	GL-LTC-205-11	Special Occasion Liquor Licenses	THAT where a Liquor Control and Licensing Branch Special Occasion License referral relates to a property on which Galiano Island Land Use Bylaw No. 127, 1999 permits public assembly uses, such as restaurants or community halls, and where there have been no issues related to parking or past complaints for the preceding three years , staff may approve the Special Occasion License without referral to the Local Trust Committee. All other Special Occasion License referrals are to be referred to the Local Trust Committee for consideration.
4.	February 3, 2014		Applications with Open Bylaw Enforcement files	On properties where there is an open bylaw enforcement file, planning staff should refer planning applications to the Bylaw Enforcement Manager for comment where one or more of the following circumstances exist: 1. There have been significant delays or longer than typical timelines in the enforcement process 2. The LTC is considering on-going, relevant policy or regulatory changes that could impact enforcement 3. Litigation has been recommended 4. Legal counsel has been involved (beyond providing a basic interpretation) 5. There has been enforcement action beyond seeking voluntary compliance (e.g. a BEN warning or ticket, adjudication, a compliance agreement negotiated, etc.) 6. There has been, or is an expectation of, joint enforcement with other jurisdictions 7. There is potential for impact on other related enforcement files.

No	Meeting Date	Resolution No.	Issue	Policy
5.	April 7, 2014	GL-2014-029	Community Wells as a Community Benefit	That the Galiano Island Local Trust Committee will consider as a community benefit for all rezoning applications where there is an increase in density, the establishment of an instrumented observation well.
6.	December 5, 2016	By consent	TUP for Commercial Vacation Rentals	Without fettering its discretion, the LTC provided the following guidance with respect to its consideration of TUP applications for Commercial Vacation Rentals: 1. A Commercial Vacation Rental use should only be considered in one dwelling per lot 2. Permits being considered in Water Management Areas should include conditions requiring cisterns with a minimum capacity of 16,000 litres and a water meter. 3. In order to assist in assessing cumulative impacts, staff are requested to continue to provide an updated map showing the location, status, and maximum number of guests of all Commercial Vacation Rental TUP applications.
7.	March 5, 2018	GL-2018-023	TUPs for Short Term Vacation Rental use	That the Galiano Island Local Trust Committee place a 12 month moratorium on the issuance of new temporary use permits for Short Term Vacation Rental (STVR).

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