



File No.: HO-DVP-2023.2
(x-ref. HO-SUP-2023.11)

DATE OF MEETING: June 14, 2024

TO: Hornby Island Local Trust Committee

FROM: Ian Cox, Planner 2
Northern Team

COPY: Renée Jamurat, Regional Planning Manager

SUBJECT: HO-DVP-2023.2
 Owner: INC. NO. 1427714 BC LTD
 Applicant/Agent: Ron McMurtrie
 Location: 6555 Anderson Drive, Hornby (the "Property")
 PID: 003-603-806
 Legal: LOT 36, SECTION 9, HORNBY ISLAND, NANAIMO DISTRICT, PLAN 19660
 Area: 0.15 ha

RECOMMENDATION

1. That the Hornby Island Local Trust Committee approve issuance of HO-DVP-2023.2

REPORT SUMMARY

This report introduces development variance permit HO-DVP-2023.2 (Attachment 1) for consideration by the Hornby Island Local Trust Committee (LTC). The application seeks to:

- Reduce the 30.0 metre setback from drinking water wells on the subject and neighbouring properties from 30 metres as required by the Hornby Island Land Use Bylaw (LUB) for a sewage disposal field, to 27.5 metres under the design and supervision of a Registered Engineer and septic Technician.
- Reduce the setback from the natural boundary of the sea from 15.0 metres as required by the LUB for buildings and structures, to 12.0 metres to accommodate installation of an associated septic tank.

The application states that no change in the principal use of the property is planned as part of the system relocation, which is required for construction of a new 130.4 m² (1,404 sf) single family residence (the New Residence). Staff recommends the LTC grant both variance requests under the analysis and rationale provided in the following sections.

RATIONALE FOR VARIANCE

The applicant submits that due to the location of the New Residence, the existing buildings and structures on the property, and the location of neighbouring property water wells, the proposed septic system location has been determined by a professional septic technician to be optimal for the site conditions and necessary given the constraints of the lot and the requirements of the provincial Sewerage System Regulation. Further, the

applicant has received a K'ómoks First Nation (K'ómoks) Cultural Heritage Investigation Permit (CHIP) (Attachment 2) for the scope of the works, and staff consider that because both the septic field and tank will be placed underground, there should be no visual impact to neighbouring properties resulting from a relaxation of the setbacks in this instance.

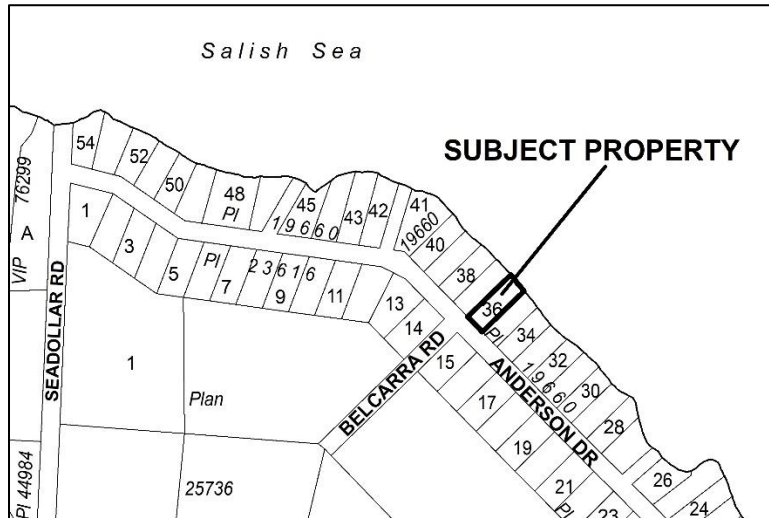


Figure 1 - Property Location

BACKGROUND

On August 22, 2023, Siting and Use Permit (SUP) application HO-SUP-2023.11 was received for the New Residence. The applicant provides that site constraints became clear during the design phase and the need for a possible variance to either or both the natural boundary and water well setbacks was identified through staff review of the SUP application. The system was redesigned and proposed to be located farther away from the natural boundary than first expected, requiring only a variance to LUB section 3.3(7) stipulating a 30 metre setback for septic disposal fields from water wells.

ANALYSIS

Setbacks for septic systems to the natural boundary of the sea and to water wells are intended to protect marine foreshore and drinking water quality from contamination by wastewater, respectively. In the case of this DVP, the applicant has provided that the siting constraints of the property necessitate the proposed system locations and has engaged a hydrogeological and septic professional to conduct a Setback Reduction Assessment as required by the Sewerage System Regulation for systems located less than 30 metres from a well that supplies a domestic water system. The assessment prepared by Elanco Enterprises Ltd., dated April 10, 2024 (Attachment 3), includes an analysis of the hydrogeology of the property. This report would inform the Record of Sewerage System filing required by Island Health as part of the installation of the system. The proposed location for the septic tank is less than the LUB-required 15 metres from the natural boundary, but is underground and is an enclosed system draining into the disposal field which will be located equal to or greater than the required 30 metres from the natural boundary of the sea.

Considerations and Potential Impacts:

Staff suggest the professional opinion contained in the assessment report provided by the applicant for the system supports the variance request. If the requests were denied, the applicant would need to redesign the siting of the

New Residence and it is not clear whether the 8.53 metre by 30 metre house footprint could be located elsewhere on the lot while respecting the 30 metre natural boundary setback of.

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.

Circulation

Notification of the DVP was sent to property owners and residents within 100 metres of the Property on May 30, 2024 in accordance with the Local Government Act (Attachment 4). Public comments can be received up to and including the LTC meeting on June 14th, 2024.

As of the date of this report, no correspondence had been received. Any submissions received prior to the LTC meeting date will be forwarded to the LTC and reported at the meeting.

First Nations

The Islands Trust reviews all applications to ensure the preservation and protection of cultural heritage, archaeological sites, and ancestral places. A CHIP was received and the Applicant granted the SUP on January 4, 2024. Staff consider the DVP application to be consistent with respect to LTC Standing Resolutions on reconciliation considering the direction given by K'ómoks First Nation through the CHIP process. Notwithstanding, to provide applicants with awareness regarding unknown archaeological areas, staff forwarded the Islands Trust Chance Find Protocol and the provincial Archaeological Branch guidelines on Heritage Act responsibilities directly to the applicant with the initial application.

Rationale for Recommendation

The applicant has received authorization from K'ómoks First Nation to proceed with the proposed development via the CHIP process and the existing septic disposal field that is currently sited within the setback to the natural boundary, is proposed to be moved to comply with the LUB required 30 metres if the DVP is granted. Staff consider these points to be an improvement on the current siting and do not anticipate any negative impact arising from the location considering the system design and level of effluent treatment per the professional advice and oversight provided. Further, the location of the septic tank at 12 metres instead of the required 15 metres from the natural boundary, is unlikely to cause issue with neighbouring properties since the tank is located underground and no effluent will discharge in that location which could cause "daylighting" in proximity to the foreshore. The staff recommendation to issue the permit is found on page 1 of this report.

ALTERNATIVES

The LTC may consider the following alternatives to the staff recommendation:

1. Request further information

The LTC may request further information prior to making a decision. 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 Hornby Island Local Trust Committee request that the applicant submit to the Islands Trust
[insert information request]*

2. Deny the application

The LTC may deny the variance request.

That the Hornby Island Local Trust Committee refuse application HO-DVP-2023.2.

Submitted By:	Ian Cox, Planner 2	May 30, 2024
Concurrence:	Renée Jamurat, RPP MCIP, Regional Planning Manager	May 30, 2024

ATTACHMENTS

1. Proposed DVP
2. K'ómoks First Nation Cultural Heritage Investigation Permit (CHIP)
3. Elanco Enterprises Ltd. Assessment Report
4. Public Notice
5. Site Context

PROPOSED



Islands Trust

**HORNBY ISLAND LOCAL TRUST COMMITTEE
DEVELOPMENT VARIANCE PERMIT
HO-DVP-2023.2**

To: 1427714 BC LTD

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

LOT 36, SECTION 9, HORNBY ISLAND, NANAIMO DISTRICT, PLAN 19660
(PID: 003-603-806)

2. Pursuant to Section 498 of the *Local Government Act*, the Hornby Island Land Use Bylaw 150, 2014, PART 3 GENERAL REGULATIONS, section 3.3 Siting and Setback Regulations, subsection (2), "No building or structure may be located within 15.0 metres of, nor less than 1.5 metres above, the natural boundary of any lake, watercourse or the sea."; and subsection (7), "Feeding troughs, manure piles, buildings and structures for housing animals and sewage disposal fields must be set back at least 30.0 metres from any well or from the natural boundary of any lake, watercourse or the sea.", is varied as follows:

- from 15.0 metres to 12.0 metres to accommodate installation of a new septic tank; and
- from 30.0 metres to 25.0 metres from the existing wells on the subject and neighbouring properties to accommodate installation of a new septic disposal field.

4. The development shall be consistent with Schedule 'A' – Site Plan, and Schedule "B" - Septic System Design Letter, that are attached to and form 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 "Hornby Island Land Use Bylaw No. 150, 2014" and to obtain other approvals necessary for completion of the proposed development.

AUTHORIZING RESOLUTION PASSED BY THE HORNBY ISLAND LOCAL TRUST COMMITTEE THIS XX DAY OF XX, 20XX.

Deputy Secretary, Islands Trust

Date of Issuance

IF THE DEVELOPMENT DESCRIBED HEREIN IS NOT COMMENCED BY THE XXth DAY OF XX, 20XX (2 YEARS FROM DATE OF ISSUANCE) THIS PERMIT AUTOMATICALLY LAPSES.

PROPOSED

HORNBY ISLAND LOCAL TRUST COMMITTEE
HO-DVP-2023.2

SCHEDULE 'A' – Site Plan
BEGINS ON NEXT PAGE

PROPOSED

PROPOSED

HORNBY ISLAND LOCAL TRUST COMMITTEE
HO-DVP-2023.2

SCHEDULE 'B' – Septic System Design Letter
BEGINS ON NEXT PAGE

PROPOSED



K'ómoks First Nation
3330 Comox Rd, Courtenay, BC V9N 3P8

**Cultural Heritage Investigation
PERMIT (CHIP)**

1. Administrative Information

KFN CHIP Number: KFN 2023-38

Permit Holder Name: Duncan White

Permit Holder Affiliation: 1427714 B.C. Ltd.

Address: 4135 Ripple Road

Street Address

West Vancouver BC V7V 3L1

City Province Postal Code

Phone: [REDACTED] Email: [REDACTED]

2. CHIP Details

Site Location: 6555 Anderson Drive, Hornby Island, BC

Borden Number(s) of registered archaeological sites:

N/A

Activities covered under this KFN CHIP:

Preliminary Field Reconnaissance (PFR) to inspect exposed surfaces for archaeological remains and to assess the property for potential of having buried archaeological deposits. Work conducted by a qualified archaeologist with a KFN monitor, in accordance with KFN Cultural Heritage Police (CHP).

Repository for any KFN cultural heritage objects or artifacts:

None-no collections.

Issuance date: 8 Nov 2023

Expiry date: 8 Nov 2025

A handwritten signature in black ink, consisting of several stylized, overlapping loops and lines.

Signatory, Elected Chief

K'ómoks First Nation Cultural Heritage Investigation Permit (KFN CHIP) Terms and Conditions

- The KFN Cultural Heritage Investigation Permit is valid for two years from the time of issuance. If the project is not completed within two years, and additional KFN Cultural Heritage Investigation Permit will need to be applied for.
- All fieldwork undertaken under this permit will include a KFN Guardian Watchman or KFN Archaeological Monitor for the duration of the fieldwork.
- Projects may require an additional project management fee, in addition to the permit fee, to be paid by the proponent.
- **If human remains are identified as a result of project related activities, the permit holder will immediately cease work, contact KFN, and follow KFN's specific requirements regarding human remains as detailed in the KFN Cultural Heritage Policy.**
- If human remains are removed as a result of project related activities, the proponent will bear the costs associated with reburial.
- Upon completion of fieldwork, the permit holder will make reasonable efforts to restore the physical appearance of the site.
- KFN will have a chance to review and comment upon the penultimate draft of the permit report.
- Upon completion of the project, KFN will be provided one digital and one paper copy of the final report.
- KFN retains the right to terminate this permit if evidence indicates that the permit holder is not acting under the terms and conditions of the permit.

ELANCO ENTERPRISES LTD.

Permit to Practice No: 1001505

4965 Cordova Bay Road, Victoria, B.C., V8Y 2K1

Phone 250 744-1357. E-mail: adakin.elanco@gmail.com

File: 310

April 10, 2024

1427714 BC Ltd.
4135 Ripple Road
West Vancouver, BC
V7V 3L1

Attention: Duncan White

Re: Assessment of Potential Impact on Water Supply Wells Resulting from the Construction of a Wastewater System on the 6555 Anderson Road Property, Hornby Island.

As requested, the writer has conducted a hydrogeologic assessment of the area on and around the subject property and has reviewed the drawings prepared for siting of a proposed new cottage and a wastewater treatment and dispersal system on your Hornby Island property. The purpose of this assessment was to determine if it would be safe to locate the dispersal field at distances less than 30m from three existing drilled water supply wells.

The Property

Your 0.15 hectare property (the Property) is located along the eastern Hornby Island shoreline at 6555 Anderson Drive (see Fig. 1). The legal description is Lot 36, Section 9, Hornby Island Nanaimo District, Plan 19660, PID 003-603-806.

Work Carried out

This study involved visiting the site on April 5th, 2024, reviewing available information and then determining potential contaminant migration pathways, well capture zones and assessing the pathogen removal potential below the proposed wastewater dispersal field. The information reviewed included: logs of water wells located within 100m of the Property, topographic and geological maps, a survey plan of the Property prepared by Peter T. Mason BCLS, the design concepts and a sketch map prepared by Ron McMurtrie P.Eng of Ron McMurtrie & Associates Consulting Engineers for the dispersal field. Also reviewed were the coliform removal calculations prepared by Mr. McMurtrie.

Topography and Drainage.

The southwestern portion of Property is relatively flat with elevations ranging from 7m to about 8m above sea level (asl) and has no well developed surface drainage channels. The northeastern portion slopes steeply over a distance of about 20m to the shoreline (see Photos. 1 and 2). The existing cottage is served by a 33.5m deep drilled water well (No. 40239). The location of this well and the proposed new cottage is indicated on Fig. 1. Both neighbouring properties have drilled wells, and their locations are also indicated on Fig. 1. Available information these wells, as well as many local area wells, is presented in Table I.

Soils

Three test pits dug in the area of the proposed sewage effluent dispersal field had the following typical profile: 0.0-0.05m Dark brown organic soil, 0.05 to 0.50m Sandy loam that is extremely gravelly, 0.50 to 0.60m Conglomerate bedrock (see Photos 3 and 4). The sandy loam classification was later confirmed by a jar test performed by Mr. McMurtrie.

The locations of these test pits are indicated as TP1 to TP3 on Fig. 2 along with the proposed locations of the septic tank and effluent dispersal field. In addition to the test pits, six exploratory holes were dug to establish bedrock surface elevations. These holes are indicated as TA to TF on Fig. 2 and confirmed that the thickness of the soil zone was relatively consistent at about 0.6m. The elevations of the bedrock surface are also indicated on Fig. 2 and this confirms that the bedrock slopes from near Anderson Drive towards the proposed sewage effluent dispersal field at the middle of the Property. The slope of the bedrock ranged from 0.3% between TE and TD to 1% between TF and TC.

Proposed Wastewater Treatment System

According to Mr. McMurtrie, the design professional, the estimated discharge from the proposed septic wastewater treatment system will be about 1,500 litres per day (L/d). The treated sewage effluent is to be discharged via a micro dosing system onto a pea gravel bed that is placed on top of a 0.45m thick layer of mound sand. After removing the organic soil layer there will be about a 0.5m thickness of sandy loam soil below the mound sand layer and above the conglomerate bedrock surface.

In order to assess the permeability of the soil a permeameter test was conducted in the sandy loam soil and the results determined that the field saturated hydraulic conductivity (kfs) was 1,894 mm/day.

In order to assess the underlying bedrock, a 24 hour infiltration test was performed in a trench constructed in the area of the proposed effluent dispersal field. This involved placing a line of emitters in the base of the 15m long trench and discharging water at a rate of about 750 litres per day (L/d) uniformly along the length of the trench (see Photo 3).

The design details for this dispersal field are set out in Appendix A which indicates that a hydraulic loading rate (HLR) of 30 mm/day was used to dose the mound sand with the daily design flow (DDF) of 1,500 L/day at a frequency of 18 per day. For the average daily flow (ADF) of 750 L/day, the HLR was 15 mm/day at a frequency of 9 doses per day.

For the natural soil interface the HLRs for the DDF and ADF were 25 and 14 mm/day respectively for the same dosing frequency.

By assuming a fecal coliform count of 1 million per 100mL, Mr. McMurtrie calculated that for both the DDF and the ADF scenarios all of the fecal coliforms will be removed before the effluent reached the conglomerate bedrock surface (see Appendix A). While this calculation is specific to fecal coliforms, experience indicates that this calculation is also a good indicator of

the mound sand and natural soil's capacity for removing most, if not all, of the potential organic and microscopic contaminants from the infiltrating sewage effluent before it reached the bedrock surface.

Hydrogeology

The logs of the local area wells suggest that the sediments in the region consist of a thin, less than 1.3m thick, overburden unit overlying sandstone or conglomerate bedrock. According to the bedrock geology map (see Fig. 3), this unit belongs to the Geoffrey Formation, which is characterized as a well sorted sandstone with interbeds of coarse conglomerate. Exposures observed along the shoreline (see Photo 2) suggest that this unit is relatively massive and dips to the northeast at about 3 degrees (see Profile A-A' on Fig. 3).

The logs of the drilled wells located the area show that well depths range between 26.2 to 96.6m (see Table I). Recorded depths to principal water strikes (PWS) ranged from 26.5 to 70.1m, which confirmed that most of the water entering the wells flows in to the wells at considerable depths below ground. Reported well yields ranged from 0.1 to 1.5 L/s. There were only two meaningful recorded depths to static water level at the time of well construction and these were 5.0 and 7.6m below ground. The 21.3 m depth to static water level in Well 108251 is not considered representative as it is below sea level and may have been impacted by pumping from a nearby well at the time of construction.

The section presented on Fig 4 is drawn through the well on the Property (well tag no. 40239) and two wells located southwest of Anderson Drive. This provides an indication of the soil and bedrock profile, along with the interpreted water table elevation and groundwater flow direction. As can be seen the effluent leaving the effluent dispersal field is likely to seep down to the water table and/or follow the bedrock surface towards the ocean. While it is difficult to predict the extent of a well capture zone in fractured bedrock, my experience and a simple hydraulic analysis carried out, indicate that the capture zone will likely not extend under the dispersal field area, as is illustrated on Fig. 1.

Conclusions

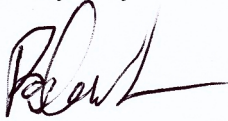
1. The waste water treatment system, including the dispersal field, will remove most, if not all, of the organic and microorganisms from the sewage effluent prior to it reaching the bedrock surface.
2. Once the percolated effluent reaches the bedrock it will either flow along the bedrock surface and/or seep down to the water table. In both cases the flow will be towards the ocean and not back towards the wells.
3. As none of the well capture zones are likely to not extend below the effluent dispersal field, the chance of effluent leaving these facilities and causing contamination of the water wells is very low, to non-existent.

4. The proposed minimum 24m horizontal separation distance between the three wells and the effluent dispersal field is adequate, provided that the proposed wastewater treatment system is constructed and maintained in accordance with the engineer's specifications.
5. These measures, and the 24m minimum setback distance, will ensure that the proposed wastewater treatment system will not pose a health hazard.

I trust that this sufficient for your present purposes.

Elanco Enterprises Ltd.

Yours very truly



Allan Dakin, P. Eng.
Senior Groundwater Engineer.



C: Ron McMurtrie, P. Eng., Hornby Island.

Photos



Photo. 1 View of existing cottage from the beach.



Photo 2. View of beach from the toe of the slope.

Note: conglomerate and sandstone bedrock is not exposed for some distance from the shoreline.



Photo. 3 Test trench dug in area of proposed wastewater dispersal field. The pipe with emitters had been discharging water for over 24 hours at a rate of about 750 Litres per day



Photo. 4 Test Pit 2 with spoil pile. This is typical of the cobbly loamy sand soil in the area.



Photo. 5 Well house on the Property.

While there is no record of well 40239 having a surface seal the well house provides a measure of protection from surface water entering the well alongside the 150mm diameter casing.

Tables

TABLE I
INFORMATION ON LOCAL AREA WATER WELLS

Address	Legal		WTN	Year Const	Depth (metres) to:				Elevation (m-asl)				Yield L/s
	Lot	Plan			Bedrock	SWL	PWS	Bottom	Ground	Bedrock	SWL	Bottom	
6435 Anderson Drive	42	19660	38757	1978	10.7	7.6	61.0	71.6	8	-2.7	0.4	-63.6	1.5
6555 Anderson Drive	36	19660	40239	1978	1.5	3.0	na	33.5	8	6.5	5.0	-25.5	0.8
6545 Anderson Drive	37	19660	40241	1978	1.8	na	35.1	39.6	8	6.2	na	-31.6	0.3
6490 Anderson Drive	13	23616	42459	na	3.0	na	na	30.5	9	6.0	na	-21.5	0.6
6520 Anderson Drive	14	23616	44082	1980	0.9	na	70.1	76.2	10	9.1	na	-66.2	1.5
6525 Anderson Drive	38	19660	47248	1982	3.7	na	45.7	96.6	8	4.3	na	-88.6	na
6605 Anderson Drive	33	19660	52705	1978	4.6	na	26.5	27.4	7	2.4	na	-20.4	0.8
6475 Anderson Drive	35	19660	74347	1986	1.2	na	na	77.7	7	5.8	na	-70.7	0.1
6595 Anderson Drive	34	19660	74878	1978	1.2	1.2	33.2	36.6	7	5.8	5.8	-29.6	0.2
6485 Anderson Drive	41	19660	83393	2004	na	na	na	54.9	8	na	na	-46.9	0.1
2025 Belcarra Rd	1	15736	83413	2002	1.8	na	na	26.2	10	8.2	na	-16.2	0.5
6495 Anderson Drive	40	19660	108251	2013	0.3	21.3	na	83.8	8	7.7	-13.3	-75.8	0.8
6545 Anderson Drive	37	19660	Well A	No information available									
Minimum					0.3	1.2	26.5	26.2				-88.6	0.1
Average					1.9	7.9	39.5	52.3				-50.6	0.5
Maximum					4.6	21.3	70.1	96.6				-16.2	1.5

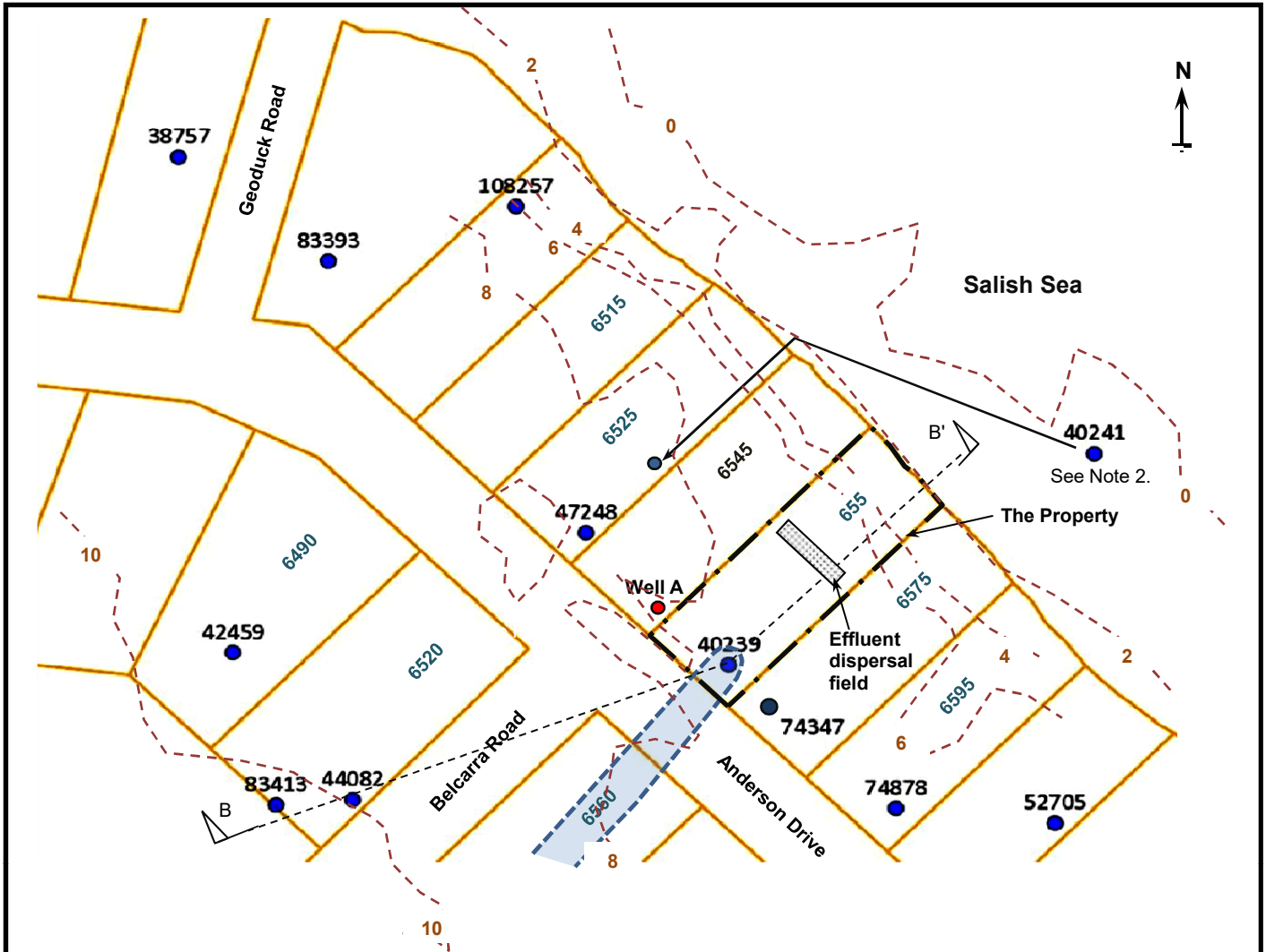
Notes:

na = no data available

- 1) Data based on logs available on the BC Ministry of Environment wells data base and other sources.
- 2) See locations of wells on Fig. 1
- 3) SWL = static water level recorded soon after well construction
- 4) PWS = Principal Water Strike. The depth were the principal water inflow occurred during well drilling.
- 5) All wells are 150-mm diameter drilled wells.

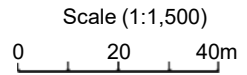
Red = the Property well

Figures



Legend

- Well in G-Wells database with indicated Well Tag Number.
- Well on survey map but not in G-Wells database .
- - - 10 2m topographic contours from Islands Trust web site
- B Hydrogeological section (see Fig. 4)
- Approximate extent of the capture zone for the well on the Property. (see Note 3)



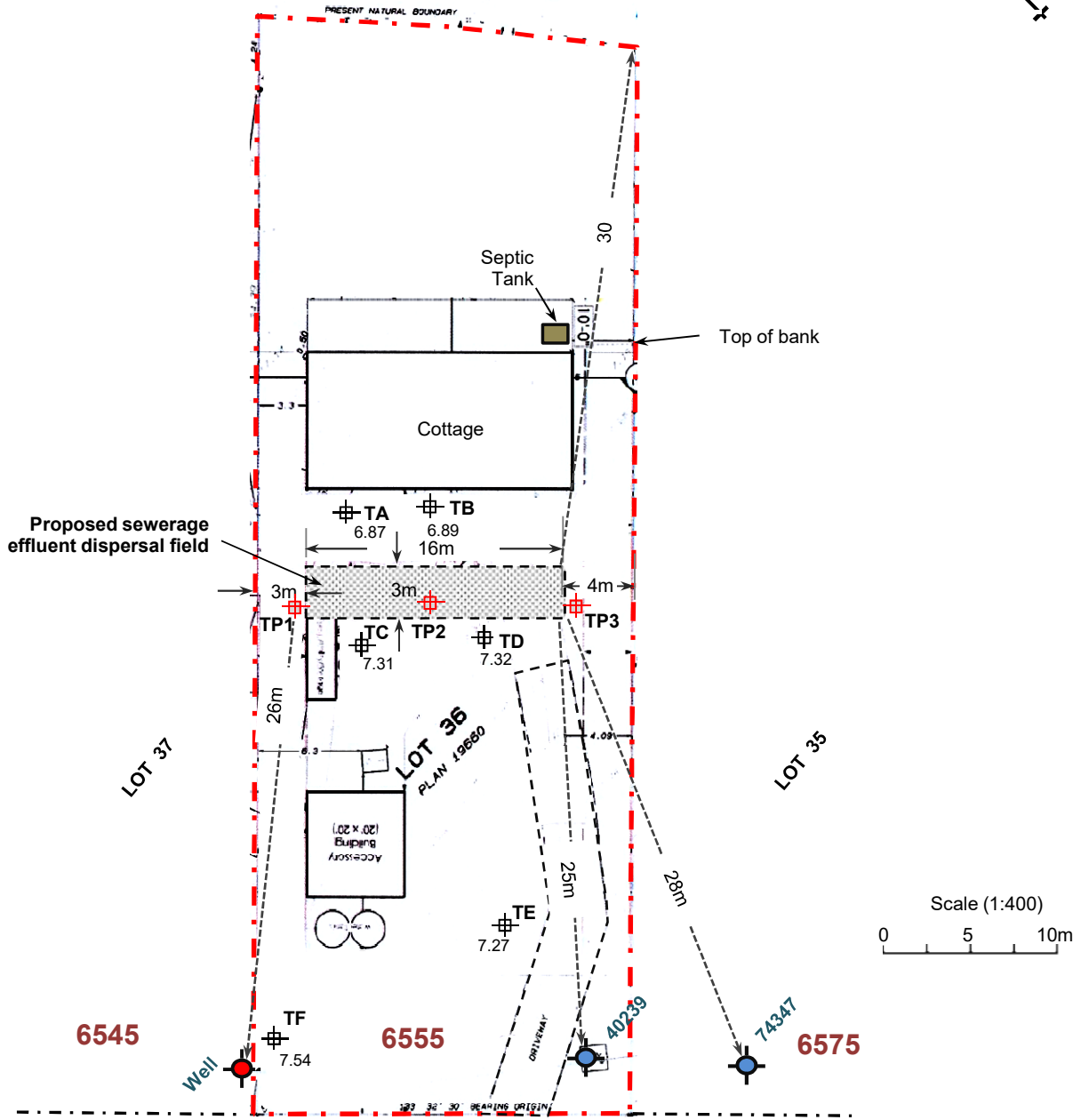
NOTES

- 1) Base map from Provincial Government G-wells database
- 2) Well 40241 is incorrectly located on the G-Wells map and was located on 6525 Anderson Drive property but has since been decommissioned.
- 3) The extent of the well capture zone is illustrative only, as it is based on the assumption that there are multiple fractures and that the aquifer transmissivity is 1.5 m²/day

1427714 BC Ltd	ELANCO ENTERPRISES LTD. Victoria, B.C. (250 744-1357) Permit to Practice No: 1001505
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Assessment of Setback Distance Between Wastewater Treatment System and Water Supply Wells, 6555 Anderson Drive Property, Hornby Island , B.C.	Well Location Map	Drawn: Approved:	Date Apr. 2024 Fig. 1
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SALISH SEA
STRAIT OF GEORGIA



Legend

- Well in G-Wells database with indicated Well Tag Number.
- Well in G-Wells database .
- TP1** Test pit.
- TB** Bedrock surface exploratory hole with indicated bedrock elevation (m-asl)
6.89

Notes

- 1) See Property location on Fig. 1
- 2) Base map modified from AJIA site plan A1.1 and wastewater treatment system locations provided by Ron McMurtrie.

1427714 BC Ltd

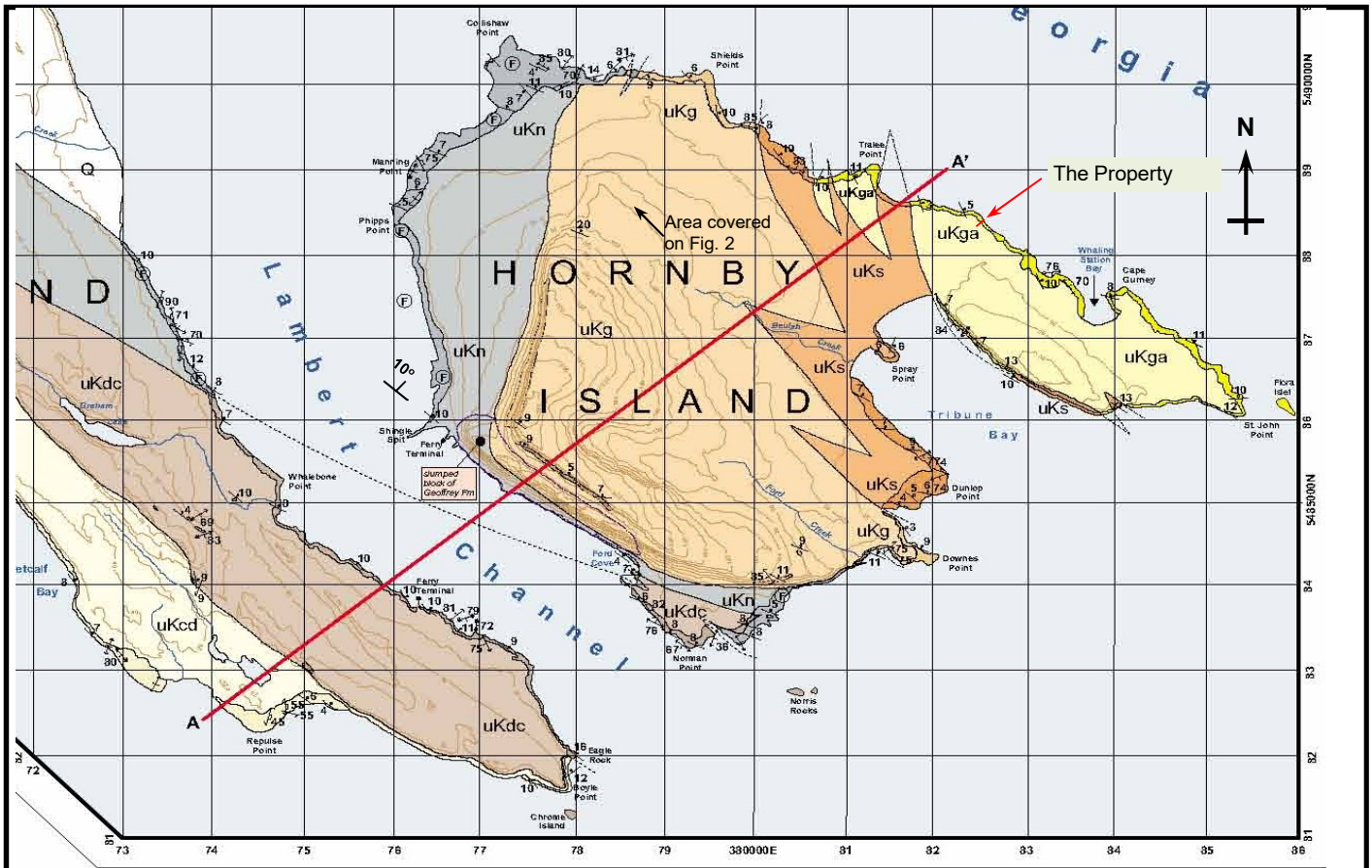
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Victoria, B.C. (250 744-1357)
Permit to Practice No: 1001505

Assessment of Setback Distance Between Wastewater Treatment System and Water Supply Wells, 6555 Anderson Drive Property, Hornby Island, B.C.

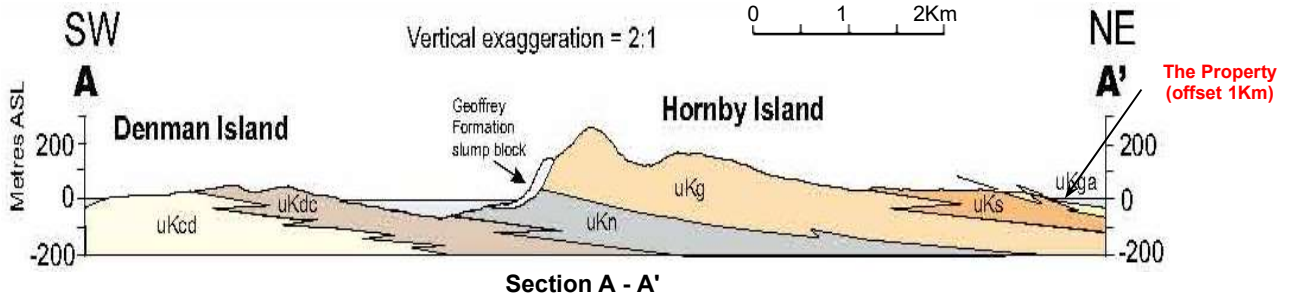
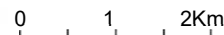
Plan of Property

Drawn: Date: Apr. 2024

Approved: _____ Fig. **2**



Map Scale (1:8,000)



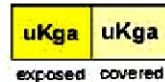
uKg uKg
exposed covered

GEOFFREY FORMATION: Thick-bedded, channelized, clast-supported pebble-cobble conglomerate containing predominantly mafic and felsic extrusives and mafic intrusive clasts; in a matrix of medium-grained, light olive grey sandstone. Conglomerate is interbedded with medium- to coarse-grained, light olive grey, massive, parallel and current ripple laminated, thick-bedded sandstone (feldspathic litharenite); minor mudstone.



uKs uKs
exposed covered

SPRAY FORMATION: Massive, olive grey mudstone (65%) intercalated with thin- to locally thick bedded, light olive grey, massive, parallel and current ripple laminated sandstone (feldspathic litharenite to lithic arkose arenite, 35%) containing 5-7% detrital mica.



uKga uKga
exposed covered

GABRIOLA FORMATION: Thick-bedded, channelized, clast-supported, pebble-cobble conglomerate containing predominantly mafic and felsic extrusive clasts; interbedded with medium-grained, poorly to moderately sorted, light olive grey, massive sandstone (feldspathic litharenite) with 5% detrital mica; minor mudstone

NOTES

1) Base map from Katnick, D.C. and Mustard, P.S. 2001

1427714 BC Ltd

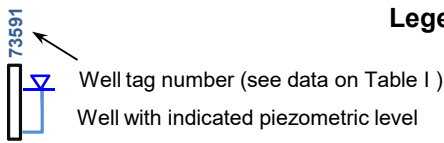
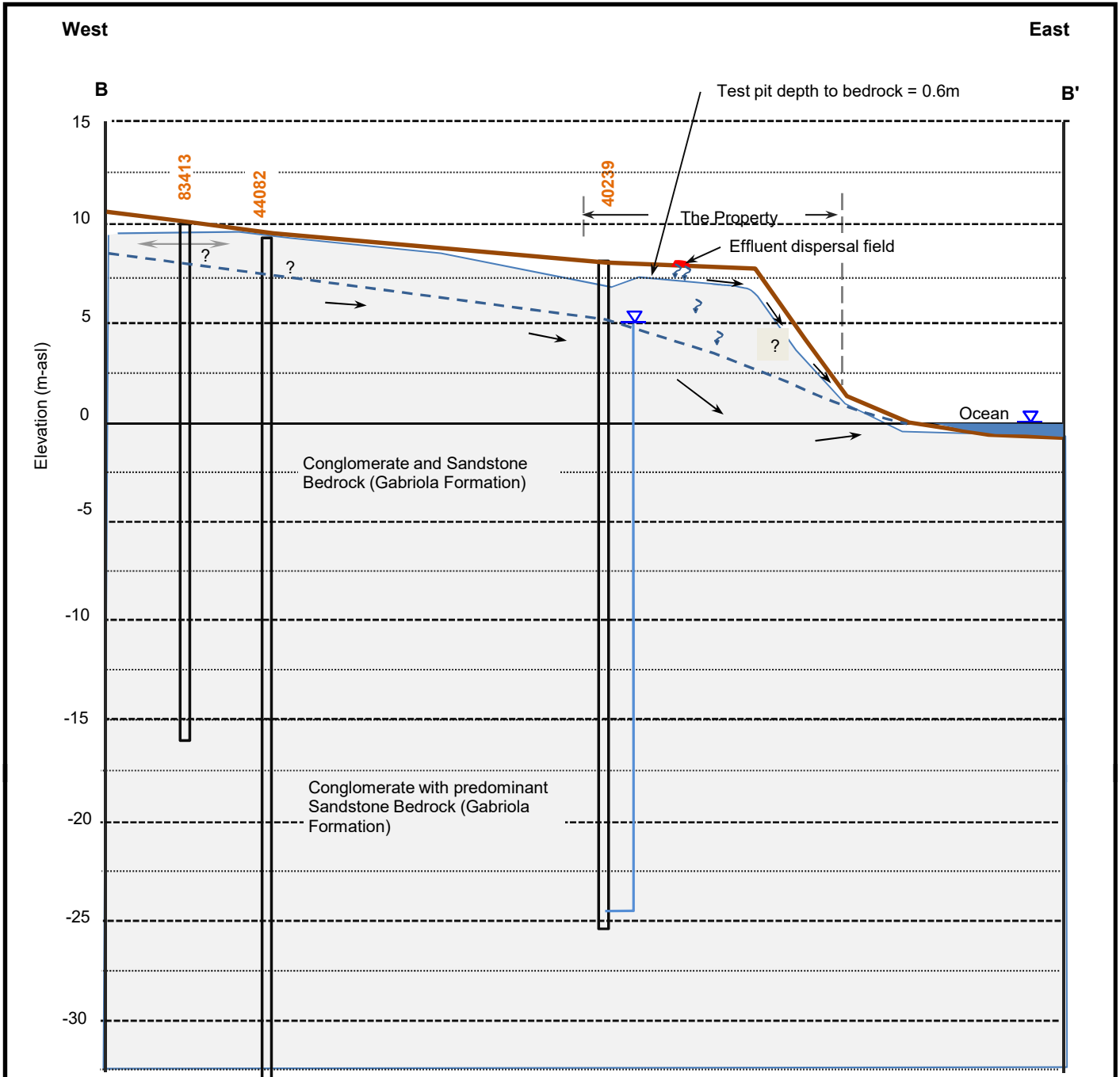
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Assessment of Setback Distance Between Wastewater Treatment System and Water Supply Wells, 6555 Anderson Drive Property, Hornby Island, B.C.

Regional Geology Map and Profile

Drawn: Date: Apr. 2024

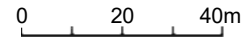
Approved: Fig. **3**



Legend

- Interpreted saturated groundwater flow direction
- ↗ Unsaturated groundwater flow.

Horizontal Scale (1:1,500)



Vertical exaggeration = 5

NOTES

- 1) See location of section on Fig. 1 and details of wells on Tables I and II.
- 2) Ground elevations are based on 2m contours presented on Islands Trust web site except on the Property where surveyed elevations are available..

1427714 BC Ltd	ELANCO ENTERPRISES LTD. Victoria, B.C. (250 744-1357) Permit to Practice No: 1001505
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Assessment of Setback Distance Between Wastewater Treatment System and Water Supply Wells, 6555 Anderson Drive Property, Hornby Island , B.C.	HYDROGEOLOGICAL SECTION B - B'	Drawn: Date: Apr. 2024 Approved: _____ Fig. 4
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Appendix A

Coliform Reduction Calculations Prepared by R. McMurtrie. P. Eng.

Ron McMurtrie and Associates, Consulting Engineers

Wastewater System Specialists

Comox/Hornby Island, BC 250-335-2685

jasbreez@island.net

Client: Duncan Whie
 Job No: 1065
 Project Address: 6555 Anderson Drive, Hornby Island, BC
 Date: 2024-03-23 Revision 1
 By: Ron McMurtrie, P.Eng.

<u>Pathogen Reduction in Unsaturated Soil</u>				
<i>Method: Design Guidance (Minnesota Pollution Control Agency, 2005).</i>				
<i>FCB = Fecal coliform bacteria (as indicator of pathogen density)</i>				
	Daily Design		Average Daily	
	Flow (DDF)		Flow (ADF)	
	<u>1,500</u>	litres /day	<u>750</u>	litres /day
Layer 1: C33 Mound Sand				
Mound Sand	<u>sandy soil class</u>		<u>sandy soil class</u>	
Pathogen density (FCB) in effluent:	<u>1,000,000</u>	CFU / 100 mL	<u>1,000,000</u>	CFU / 100 mL
Pathogens as a log value, top of Layer 1:	<u>6.00</u>		<u>6.00</u>	
Estimated reduction in FCB in clogging mat:	<u>2.0</u>	log reduction	<u>2.0</u>	log reduction
Dosing frequency:	<u>18</u>	doses / day	<u>9</u>	doses / day
Soil HLR:	<u>30</u>	mm / day	<u>15</u>	mm / day
	<u>0.74</u>	US gpd / sqft	<u>0.37</u>	US gpd / sqft
FCB reduction in unsaturated soil (from chart):	<u>0.185</u>	log / inch	<u>0.18</u>	log / inch
Soil depth	<u>45</u>	cm	<u>45</u>	cm
Log reduction of FCB in Layer 1:	<u>3.28</u>	log	<u>3.19</u>	log
Expected FCB density at bottom of Layer 1:	<u>0.72</u>	log	<u>0.81</u>	log
	<u>5</u>	CFU / 100 mL	<u>6</u>	CFU / 100 mL
Layer 2: Native Basal Soil				
Sandy Loam	<u>loamy soil class</u>		<u>loamy soil class</u>	
Pathogen density (FCB) in effluent:	<u>5</u>	CFU / 100 mL	<u>6</u>	CFU / 100 mL
Pathogens as a log value, top of Layer 2:	<u>0.72</u>		<u>0.81</u>	
Estimated reduction in FCB in clogging mat:	<u>0.0</u>	log reduction	<u>0.0</u>	log reduction
Dosing frequency:	<u>18</u>	doses / day	<u>9</u>	doses / day
Soil HLR:	<u>25</u>	mm / day	<u>14</u>	mm / day
	<u>0.61</u>	US gpd / sqft	<u>0.34</u>	US gpd / sqft
FCB reduction in unsaturated soil (from chart):	<u>0.24</u>	log / inch	<u>0.22</u>	log / inch
Soil depth	<u>50</u>	cm	<u>50</u>	cm
Log reduction of FCB in Layer 2:	<u>4.72</u>	log	<u>4.33</u>	log
Expected FCB density at bottom of Layer 1:	<u>-4.00</u>	log	<u>-3.52</u>	log
	<u>0.0001</u>	CFU / 100 mL	<u>0.0003</u>	CFU / 100 mL
<u>Conclusion</u>				
<10 CFU/100ml at base of sand mound/top of native soil				
Approaches full disinfection prior to reaching the flow restrictive layer (conglomerate bedrock)				



NOTICE
HO-DVP-2023.2
HORNBY ISLAND LOCAL TRUST COMMITTEE

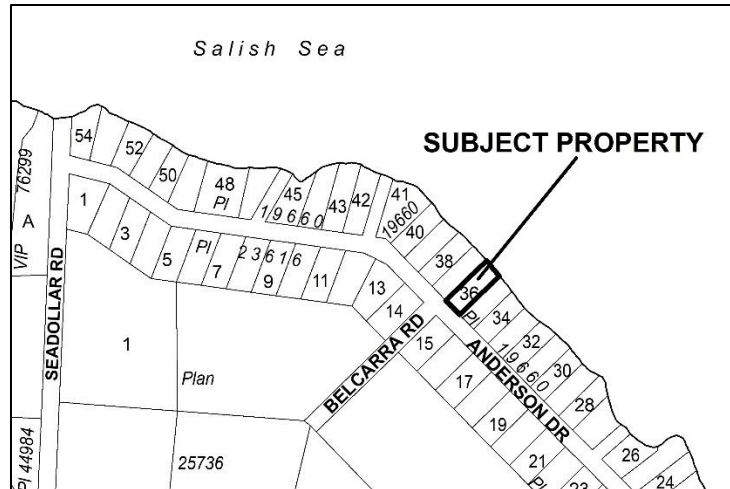
NOTICE is hereby given that the Hornby Island Local Trust Committee will be considering a resolution allowing for the issuance of a Development Variance Permit, pursuant to Section 499 of the *Local Government Act*. The proposed permit would vary the Hornby Island Land Use Bylaw No. 150, 2014 by:

- Permitting a septic disposal field up to 25.0 metres from the existing water wells on the subject and neighbouring properties under an approved design by a Registered Engineer and Wastewater Technician;
- Permitting the siting of a septic tank within 12 metres of the natural boundary of the sea.

The property is located at **6555 Anderson Drive, Hornby Island, BC** and is legally described as:

LOT 36, SECTION 9, HORNBY ISLAND, NANAIMO DISTRICT, PLAN 19660 (PID: 003-603-806).

The general location of the subject property is shown on the following sketch:



A copy of the proposed permit may be inspected at the Islands Trust Office, 700 North Road, Gabriola Island, BC V0R 1X3 between the hours of 8:30 a.m. to 4:30 p.m. Monday to Friday inclusive, excluding statutory holidays, commencing **May 31, 2024** and continuing up to and including **June 14, 2024**.

A copy of the Development Variance Permit may be found online at <https://islandstrust.bc.ca/island-planning/hornby/current-applications/>

Enquiries or comments should be directed to Ian Cox, Planner 2 at (250) 247-2207, 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: northinfo@islandstrust.bc.ca before 4:30 pm, **June 13, 2024**.

The Hornby Island Local Trust Committee may consider issuance of the proposed Permit at its Business Meeting to be held at **11:30 a.m., June 14, 2024 at Room to Grow, 2100 Sollans Road, Hornby Island**.

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

Nadine Mourao, Deputy Secretary

PROPOSED



Islands Trust

**HORNBY ISLAND LOCAL TRUST COMMITTEE
DEVELOPMENT VARIANCE PERMIT
HO-DVP-2023.2**

To: 1427714 BC LTD

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

LOT 36, SECTION 9, HORNBY ISLAND, NANAIMO DISTRICT, PLAN 19660
(PID: 003-603-806)

2. Pursuant to Section 498 of the *Local Government Act*, the Hornby Island Land Use Bylaw 150, 2014, PART 3 GENERAL REGULATIONS, section 3.3 Siting and Setback Regulations, subsection (2), "No building or structure may be located within 15.0 metres of, nor less than 1.5 metres above, the natural boundary of any lake, watercourse or the sea."; and subsection (7), "Feeding troughs, manure piles, buildings and structures for housing animals and sewage disposal fields must be set back at least 30.0 metres from any well or from the natural boundary of any lake, watercourse or the sea.", is varied as follows:

- from 15.0 metres to 12.0 metres to accommodate installation of a new septic tank; and
- from 30.0 metres to 25.0 metres from the existing wells on the subject and neighbouring properties to accommodate installation of a new septic disposal field.

4. The development shall be consistent with Schedule 'A' – Site Plan, and Schedule "B" - Septic System Design Letter, that are attached to and form 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 "Hornby Island Land Use Bylaw No. 150, 2014" and to obtain other approvals necessary for completion of the proposed development.

AUTHORIZING RESOLUTION PASSED BY THE HORNBY ISLAND LOCAL TRUST COMMITTEE THIS XX DAY OF XX, 20XX.

Deputy Secretary, Islands Trust

Date of Issuance

IF THE DEVELOPMENT DESCRIBED HEREIN IS NOT COMMENCED BY THE XXth DAY OF XX, 20XX (2 YEARS FROM DATE OF ISSUANCE) THIS PERMIT AUTOMATICALLY LAPSES.

PROPOSED

HORNBY ISLAND LOCAL TRUST COMMITTEE
HO-DVP-2023.2

SCHEDULE 'A' – Site Plan
BEGINS ON NEXT PAGE

PROPOSED

PROPOSED

HORNBY ISLAND LOCAL TRUST COMMITTEE
HO-DVP-2023.2

SCHEDULE 'B' – Septic System Design Letter
BEGINS ON NEXT PAGE

PROPOSED

Ron McMurtrie and Associates, Consulting Engineers

Wastewater System Specialists

Comox/Hornby Island, BC 250-335-2685

jasbreez@island.net

April 9, 2024

Mr. Duncan White
[REDACTED]
[REDACTED]

Sent via email: [REDACTED]

**RE: ON-SITE SEWAGE SYSTEM, 6555 ANDERSON DRIVE, HORNBY ISLAND
OUR FILE: 1065**

Dear Sir:


We have completed our site and soil evaluation for a sewerage system to serve a proposed new dwelling at the above noted address. The Daily Design Flow (DDF) is 1500 litres per day in accordance with the BC Sewerage System Regulation (SSR), Standard Practice Manual (SPM-V3).

As shown on the attached plan, the system setback to property lines is greater than 3.0m. The septic field setback to Marine Water is greater than 30m. The proposed septic field setback to the well on the property and to two neighbouring wells is less than 30m and greater than or equal to 25m. As required by the SSR, for systems situated less than 30m to a well that supplies a domestic water system, a well setback reduction assessment must be carried out by a Professional competent in hydrogeology. The report by Mr. Allan Dakin, P.Eng. has been prepared specifically for this proposed design.

The design consists of septic tank Type 1 pre-treatment and a timed micro-dose sand mound drainfield using pressure distribution with an infiltration area of 3.0m x 16m (see attached plan) designed in accordance with SPM-V3 and Engineers and Geoscientists B.C., Professional Practice Guidelines, Onsite Sewerage Systems.

I trust this letter and the attached plan meet your needs regarding your application to Islands Trust for a Development Variance Permit.

Yours truly,



Ron McMurtrie, P.Eng.

E.G.B.C. Permit to Practice No. 1002218

