

DATE OF MEETING: June 26, 2026

TO: Hornby Island Local Trust Committee

FROM: Ian Cox, Planner 2  
Northern Team

COPY: Renée Jamurat, Regional Planning Manager

SUBJECT: DVP for septic system siting

Location: 5445 Campbell Road, Hornby

Applicant/Agent: Katherine Davies

PID: 003-011-305

Legal: LOT 215, SECTION 1, HORNBY ISLAND, NANAIMO DISTRICT, PLAN 0.23 hectares/0.56 acres

## RECOMMENDATION

1. That the Hornby Island Local Trust Committee approve issuance of PL-DVP-2026-0162 as proposed.

## REPORT SUMMARY

This report introduces development variance permit PL-DVP-2026-0162 (**Attachment 1**) for consideration with a staff recommendation for issuance. 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 a minimum of 22 metres from the neighbouring water well adjacent to the north-eastern interior side lot line, under the design and supervision of a professional engineer and in accordance with the BC Sewerage System Regulation (SSR).



Figure 1 - Subject Property Air Photo

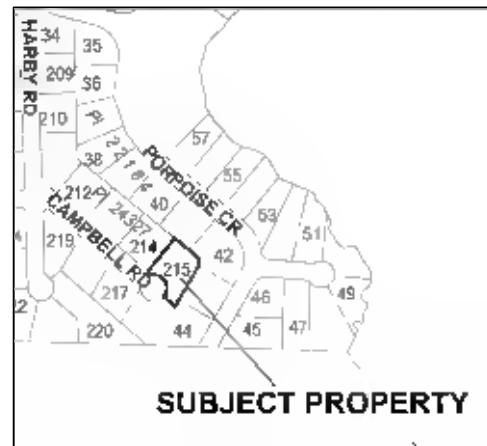


Figure 2 - Subject Property

Location

## RATIONALE FOR VARIANCE

As stated in the Applicant Project Narrative (**Attachment 2**), the property presents a challenge related to existing water wells on neighbouring properties, which number six directly abutting the subject property boundaries. Those wells have been located such that very little choice remains as to where the septic field can be located on the lot in order to comply with the Hornby Land Use Bylaw regulation requiring 30 metres separation from drinking water wells. The Well Setback Reduction Report prepared by R. Allan Dakin, P.Eng., of Elanco Enterprises Ltd., Groundwater Consulting Engineers, included as **Attachment 3**, states that “As the size of the Property is relatively small, it is not feasible to locate the wastewater dispersal field in an area which meets the minimum standard horizontal separation distances to all wells [in the area].” The report will supplement the Record of Sewerage System filing submitted to Island Health for the system, and a letter of assurance by the designer Ron McMurtrie, P.Eng, concludes that “...the design meets Standard Practice as defined in the SSR and if operated and maintained in accordance with the regulation will not cause nor contribute to a health hazard.” (**Attachment 4**)

## BACKGROUND

Siting and Use Permit (SUP) PL-SUP-2026-0165 was issued on May 1, 2026, which authorizes various uses and structures on the property such as the residential use of a recreational vehicle, accessory carport, water tanks, a power and storage shed, etc. Before the property can be used residentially, an approved septic system is needed and the applicant is therefore requesting the variance in question in order to allow its siting.

### *Site Context*

A comprehensive site context analysis is provided in **Attachment 5**.

## ANALYSIS

### *Official Community Plan*

The subject lot is designated Small Lot Residential (SR) under the [Hornby Island Official Community Plan Bylaw No. 149](#) (OCP) and is not within any currently enacted development permit areas per OCP [Schedule E – Development Permit Area Map](#).

### *Land Use Bylaw*

The subject lot is zoned Residential 1 (R1) – Small Lot Residential under the LUB per [Schedule B – Zoning Map](#).

### Development Variance Permit

The applicant is requesting the following relaxation to the LUB setback regulations as detailed in the proposed DVP in **Attachment 1**:

- LUB Section 3.3 Siting and Setback Regulations, Subsection (7) which states that, “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 proposed to be varied to allow the siting of a septic system and dispersal field, a minimum of 22 metres from the neighbouring water well adjacent to the north-eastern interior side lot line.

### Intent of regulations being varied

Separations from septic systems to water wells are intended to protect drinking water quality from contamination by wastewater. In the case of the Hornby LUB 30-meter regulation, this is also to dovetail with provincial standards for separation. The minimum allowable horizontal distances from a sewage dispersal field and system tanks are set in the BC Ministry of Health's [Sewerage System Standard Practice Manual](#). Under the [Sewerage System Regulation](#), these separations may be altered under written advice of a Registered Onsite Wastewater Practitioner (ROWP) paired with a professional engineer, who design and oversee installation of the system. A record of the system is then filed with the appropriate health authority - in this case, Island Health.

### Impact 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.

### **Circulation**

Notification of the DVP was sent to property owners and residents within 100 metres of the Property on June 12<sup>th</sup>, 2026, and in the Hornby Tribune newspaper in accordance with the Local Government Act (**Attachment 6**). Public comments can be received up to and including the LTC meeting on June 26<sup>th</sup>, 2026.

As of the date of this report, staff have received communication from two Hornby residents with concerns relating to potential well water contamination. Staff responded in both instances to provide additional information about the application. Any submissions received prior to the LTC meeting date will be forwarded to the LTC and reported at the meeting.

### ***First Nations***

The applicant has received authorization from K'ómoks First Nation to proceed with the proposed phased residential development via the CHIP process and associated conditions.

Islands Trust reviews all applications to ensure the preservation and protection of cultural heritage, archaeological sites, and ancestral places. Staff consider the DVP application to be consistent with respect to LTC Standing Resolutions on reconciliation, particularly considering the direction given by K'ómoks First Nation via the CHIP process in this case. Notwithstanding, to provide applicants with awareness about unknown archaeological and cultural areas of significance, staff forwarded the Islands Trust Chance Find Protocol and the provincial Archaeological Branch guidelines on Heritage Act responsibilities directly to the applicant when the application file was opened.

### **Rationale for Recommendation**

Staff recommend issuing the permit based on the following:

- The applicant holds an approved CHIP from K'ómoks First Nation archaeology department for the residential development on the lot;
- Staff suggest the professional opinions contained in the Assessment Report and Assurance Letter (**Attachments 3 and 4**) adequately support the variance request. Given the provincially accepted professional reliance model as embodied by the [Professional Governance Act](#), staff are

unqualified to offer alternatives to the findings of other regulated professionals; however, the LTC may choose to request an alternate opinion or additional information as part of its consideration of matters under its authority, such as zoning provisions.

## 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] prior to making a decision on PL-DVP-2026-0162.*

### 2. Deny the application

The LTC may deny the variance request.

*That the Hornby Island Local Trust Committee deny application PL-DVP-2026-0162.*

## NEXT STEPS

If the LTC grants the DVP, staff will issue the permit and the project may proceed with phased construction. If the LTC denies the request, the applicant may apply to the Board of Variance to seek specific relief from hardship and whose decision is final.

Submitted By:	Ian Cox, Planner 2	June 12, 2026
Concurrence:	Renée Jamurat, RPP MCIP, Regional Planning Manager	

## ATTACHMENTS

1. Proposed DVP
2. Applicant Project Narrative
3. Elanco Enterprises Assessment Report
4. Ron McMurtrie and Associates Assurance Letter
5. Site Context
6. Public Notice



Islands Trust

# PROPOSED

ATTACHMENT 1

## HORNBY ISLAND LOCAL TRUST COMMITTEE DEVELOPMENT VARIANCE PERMIT PL-DVP-2026-0162

To: Katherin & Daniel Davies, Andrea & Kyle McMorran

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

LOT 215, SECTION 1, HORNBY ISLAND, NANAIMO DISTRICT, PLAN 24327 (PID: 003-011-305)

2. Hornby Island Land Use Bylaw No. 150, 2014 is varied as follows:

- a) **Section 3.3 Siting and Setback Regulations, Subsection (7)** which states that, “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 to allow the siting of a septic system and dispersal field, a minimum of 22 metres from the neighbouring water well adjacent to the north-eastern interior side lot line.**

The development shall be consistent with Schedule ‘A’ – On-Site Sewerage Plan, 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 "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<sup>th</sup> DAY OF XX, 202X.**

\_\_\_\_\_  
Deputy Secretary, Islands Trust

\_\_\_\_\_  
Date of Issuance

**IF THE DEVELOPMENT DESCRIBED HEREIN IS NOT COMMENCED BY THE XX<sup>th</sup> DAY OF XX, 202X (2 YEARS FROM DATE OF ISSUANCE) THIS PERMIT AUTOMATICALLY LAPSES.**



# DVP Application Package

## Lot 215, 5445 Campbell Road, Hornby Island

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### PROJECT NARRATIVE

#### Subject Property

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**Legal Description:** Lot 215, Section 1, Hornby Island, Nanaimo District, Plan 24327

**PID:** 003-011-305

**Civic Address:** 5445 Campbell Road, Hornby Island, BC V0R 1Z0

**Zoning:** R1 – Residential 1 (Small Lot)

**Lot Size:** 0.516 acres (approx. 2,088 m<sup>2</sup>)

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#### Existing Conditions

The subject property is a vacant residential lot zoned R1 under the Hornby Island Land Use Bylaw No. 150, 2014. There are no permanent buildings on the property.

#### Proposed Development

The property is intended for residential development. This application relates to the installation of an on-site well and septic system to service the property.

#### Reason for Variance — Hardship

The subject property presents a unique and demonstrable hardship arising from its physical situation that is entirely beyond our control.

The lot has a unique shape and is situated at the end of a cul-de-sac with six other properties directly abutting the property line. It is the last remaining undeveloped lot among these neighbours. Over time, all six surrounding properties have been developed, and in each case, wells have been installed in close proximity to our boundaries. As a result, the property is now effectively encircled by existing neighbouring wells, all of which impose required setback buffers that extend onto or near our lot.

This pre-existing well placement by neighbouring landowners—which occurred entirely outside our control—makes it physically impossible to install a septic system on Lot 215 while meeting

the standard required setback distances. The hardship is not financial in nature, nor is it a result of any action or choice by us as owners. It is a direct consequence of the lot's position, configuration, and the sequential development pattern of the surrounding properties.

This is precisely the type of hardship the variance process is intended to address: a situation where the general regulation, when applied to the specific physical circumstances of a property, makes reasonable use of the land impossible.

A Well Setback Reduction Report has been prepared by R. Allan Dakin, P.Eng., of Elanco Enterprises Ltd., Groundwater Consulting Engineers and is attached to this application. The report is designed to supplement the filing that will be submitted to the Vancouver Island Health Authority (VIHA) for the wastewater treatment system on the property. This report concludes that the proposed reduced setback from the wastewater system to a neighbouring well is technically appropriate and does not pose a risk to water quality or public health.

### **Summary of Variance Requested**

- **Regulation being varied:** Well setback distance from septic system
- **Standard requirement:** 30m from all existing wells to septic system
- **Proposed reduced setback:** Not less than 22m from septic system to neighbour's well
- **Reason:** Neighbouring wells installed on all surrounding properties prior to our development create an unavoidable physical constraint unique to this lot and the soil conditions on the property require that the septic field be located where it is shown on the plan
- **Support:** A Well Setback Reduction Report prepared by R. Allan Dakin, P.Eng. (Elanco Enterprises Ltd.) is attached, concluding that the proposed reduced setback from the wastewater system to a neighbouring well is technically appropriate and poses no risk to water quality or public health.

### **Conclusion**

A meaningful financial commitment has been made to developing this property. The proposed variance is the minimum necessary to allow for a functional and code-compliant on-site waste system. The Well Setback Reduction Report confirms the proposal is safe and appropriate. We respectfully request approval of the Development Variance Permit to allow development to proceed.

***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: 355

April 16, 2025

Davies and McMorran Families.

████████████████████  
Hornby Island, B.C.

██████████  
Attention: Katherine Davies.

Re: Assessment of Potential for Reducing the setback Distance from a Sewage Effluent Dispersal Field to a Neighbour's well on 5445 Campbell 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 Type 1 wastewater treatment and dispersal system on the subject property. The purpose of this assessment was to determine if it would be safe to locate the dispersal field at distance of less than 30m from a neighbour's well. The minimum allowable horizontal distances from a sewage effluent dispersal field and system tanks are set out on Table II-19 of the BC Ministry of Health's Sewerage System Standard Practice Manual (see a copy of the table in Appendix A.). However, as indicated in this hydrogeological assessment report, it was necessary and is considered safe, to reduce the horizontal distance from the dispersal field to the neighbour's well.

The Property

The 0.23 hectare property (the Property) is located at 5445 Campbell Road in the Sandpiper Subdivision area on Hornby Island (see Figs. 1 and 2). The legal description is Lot 42, Plan 22184, Section 1, Nanaimo Land District, PID 000-715-701.

Work Carried out

This study involved visiting the site on September 11, 2025 and March 21st, 2026, reviewing available information on surficial geology and well logs and the wastewater treatment system plans prepared by Ron McMurtrie, P.Eng of Ron McMurtrie & Associates Consulting Engineers. This was followed by determining the extent of a well capture zone, potential contaminant migration pathways and assessing the potential for effluent leaving the dispersal field having an impact on a neighbour's well water quality.

Topography and Drainage.

The Property slopes from Campbell Road to the back of the property at a slope of about 10% (see profile on Fig. 4). There are no well developed surface drainage channels on the Property.

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Setback Reduction for Proposed Effluent Dispersal Field from a Neighbour's Well -  
Campbell Road, Hornby Island.

### Soils and Geology

Thirteen test pits were dug in the area of the proposed sewage effluent dispersal field (see locations on Fig. 3). This confirmed that the depths to bedrock ranged from 0.24 to 0.70 metres (m). A jar test confirmed that the soil overlying the bedrock comprised mostly of loam type soil. The regional soils map (1: 63,369 scale) prepared by the Canadian Department of Agriculture, mapped the local soils as Rough Mountainous Land (Rm) soils. This unit has variable drainage, is very stony and the soil thickness above bedrock is thin.

The regional bedrock geology map indicates that the sedimentary bedrock below the Property is a predominately a conglomerate with massive interbedded sandstone and minor mudstone which is mapped as Geoffrey Formation (see map and profile on Fig. 1).

### Local Area Wells

The locations of wells in the area on and around the Property are indicated on Fig. 2. Most of the wells are mapped on the BC Provincial g-wells map. However, two of the wells mapped as part of this assessment are not indicated on the g-wells map and these have been identified as Wells A and B on Fig. 2.

The elevations of the water levels in the wells constructed in the area show a relatively consistent 8% gradient towards the ocean (see contour on Fig. 2 and profile on Fig. 4). The wells have estimated yields in the range 0.9 to 27 m<sup>3</sup>/day and depths ranged from 29.6 to 114.3 m (see Table I). The well on the Property (Well 135217) had the lowest estimated yield at 0.9 m<sup>3</sup>/day. The reported depth to static water level in Well 135217 at the time of its construction was 21.3m, however as this measurement was made soon after the well was constructed, it is estimated that due to the low yield it would have taken several hours for the true static water level to be established. It is estimated that the true depth to static level in this well would be about 15.5m below ground.

The depth to the water table below the effluent dispersal field is about 13m (see Fig. 4)

No log of the drilled well on the northern neighbour's property drilled well was available (Well A, see Photo 4 and Figs. 2 and 3). Also there was no log available for Well B.

### Proposed Wastewater Treatment System

As set out in the report prepared by Ron McMurtrie, P.Eng. in support for a wastewater system filing document, the estimated maximum discharge will be 1,900 litres per day (L/d). The treated sewage effluent is to be discharged via a dosing system into a sand mound. The location and the extent of the sand mound is indicated on Figs. 2 and 3. The estimated hydraulic loading rate at the top of the sand mound is about 29 L/day/m<sup>2</sup> which is below the 40 L/day/m<sup>2</sup> maximum set out in the Standard Practice Manual for Type 1 effluent flowing into a

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Setback Reduction for Proposed Effluent Dispersal Field from a Neighbour's Well -  
Campbell Road, Hornby Island.

sand mound. The hydraulic loading rate for Type 2 effluent discharging from the bottom of the sand mound into the natural loamy soil is also about 29 L/day/m<sup>2</sup> which is below the 50 L/day/m<sup>2</sup> maximum set out in the Standard Practice Manual. The design details for this dispersal field are set out in Appendix B

Mr. McMurtrie conducted a pathogen reduction analysis using the 2005 Minnesota Pollution Control Agency's methodology and determined that by the time the effluent passed through the sand mound and 0.25m of loamy soil and reached the bedrock surface, little to no pathogens will be present in the effluent.

The depth to the water table in the fractured sedimentary bedrock below the dispersal field is about 13m (see Fig. 4), and passage through this fractured bedrock could potentially provide an opportunity for further removal of pathogens and contaminants in the discharge from the dispersal field.

As the size of the Property is relatively small, it is not feasible to locate the wastewater dispersal field in an area which meets the minimum standard horizontal separation distances to all wells in the area. For this reason, a capture zone analysis around one of the neighbour's wells was performed as set out in the next section.

#### Well Capture Zone Analysis.

As set out in the proposed wastewater system design, the north neighbour's well will be located about 22m from the dispersal field. While there is no log available for the construction of this 150mm diameter drilled well, the logs of the wells located south of the well provides an indication of its likely depth, nature of the bedrock penetrated and yield from the well. Using this information and a conservative daily volume of water pumped (1.5 m<sup>3</sup>/day) the extent of the capture zone for this well was estimated. As set out on Table II, this shows that the width of the zone is about 11m and the down slope distance is about 1.7m. This confirms that the capture zone does not extend under the dispersal field and that reducing the horizontal distance to the neighbour's well from the dispersal field from 30 to 22m will not pose a health hazard (see probable extent of the capture zone on Fig 2).

#### Conclusions

1. As the size of the Property is relatively small, it is not feasible to locate the wastewater dispersal field in an area which meets the minimum standard horizontal separation distances to all wells.
2. The waste water treatment system, including the dispersal field and the underlying unsaturated sand, will remove most, if not all, of the organic and microorganisms from the sewage effluent prior to it reaching the bedrock surface.

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**Setback Reduction for Proposed Effluent Dispersal Field from a Neighbour's Well -  
Campbell Road, Hornby Island**

- 3 The depth to the water table in the fractured sedimentary bedrock below the dispersal field is about 13m, and passage through these fractures could potentially provide an opportunity for further removal of pathogens and contaminants in the discharge from the dispersal field
- 4 A capture zone analysis confirmed that the zone does not extend under the dispersal field. This confirmed that reducing the horizontal distance to the neighbour's well from the dispersal field from 30 to 22m will not pose a health hazard.

Limitations

This investigation has been conducted using a standard of care consistent with that expected of scientific and engineering professionals undertaking similar work under similar conditions in B.C. No warranty is expressed or implied

I trust that this sufficient for your present purposes

Elanco Enterprises Ltd

Yours very truly



Allan Dakin, P. Eng  
Senior Groundwater Engineer



Cc Ron McMurtrie Ron McMurtrie & Associates

## **Photos**

Photos taken by A, Dakin while visiting the site on March 21, 2026

(See orientations on Fig 2)



Photo. 1 Proposed effluent dispersal mound area.



Photo 2. The Property well (Well 134397)



Photo. 3 A neighbour's well – under the green cap (Well 40536).

## Tables

**Table I**  
**Information on Wells Located on Fig. 1**

Well Tag Number	Construction Start Date	Address		Depth to (m)				Elevation (m-asl)					Yield m <sup>3</sup> /day
		No	Street	Bedrock	SWL	PWS	Bottom	Ground	Bedrock	SWL	PWS	Bottom	
40536	1-Sep-78	5575	Porpoise Crescent	1.2	na	48.8	48.8	18	16.8	na	-30.8	-30.8	2.7
40743	Oct-78		Porpoise Crescent	1.8	na	49.4	49.4	12	10.2	na	-37.4	-37.4	27.2
48328	20-Jun-81	5360	Campbell Road	0.3	5.5	42.7	45.7	26	25.7	20.5	-16.7	-19.7	21.7
49026	5-Sep-81	5400	Campbell Road	0.6	7.9	27.4	29.6	27	26.4	19.1	-0.4	-2.6	27.2
56013	20-May-86	5540	Harby Road	0.0	12.2	29.0	30.5	31	31.0	18.8	2.0	0.5	16.3
70583	27-Oct-92	5565	Porpoise Crescent	0.0	na	113	114.3	20	20.0	na	-92.8	-94.3	16.3
88715	2-Nov-05	5435	Porpoise Crescent	0.0	na	70.1	73.2	17	17.0	na	-53.1	-56.2	8.2
119842	12-Jun-89	5405	Porpoise Crescent	0.0	na	na	45.7	17	17.0	na	na	-28.7	na
134397	11-Dec-25	5445	Campbell Road	1.2	21.3	56.4	56.4	23	21.8	1.7	-33.4	-33.4	0.9
Well A	na	na	na	na	na	na	na	na	na	na	na	na	na
Well B	na	na	na	na	na	na	na	na	na	na	na	na	na

PWS = Principal water strike in a fracture

na = No information available

Property well

SWL = static water level at time of well construction

Notes

- 1) See locations of wells on Fig. 2
- 2) Well information with exception of ground elevations from BC Government g-wells database.
- 3) Ground elevations from Google Earth except well on Property that was surveyed.
- 4) All are 150mm diameter drilled wells.

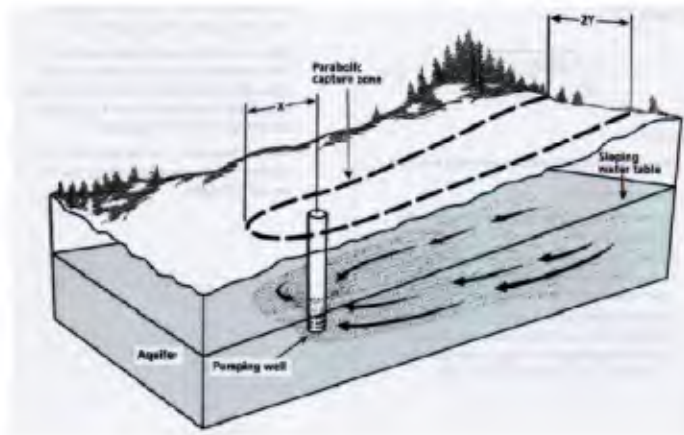
**Table II**

**Capture Zone Analysis for Well A on 5405 Campbell Road Property**

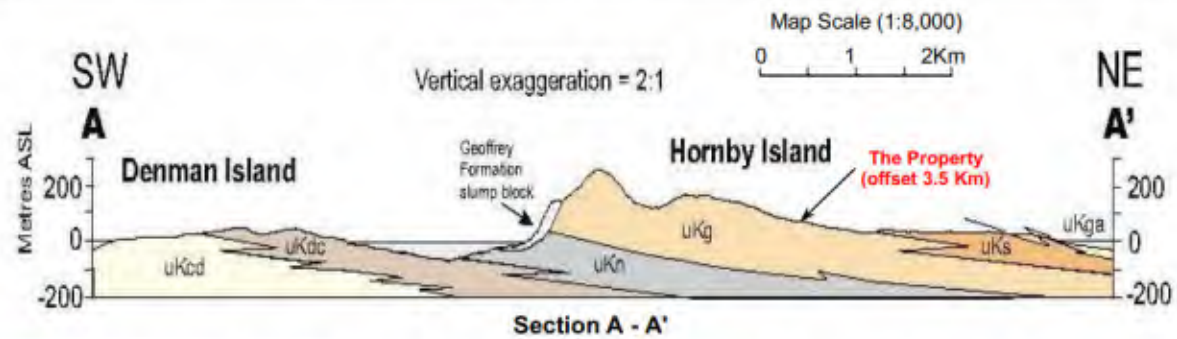
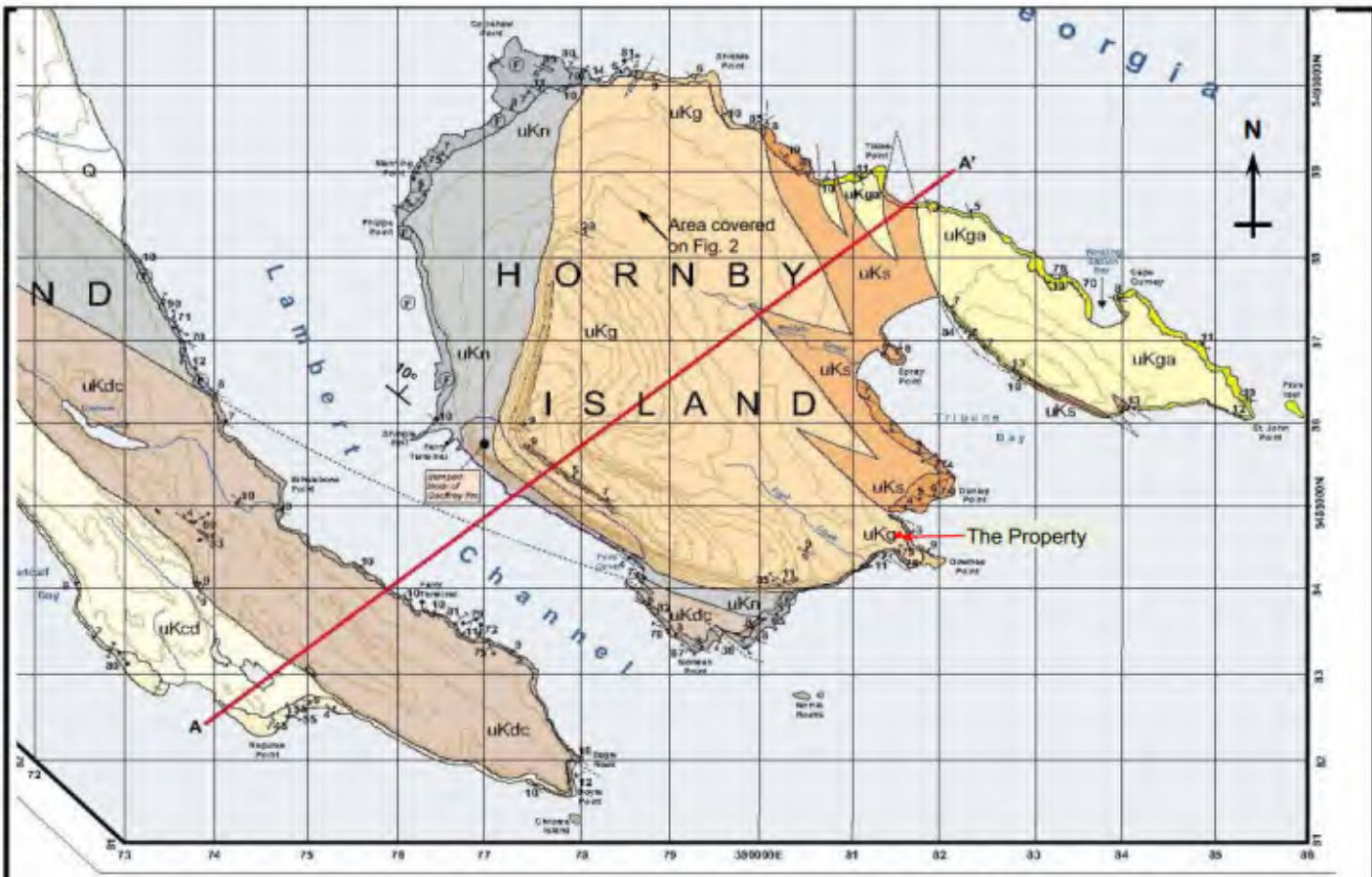
Formula	Symbol	Parameter	Note No	Value	Unit
	Q	Pumping rate	1	1.50	m <sup>3</sup> /d
				0.00002	m <sup>3</sup> /s
				0.017	L/s
				0.3	gpm
				398	gpd
		See Note 6 ---->			
	K	Hydraulic Conductivity	2	1.0E-06	m/s
	T	Aquifer thickness	3	20	m
	T	Transmissivity		2.0E-05	m <sup>2</sup> /s
				1.7	m <sup>2</sup> /d
	i	Gradient	4	0.08	
Y = Q/2T/i	Y	half width	5	5.43	m
	2Y	Width		10.85	m
X = Y/pi	x	down distance	5	1.73	m

Notes:

- 1) Assumes a constant pumping rate based on the conservative water consumption value for a typical home.
- 2) Typical hydraulic conductivity of fractured sedimentary bedrock
- 3) Minimum aquifer thickness (see Fig. 4)
- 4) Average gradient between local area wells (see Fig. 4).
- 5) See dimension illustration below
- 6) No log of the well was available and depth was assumed to be similar to one of the shallowest wells.



## **Figures**



**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

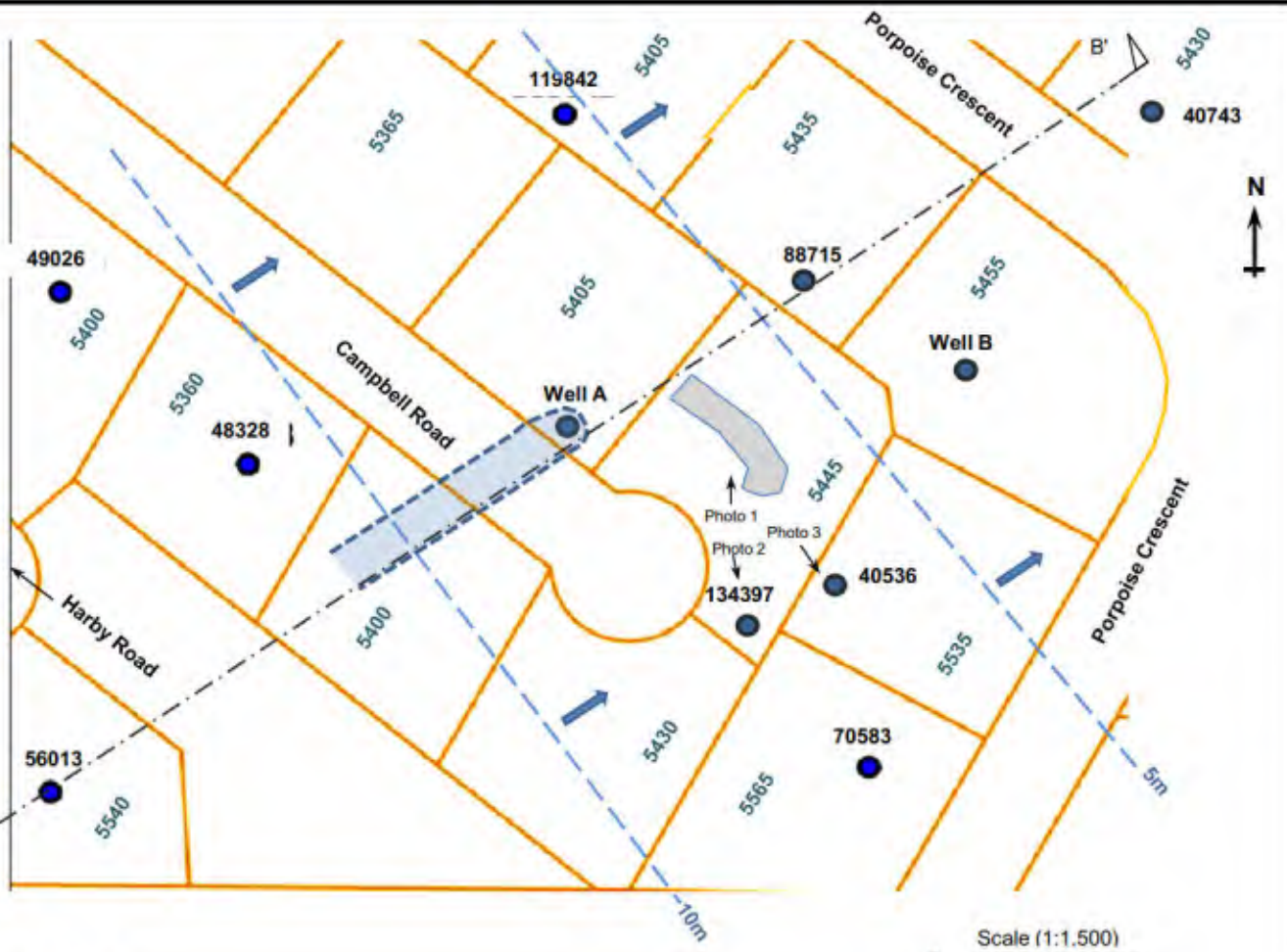
**Davies and McMorran Families**

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

Assessment of Setback Distance Between Wastewater Dispersal Field and Water Supply Well, 5445 Campbell Road, Hornby Island, B.C.

Regional Geology Map and Profile

Drawn: RAD	Date Apr. 2026
Approved: 	Fig. <b>1</b>

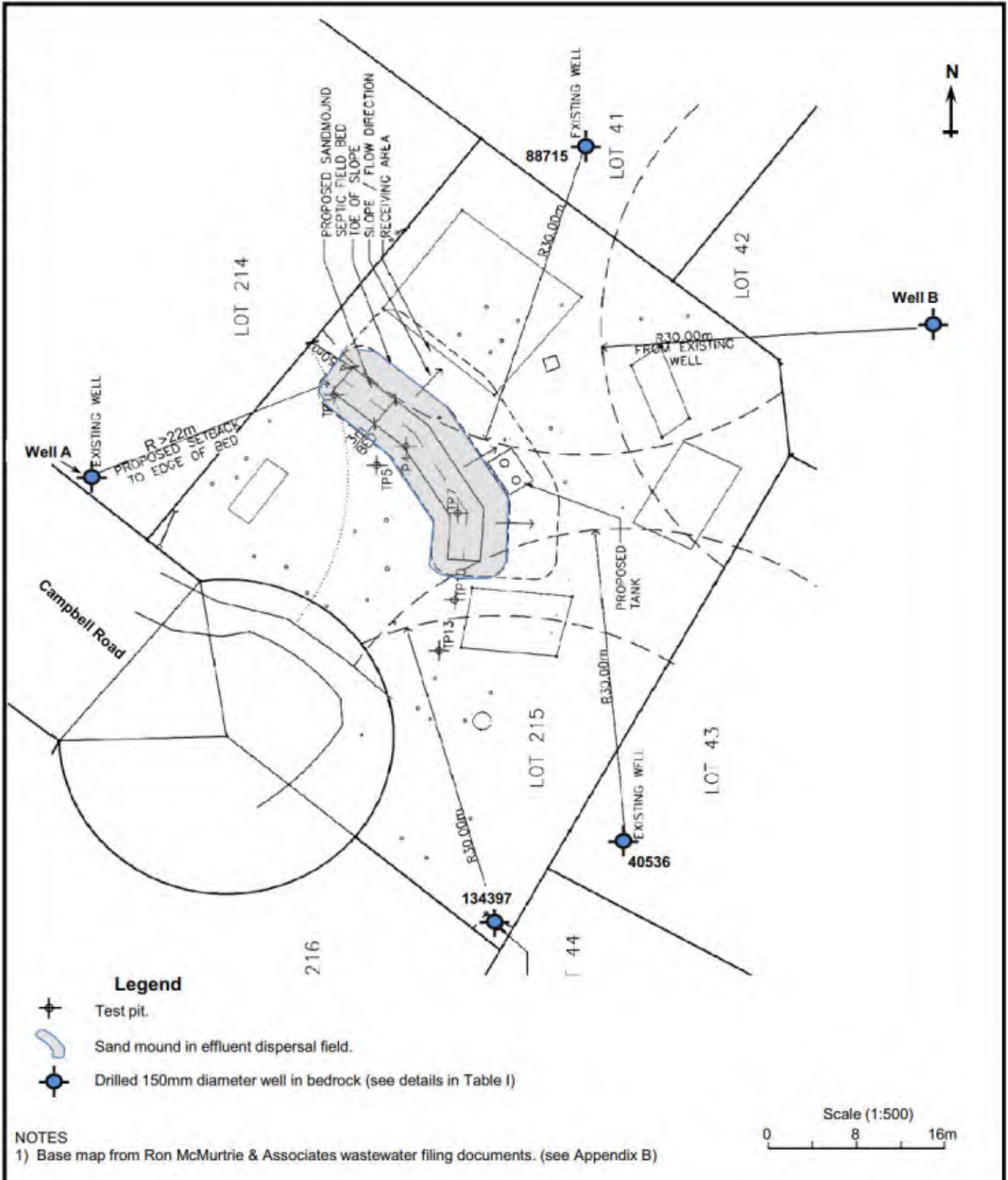


**Legend**

- Interpreted groundwater flow direction in bedrock aquifer.
- Approximate water table elevation (m-asl)
- Water well from MOE wells Database with indicated well tag number.
- Hydrogeologic Section (See Fig. 4)
- Potential extent of well capture zone around Well A (See calculations on Table II)
- Sand mound in effluent dispersal field.

- NOTES**
- 1) Base map from BC Ministry of Environment's g-wells data base.
  - 2) Well locations are approximate.

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<b>Assessment of Setback Distance Between Wastewater Dispersal Field and Water Supply Well, 5445 Campbell Road, Hornby Island, B.C.</b>	<b>Property Location Map.</b>	Drawn: RAD	Date Apr. 2026
		Approved: 	Fig. <b>2</b>



- Legend**
- Test pit.
  - Sand mound in effluent dispersal field.
  - Drilled 150mm diameter well in bedrock (see details in Table I)

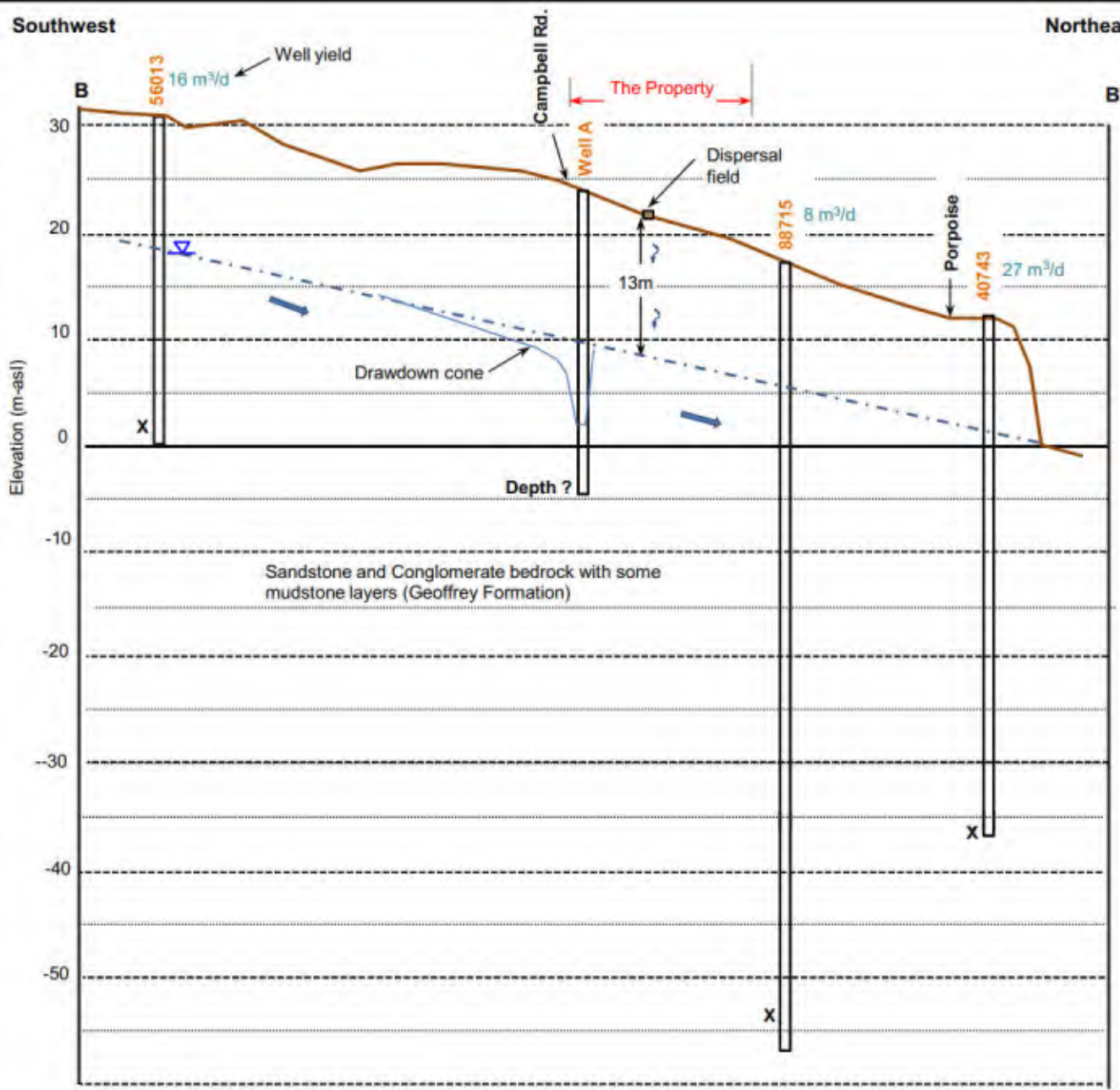
NOTES  
 1) Base map from Ron McMurtrie & Associates wastewater filing documents. (see Appendix B)

<b>Davies and McMorran Families</b>	<b>ELANCO ENTERPRISES LTD.</b> Victoria, B.C. (250 744-1357) Permit to Practice No: 1001505
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<b>Assessment of Setback Distance Between Wastewater Dispersal Field and Water Supply Well, 5445 Campbell Road, Hornby Island, B.C.</b>	<b>Property Location Map.</b>	Drawn: RAD	Date Apr. 2026
		Approved: 	Fig. <b>3</b>

Southwest

Northeast



**Legend**

- ↗ Unsaturated water flow bedrock fractures
- X Principal water bearing fracture (PWS)
- ↗ Interpreted groundwater flow direction
- Well tag number (see data on Table 1)
- Well with indicated piezometric level
- ↗ Unsaturated water flow in sand unit

Scale (1:2,000)  
0 30 60m

Vertical exaggeration = 3.33

**NOTES**

1) See location of section on Fig. 2 and details of wells on Table 1.

**Davies and McMorran Families**

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

**Assessment of Setback Distance Between Wastewater Dispersal Field and Water Supply Well, 5445 Campbell Road, Hornby Island, B.C.**

**HYDROGEOLOGICAL SECTION B - B'**

Drawn: RAD Date: Apr. 2026

Approved:  Fig. **4**

## **Appendix A**

Standard Practice Manual Guidelines for Horizontal Separation Distances and Information Required Where a Departure from the Guideline is Proposed.

Table II- 19. Minimum required horizontal separation distances

MINIMUM HORIZONTAL DISTANCE TO	FROM DISPERSAL SYSTEM	FROM WATERTIGHT TREATMENT OR PUMP TANK
	METRES	METRES
<b>Water sources and wells</b>		
Surface source of drinking water	30	15
Domestic water supply well <sup>1</sup>	30	30
Domestic water supply well, high pumping rate <sup>2</sup>	60	30
Domestic water supply well, high pumping rate, in unconfined aquifer <sup>2</sup>	90	30
Irrigation well or open loop geothermal well	15	7.5
Deep monitoring well or closed loop geothermal well <sup>3</sup>	6	6
Shallow monitoring well <sup>4</sup>	3	0
<b>Drinking water lines and cisterns</b>		
Drinking water suction line	30	15
Drinking water suction line, sleeved <sup>5</sup>	7.5	3
Drinking water line, under pressure	3	3
Drinking water line, under pressure, sleeved <sup>5</sup>	1	1
Drinking water supply cistern, below ground	15	3
<b>Water bodies and surface breakout</b>		
Permanent fresh water body <sup>6</sup>	30	10
Intermittent fresh water body <sup>7</sup>	15	10
Marine water body <sup>8</sup>	15	7.5
Break-out point or downslope drain <sup>9</sup>	7.5	0

## Notes:

<sup>1</sup> For drinking water well, see the SSR s3.1 and Section II- 2.1.2.2 of this Manual for special considerations. Domestic water supply wells include excavated or dug wells.

<sup>2</sup> For definitions of "high pumping rate well" and "unconfined aquifer" see the glossary.

<sup>3</sup> The horizontal separation to a deep monitoring well or to a closed loop geothermal well is based on a well with an annular seal that complies with the Ground Water Protection Regulation (GWPR). If the well does not comply with the GWPR, follow horizontal separation standards for drinking water wells.

<sup>4</sup> The horizontal separation to a shallow monitoring well is based on a well which is shallower than 4.6 m and constructed with an annular seal that complies with the GWPR.

<sup>5</sup> Sleeved water lines (suction or pressure) use continuous pipe sleeving within the normal standard HS to allow reduced HS, see Volume III for details.

## Volume III Guidelines

### III- 1 INTRODUCTION

This volume is intended to be used as a companion to Volume II (standards). It contains explanatory material to support the standards as well as guidelines for planning, installation and maintenance of onsite systems. This volume is not intended to be read without reference to Volume II.

The main headings of this volume correspond to main headings in Volume II (e.g. III-2.1 corresponds to II-2.1). In some cases minor headings in this volume may be stand-alone (e.g. III-4.1.3.1 does not have a corresponding section in Volume II).

This volume contains some simplified rationale statements; refer to Volume IV for further details of rationale and for the performance base used to develop the standards.

Nothing in this volume should be taken to overrule the standards set out in Volume II.

#### III- 1.1 Departure from Volume III guidelines

When departing from the **guidelines in this volume**, write out a rationale for that departure. In the rationale, explain the following:

- The reasons for departing from the SPM guidelines.
- Which SPM guideline is being varied or departed from.
- Why compliance with the guideline is deemed impractical.
- Reference to another source of standard practice or to a professional opinion that supports the alternative approach.
- Any other changes made to design or installation to compensate for the departure.
- How performance objectives have been considered.

### III- 2 GENERAL GUIDELINES

#### III- 2.1 Existing systems and system repair

##### III- 2.1.1 EMERGENCY MEASURES

Notify the Health Authority of all situations that may present a health hazard (for example, sewage surfacing on the land or discharging into a body of water or a water supply). This allows the Health Authority to provide guidance on measures to prevent or contain the hazard.

Emergency measures to reduce a health risk could potentially include:

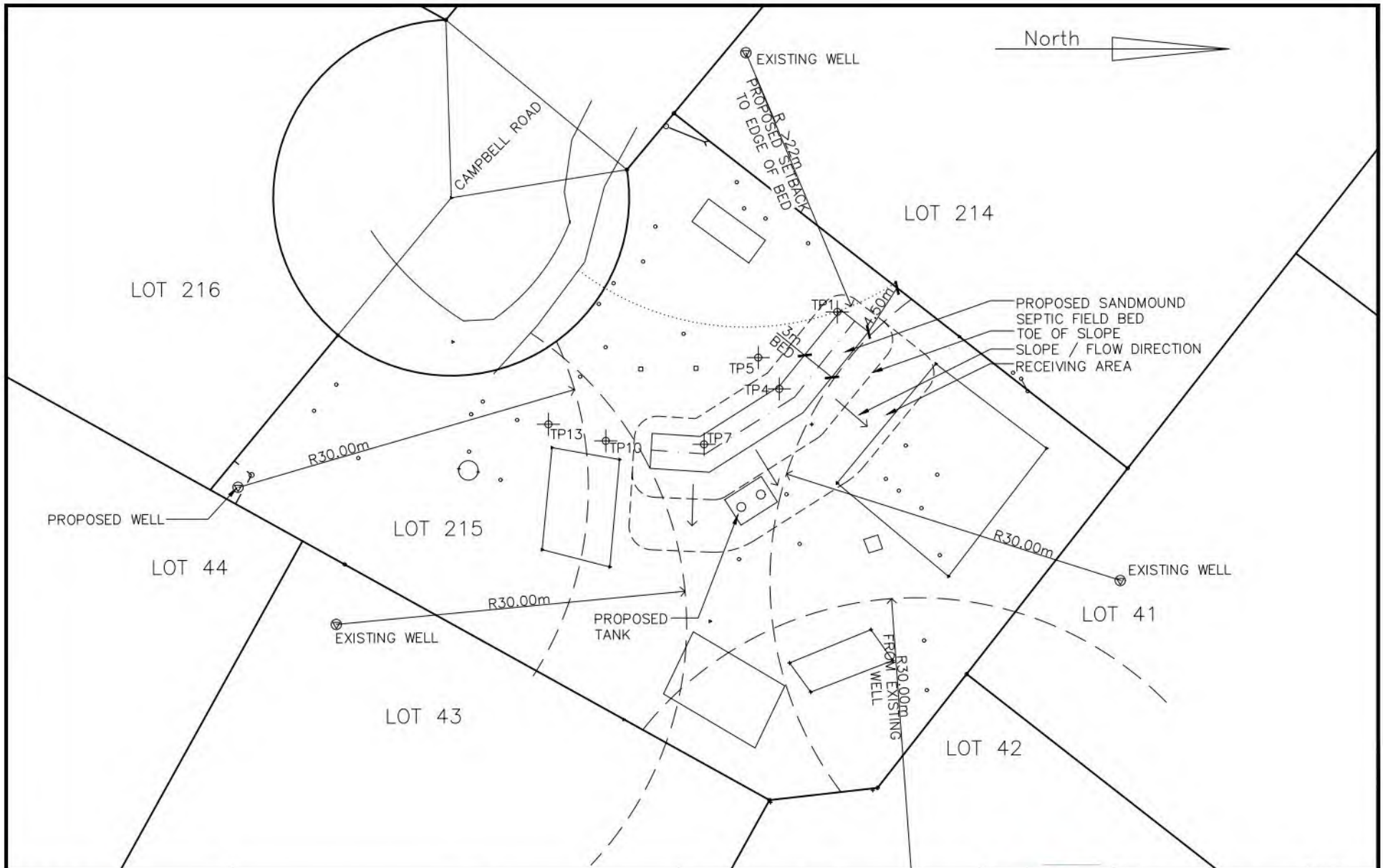
- Placing cover soil over a breakout area; or
- building a temporary dispersal trench or bed to divert flows during repair.


If it is not practical to reduce the risk from a malfunctioning system, then recommend to the owner that they use pump and haul until the system can be repaired.

Inform the owner that the system should be permanently repaired as soon as is feasible, and in any case within 12 months. The Health Authority may issue an order to repair sooner than 12 months, depending on the circumstances.

**Appendix B**

Wastewater System Filing Prepared by Ron McMurtrie, P.Eng.



<b>RON McMURTRIE &amp; ASSOCIATES</b> CONSULTING ENGINEERS 5225 JEROW ROAD, HORNBY ISLAND, V0R 1Z0 TELEPHONE (250) 218-2194	Davies LOT 215, NANAIMO DISTRICT, HORNBY ISLAND, BC PLAN VP24327 5445 CAMPBELL ROAD, HORNBY ISLAND, BC		SITE PLAN LOT LAYOUT PROPOSED ON-SITE SEWERAGE PLAN		Engineer  E.G.B.C. Practice Permit No. 1002218	Designed RM Drawn VC Check/Approved RM Acad File 1110.dwg	Job No. 1110 Scale 1:300 Date 2026/03/23 Field Books - Rev. No. -	V.I.P.A. File No. - Drawing No. 1 of -

Ron McMurtrie and Associates, Consulting Engineers

Wastewater System Specialists

Comox/Hornby Island, BC 250-335-2685

[jasbreez@island.net](mailto:jasbreez@island.net)

Client: Davies et al Job No: 0110 5445 Campbell Road, Hornby Island

Date: 2026-04-01 By: RM

**PRELIMINARY DRAINFIELD DESIGN**

<u>Design Calculations</u>	<u>Design</u>	<u>Unit</u>	
Peak Design flow (DDF):	1,900	Lpd	
Peaking factor:	2.0		
Estim. Average flow (ADF):	950	Lpd	
Treated Effluent type:	Type 1	(Septic Tank)	
<u>Drainfield Design:</u>			
Native Soil Vertical Separation (VS):			
<i>Limiting Layer</i>	29	cm	<i>bedrock TP1</i>
SPM standard:	25	cm	sand mound
<u>As-designed Vertical Separation</u>			
Trench depth:	-60	cm	mound sand
<i>Total VS, as-designed:</i>	89	cm	
SPM standard:	60	cm	micro-dose to sand mound
Loading rates as designed:			
<u>Mound Sand Surface</u>			
Effluent Type	1		
Length:	22	m	
Width:	3	m	
Infiltration Area:	66.0	sqm	
<i>Soil HLR (peak):</i>	28.8	Lpd/sqm	
SPM recommended:	40	Lpd/sqm	Type 1 to Mound Sand
<u>Native Soil infiltration surface</u>			
Effluent Type	2		at base of sand mound
Length:	22	m	
Width:	3	m	
Infiltration Area:	66.0	sqm	
<i>Soil HLR (peak):</i>	28.8	Lpd/sqm	
SPM recommended:	50	Lpd/sqm	Type 2 to Loam Favourable
<u>Hydraulic application rate (Dosing Frequency)</u>			
Pumping rate	215	lpm	
Pump ON time	0.5	minutes	
Dose volume	107.5	litres	
Number of fields	1.0		
Number of zones	1.0		

<i>Dose Frequency at DDF:</i>	18	<i>doses/day</i>	
SPM recommended:	14	doses/day	Micro dose 55cm mound sand
<i>Custom guided performance design - see pathogen reduction calculations attached</i>			
<u>Lineal loading rate</u>			
Bedrock slope	10	%	
Soil Depth	57	cm	Average in dispersal area
Soil Type	Loam	Favourable	
Contour Length	22	m	
<i>LLR (peak):</i>	<i>86</i>	<i>Lpd/m</i>	
SPM recommended maximum:	55	Lpd/m	
Custom recommended maximum	110	lpd/m	*Reference below
<i>*Higher Linear Loading Rates based on Water Table Mounding Measured during Full-scale Multi-day Testing", Payne and Ralston, 2024</i>			
<u>Horizontal Setback distances:</u>			
	FIELD		
<i>Well</i>	<i>&gt;20*</i>	<i>m</i>	
SPM recommended:	30	m	
<i>*Well setback reduction - see attached report by A. Dakin, P.Eng.</i>			
<i>Potential Breakout</i>	<i>&gt;7.5</i>	<i>m</i>	
SPM recommended:	7.5	m	
<i>Waterline</i>	<i>&gt;3</i>	<i>m</i>	
SPM recommended:	3	m	
<i>Marine High Water</i>	<i>&gt;150</i>	<i>m</i>	
SPM recommended:	15	m	
	TANK		
<i>Well</i>	<i>&gt;25*</i>	<i>m</i>	
SPM recommended:	30	m	
<i>*Well setback reduction - see attached report by A. Dakin, P.Eng.</i>			
<i>Waterline</i>	<i>&gt;3</i>	<i>m</i>	
SPM recommended:	3	m	
<i>Marine High Water</i>	<i>&gt;150</i>	<i>m</i>	
SPM recommended:	7.5	m	

Ron McMurtrie and Associates, Consulting Engineers

Wastewater System Specialists

Comox/Hornby Island, BC 250-335-2685

[jasbreez@island.net](mailto:jasbreez@island.net)

Client: Davies et al  
 Job No: 1110  
 Project Address: 5445 Campbell Road, Hornby Island  
 Date: 2026-03-31  
 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	
	Flow (DDF)	
	<u>1,900</u>	litres /day
Layer 1: C33 Mound Sand		
Mound Sand	<u>Sandy Soil Class</u>	
Pathogen density (FCB) in effluent:	<u>1,000,000</u>	CFU / 100 mL
Pathogens as a log value, top of Layer 1:	<u>6.00</u>	
Estimated reduction in FCB in clogging mat:	<u>2.0</u>	log reduction
Dosing frequency:	<u>18</u>	doses / day
Soil HLR:	<u>29</u>	mm / day
	<u>0.71</u>	US gpd / sqft
FCB reduction in unsaturated soil (from chart):	<u>0.188</u>	log / inch
Soil depth	<u>60</u>	cm
Log reduction of FCB in Layer 1:	<u>4.44</u>	log
Expected FCB density at bottom of Layer 1:	<u>-0.44</u>	log
	<u>0.36</u>	CFU / 100 mL
Layer 2: Native Basal Soil		
Loam	<u>Loamy Soil Class</u>	
Pathogen density (FCB) in effluent:	<u>0.36</u>	CFU / 100 mL
Pathogens as a log value, top of Layer 2:	<u>-0.44</u>	
Estimated reduction in FCB in clogging mat:	<u>0.0</u>	log reduction
Dosing frequency:	<u>18</u>	doses / day
Soil HLR:	<u>29</u>	mm / day
	<u>0.71</u>	US gpd / sqft
FCB reduction in unsaturated soil (from chart):	<u>0.226</u>	log / inch
Soil depth	<u>25</u>	cm
Log reduction of FCB in Layer 2:	<u>2.22</u>	log
Expected FCB density at bottom of Layer 1:	<u>-2.67</u>	log
	<u>0.002</u>	CFU / 100 mL
<u>Conclusion</u>		
<1 CFU/100ml at base of sand mound/top of native soil		
Approaches non-detectable at limiting layer = 25cm depth in native loam soil.		

May 19, 2026

Islands Trust  
700 North Road  
Gabriola Island, BC  
V0R 1X3

Sent via e-mail : [icox@islandstrust.bc.ca](mailto:icox@islandstrust.bc.ca)

**ATTENTION: MR. IAN COX**

**RE: DEVELOPMENT VARIANCE PERMIT – ONSITE SEWERAGE SYSTEM, 5445 CAMPBELL ROAD,  
HORNBY ISLAND**

**OUR FILE: 1110**

Dear Sir:

Further to our recent telephone conversation I have prepared the following letter in support of the Development Variance Application for the above noted property on Hornby Island.

The DVP application is for a well setback reduction from the proposed septic field. A well setback reduction assessment report in accordance with the Sewerage System Regulation (SSR) has been prepared and submitted by Mr. Allan Dakin, P.Eng. for this project. The report is based on my site and soil evaluation and proposed sewerage system design as noted in Mr. Dakin's report.

I have completed my site and soil evaluation, feasibility and preliminary design for the proposed system. A Site Plan of the proposed system has been submitted to you by my client, Katherine Davies. I report that the design is in accordance with the SSR and meets the requirements of the regulation with respect to the well setback. The proposed setback from the dispersal field to the neighbouring well is >22m as noted on the plan.

In conclusion, the design meets Standard Practice as defined in the SSR and if operated and maintained in accordance with the regulation will not cause nor contribute to a health hazard.

I trust the foregoing meets your needs for the DVP application. Please contact me if you have any questions or require further information.

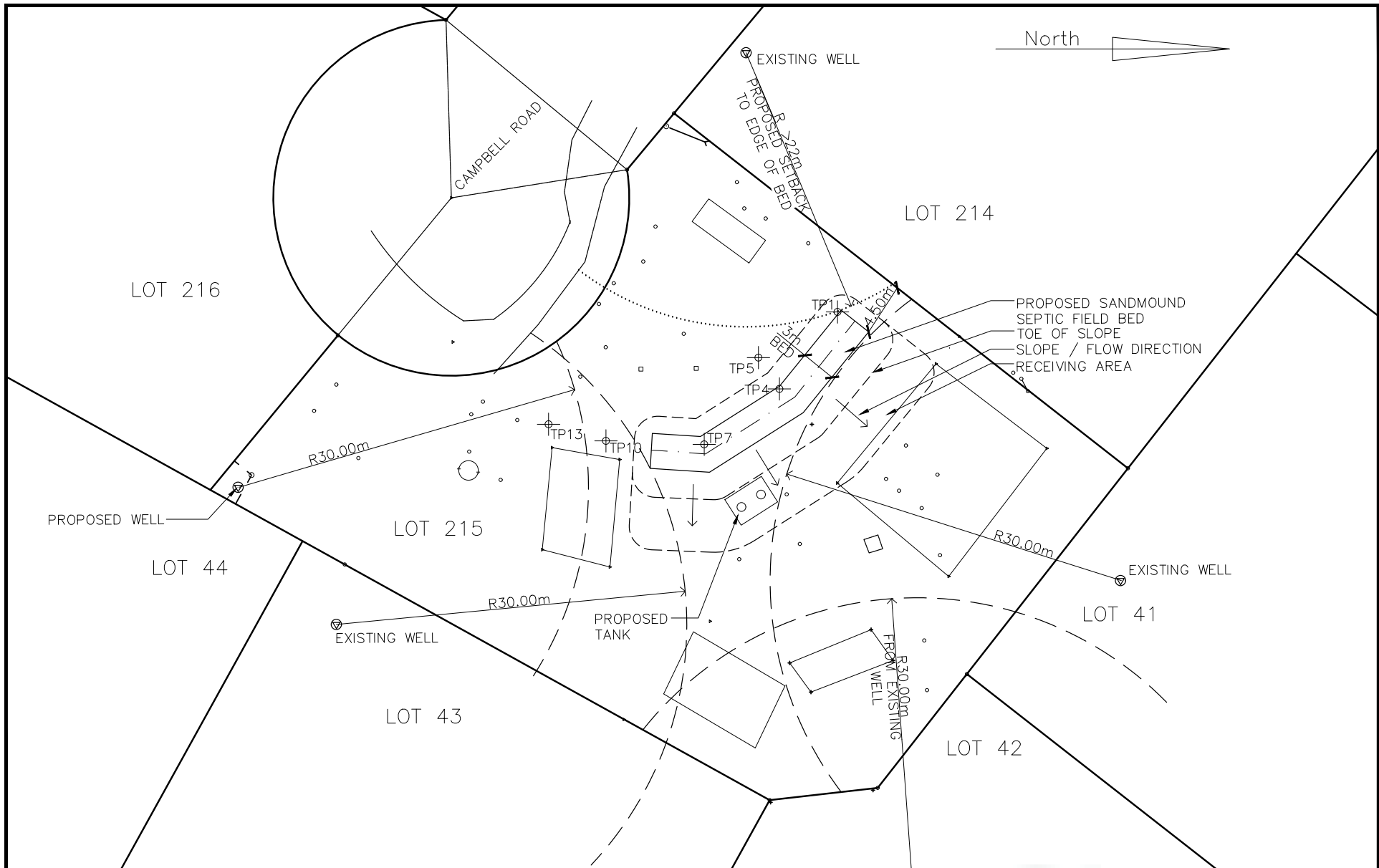
Yours truly,



Ron McMurtrie, P.Eng.

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

cc Katherine Davies



RON McMURTRIE & ASSOCIATES  
CONSULTING ENGINEERS  
5225 JEROW ROAD, HORNBY ISLAND, V0R 1Z0  
TELEPHONE (250) 218-2194

Davies  
LOT 215, NANAIMO DISTRICT, HORNBY ISLAND, BC PLAN VIP24327  
5445 CAMPBELL ROAD, HORNBY ISLAND, BC

SITE PLAN  
LOT LAYOUT  
PROPOSED ON-SITE SEWERAGE PLAN

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

Designed	RM	Job No.	1110	V.I.H.A. File No.	-
Drawn	VC	Scale	1:300	Drawing No.	-
Check/Approved	RM	Date	2026/03/23		1
Acad File	1110.dwg	Field Books	-	Rev. No.	-
					of -

## ATTACHMENT 5 – SITE CONTEXT PLDVP20260162

### LOCATION

Legal Description	LOT 215, SECTION 1, HORNBY ISLAND, NANAIMO DISTRICT, PLAN 24327
PID	003-011-305
Civic Address	5445 Campbell Road, Hornby
Lot Size	0.23 hectares/0.56 acres

### LAND USE

Current Land Use	Residential
Surrounding Land Use	Residential 1 – Small Lot (R1) Zone (Galleon Beach, Shingle Spit, Sandpiper, Whaling Station Bay/Anderson Drive and portion of Klaver Lot)

### HISTORICAL ACTIVITY

File No.	Purpose
PLSUP20260165	Installation of a BC Hydro, power pole, and electrical service connection, a temporary power and utility sea can, a bathroom and sanitary facility sea can, and an on-site well.

### POLICY/REGULATORY

Hornby Island Official Community Plan Bylaw No. 149, 2014	<b>Small Lot Residential (SR)</b> Development Permit Area: None
Hornby Island Land Use Bylaw No. 150, 2014	Zone: <b>Small Lot Residential (R1) Zone</b> Applicable regulations to this DVP request:  <b>3.3 Siting and Setback Regulations</b> (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.  “ <b>structure</b> ” means any object or construction fixed to, supported by or embedded in land, including retaining walls and stairs and excludes loose stones and concrete, other paved surfaces, storage of building materials, septic fields, tanks, absorption fields and related appurtenances.
Other Regulations	N/A
Covenants	None (Stat Building Scheme only, 419988G)
Bylaw Enforcement	N/A

## SITE INFLUENCES

Islands Trust Conservancy	N/A – This application does not directly affect an ITC-owned property or conservation covenant; nor does it directly affect a property adjacent to an ITC-owned property or conservation covenant. It also does not pertain to terrestrial or intertidal Crown Land located within 100m of an ITC-owned property or conservation covenant. Therefore referral to ITC as per <u>Policy 3.3.ii</u> for comment is not required.
ITC Regional Conservation Strategy	The <u>Regional Conservation Plan 2018-2027</u> estimated importance of habitat composition in the area of the subject property is <b>LOW</b> . This application does not appear to be inconsistent or contrary to the goals and objectives set out in the ITC Regional Conservation Plan.
Species at Risk	<p><b>SAR Critical Habitat:</b> <u>Northern Myotis</u> and <u>Little Brown Myotis</u>. See the <u>Little Brown Myotis (Myotis lucifugus)</u>, <u>the Northern Myotis (Myotis septentrionalis)</u>, and the <u>Tri-colored Bat (Perimyotis subflavus): recovery strategy 2018</u> for more information.</p> <p><b>SAR (Public) Ecological Community:</b> <u>Coastal Douglas-Fir/Dull Oregon Grape</u> ecosystems identified on the subject property. Threats to this public Species at Risk include urban and semi-rural development, small-scale but intensive agriculture, forest harvesting, livestock (sheep and goats) grazing, the introduction and spread of invasive species (e.g., daphne laurel, Scotch broom in early seral stages), and probably climate change.</p>
Sensitive Ecosystems	<p>Sensitive Ecosystem Inventory: None Currently Mapped  Heron Rookery/Raptor Nest/Sea Bird Colony: None Currently Mapped  RAR Watercourse: None Mapped  Environmentally Sensitive Areas: None Mapped  See Schedule D1 of the Hornby Island Official Community Plan Bylaw No. 149: <a href="https://islandstrust.bc.ca/document/hornby-island-schedule-d1-map-ocp-bylaw-149/">https://islandstrust.bc.ca/document/hornby-island-schedule-d1-map-ocp-bylaw-149/</a></p>
Hazard Areas	None mapped.
Archaeological Sites	<p>Remote Access to Archaeological Data (RAAD) mapping indicates that subject property does not contain archaeological sites or in the immediate vicinity, but are present within 100 metres of the lot boundaries. The applicant initiated the K'ómoks CHIP process via SUP application PL-SUP-2026-0165.</p> <p>Notwithstanding the foregoing, and by copy of this report, the owners and applicant should be aware that there is 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 Heritage Conservation Act permit may be needed before further development is undertaken. This may involve the need to hire a qualified archaeologist to monitor the work.</p>
Climate Change Adaptation and Mitigation	This DVP application seeks to lawfully site a residential septic system on the property and as such does not propose any additional intensity of use or development beyond what is currently permitted by zoning. GHG emissions can be expected to be commensurate with normal

	levels associated with Single Family Residential development patterns and use, including the use of personal vehicles for transport on and off island.
Shoreline Classification	Not Applicable
Shoreline Data in TAPIS	Not Applicable – Not a waterfront property
Groundwater	IIA - Lightly developed, high vulnerability

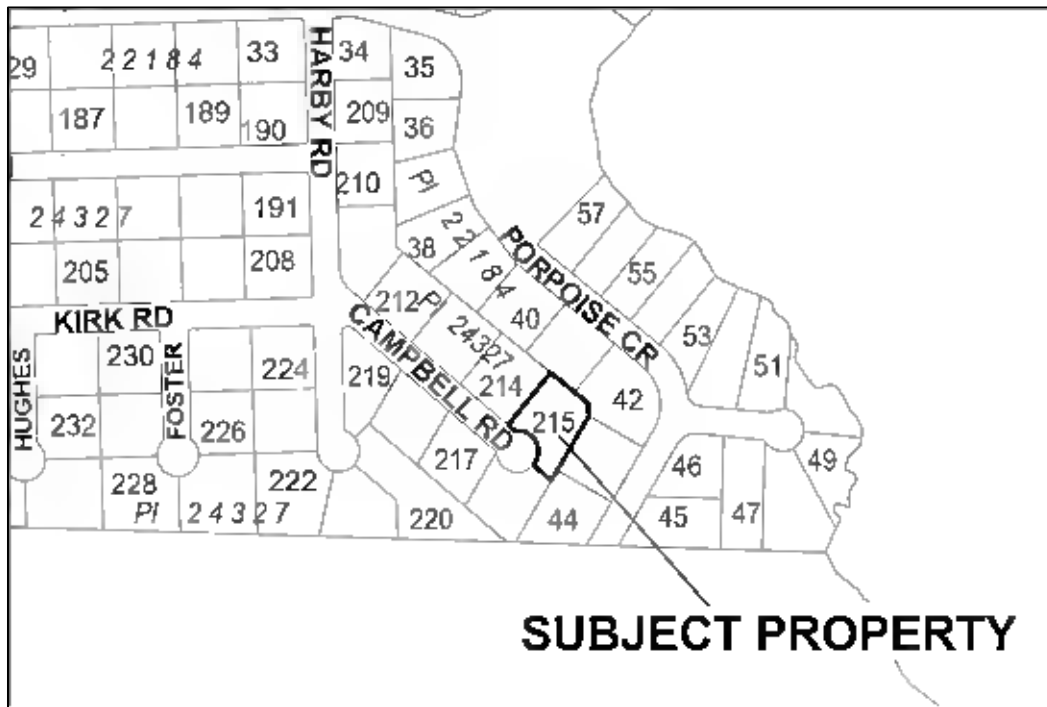
**NOTICE** is hereby given that pursuant to Section 499 of the *Local Government Act*, the Hornby Island Local Trust Committee (LTC) will be considering a development variance permit (DVP) to allow the siting of a residential septic system designed and installed by a Registered Wastewater Technician and professional engineer, not less than 22 meters from neighbouring property water wells (Attachment 1 – Septic Site Plan).

The lot has a unique configuration and is located at the end of a cul-de-sac, with six other properties abutting the subject lot boundaries (see subject property sketch map below). It is the last remaining undeveloped lot in the immediate vicinity; the other lots have all had wells installed in close proximity to the subject property lot lines. As a result, the property is encircled by existing neighbouring water wells, all of which require a 30-meter setback to septic systems per [Hornby Island Land Use Bylaw No. 150](#), section 3.3, subsection (7). It is not possible to meet the regulation in this instance due to the conditions described above and that form the applicant’s rationale for the variance request.

The property is located at **5445 Campbell Road, Hornby Island** and is legally described as:

LOT 215, SECTION 1, HORNBY ISLAND, NANAIMO DISTRICT, PLAN 24327 (PID: 003-011-305)

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 4:00 p.m. Monday to Friday inclusive, excluding statutory holidays, commencing **June 12, 2026** and continuing up to and including **June 25, 2026**.

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

Enquiries or comments should be directed to Planner, Ian Cox, 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](mailto:northinfo@islandstrust.bc.ca) before 4:00 pm, **June 25, 2026**.

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 26, 2026 at the Hornby Community Hall, 4305 Central 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

