Groundwater supply investigation, Faulder BC

MOTI File: 2022-01858

RDOS File: F2022.005-SUB

Prepared for

Plateau Rousseau Estates Inc.

September 4, 2022

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Any questions concerning the information in this report, or the interpretations made should be directed to Jon Fennell.

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1 INTRODUCTION

Plateau Rousseau Estates has applied to the Ministry of Transportation and Infrastructure (MOTI) in order to develop a three-lot subdivision located at 8025 Princeton-Summerland Road in Faulder (Summerland) BC. As well, PRE has applied to the Regional District of Okanagan-Similkameen (RDOS) for a rezoning application in order to accommodate this subdivision from a zoning perspective. Both the MOTI and the RDOS have concerns regarding water in the area and both organizations require assurances that the proposed development will not disrupt the level of services currently enjoyed by other landowners in the area.

One of the requirements for the subdivision approval is to prove sufficient water on each of the proposed lots for future domestic use. Water supply in the Faulder community is mainly sourced from municipal groundwater wells accessing water from an unconsolidated sand and gravel aquifer system named the Meadow Valley Aquifer (MVA). Recent challenges with supply from this aquifer have been noted, particularly during years of low precipitation (i.e. snow and rainfall). This has raised concern regarding any new development that may access groundwater in the area and potentially impact water levels in that sand and gravel aquifer.

In response to this subdivision application MOTI notified PRE of the following in a letter dated July 25, 2022 (eDAS File #2022-01858):

1. *The availability of ground water in this area is a concern and there may be a negative impact to existing wells in the area if additional wells are withdrawing water, therefore pursuant to Sec 86(1)(c)(i) of the Land Title Act, the approving officer requires a detailed hydrogeology study/report to clearly show how the ground water source of the area will or may be affected by the additional wells proposed for this development. The report shall be prepared by a Professional Engineer experienced in hydrogeology and currently registered in British Columbia. The report must consider the potential effect of any and all wells or other ground water sources required for this subdivision, and all other wells in the area. The full occupied use of all the properties shall be considered and the area of influence to be studied shall be determined by the Professional Engineer. The RDOS as owner/operator of the nearby Faulder Community Water System shall be consulted on these water matters as part of this hydrology assessment and report.*

A copy of this letter, as well as a copy of RDOS Subdivision Review Report, is provided in Appendix 1 and Appendix 2, respectively. This report has been prepared to meet the needs of MOTI and RDOS, as noted in the preceding italicized paragraph, and provide a review of the local hydrogeological setting and groundwater supply potential for the PRE subdivision. The information used in this report was accessed from published reports on the RDOS information portal, as well as information accessed from the *BC Groundwater Wells and Aquifers* portal (see website link in References section).

2 PHYSICAL SETTING

2.1 Aquifer systems

The community of Faulder is located west of Summerland and is situated along the southward flowing Darke Creek and eastward flowing Trout Creek. The area is mountainous with the presence of a relatively narrow alluvial aquifer within both the Darke and Trout creek valley bottoms. This unconsolidated aquifer, the MVA, is the main source of water in the area and provides water to the residents from two municipal water wells owned and operated by RDOS. The depth of those wells are roughly 64 m and 97 m below ground surface with a depth to water anywhere from about 47m to almost as deep as 55 m. The lowest water levels recorded occurred in 2011 after a lengthy period of decline starting in late 2006. This prompted the concern regarding long-term sustainability of the aquifer system; however, since 2011 the water levels in the MVA have been increasing providing some relief.

The MVA is listed as Aquifer #299 in the BC Groundwater Wells and Aquifer portal and has a mapped areas of 7.8 km^2. Figure 1 shows the location of aquifers in the region. Also shown on the figure is the location of the proposed PRE subdivision.

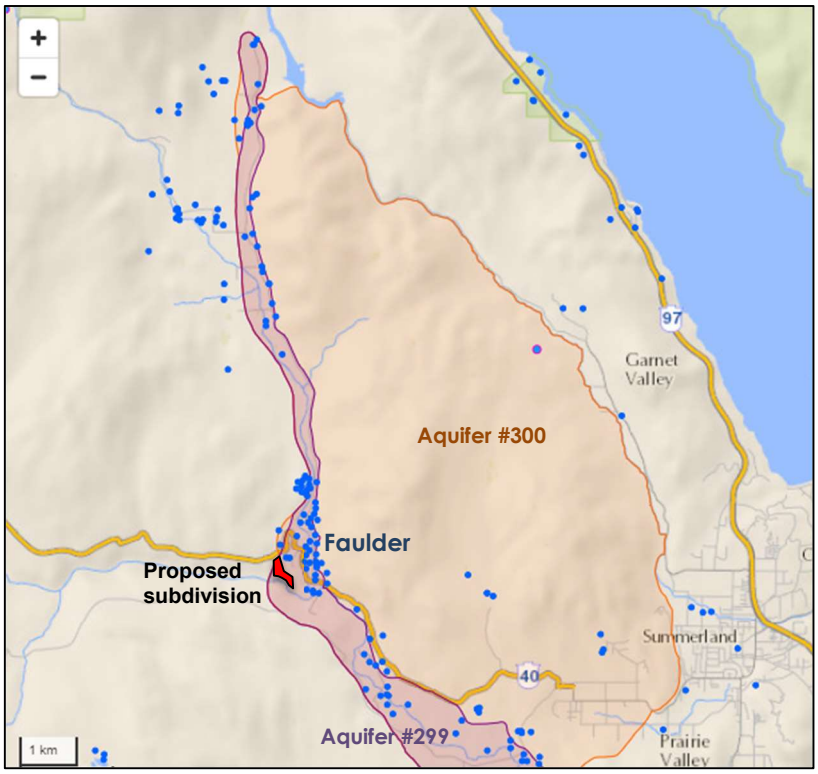


Figure 1. Distribution of aquifers in the Faulder area and surrounding region showing the location of the proposed subdivision. *(Source: BC Groundwater Wells and Aquifers portal)*

In addition to the MVA, the area is underlain by crystalline plutonic rock associated with the Okanagan intrusives. The rock type is mainly granodiorite that has been faulted and fractured to some degree. The faulting and fracturing has given this otherwise tight rock some water transmitting capability, albeit low compared to Aquifer #299 (i.e. 1-4 US

gallons per minute versus up to 270 US gpm, Figure 2). The mapped area of this bedrock aquifer is 55.1 km^2, or roughly 7 times the size of the MVA. Recharge to this fractured bedrock aquifer is provided by melting snow and seasonal rainfall events making its way though the overlying soils. Although this bedrock aquifer system tends to have low transmitting capability it can still provide enough water to satisfy domestic needs. In fact, a large number of documented water wells in the Faulder area are completed in this aquifer.

2.2 Groundwater yield, recharge, and flow characteristics

Figure 2 shows the locations of the water wells in the Faulder area. The red symbols represent bedrock wells and those with black symbols represent bedrock wells with data used to determine local hydraulic properties of Aquifer #300. Next, the blue symbols represent wells completed in Aquifer #299 (i.e. the MVA), and the yellow stars represent the locations of the RDOS supply wells FCW1 and FCW2 also completed in Aquifer #299. And finally the smaller blue dots represent wells with a lack of information.

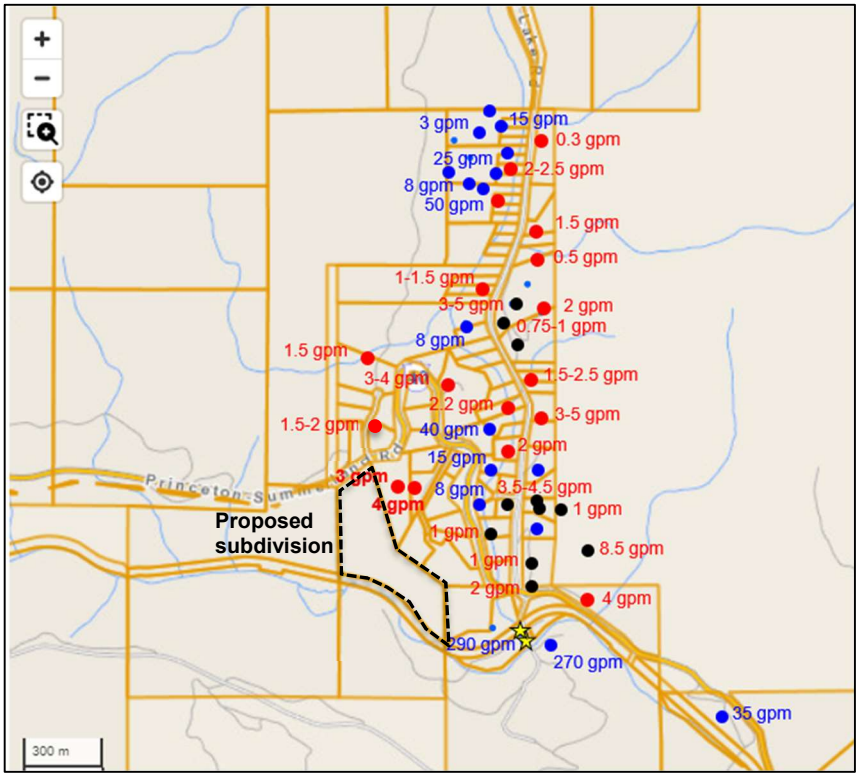


Figure 2. Locations of water wells in the study area along with estimated yield in US gpm. *(Note: red symbols = bedrock wells; black symbols = bedrock wells with useful data to determine aquifer properties; blue symbols = MVA wells; Source: BC Groundwater Wells and Aquifers portal))*

The location of the proposed subdivision is also shown in Figure 2, which is to the southwest of the developed area. It is worth noting that Figure 1 shows most of the water wells located within the area fall within the area identified for Aquifer #299; however, many of the wells are completed in Aquifer #300. The two wells located close to the proposed subdivision (indicating 3 and 4 gpm) are completed in Aquifer #300. Well logs for those

two locations (Well Tags #123686 and #122608) indicate the presence of up to 24 m of sand and gravel. The well immediately to the north (Well Tag # 45465), indicating 1.5-2 gpm, is also documented as having almost 12 m of sand and gravel overlying fractured bedrock. Therefore, the likelihood of some MVA deposits existing beneath the proposed subdivision area does exist.

Also included in Figure 2 are the estimated well yields for each location. It is quite clear that the estimated well yields associated with the MVA are an order of magnitude, or more, greater than those documented for the bedrock wells. This is to be expected given the higher permeability and transmissible nature of the unconsolidated deposits forming the MVA compared to the fractured bedrock.

Recharge to the MVA occurs primarily by leakage through the base of Darke and Trout creeks (Golder 2008). Estimates of recharge amount to approximately 9.5 to 10.6 million m3 per year (Golder 2005). Most of this (88%) has been attributed to the Trout Creek catchment (88%), with the balance (12%) coming from the Darke Creek catchment (Golder 2005). These estimates assumed that 5% of annual precipitation contributes to this recharge, which is considered conservative. A study by Golder for the Okanagan Basin found 10% of annual precipitation was more likely (Golder 2008).

With respect to the bedrock aquifer, no estimates of recharge have been provided. However, given its expansive nature it is reasonable to assume that a considerable amount of infiltrating water is sustaining that system.

Groundwater flow in the study MVA is documented as being southward from the Meadow Valley area down towards the community of Faulder and generally parallel to the flow of Darke Creek (AEC 2022). Isotopic dating of the groundwater sampled from the MVA indicates a relatively young age of between 5 and 43 years (Golder 2008). No similar studies of groundwater flow or age have been done for the bedrock aquifer, but topographic control is anticipated with flow occurring from upland areas down to lower lying areas. Comparison of water levels in wells throughout the Faulder area reveals a dominantly downward flow gradient within the MVA and into the bedrock. This difference in water levels between the MVA and the bedrock indicates some degree of hydraulic isolation between the two aquifer systems.

Given the configuration of the two aquifer systems there is likely some degree of hydraulic connection between the bedrock and the MVA. However, given the low yields of the bedrock water wells in the Faulder area (as noted in (Figure 2) any contribution of groundwater from the bedrock to the MVA will likely be low compared to the other sources (i.e. recharge from Trout and Darke creeks). Another complicating factor is the style and orientation of faulting and fracturing in the bedrock, which can serve to enhance or impede groundwater exchange between the two aquifer systems.

Review of the information for MVA and bedrock wells completed in close proximity to each other indicated that the vertical gradient is variable with the potential for water to exchange either way between the differing aquifer systems. The difficulty in resolving the direction of groundwater, either from the bedrock to the MVA, or vice versa is the lack of water level measurements collected at the various wells a roughly the same time. But, in general the documented water levels assessed suggest contribution of groundwater from the bedrock to the MVA.

2.3 Groundwater quality

A search for water quality results to compare the bedrock with the MVA was conducted, which located one file for a bedrock well (Well Tag #49644, BC Groundwater Wells and Aquifers portal) and one for a Faulder municipal well (Golder 2013). Results for selected parameters comparing the two water types are provided in Table 1. Although most of the major ions yield similar values between the two water types, there are notable differences in the total dissolved solids (TDS) content, as well as chloride, nitrate, silicon, and zinc concentrations. The much higher silicon concentration in the bedrock sample is interesting and suggests a possible geothermal influence, while the elevated nitrate (NO_3) in the MVA sample suggests a possible link to fertilizers or influences from septic systems in the area. The configuration of these two constituents supports the suspicion that groundwater flow may be predominantly from the bedrock to the MVA.

Table 1. Comparison of water quality in the bedrock versus MVA.

Parameter	Bedrock (June 22, 1982)	MVA (July 24, 2012)
Total Dissolved Solids (mg/L)	252	179
Hardness (mg/L as $CaCO_3$)	117	112
Bicarbonate Alkalinity (mg/L)	167	144
Calcium	36.3	36.6
Magnesium	6.3	12.0
Sodium	11.2	11.2
Potassium	2.92	3.16
Chloride (mg/L)	<0.5	6.1
Sulphate (mg/L)	4.3	8.2
Nitrate (mg/L as N)	<0.010	0.724
Ortho phosphate (mg/L)	0.034	<0.010
Manganese (mg/L)	0.063	<0.0002
Silicon (mg/L	23.3	8.7
Zinc (mg/L	<0.010	0.172

3 IMPACT ASSESSMENT

3.1 Aquifer properties

As noted in Section 1 of this document, the RDOS has requested that PRE provide an assessment of how the groundwater source of the area might be affected by the addition of new water wells for the prosed subdivision. This assessment is to include a review of how nearby water wells could be affected by drawdown from the new wells. In order to do this some basin understanding of the hydraulic properties of the bedrock and MVA aquifer systems is required.

When completing an assessment of drawdown impact from a water well on the surrounding area it is important to have the right hydraulic parameters to achieve this goal. These parameters are transmissivity (T) and storativity (S). According to the BC Groundwater Wells and Aquifers portal fact sheet for the MVA aquifer (Aquifer #299) the range of T and S values listed are as follows:

T = 1.2 x 10^{-2} to 2.5 x 10^{-2} m^2/s (1037 to 2160 m^2/d)

S = unknown

With respect to the bedrock (Aquifer #300 the documented range in T and S values is as follows:

T = 7.1 x 10^{-7} to 5.6 x 10^{-4} m^2/s (0.061 to 48.4 m^2/d)

S = unknown

Additional review of aquifer tests conducted on bedrock wells in the Faulder area yielded a range of T values from 0.08 to 30.3 m^2/d, consistent with the range reported in Aquifer #300 fact sheet. The geometric mean of these test values was 1.23 m^2/d and was highly influenced by the one particular higher yield well. Disregarding the higher T value as an outlier, the geometric mean T value of the local bedrock reduces to 0.42 m^2/d, again consistent with the Aquifer #300 fact sheet.

The lack of storativity values for the MVA and the bedrock does , however, complicate the assessment process, necessitating an estimation. The equation to calculate S values, is follows:

$$S = \rho g(\alpha + n\beta)b$$

where:

ρ = density of water (1000 kg/m3 for fresh water)
g = gravitational acceleration (9.8 m2/sec)
α = aquifer compressibility (m2/N)
n = total porosity (%)
β = water compressibility (4.4 x 10-10 m2/N)
b = aquifer thickness

Published aquifer compressibility values for sand and gravel range anywhere from 10^{-10} to 10^{-7} m^2/N (Freeze and Cherry 1979). So, assuming a maximum saturated aquifer thickness

of 35 m for the MVA, a reasonable aquifer compressibility of around 5 x 10^{-8} m2/N as well as total porosity of 35%, the calculated S value is 1.7 x 10^{-2}.

With respect to the bedrock a much lower S value is anticipated. Published aquifer compressibility values for jointed (fractured) bedrock range from 10^{-10} to 10^{-8} m^2/N (Freeze and Cherry 1979). The depth of many of the bedrock wells in the Faulder area can be up as 150 m or more depending on total depth. Most of these wells have been completed open hole from the base of the surface casing to total depth so the available hydraulic head (and casing storage) will be considerable based on the range of depths to water (12 to 61 m based on a random review of well files). Assuming a reasonable aquifer compressibility of 1 x 10^{-9} m2/N, saturated thickness of 35 m, and total porosity of 5% (for fractured rock), the calculated S value is 3.5 x 10^{-4}.

3.2 Proposed water wells

PRE plans to subdivide a large parcel of land into three lots, each requiring at least one water well to service residential use. This will include two smaller lots of 1.0 and 1.2 hectares, respectively, and a larger lot with an area of 9.0 hectares. Discussions with Mr. John Rousseau (the landowner and subdivision developer) have indicated that the desired strategy is to provide one water well on each of the smaller lots and two water wells on the larger lot. The proposed locations of these wells are shown in Figure 3 (on the following page).

The intent is to complete each of the wells in the deeper bedrock intervals, thus avoiding risk to the MVA as well as any connected surface water system (i.e. Trout and Darke creeks). The most appropriate installation strategy would be to drill through the unconsolidated surface deposits and into the bedrock past the upper weathered regolith until competent bedrock is encountered. This would be followed by installation of a surface casing over the upper soil and regolith intervals sealed around the outside to ensure hydraulic isolation between the deeper bedrock intervals and shallower water-bearing zones. Based on the configuration of the proposed wells in Figure 3, the risk of interference with each other is considered remote based on the amount of water to be used. This is further reviewed in Section 3.3.

The RDOS requires that a well servicing a private lot must be capable of producing at least 2300 L per day at a rate of at least 20 L/min for 1 hour. Two nearby bedrock wells immediately to the east of the proposed subdivision indicate that the bedrock intervals are capable of delivering this amount of water (i.e. Well Tags #122608: ID Plate Number 32775 and #123686: ID Plate No. 32776). A verification letter from the drilling and testing company attesting to their capability to meet the RDOS requirements is included in Appendix 3.

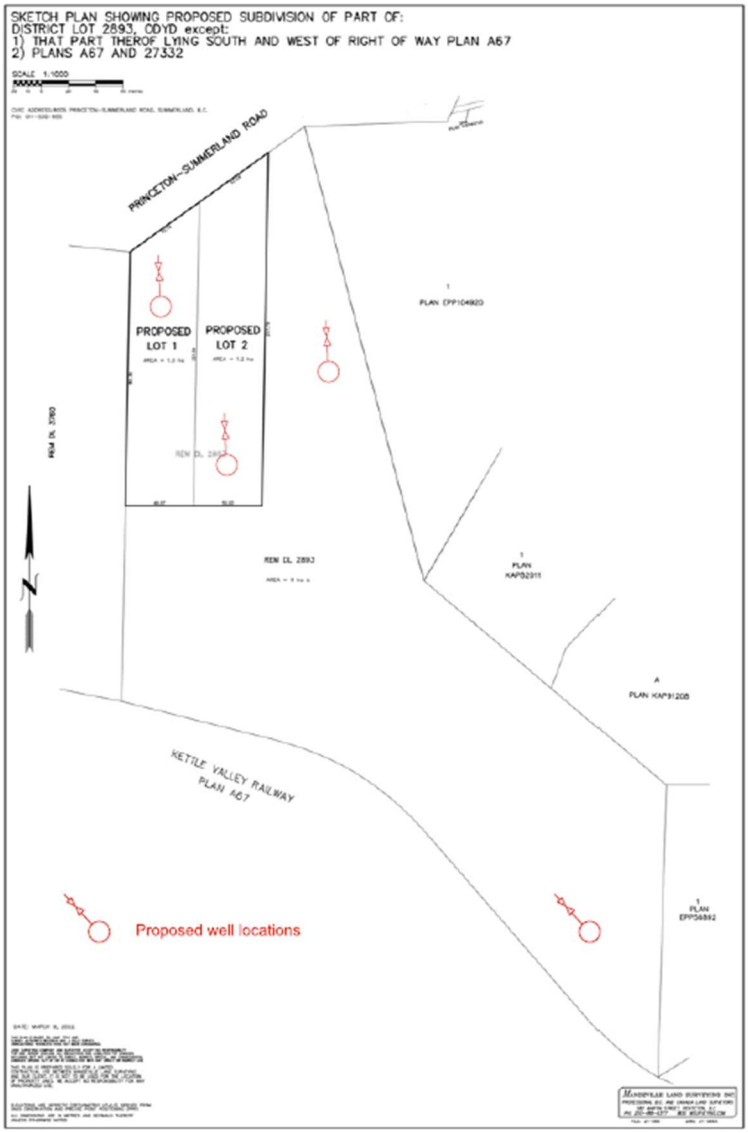


Figure 3. Locations of proposed water wells to service the PRE subdivision.

Similar yield capability would be expected from any new bedrock wells drilled in the proposed subdivision but would of course be subject to confirmation via proper testing once installed. The requirement for 2300 L per day is considerable. According to the Statistics Canada website (see link in website references) in 2019 the average daily residential use of water in British Columbia was 274 L per person per day. In a household of 3 this would amount to 822 L - far short of the RDOS requirement of 2300 L/day. Regardless, based on the reported yields for bedrock well in the area (generally between 1-4 US gpm) an expected average well yield would be on the order of 11,000 L/day (almost 5 times the requirement). This is demonstrated below:

$$2 \text{ US gpm} \times 3.785 \text{ L/US gallon} \times 1440 \text{ minutes/day} = 10{,}901 \text{ L/day}$$

Even at 0.5 US gpm, which is at the very low end of the documented water wells yields in the area, the amount of water produced in a day from such as low yield well (i.e.

2,725 L/day) would still exceed the RDOS requirement. As such, the ability to service the proposed subdivided lots with groundwater accessed from the bedrock is likely. And this can be done with negligible impact to the MVA and any nearby groundwater users completed in that surficial aquifer, or the bedrock aquifer for that matter. This is discussed further in the following sections.

3.3 Projected drawdown effects

The RDOS is concerned that any further groundwater development in the Faulder area may further exacerbate water sustainability challenges for the MVA. This is legitimate concern considering the low water levels encountered during the 2010 to 2011 time period. The influence of the local climatic conditions on water balance of the MVA is obvious, and thankfully the water levels have recovered since then to more comfortable conditions.

Nevertheless, there is a concern that further groundwater development in the area will stress the MVA system and cause cumulative impacts that may jeopardize future water supply sustainability. Again, this is a legitimate concern but one that needs to be placed into context. No doubt there are periods of time when precipitation deficits will create stresses on the MVA, but this does not extend directly to the bedrock aquifer per se. This comes down to the role that the bedrock aquifer plays is the water balance of the MVA and its ability to provide small amounts of water for individual household use in a small subdivision (i.e. 3 lots with 4 appropriately spaced bedrock wells).

To provide a bit more perspective, the drawdown effects from operating up to 4 new groundwater wells completed in the bedrock aquifer will be minimal and likely not measurable or noticeable at nearby bedrock water wells, let alone wells completed in the comparatively prolific MVA aquifer. To support this position, estimates of drawdown have been calculated using appropriate methods of analysis. This includes the radius of influence and the potential effects that these new wells could theoretically have on local groundwater users based on the use of up to 3 US gpm and the required 2,300 L per day (i.e. all well in excess of average residential use in BC).

To do this the Copper-Jacob (1946) method of analysis has been employed. There are a number of assumption related to this method, but for the most part these are satisfied. Those assumptions include:

- The aquifer is of infinite areal extent, homogeneous, isotropic and of uniform thickness.
- The well is fully penetrating.
- Flow to the well is horizontal.
- The aquifer is nonleaky and confined.
- Flow to the well is unsteady.
- Water is released instantaneously from aquifer storage with a decline of hydraulic head.
- The diameter of a pumping well is very small so that storage in the well can be neglected.

The equation to determine the level of drawdown at various distances, assuming a constant rate of pumping, is as follows:

$$s = \frac{2.303Q}{4\pi T}\log\left(\frac{2.25Tt}{r^2 S}\right)$$

where:

s = drawdown
Q = flow rate of the well
T = transmissivity
S = storativity
t = time
r = radius of distance from the well

For a 6-inch (152 mm) diameter well with 50 m of available head pumping at 3 US gpm for one day, and completed in a bedrock aquifer with a transmissivity of 0.42 m^2/day and storativity of 3.5 x 10^{-5}, the following theoretical drawdown is obtained at various distances from the well:

Table 2. Projected drawdown impacts from a well pumping at 3 US gpm.

r (m)	0.076	10	20	30	52
t (days)	1	1	1	1	1
s (m)	40.4	10.2	5.9	3.4	0.0

Although at this rate there could be notable drawdown in the well itself, the impact associated with its operation is limited in extent. Based on the calculation, any bedrock well located at distance greater than about 50 m should not experience any noticeable impact. And based on the proposed locations of the wells in the PRE subdivision (Figure 4) there are no bedrock water wells located within 50 m of the properties. In fact, the closest bedrock well is located about 75 m east of the property line (black outlined red symbol in Figure 4).

One factor that is not considered is the well storage component. A 6-inch (152 mm) diameter well, which is a common construction for domestic supply wells, will hold about 18 L of water for every meter of depth. In a well with 50 m of available head this represents 905 L. Also, if the well is capable of recovering fast enough after being pumped this can extend the usefulness. There are strategies to ensure adequate supply of water for a household serviced by a lower yield well. These include the use of storage tanks to retain water pumped during times when the system is idle (e.g. overnight) and other conservation techniques such as the use of low water fixtures.

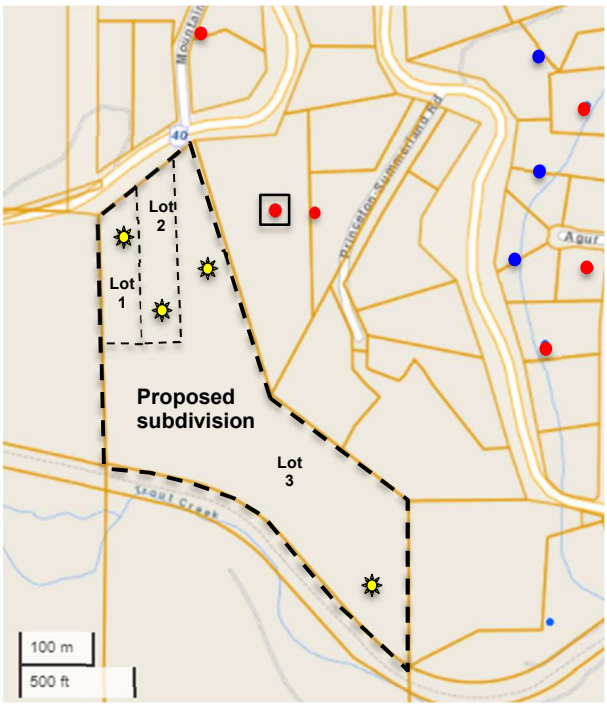


Figure 4. Locations of existing and proposed water wells in the proposed PRE subdivision area. *(Note: red symbols = bedrock wells, blue symbols = MVA wells; yellow sun symbols = proposed water wells)*

Another important consideration is the intermittent nature of domestic water use. The typical configuration for a household well is to have the pump route water to a pressure tank so that sufficient pressure can be maintained in the household (e.g. 40 to 60 psi). Given this configuration the pump only operates for short periods of time to "pressure-up" the tank when needed. This intermittent operation allows the water level in the well to recover between pumping periods, mitigating drawdown effects that would otherwise be associated with sustained long-term pumping. The rate of pumping used in the preceding calculations (3 US gpm or 16.4 m^3/day) is substantially higher than the required rate of 2300 L/day (0.42 US gpm or 2.3 m^3/day) identified in Schedule A of the RDOS Bylaws. Using a rate of 0.42 US gpm the following theoretical drawdowns are calculated:

Table 3. Projected drawdown impacts from a well pumping at 0.42 US gpm

r (m)	0.076	10	20	30	50
t (days)	1	1	1	1	1
s (m)	5.7	1.4	0.8	0.5	0.0

It is clear that the drawdown effects estimated at this lower withdrawal rate are much lower than for a well operating at a higher rate. And again, this does not consider the effect of casing storage and water level recovery from intermittent pumping.

In summary, the preceding calculations indicate that impacts to neighbouring bedrock wells from any new bedrock water wells installed to service this proposed subdivision will

be minimal, if at all measurable. The calculations made are conservative as they do not consider the previously mentioned mitigating factors.

With respect to potential impacts the MVA and Trout or Drake creeks, proper installation of any bedrock water well with an adequate seal around a surface casing (extending across the surficial soil and upper bedrock intervals) will reduce the risk of any impact. The fact that the creeks are reported to recharge the MVA indicates that movement of water is from those water courses into the subsurface (i.e. a losing stream). And these water courses are heavily regulated so as to maintain adequate flow conditions. The vertical gradient is also downward from the MVA into the bedrock aquifer, as indicated earlier in this report. The difference in water levels between the MVA and the bedrock is evidence of some degree of hydraulic isolation between the two aquifer systems. Therefore, any water pumped from the bedrock intervals for to support domestic use will not have a major influence or impact on the MVA, which is known to be receiving its water from other sources.

4 CLOSURE

This report has been prepared for Plateau Rousseau Estates Inc. in support of a subdivision application referenced as RDOS File: F2022.005-SUB. The intent is to establish four bedrock water wells to service these properties with domestic use water – one well each for the proposed 1.0 and 1.2 hectare lots, and two on the proposed 9.0-hectare lot. The wells have been spaced appropriately so as not to interfere with one another or any other neighbouring water wells.

The results of this assessment show that drawdown effects from the operation of these bedrock wells will be minimal to negligible at the rates they will likely be pumping. As such, the risk of impacts to other water wells in the area, water supplies in the MVA, and local surface water features (i.e. Trout and Darke creeks) is similarly minimal to negligible.

I trust this report meets your needs and the expectations of MOTI and RDOS. If you have any questions please contact the undersigned at any time.

Sincerely,

Jon Fennell, M.Sc., Ph.D., P.Geo.
Hydrogeologist & Geochemist

5 REFERENCES

Associated Environmental Consultants (AEC) Inc. (2022). Meadow Valley Aquifer Study: Review of Conceptual Model of Groundwater Flow and Groundwater Availability. Report submitted to the Regional District of Okanagan-Similkameen, Report No. 1314930055, December 18, 2013, 176 pp.

Cooper, H.H. and C.E. Jacob, 1946. A generalized graphical method for evaluating formation constants and summarizing well field history, Am. Geophys. Union Trans., vol. 27, pp. 526-534.

Freeze, R.A. and J.A. Cherry, 1979. *Groundwater*, Prentice Hall, Englewood Cliffs, New Jersey, 604p

Golder Associates (2003). Faulder Well Aquifer Assessment and Water Supply Option Evaluation. Report submitted to the Regional district of Okanagan-Similkameen, Report No. 1314930055, December 18, 2013, 176 pp.

Golder Associates (2008). Groundwater Provenance and Water Level Assessment – Faulder, British Columbia. Report submitted to the Regional district of Okanagan-Similkameen, Report No. 08-1440-0029 (2100), August 2008, 42 pp.

Golder Associates (2013). Faulder Well Aquifer Assessment and Water Supply Option Evaluation. Report submitted to the Regional district of Okanagan-Similkameen, Report No. 1314930055, December 18, 2013, 176 pp.

6 WEBSITES

BC Groundwater Wells and Aquifers, https://apps.nrs.gov.bc.ca/gwells/aquifers, accessed August 22, 2022.

RDOS, https://www.rdos.bc.ca/public-works/utilities/water-systems/faulder/, accessed August 12, 2022.

Statistics Canada, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3810027101, accessed August 31, 2022.

Appendix 1

Ministry of Transportation and Infrastructure
Preliminary Layout Review

BRITISH COLUMBIA | Ministry of Transportation and Infrastructure

PRELIMINARY LAYOUT REVIEW

Your File #:
eDAS File #: 2022-01858
Date: July 25, 2022

Plateau Rousseau Estates INC
8005 Princeton-Summerland Road
Summerland, BC V0H1Z8

Attention: John W Rousseau

Re: Proposed Subdivision of District Lot 2893, ODYD, Except:
1) That Part Thereof Lying South & West of Right of Way Plan A67
2) Plans A67 & 27332 - 8005 Princeton-Summerland Road, Summerland, BC

Your application for preliminary review of the proposed subdivision as detailed above and as shown on the attached proposed subdivision plan prepared by Mandeville Land Surveying dated March 9, 2022, has been considered and this letter summarizes the additional information and requirements that are required for consideration of approval of the subdivision.

Although we have sought to list all the conditions, this letter does not constitute an approval. Upon further consideration, or review of additional information, changes or additions may occur.

1. The availability of ground water in this area is a concern and there may be a negative impact to existing wells in the area if additional wells are withdrawing water, therefore pursuant to Sec 86(1)(c)(i) of the Land Title Act, the approving officer requires a detailed hydrogeology study/report to clearly show how the ground water source of the area will or may be affected by the additional wells proposed for this development. The report shall be prepared by a Professional Engineer experienced in hydrogeology and currently registered in British Columbia. The report must consider the potential effect of any and all wells or other ground water sources required for this subdivision, and all other wells in the area. The full occupied use of all the properties shall be considered and the area of influence to be studied shall be determined by the Professional Engineer. The RDOS as owner/operator of the nearby Faulder Community Water System shall be consulted on these water matters as part of this hydrology assessment and report.

Local District Address
Penticton Area Office 102 Industrial Place Penticton, BC V2A 7C8 Canada Phone: (250) 712-3660 Fax: (250) 490-2231

2. Compliance with all applicable bylaws regulating the subdivision of land including the successful completion of the amendment to the Electoral Area "F" OCP Bylaw 2790, 2018 and the Okanagan Valley Zoning Bylaw 2800, 2022 of the Regional District Okanagan Similkameen. Please see their letter dated May 27, 2022 for more information. The applicant is encouraged to discuss applicable bylaw requirements with the regional district. The regional district will advise us when compliance is complete.

3. The Ministry has not received written confirmation from the Interior Health Authority that the proposed lots meet the requirements for onsite septic disposal. I note the Environmental Health Officer requested more information as outlined in their letter dated April 7, 2022.

4. Written request for relief from the 10% minimum frontage requirement, specifically for proposed Rem. DL. 2893, to the Provincial Approving Officer.

Notation (no proof of compliance required)

- The surveyor preparing the subdivision plan is advised to check with the Land Title Office in regards to returning any watercourses to Crown. Any watercourses on the subject property may require returning to Crown and your surveyor is advised to follow established guidelines or rules for this.

- The property being subdivided is within a wildfire interface area and may be subject to a hazard of wildfire. It is therefore recommended that the owner consult the following website and review the Firesmart Manual for information about reducing the risk, http://bcwildfire.ca/Prevention/firesmart.htm or https://www.firesmartcanada.ca or contact the Ministry of Forests, Lands & Natural Resource Operations for more information. Appropriate protection measures should be implemented and maintained, and property purchasers should be advised of the risk.

- Provincial records indicate the proposed development is located within an area with only limited potential to contain archaeological sites protected by the Heritage Conservation Act.

However, the applicant should be aware that there is still a chance that the lot may contain previously unrecorded archaeological material that is protected under the Heritage Conservation Act. 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 and other stone tools, or even buried human remains. If such material is encountered during demolition or construction, 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.

Please contact the Archaeology Branch immediately at (250) 953-3334 if archaeological site deposits are encountered on the subject property.

Completion of the matters outlined above will not automatically bring approval. Changes to acts, regulations, bylaws, fees, or other matters happen from time to time and may impact your proposal. This preliminary review of the subdivision proposal is valid for one year however it may be reconsidered at any time. After one year the applicant is advised to make written request for an extension.

Submission of final Survey Plan and Application to Deposit document to be accompanied by a current tax certificate to show proof all property taxes are paid, together with a plan examination fee of $50.00 plus $100.00 per lot for a total of $350.00. If paying by cheque, make payable to the *Minister of Finance*.

Please quote file number 2022-01858 when contacting this office. We encourage you to make use of our online file system eDAS to track the progress of your application.

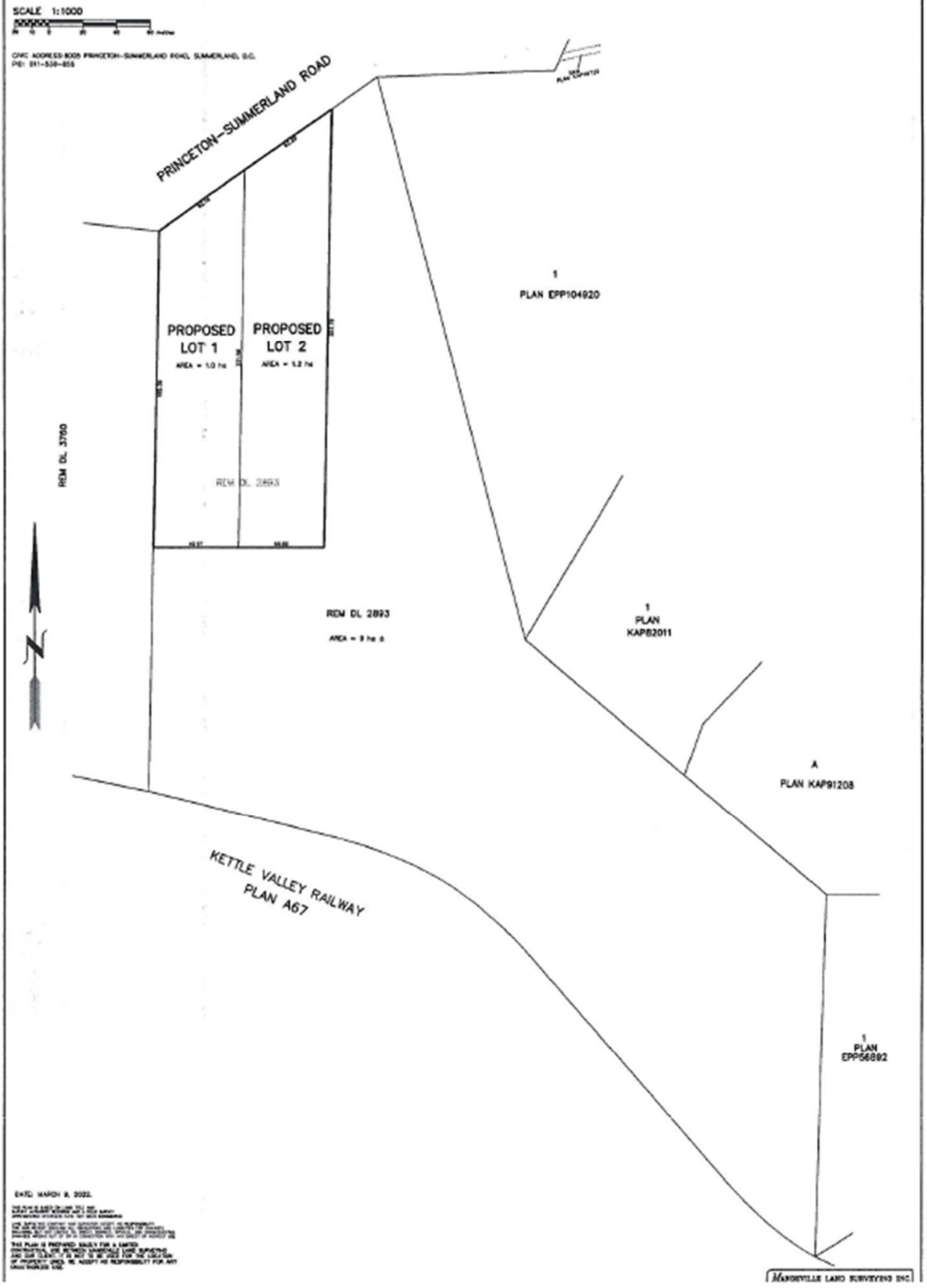
Signed on behalf of Provincial Approving Officer by

Rob Bitte
Development Officer

Attachment: Proposed Subdivision Plan

Copy: Regional District Okanagan Similkameen (File: F2022.005-SUB)

SKETCH PLAN SHOWING PROPOSED SUBDIVISION OF PART OF:
DISTRICT LOT 2893, ODYD except:
1) THAT PART THEROF LYING SOUTH AND WEST OF RIGHT OF WAY PLAN A67
2) PLANS A67 AND 27332



Appendix 2

Regional District of Okanagan-Similkameen
Subdivision Review Report

SUBDIVISION REVIEW REPORT
DEVELOPMENT SERVICES DEPARTMENT

Subdivision Examination Fees Owed by Applicant:

$1,000.00 This amount is payable to the Regional District of Okanagan-Similkameen.

RDOS File: F2022.005-SUB
MoTI File: MOTI 2022-01858

Overview:

The applicant is proposing to subdivide the subject property into three lots of 1.0 ha, 1.2 ha, and approximately 9.0 ha.

Application:

Owner: Plateau Rousseau Estates Inc. **Agent**: John Rousseau

Type: Fee Simple **Number of Parcels**: 3

Property Details:

Civic: 8005 Princeton-Summerland Rd **Folio**: F-06941.000 **PID**: 011-530-855

Legal: District Lot 2893, ODYD, Except: (1) That Part Thereof Lying South and West of Right of Way Plan A67 & (2) Plans A67 and 27332

Size: 11.08 ha **Classification**: Residential (Class 01)

Sewer: Septic **Water**: Well

RDOS Official Community Plan (OCP) Bylaw (See Schedule 'A' for more information):

OCP Bylaw: Electoral Area "F" OCP Bylaw No. 2790, 2018

Designation: Resource Area (RA)

DP Areas: Environmentally Sensitive Development Permit (ESDP)
Watercourse Development Permit (WDP)

Approvals Required:
☑ Yes ☐ No ☐ Other
(see Schedule 'A')

RDOS Zoning Bylaw (see Schedule 'B' for more information):

Zoning Bylaw: Electoral Area "F" Zoning Bylaw No. 2461, 2008

Zone: Resource Area (RA)

Parcel Size: 20.0 ha

Approvals Required:
☑ Yes ☐ No ☐ Other
(see Schedule 'B')

RDOS Works and Services (see Schedule 'C' for more information):

The works and servicing requirements for this proposed subdivision are determined by the Regional District's Subdivision Servicing Bylaw No. 2000, 2002, and other servicing related bylaws (i.e. Development Cost Charges Bylaws).

Approvals Required:
☐ Yes ☐ No ☑ Other
(see Schedule 'C')

Miscellaneous (see Schedule 'D' for more information):

The proposal may be subject to provincial government requirements related to access to water, the Agricultural Land Reserve (ALR), the *Heritage Conservation Act* and park land dedication.

Prepared by:

Shannon Duong, Planner I

May 26, 2022
Date

SCHEDULE **A**

REQUIREMENTS – OCP

1. LAND USE DESIGNATION:

The subject property is currently designated as Resource Area (RA) under the Electoral Area "F" Official Community Plan (OCP) Bylaw No. 2790, 2018. The RA designation supports a minimum parcel size of 20 ha "...in recognition that these areas will remain as rural, with limited community services and infrastructure".

Requirement: An amendment to the Electoral Area "F" OCP Bylaw No. 2790, 2018, is required in order for this subdivision proposal to proceed.

Notes: The subdivision is proposing parcel sizes less than 20.0 ha in area, which is not consistent with the current RA designation of the subject property.

As of April 1, 2022, the Regional District has received an application to amend the zoning and OCP designation that apply to the subject property (RDOS File No. F2022.006-ZONE) as follows:

- amend the OCP designation of the subject property from Resource Area (RA) to Small Holdings (SH) and Large Holdings (LH); and
- amend the zoning of the subject property from Resource Area (RA) to Small Holdings Three (SH3) and Large Holdings Two (LH2).

2. DEVELOPMENT PERMIT AREAS:

The subject property is designated within the following applicable Development Permit Areas pursuant to Electoral Area "F" Official Community Plan Bylaw No. 2790, 2018:

- Environmentally Sensitive Development Permit (ESDP) Area; and
- Watercourse Development Permit (WDP) Area.

The ESDP and WDP Areas are designated pursuant to Section 488(1)(a) of the *Local Government Act* for the protection of the natural environment, its ecosystems and biological diversity.

Requirement: The issuance of an ESDP and WDP, to be approved by the Manager of Planning, are required in order for this subdivision proposal to proceed.

Notes: The Regional District had previously issued an ESDP on September 16, 2021 for the subject property (RDOS ESDP No. F2021.041-ESDP); however, the ESDP was issued specifically with respect to the construction of a single detached dwelling, driveway, and septic system and does not address the current subdivision proposal.

An ESDP application must be accompanied by an Environmental Assessment (EA) Report prepared in accordance with the requirements of the Regional District's Development Procedures Bylaw No. 2500, 2011, and prepared by a qualified environmental professional (QEP) that is a Registered Professional Biologist in British Columbia (RPBio).

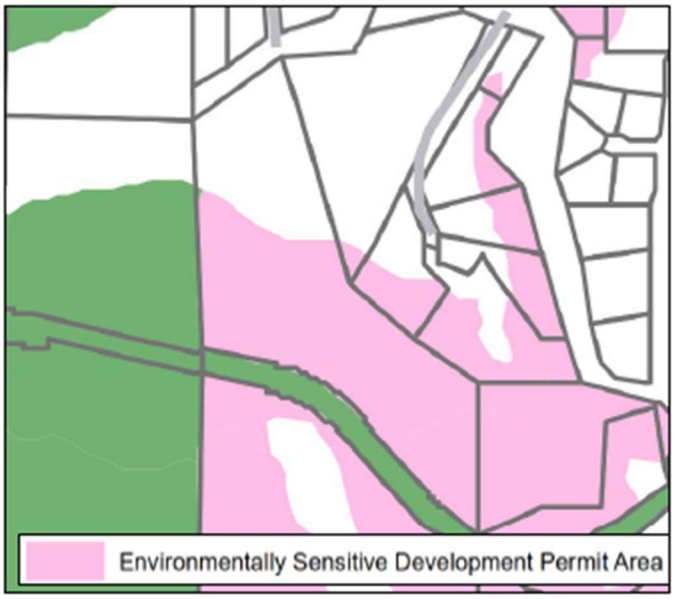
SCHEDULE **A**

REQUIREMENTS – OCP

A WDP application must be accompanied by an Assessment Report prepared by a qualified environmental professional (QEP) and in accordance with the requirements of the Electoral Area "F" OCP Bylaw No. 2790, 2018, and the Regional District's Development Procedures Bylaw No. 2500, 2011.

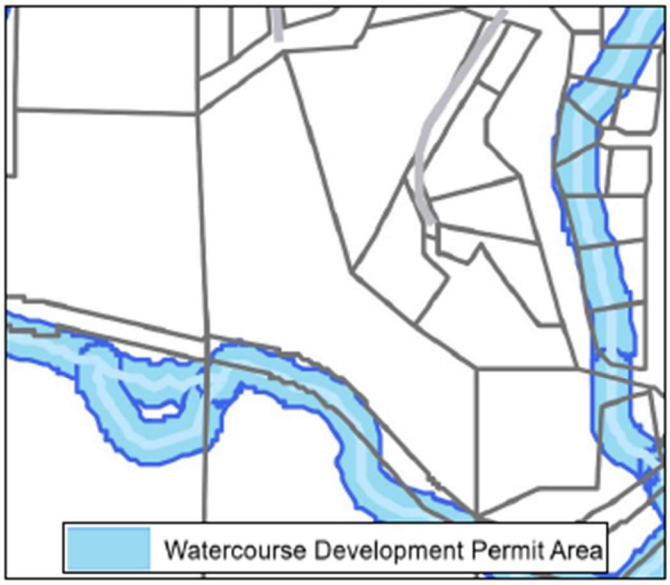
Under Section 23.3.7.4 of the OCP Bylaw, this proposal may qualify for consideration as an "Expedited" WDP if:

> *Where the applicant proposes a subdivision of land in which each proposed lot complies with the applicable minimum parcel area and width regulations exclusive of any area within the Watercourse Development Permit Area and no land alteration is proposed within that area, in which case the development permit must indicate by means of a sketch or plan the proposed subdivision layout and the area of the land to which physical alterations are restricted*



SCHEDULE **A**

REQUIREMENTS – OCP



3. HAZARD LANDS:

The Electoral Area "F" Official Community Plan Bylaw No. 2790, 2018, contains the objective of seeking to "prevent injury and loss of life and to prevent or minimize property damage because of natural hazards."

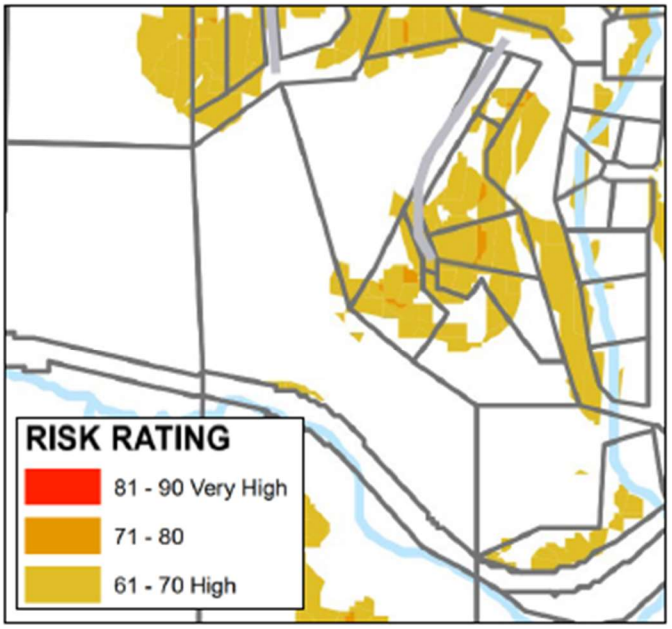
Requirement: None.

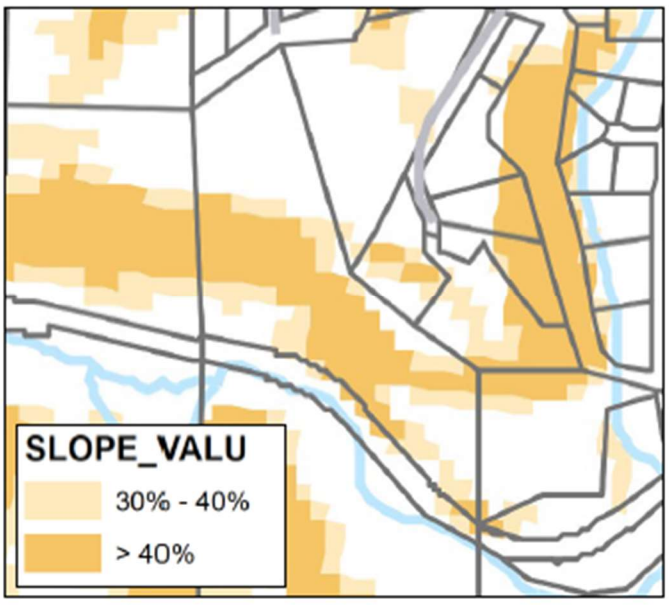
Notes: The subject parcel is shown as having portions of high fire rating and areas of slopes between 30% - 40% and in excess of 40%.

The presence of a watercourse may trigger the floodplain regulations in the zoning bylaw for any future development.

SCHEDULE **A**

REQUIREMENTS – OCP





SCHEDULE B REQUIREMENTS – ZONING

1. MINIMUM PARCEL SIZE:

The subject property is currently zoned Resource Area (RA) under the Okanagan Valley Zoning Bylaw No. 2800, 2022, which establishes a minimum parcel size of 20 ha.

Requirement: An amendment to the Okanagan Valley Zoning Bylaw No. 2800, 2022, is required in order for this subdivision proposal to proceed.

Notes: The proposed lot sizes (1.0 ha, 1.2 ha, and ~9.0 ha) do not meet the 20 ha minimum parcel size which applies to the subject property.

As of April 1, 2022, the Regional District has received an application to amend the zoning and OCP designation that apply to the subject property (RDOS File No. F2022.006-ZONE) as follows:

- amend the OCP designation of the subject property from Resource Area (RA) to Small Holdings (SH) and Large Holdings (LH); and
- amend the zoning of the subject property from Resource Area (RA) to Small Holdings Three (SH3) and Large Holdings Two (LH2).

2. MINIMUM USEABLE AREA:

The Okanagan Valley Zoning Bylaw No. 2800, 2022, requires that each new parcel to be created by subdivision demonstrate a minimum useable parcel area of 200.0 m². Useable parcel area is defined as meaning all the area of a parcel except areas that are:

a) part of a panhandle;

b) required as building setbacks from property lines;

c) required as building setbacks from watercourses, environmental values or geotechnical hazards as identified through a report prepared by a qualified individual; and

d) subject to a restrictive covenant that prohibits all use of the area subject to the covenant.

Requirement: The subdivision application must meet this bylaw provision or the applicant must apply for a variance.

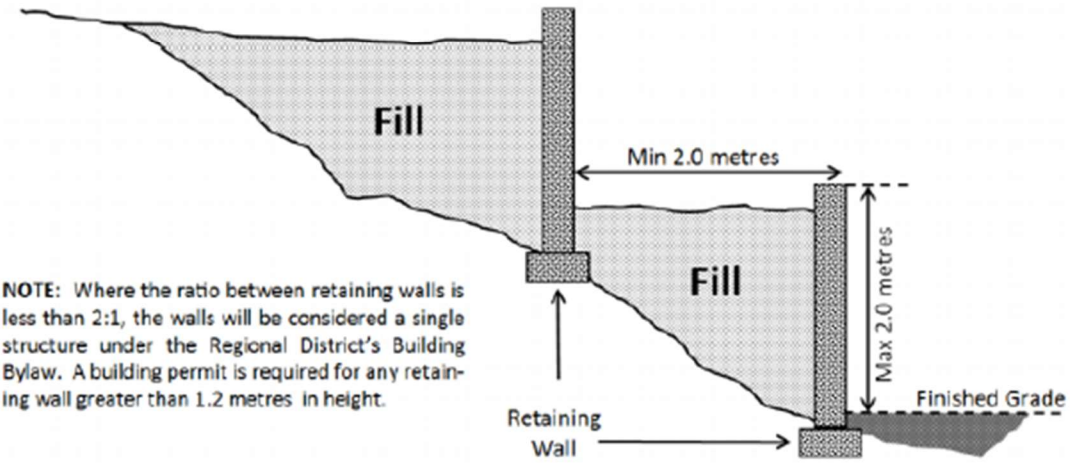
Notes: The current proposal does not indicate a useable area on any of the proposed parcels and, therefore, does not meet this bylaw provision.

If the use of retaining walls are required to create a "useable area" (or are proposed as part of some other aspect of this subdivision), the applicant should be advised that Section 6.12 of the Okanagan Valley Zoning Bylaw No. 2800, 2022, governs the form and siting of such structures.

The maximum height of a retaining wall is 2.0 metres with the minimum horizontal separation between individual retaining walls not being less than the height of the lowest retaining wall.

Retaining walls constructed closer than the height of the lowest retaining wall will collectively be considered a single retaining wall for the purposes of determining the height.

Certain exceptions are provided for retaining walls that are to be sited within a prescribed parcel line setback area.



NOTE: Where the ratio between retaining walls is less than 2:1, the walls will be considered a single structure under the Regional District's Building Bylaw. A building permit is required for any retaining wall greater than 1.2 metres in height.

3. MINIMUM PARCEL WIDTH:

The Okanagan Valley Zoning Bylaw No. 2800, 2022, requires that the minimum parcel width of each parcel of land to be created by subdivision shall not be less than 25% of the depth of the parcel, which is defined as meaning "the mean horizontal distance between the side parcel lines or front and rear parcel lines, respectively, of any parcel."

Requirement: If the Regional District Board approves the bylaw amendment application discussed in Section 1 of this schedule (RDOS File No. F2022.006-ZONE), a variance to Section 15.3.3 of the Okanagan Valley Zoning Bylaw No. 2800, 2022, is required in order for this subdivision proposal to proceed.

Notes: Based on a digital file of the proposed subdivision plan submitted with the application, the parcel width to depth ratios have been calculated as follows:

- Proposed Lot 1: ~26.9%
- Proposed Lot 2: ~22.8%

- Remainder Lot: ~57.1%

4. HOOKED PARCELS:

The Okanagan Valley Zoning Bylaw No. 2800, 2022, requires that where it is proposed to create a new parcel where one portion is physically separated from the other portion by a highway (except a Forest Service Road), or another parcel, that each portion satisfy the minimum parcel area requirements of the applicable zone.

Requirement: None.

Notes: The current proposal is not proposing the creation of any hooked parcels.

5. PARCEL LINE SETBACKS:

All existing buildings and structures must meet the current setback regulations of the Okanagan Valley Zoning Bylaw No. 2800, 2022, from any proposed new parcel lines.

Requirement: The British Columbia Land Surveyor (BCLS) who prepares the plan of subdivision is to provide written confirmation to the Regional District that there are no buildings or structures located on the subject parcel; or

The final plan of subdivision indicates the location of all existing buildings and structures located on the subject parcel will meet the current bylaw regulations for setbacks from any new parcel line.

Notes: The RDOS measures setbacks from the outermost portion of a building or structure and it is this measurement that is to be used in calculating setbacks and shown on the certification.

SCHEDULE **C**

REQUIREMENTS – SERVICING

1. SEWER:

In all subdivisions, each newly created parcel is to be provided with a means to dispose of wastewater that is designed and constructed in accordance with the levels of works and services and construction standards established by the Regional District's Subdivision Servicing Bylaw No. 2000, 2002.

Requirement: The applicant must provide written confirmation from the authority having jurisdiction (i.e. the Interior Health Authority) stating that their requirements with regard to onsite sewage disposal have been satisfied.

Notes: Under Schedule 'B' of the Regional District's Subdivision Servicing Bylaw, new parcels greater than 1.0 ha in area are to be connected to an on-site sewage disposal system (i.e. septic system).

Under Section 4.1.2 of Schedule 'A' to the bylaw, when a new parcel is to be greater than 2.0 ha in area, the Regional District does not require any form of written confirmation regarding the ability to accommodate an on-site sewage disposal system.

Section 4.2.9 of Schedule 'A' to the bylaw requires that an on-site sewage disposal system must be located on the parcel it will service and that the use of holding tanks are not permitted as a method of on-site sewage disposal.

In the absence of a connection to a community sewer service the minimum parcel size for subdivision is 1.0 ha.

2. WATER:

Under Section 3.0 of Schedule "A" of the Regional District's Subdivision Servicing Bylaw No. 2000, 2002, all new parcels to be created by subdivision must be provided with sufficient quantities of potable water by:

a) proving availability of sufficient quantities of potable water from a private water source; or

b) connecting to a community water system.

If a property is within a water service area established and administered by the Regional District, Section 5 of the Water Use Regulation Bylaw No. 2824, 2019, requires that any new parcel created by subdivision "must apply for Water Services and be connected to the Water Supply System." This is seen to also be applicable to boundary adjustments.

Requirement: The applicant must provide the following to the Regional District:

a) a report certified by a Professional Engineer which includes:

i) a site plan indicating the location and GPS coordinates of each proposed well;

ii) a well log or pump test completed within the previous 12 months; and

iii) analysis and assessment of the pumping test data including professional assurance as to whether the subject well meets the requirements of the Subdivision Servicing Bylaw No. 2000, 2002.

Notes: Section 3.2.10 of Schedule "A" of the Subdivision Servicing Bylaw No. 2000, 2002, establishes the following requirements for private water sources:

.1 All wells to be used as a private water source must be designed, located, constructed, tested and disinfected in accordance with the provincial *Ground Water Protection Regulation* under the *Water Act*.

.2 All wells must be capable of delivering potable water from a source capable of:

i) providing at least 2,300 litres per day; and

ii) a flow capacity of at least 20.0 litres per minute for one hour.

.3 All wells must be drilled to a depth of not less than 15 meters, be constructed in a way to prevent surface water from entering the well and meet the minimum construction standards contained in the provincial *Groundwater Protection Regulation 299/2004*.

.4 A well must be constructed on each parcel of a proposed subdivision that is dependent upon groundwater as a source of water.

.5 A well is restricted to supplying water to the parcel on which it is to be located.

NOTE: compliance with these regulations at the time of subdivision approval does not warrant or guarantee the continuing quality or quantity of water on a parcel over time.

3. FIRE PROTECTION:

The Regional District contains seven volunteer fire departments: Anarchist Mountain, Kaleden, Keremeos, Naramata, Okanagan Falls, Tulameen and Willowbrook, which provide local fire protection to specific rural areas within Electoral Areas "A", "B", "C", "D", "E", "G", "H" & "I".

The District also contracts with the City of Penticton and the Town of Princeton to provide fire protection to the rural areas of Electoral Areas "D", "F" & "I" (Penticton fringe area) and Electoral Area "H"(Princeton fringe).

When a plan of subdivision proposes the creation of two (2) additional parcels, fire hydrants shall be provided in accordance with the standards established by the Regional District's Subdivision Servicing Bylaw No. 2000, 2002, where the following applies:

- the property being subdivided is served by a community water system;
- a community water system is being constructed as part of a proposed subdivision; and

- the property being subdivided is within the boundaries of a Fire Protection Service Area.

Requirement: None.

Notes: The subject property is not within a Fire Protection Service Area and it is understood that no community water system exists in this area and that each of the proposed lots will be serviced by well.

4. ROADS AND ACCESS:

All highways, sidewalks and boulevards within the Regional District are administered by Ministry of Transportation and Infrastructure (MoTI) and should be designed and constructed to the relevant provincial specifications.

Requirement: None.

Notes: The proposed lots have adequate road frontage, and it appears that the road right-of-way exceeds the standard 20 metres.

5. STORM WATER MANAGEMENT:

All storm water drainage systems including retention/detention ponds and associated apparatus are administered by Ministry of Transportation and Infrastructure (MoTI) and should be designed and constructed to the relevant provincial specifications.

Requirement: None.

Notes: None.

6. UNDERGROUND ELECTRICAL:

Where underground electrical services are required under Schedule "B" of the Regional District's Subdivision Servicing Bylaw No. 2000, 2002, all underground vaults, conduits, ducts and related infrastructure shall be constructed and installed in accordance with the standards set out in the bylaw.

Requirement: None.

Notes: None.

7. STREET LIGHTING:

The Regional District's objective with regard to the provision of street lighting is generally to discourage new street light service areas outside of growth areas designated under the South Okanagan Regional Growth Strategy (RGS) Bylaw in order to maintain "dark skies" and minimize light pollution.

SCHEDULE **C**

REQUIREMENTS – SERVICING

In support of this, the provision of street lighting is not a mandatory requirement of subdivision under Section 6.7 of the Regional District's Subdivision Servicing Bylaw No. 2000, 2002. When it is proposed to install new street lights, these "should be designed, installed and otherwise meet the requirements of the authority having jurisdiction."

Requirement: None.

Notes: The Regional District does not have a service area for street lighting applicable to the area of the subdivision proposal.

8. DEVELOPMENT COST CHARGES (DCCs):

The Regional District levies development cost charges (DCCs) on new development to pay for new or expanded infrastructure such as sewer, water, drainage, parks and roads necessary to adequately service the demands of that new development.

Requirement: None.

Notes: The subject property is not located within an area subject to Regional District of Okanagan-Similkameen Development Cost Charges.

SCHEDULE D REQUIREMENTS – MISCELLANEOUS

1. MINIMUM PARCEL FRONTAGE ON HIGHWAY (SECTION 512):

Section 512 of the *Local Government Act* requires that a parcel being created by a subdivision that fronts on a highway have a minimum frontage to that highway that is the greater of the following:

- 10% of the perimeter of the lot; or
- the minimum frontage required by a bylaw.

Requirement: None.

Notes: Under the Regional District's *Delegation of Subdivision Parcel Frontage Exemption Bylaw No. 2838, 2019*, the Provincial Approving Officer has been delegated authority to exempt subdivision applications from the requirements of Section 512 of the Act.

2. PARKLAND DEDICATION:

The applicant is to meet the park land provision requirement of Section 510 of the *Local Government Act* to the satisfaction of the Regional District of Okanagan-Similkameen.

For the purposes of Section 510(2) of the *Local Government Act*, the Regional District Board has designated the entirety of the Electoral Area as having future park potential at Section 15.4 of the OCP Bylaw.

Due to the rural nature of the Electoral Area, the Regional District Board considers that when land is acquired under Section 510 of the Act that it should be focused upon lake accesses, greenways and trails.

Requirement: None.

Notes: Section 510(4) of the *Local Government Act* exempts subdivisions proposing few than 3 additional lots from the requirement for park land dedication.

3. ACCESS TO A BODY OF WATER:

The Regional District supports the provision of access to a body of water in accordance with Section 75(1)(c) and (d) of the *Land Title Act* in order to allow upland the general public access to area lakes, streams and other watercourses.

Requirement: None.

Notes: This proposal is not seen to impact public access to a body of water.

4. AGRICULTURAL LAND RESERVE (ALR):

Under the *Agricultural Land Commission (ALC) Act*, agricultural land in British Columbia has been designated as being within the Agricultural Land Reserve (ALR) for the purpose of preserving this land for agricultural use and encouraging farming.

SCHEDULE D REQUIREMENTS – MISCELLANEOUS

Requirement: None.

Notes: The subject property does not comprise land that has been included in the Agricultural Land Reserve (ALR).

5. HERITAGE CONSERVATION ACT:

The Provincial Government recognizes the importance of archaeological sites through the *Heritage Conservation Act*. Under this Act, both recorded and unrecorded archaeological sites are protected and must not be altered or damaged without a permit from the Archaeology Branch.

Requirement: None.

Notes: There is a possibility for unknown archaeological sites to exist on the property. If an archeological site is encountered during development, activities must be halted and the Archaeology Branch contacted at 250-953-3334.

6. AGGREGATE RESOURCES:

The Regional District has only limited influence on the management of mineral and aggregate resource extraction, as decisions related to such uses are generally beyond the jurisdiction of the Regional Board. Aggregate resource potential in Electoral Area "F" is shown on Figure 22 of the OCP Bylaw, which is provides estimates of broad, regional aggregate distribution.

Where aggregate resources area known, the Regional District Board seeks to "protect non-agricultural lands having recoverable aggregate or mineral resources from development or adjacent uses that would limit or prohibit extraction."

Requirement: None.

Notes: The area under application is understood to possess "probable and possible" aggregate resources.

7. CONTAMINATED SITE REGULATIONS:

The provincial site identification process is intended to screen for contaminated sites to protect the environment, potential property purchasers, and to prevent unforeseen liabilities. The provincial Contaminated Sites Regulation (CSR) requires that a site disclosure statement must be completed and submitted to the appropriate recipient if a specified Schedule 2 use has occurred, one or more of the CSR triggers for site identification applies to the site, and there are no applicable exemptions.

Requirement: None

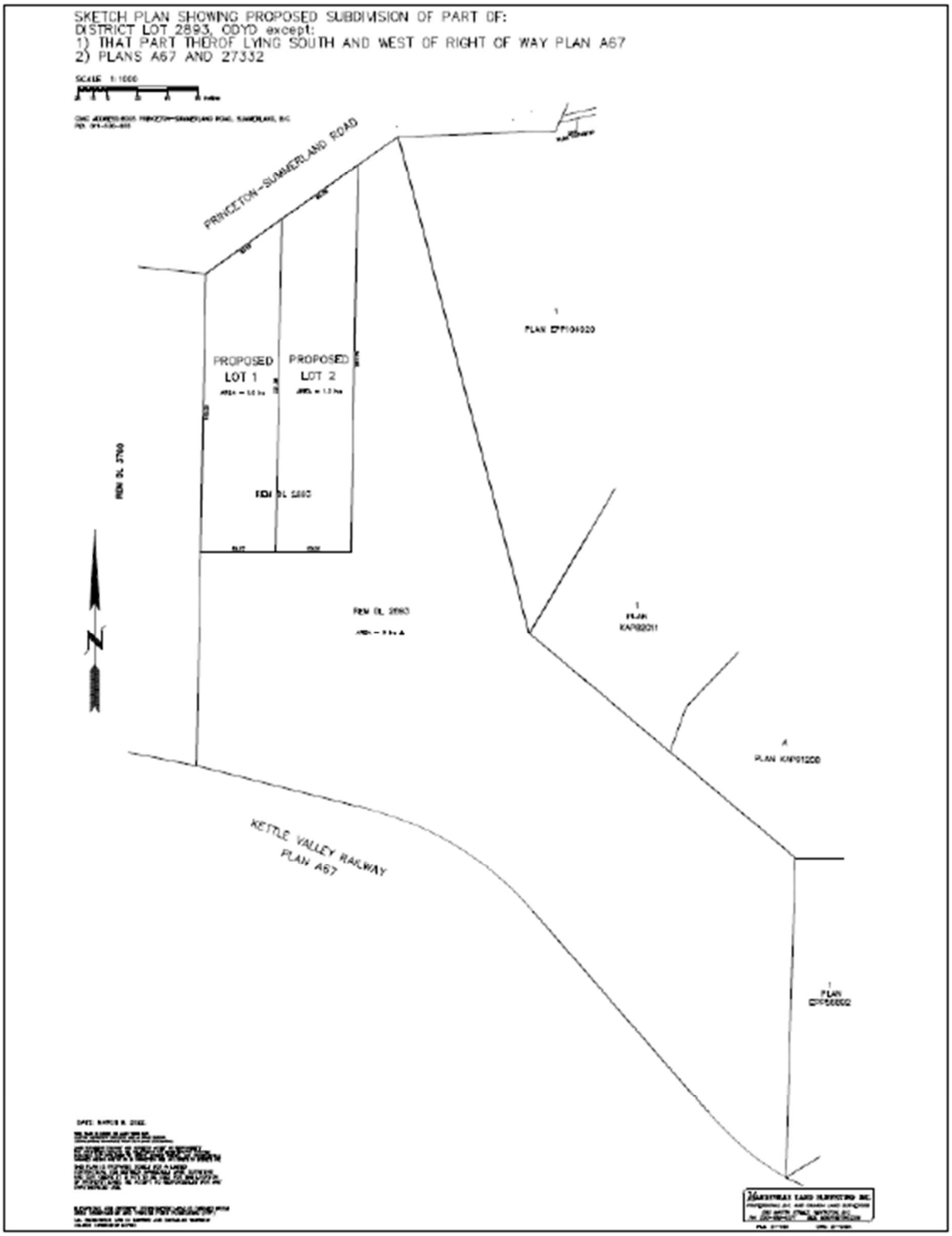
Notes: It is the Regional District's understanding that a subdivision application *may* trigger the requirement for the submission of a site disclosure statement under the *Environmental Management Act*.

SCHEDULE **D**

REQUIREMENTS – MISCELLANEOUS

As the authority for subdivision in unincorporated areas, the Regional District entrusts that the provincial Approving Officer will require such a statement at the time of subdivision application (as applicable).

Attachment No. 1 - Proposed Plan of Subdivision



Regional District of Okanagan-Similkameen On-line Resources

Official Community Plan Bylaws:
(www.rdos.bc.ca → Regional Bylaws → Planning)
Electoral Area "A" Official Community Plan Bylaw No. 2905, 2021
Electoral Area "C" Official Community Plan Bylaw No. 2452, 2008
Electoral Area "D" Official Community Plan Bylaw No. 2603, 2013
Electoral Area "E" Official Community Plan Bylaw No. 2458, 2008
Electoral Area "F" Official Community Plan Bylaw No. 2790, 2018
Electoral Area "H" Official Community Plan Bylaw No. 2497, 2012
Electoral Area "I" Official Community Plan Bylaw No. 2683, 2016

Zoning Bylaws:
(www.rdos.bc.ca → Regional Bylaws → Planning)
Okanagan Valley Zoning Bylaw No. 2800, 2022
Electoral Area "G" Zoning Bylaw No. 2781, 2017
Electoral Area "H" Zoning Bylaw No. 2498, 2012

Subdivision Servicing Bylaw:
(www.rdos.bc.ca → Regional Bylaws → Subdivision)
Subdivision Servicing Bylaw No. 2000, 2002

- Schedule 'A' (Design Criteria, etc.)
- Schedule 'B' (Levels of Works and Services)
- Appendix 'A' (Drawing Submission Standards)
- Appendix 'C' (Administrative Provisions)

Development Cost Charge Bylaws:
(www.rdos.bc.ca → Regional Bylaws → Sewer)
OK Falls Sanitary Sewer DCC Bylaw No. 2486, 2009
(www.rdos.bc.ca → Regional Bylaws → Water)
Naramata Water System DCC Bylaw No. 1804, 1997
Faulder Water System DCC Bylaw No. 1894, 1998
Olalla Water System Rates Bylaw No. 2141, 2002

Development Procedures Bylaw:
(www.rdos.bc.ca → Regional Bylaws → Planning)
Development Procedures Bylaw No. 2500, 2011

Subdivision for a Relative Bylaw:
(www.rdos.bc.ca → Regional Bylaws → Planning)
Subdivision for a Relative Bylaw No. 2482, 2009

Application Forms:
(www.rdos.bc.ca → Planning → Application Forms)
OCP Bylaw & Zoning Bylaw Amendments
Development Variance Permit (DVP)
Environmentally Sensitive Development Permit
Hillside and Steep Slope Development Permit
Protection of Farming Development Permit
Watercourse Development Permit (WDP)
Strata Title Conversion

Appendix 3
Well Test Verification Letter

Okanagan Kootenay Well Drilling Ltd

Feb 4, 2021

6465 Sidley mtn rd
Bridesville, BC V0H1Y0
okwd@vip.net
Ph: 250-446-2195
Cell: 250-689-2494
Fax: 250-446-2194

To Whom It May Concern:

Re: Princeton Summerland Rd water wells drilled for John Rousseau

Okanagan Kootenay Well Drilling drilled 2 wells in Aug of 2020 for John Rousseau. Well logs were issued as per the Ministry of Environment guidelines. Well logs are a record of the water available at the time of drilling. This letter is to aid the understanding of the information from the logs issued and relate it to the current RDOS bylaw subdivision requirements.

The following water wells drilled for this subdivision more than exceed the minimum required of 2300 litres per day. Each the water wells were pumped at 20 litres per minute for two hours for a total of 2400 litres of water.

Well tagged #32775
Has a recovery rate of 4 gallons per minute based on a 24hr day. 5760 gallons or 21800 litres per day total. This is almost ten times the required amount currently listed in the RDOS bylaws.

Well tagged # 32776
Has a recovery rate of 3+ gallons per minute based on a 24hr day. 4320 gallons or 16350 liters per day total. This is almost seven times the required amount currently listed in the RDOS bylaws.

Both of these wells exceed the current required volume for subdivision by the RDOS bylaws.

Please contact me if you have any further questions or require any additional information.

Sincerely,

Dylan Kelly
Certified Water Well Driller