1364118 B.C. LTD

Porteau Campground, Civil Engineering Rezoning Report

File No. 25150
Report Date: December 2025
Revised:

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Civil Engineering & Project Management

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1. INTRODUCTION

VIS-ENG has been retained by Paul Wood of 1364118 B.C. LTD to look at the Civil Servicing components of the proposed campground and ancillary services on Lot 1 Plan BCP46926.

The project is in Area D of the SLRD. The review is done in coordination with the following Team

• Murdoch and Co	Murdoch	Architecture and Planning
• Active Earth Engineering	AEE	Hydrogeological and water supply
• Arden Engineering	Arden	Sewage Treatment
• Cascade Environmental	CERG	Environmental
• BF Binnie & Associates	Binnie	Traffic Analysis
• RM Tec Engineering	RMTEC	Geotechnical

VIS-ENG will be providing Civil Design of the road network and servicing in coordination with the above team. The nature of that is generally the Civil drawings provide the overlap and coordination between some of the elements of the project.

This report is intended to form the basis for a SLRD rezoning and for associated referrals and VCH feedback on the Rezoning application. More detailed design will accompany future DP and BP submissions, however the intent of this report is to prove out the viability of the coordinated elements for the proposed land use.

2. BACKGROUND

The property is an approximately 7.27 hectare parcel of land between CN rail tracks East of Porteau Cove Provincial Park and Hwy. 99 to the east. A small portion of Porteau Cove Provincial Park lies north of the property between the rail and highway that is used as divers change room. A road goes through the site to the subject lands and has been the historical access to the lands. The property is lot 1 DL1748 Plan B CP4156-O as defined in section 3.1. The southern portion of the site, south of 24.2 Kilometre Creek was previously used for gravel extraction. It is in process of completing a Federally approved reclamation plan under a Mine Permit.

The property is in Area D of the SLRD approximately 17 kilometres south of the District of Squamish municipal limits. It is part of Howe Sound East and is approximately 3.0 kilometres south of Furry Creek and approximately 5.0 kilometres south of Brittania Beach. The proposed Porteau Cove Master planned Community is less than a kilometre to the south. The property context in Howe Sound East is shown in Figure 1.

The project is subject of an OCP and Zoning application and has received first reading via Bylaw 1828-2023/1830-2023. This is to allow for campground including approximately 44 tent sites 42 RV sites and 16 one bedroom staff accommodation and supporting community commercial elements. The rezoning was initiated in September of 2023 where the SLRD staff and board gave direction on moving forward. It is understood that SLRD has referred the application to First Nations, District of Squamish, Ministries of Transportation and Transit, Ministry of Forests, CN. BC Parks, and Vancouver Coastal Health for comment.

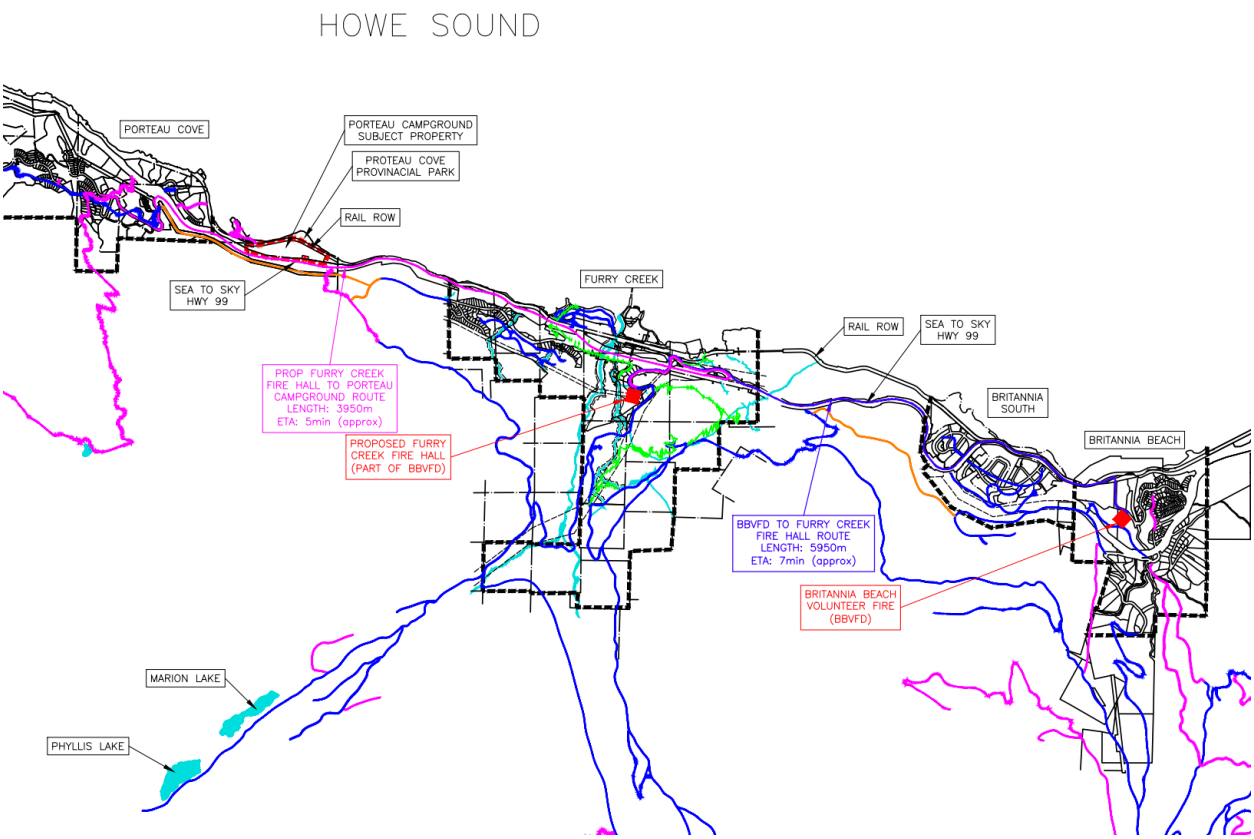

Figure 1: Context Plan

The property is currently unserviced though it does have a BC Parks Well and Reservoir within an easement on the lands as well as a BC parks Septic Field on an easement. A new well has been drilled on site to service the subject property as detailed in section

3. EXISTING CONDITIONS

The site lies between Highway 99 on the east and the CN Rail lines to the west with Porteau Cove Provincial Park west of that. The lot occupies approximately 7.3 ha and is approximately 700 m long by 160 m wide in the middle and narrows at the north and the south extents.

The site in general slopes from grades of approximately 51 m to approximately 7 m at the low point on the rail. The remediation work is approaching completion and will result in a constructed lower fill bench is approximately 40 - 60 m wide by 200 m long, at an elevation of approximately15 m. The western edge has been remediated with rock fill with heights up to 8 m.

The site has an existing gravel road tying into the road through the existing BC Parks land to the north. It crosses 24.2 mile creek via 2.0 m culvert. The access crosses a

second unnamed creek referenced as stream 1 in cascades report just to the north of the property.

The most southernly is largely undisturbed with rock outcrops and tree coverage. The eastern fringe rises up to the highway with some portions undisturbed. The proposed development is largely outside that area.

North of the site is a Crown Agency controlled property known as PARCEL A (PLAN BC24187) OF DISTRICT LOT 1748 (REFERENCE PLAN 6955) GROUP 1 NWD, PID 026-705-231. This is part of the provincial park with a divers washroom/change room and parking lot. That facility is fed from the BC Parks water system that has an operating well and reservoir on the adjoining subject. The property contains a divers change room that is understood to tie into the septic system on the subject lands via easement. BC Parks has a well in the North end of the property under Well Tag Number (WTN) 122235 which is not in use.

Figure 2: Aerial View Existing Conditions

There is a small segment of land to the south which is between the rail and the highway. It is DISTRICT LOT 7050, Reference plan 7419 which is Crown Agency controlled and is undeveloped.

3.1. ENCUMBRANCES

The Legal Description LOT 1 DISTRICT LOT 1748 GROUP 1 NEW WESTMINSTER DISTRICT PLAN BCP41560 EXCEPT PLAN BCP46926, PID 027-966-950. This is a privately held property. No subdivision is contemplated as a results of this rezoning.

The original Subdivision plan of the lot was in 2009 with an additional portion removed at 24.2 Kilometre Creek which was appended to the highway. In 2010. A title search is contained in

Appendix 1. While VIS-ENG does not have legal expertise, members have been involved in the registration of covenants and creation of SROW, easements and covenants in the past. VIS-ENG have reviewed, from a civil perspective, each document and copies, of which each are included in Appendix 1. The subject property has the following encumbrance on title.

Legal Notations

- EASEMENT BB1742895 OVER BLOCK 1 PLAN 19240 AS SHOWN ON PLAN EPP11671- *This is an easement in favour of the subject property over a portion of Block 1 immediately north of the site for access to the site.*
- BUILDERS LIEN ACT (S.3(2)), SEE CB34188 FILED 2022-06-27. *Not applicable*

Registered on Title

- STATUTORY RIGHT OF WAY BB365407, 2007, in favour of the Crown per Reference Plan 6955, *this relates to CN Rail taking over the BC Rail Lease of the Rail ROW and does not affect the proposed site*
- RESTRICTIVE COVENANT, BB1088350, 2009 per Plan BCP24187 in favour of the CN ROW lands *to restrict activities so they do not negatively affect the rail ROW form a stability or drainage point of view. This is addressed in the Geotech report and Stormwater Management Plans*
- EASEMENT BB1742892, 2011, per plan EPP9151 in favour of Crown for BC Parks Septic System*. This has been taken into consideration in the planning of the site and does not impact the roads or infrastructure. Some realignment may be required as roads are advanced.*
- EASEMENT BB1742893, 2011, per plan EPP9152 in favour of Crown for BC Parks well, water line and reservoir*. This has been taken into consideration in the planning of the site and does not impact the roads or infrastructure. Some realignment may be required as roads are advanced without affecting the functionality of the BC Parks system. In review with legal counsel, this is possible along with adjustment of the easement area at the owner's cost*
- EASEMENT BB1742894, 2011, per plan EPP9152 in favour of Crown for BC Parks well, water line and reservoir. *This has been taken into consideration in the planning of the site and does not impact the roads or infrastructure. Some realignment may be required as roads are advanced without affecting the functionality of the BC Parks system. In review with legal counsel, this is possible along with adjustment of the easement area at the owner's cost.*
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The documents registered on title are reflected in the planning documents and are not an impediment to access or servicing of the site.

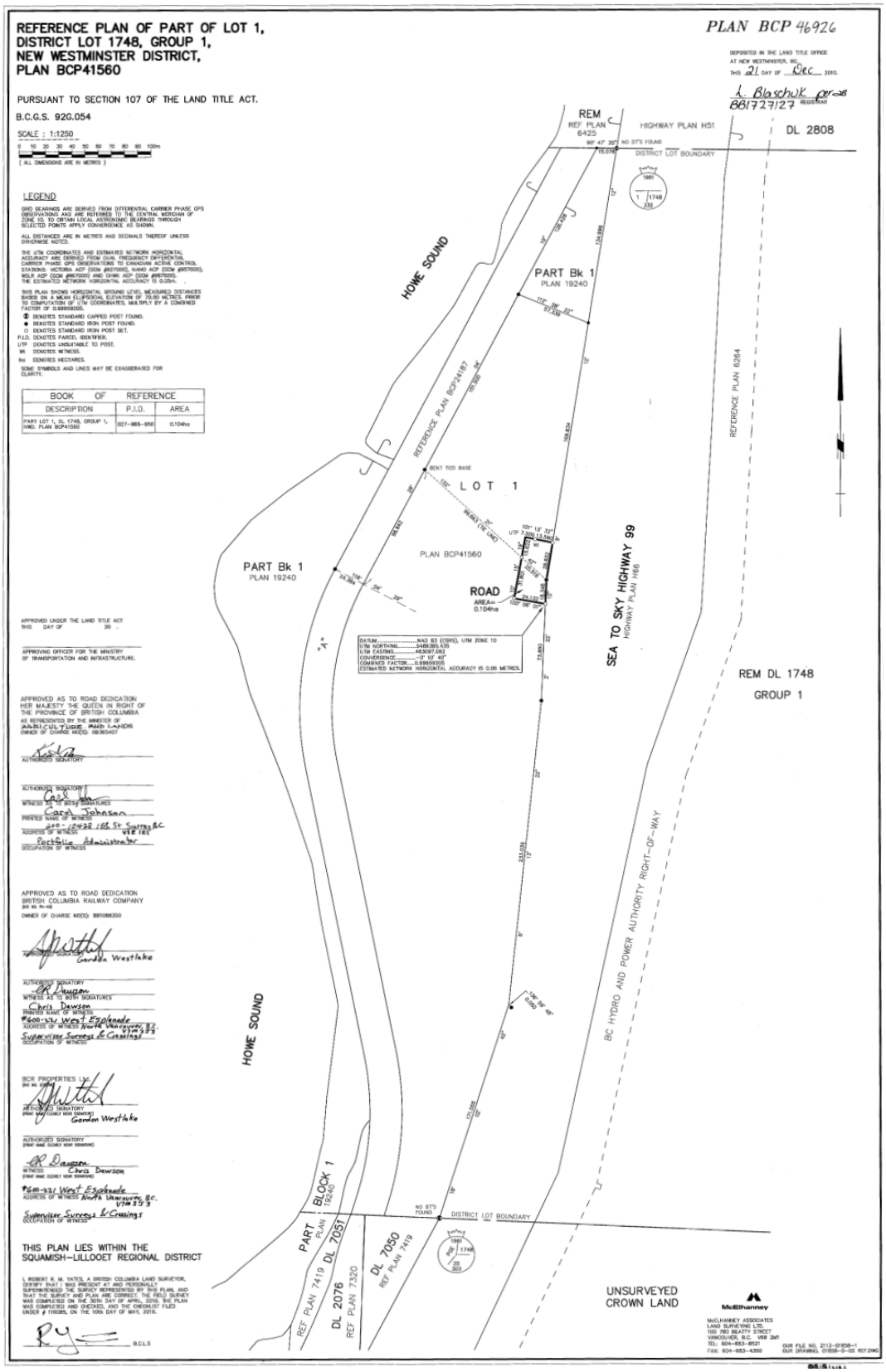

Figure 3: Legal PLAN BCP46926 amending the original BCP41560

4. LAND USE

4.1. OCP AND REGIONAL GROWTH STRATEGY

The SLRD OCP is outlined in Squamish-Lillooet Regional District Electoral Area D Official Community Plan Bylaw No. 1135-2013. The current designation if Resource Management. The intent view 1828-2023 is to update the OCP to acknowledge completion of the resource use of the site and change to a new Commercial – Porteau Cove Campground Designation.

The SLRD Regional Growth Strategy (RGS) is detailed in Bylaw No. 1062, 2008. The SLRD has reviewed the plans compliance with RGS in the First Reading Report and concluded the intended uses are considered aligned with the intent of non-settlement areas

4.2. DEVELOPMENT PERMIT ZONES

The Wildfire Protection Development Permit Area and Riparian Protection Development Permit Area will be addressed at the building permit stage as well as any more detailed geotechnical requirements. Additional design considerations will be addressed through the Campground Permit.

As detailed in section 9, there will be a level of fire protection added to the site including standpipes that will assist in wildfire interface management

4.3. ZONING

The lands are zoned under Squamish-Lillooet Regional District Electoral Area D Zoning Bylaw No. 1350-2016. The existing zoning is Rural Resource 3 (RR3) which does not envision post resource extraction. The intention is to rezone to CC1 Zone (Campground Commercial 1 Zone (Porteau Cove Campground). As detailed in SLRD first reading report the intent of CCA is to allow campground incorporating accessory commercial and recreation uses, employee housing and caretaker facilities. Permitted uses include:

- campground
- caretaker unit
- employee housing, associated with the campground
- parks, playgrounds and trails
- retail
- accessory buildings and accessory uses directly associated with the permitted uses, including, administration offices, equipment rentals, concession/café, common amenity areas, picnic shelters, washrooms and shower facilities, laundry, parking, maintenance, utility and security buildings, waste storage facilities, and check-in booths.

These uses appear consistent with the layout as provided by Murdoch and have been taken into account in the sizing assumptions for water supply and sewage treatment.

The current plans show a setback of 7.5 m consistent with the proposed zoning. A 10 m offset from the highway is also shown as well as a 15 m offset form the Rail ROW for context.

5. ACCESS

Access to the proposed subdivision would be from the existing at grade intersection on to the highway which also provides access to Porteau Provincial Park. The site is access by an existing paved driveway through the BC Parks site to the north of the subject property. This has been the access used during the gravel extraction process. The access remains to the east of the existing signalized crossing to the rest of the Porteau Cove Provincial Park operations. The access

Binnie was retained to review TRAFFIC IMPACT ASSESSMENT FINAL – Rev.0 dated Nov 27, 2024. They provided traffic analysis based on the Murdoch plans of July 18, 2024 which are still generally consistent with current plans. The study contemplated the proposed campground traffic and the existing and future Porteau Cove Provincial Park Traffic. Report scope included assessing existing capacity of the road infrastructure, impacts from the proposed development and any required improvements to meet district and MOTT requirements. Report also analyzed any impacts or restrictions related to existing signalized rail crossing to the park campsites.

The report notes that the access to the highway as protected left turn median barriers that assist in mitigating traffic conflicts with vehicles entering and leaving the highway. Binnie Reviewed Transport Canada information on the rail crossing and noted a train speed of approximately 40 kilometres per hour and a traffic count of approximately 5 trains per day though this may be reduced.

Binnie confirmed a term of Reference with the district and MOTI for the study prior to staring works. Binnie scheduled traffic counts in the summer to assess peak movement and concluded weekday evening and weekend mid day traffic were highest. The study included a 10 year study horizon where full build out of all accessible lands would be completed. Binnie concluded “overall intersection operations within the study area are expected to remain largely consistent with 2024 Existing Conditions during all peak hours (i.e., all intersections are expected to operate with a LOS A overall)”. They conclude “no operational constraints are anticipated at the Development Site Access the under 2037 Future Combined Conditions scenario”. MOTI also requested a queueing assessment related to site traffic and the nearby railway crossing.

The current access is posted as 20 km/hr. This would apply also to the proposed access roads within the proposed campground. The existing rail crossing at Squamish subdivision mile marker** is equipped with automatic flashing lights and bell system. The rail crossing is not accessed as part of the proposed campgrounds entry and exit movements. However, as per recommendations in the Binnie Report, as part of the final BP design works additional signage and line painting will be investigated with BCP and CN to prohibit vehicles from stopping on and near the railway crossing.

The onsite traffic will be designed based on the intended uses and also allow for operational vehicles and Emergency Service Vehicles on designated routes including turnaround capacity which is largely addressed by looping of the roads. The RV site areas will be detailed to accommodate required RV turning movements to access the sites. The main loop through the RV sites and the Reception/Amenity Building will accommodate emergency service vehicles. This will be a combination of asphalt and gravel sections to keep the recreational feel of the facility but provide hard surfaces required for vehicle access.

SLRD has campground minimum lane width standards, but these will not always meet the requirements for Emergency Service Vehicles or service vehicles. VIS-ENG will be running templates for these vehicles to ensure safe passage through the site. Some adjustments on

orientation and placement of sites is in process, however changes will not affect the overall layout.

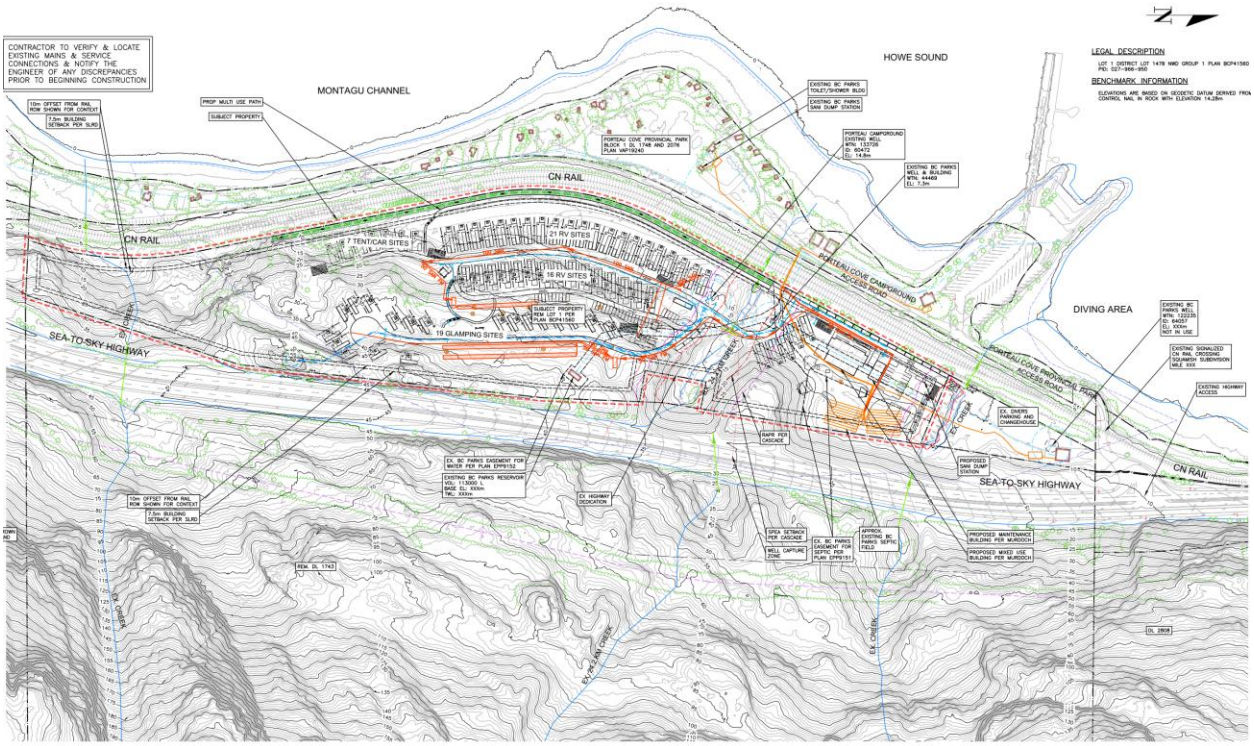

Figure 4: Key Plan

The Tent areas will have more limited access. Emergency Service vehicles will be able to access within 90 metres of the tent sites. The Tiny Homes/Glamping area will be largely walk in. The water system would not have adequate flows for FUS hydrant use and as such fire truck access is not accounted for in the design. Standpipes with booster pumps will however be available.

Parking is being coordinated with Murdoch to meet the SLRD bylaw requirements and Binnie Recommendations. The details of the commercial area parking and loading requirements will be addressed during the BP submission.

A Multi Use Trail is shown on VIS-ENG drawings is to be coordinated into the plan to allow for an active transportation pathway from the site to BC Parks. Offsite this will have to be coordinated with BC Parks and CN in regards to signage, similar to Valley Trail crossings in Whistler.

6. GEOTECHNICAL

RMTEC was retained by the landowner to address the quarry remediation and provide geotechnical feedback on the proposed uses. The have issued “Geotechnical Slope Stability Design Report of Porteau Cove Proposed Campground”, dated June 2023. The report references the previous draft Slope Stability analysis by Fonterra dated October 19, 2022, and drone lidar provided by Spitfire. The report outlined two options for remediation of the downhill slopes. The works have progressed Under an Approved Mine permit using Option 1 of rockfill slope at approximately 35 degrees offset form the property line by 7-9 metres and are nearing

completion. RMTEC conclude “the proposed improvements are Geotechnically acceptable, and the site is Geotechnical safe for the intended use provided that our recommendations outlined in this document are satisfied during the construction.” It is understood that a completion report will be provided upon completion of the remediation.

RMTEC have produced a second memo dated December 12, 2025 providing an initial review of potential differential setbacks and recommended setbacks from fill slopes and existing upland slopes. The layout is generally consistent with those recommendations, and those recommendations can be accommodated on the lands. Specific review will be sought once mine remediation grading is complete and more detailed design is completed. The report is contained in Appendix 4.

The lands lie with an area identified in the SLRD Geohazard Risk Prioritization Report as potentially being at risk form Debris Flow. This will be detailed as part of the BP Process. Rim Tec have confirmed that the lands, post remediation will be safe for their intended purpose.

The intended campground uses have few fixed buildings. The larger community amenity/employee housing site is to the north in an area outside of the remediation works.

The Geotech will be involved in compaction testing for the roads and servicing to ensure they meet the performance requirements of the intended vehicles plus where relevant emergency service vehicles will pass and will be coordinated with for placement of stormwater system elements.

7. ENVIRONMENTAL

The property was historically logged and has been partially cleared and excavated as part of the original gravel extraction.

CERG was retained to perform and environmental review of the site and a RAPR study and set SPEA setback. They produced an “Initial Environmental Review dated March 27, 2024”. The investigation was conducted in the summer of 2023. The reports notes that a large percentage of the site has been disturbed and the tree age is generally 60 years or less. The Report reviews the two streams the cross the site. Stream 2 along the northern boundary of the site and stream 1, also referenced in other literature as 24.2 kilometer creek in the northern third of the site. The Report overlays a plan from Murdoch that is largely consistent with he current planning.

As noted in CERG report the SLRD OCP identifies DPA for mapped and unmapped streams for 30 m from the natural boundary and also from 10 m from top of Bank in the section of Ravine. CERG incudes RAPR assessment form in the Report dated August 10, 2023. A further DP would be required for any work within the Riparian Permit Area. This may be triggered by utility works in the existing road prism.

The report notes that Alaska Holly Fern and Roells brotherella may occur on the site and provides recommendations for procedures and studies depending on detailed analysis during detailed design. The report also notes other review that will be required and specific construction related obligations including nesting study requirements especially if tree clearing is required. CERG comments on the need for ESC and Stormwater management requirements that are discussed later in this report.

Cascade makes recommendations for Streamside Protection and Enhancement Areas (SPEA). Both the original RAPR study area and SPEA are reflected in VIS-ENG and other team members plans and have been accommodated in the design. The report notes that no Species at Risk were identified in the existing field reviews but additional targeted survey will be required at later stages of the development if work in area triggers that need.

CERG also prepared an Invasive Species Management Plan for the site. The plan identified removal and control work to be done. It is understood this would be done after works under the Federal Mine Reparation work are complete as part of development works after zoning.

The Septic Fields and the water well and treatment building have been kept outside of the SPEA areas and should not be a factor in infrastructure for the site. One existing road crossing crosses each of the streams. VIS-ENG has done preliminary review of the existing stream crossing onsite and is satisfied it has an adequate capacity culvert for the flows. This will be documented in the BP process along with analysis of first crossing on Crown Land.

8. POTABLE WATER SYSTEM

The existing lands were not previously serviced by water. The proposed Campground site has two current wells on site. A new well was drilled in July of 2025 and is registered as Well Tag Number (WTN) 133726 and lies south of 24.2 kilometre creek outside of the SPEA zone. An Existing BC Parks well, WTN 44469 is located on the north side of the creek in a masonry block building and operates on the subject site under an Easement agreement on the subject lands and provides water to Porteau Cove Provincial Park via a distribution system that pumps to a reservoir on the subject lands and flows downhill to the park through a culvert under the rail. A third well on Park Land immediately to the north of the subject property is currently not in use and has been assigned WTN 64057. Active Earth Engineering (AEE) provides details of the hydrogeology of the site as discussed further in Section 8.1.

VIS-ENG has provided a preliminary servicing plan to service the site in consideration of the water supply and water quality as detailed by Active Earth Engineering (AEE) and demands based on the proposed uses. The preliminary design address general layout and flow requirements consistent with other Campground sites and in line with the RV Park at Whistler Olympic Park also in area D of the SLRD.

The water treatment, distribution and storage system will be designed in detail in accordance with applicable elements of SLRD Bylaw No. 741, 2002 Electoral Area D Subdivision and Servicing, and Vancouver Coastal Health (VCH) standards. They will be designed under the supervision of an Engineer licensed to practice in BC. We understand as a condition of SLRD Building Permit that a VCH for Construction Permit will be obtained. VIS-ENG will be inspecting and testing the works and signing off per VCH and SLRD requirements. An application to VCH will be made for an operating permit as detailed below which SLRD traditionally has required prior to occupancy. This is discussed in section 8.4 below.

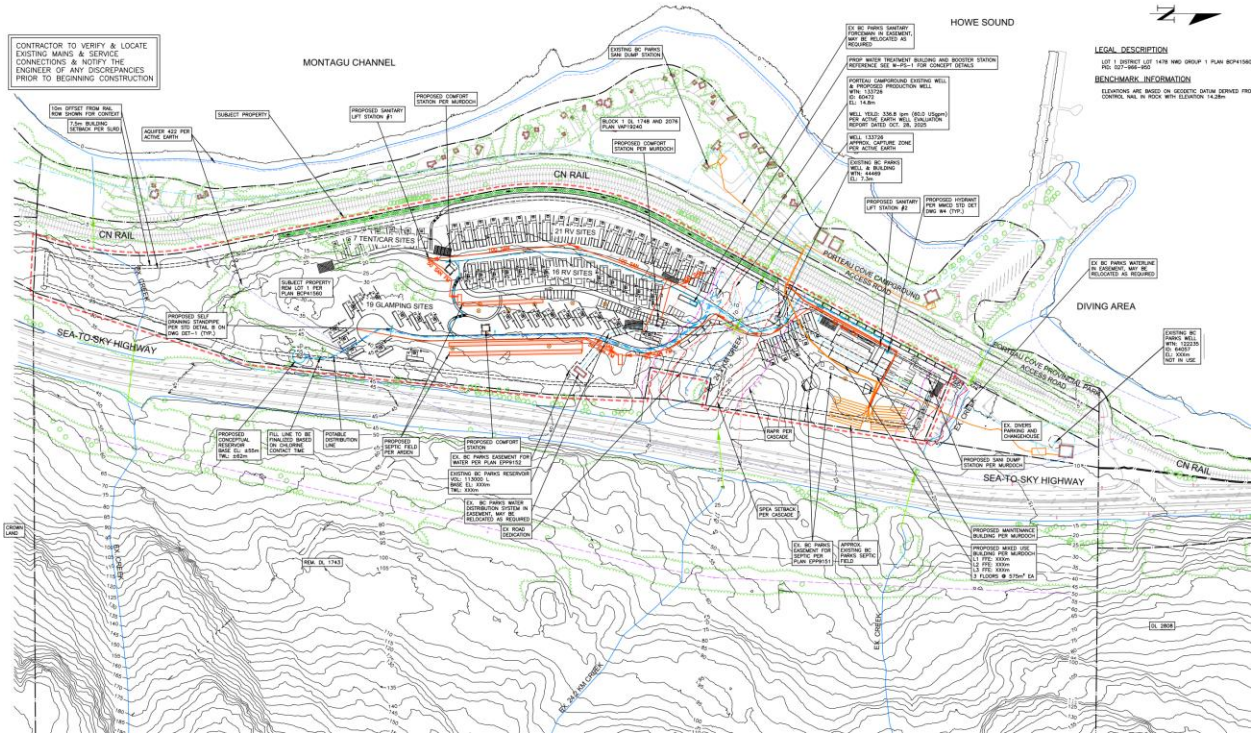

Figure 5: Preliminary Servicing Plan

VIS-ENG has reviewed the reports by the CERG, RMTEC, AEE and Arden as they relate to those specific disciplines and have accounted for their requirements and recommendations in the preliminary servicing plan. The details will be finalized as part of the Construction Permit submission.

8.1. WATER SUPPLY

Active Earth Engineering (AEE) was retained to provide a technical assessment of the water supply of the proposed Campground. They reviewed the hydrogeology of the site and provided commentary on the groundwater supply. They issued a "Technical Assessment of New Water Supply Well" dated October 28, 2025 which is included in Appendix 2. The report includes commentary on the calculated Sustainable Yield of the Subject Well, assess the water quality against the Guidelines for Canadian Drinking Water Quality (GCDWQ), evaluates impact on the adjoining creek and BC Parks Well and identify groundwater quality hazards and recommend protective measures. The Report referenced the Murdoch plan which is consistent with the current plans. The report references other reports done on site.

AEE notes that the two BC Parks and the campground well access the provincially mapped Aquifer (No. 422) which underlies the Site. The aquifer characteristics are described in their report and note the aquifer is classified as having a moderate vulnerability to contamination. The proposed Campground Well was assigned WTN 133726 was drilled in July 2025. AEE reviewed the available data on the two BC Parks well including Well record, Source Water Plan and water quality data.

AEE monitored the wells in late summer of 2025 and arranged for pump test while monitoring the existing BC Parks wells as well as tidal levels. The report details the analysis that lead to a

conservative recommended yield of 60 usgpm. AEE confirm the proposed campground well is constructed in accordance with the BC Groundwater Protection Regulation (GWPR).

Water Samples were taken by AEE during the well pump test at the subject well on July 17 and Oct 9, 2025 and of 24.2 Km Creek on Oct 8. The lab results were including in an Appendix D of their report. The water quality results indicate the water meets GCDWQ. In particular the TDS, conductivity and chloride were reviewed for indication of saltwater intrusion and determined that the risk was negligible.

AEE reviewed Well Protection in section 8 of the report. They have established a Well Capture Zone which is depicted on the VIS-ENG drawings and have provided recommendations for clearances which are discussed below in section 8.3.

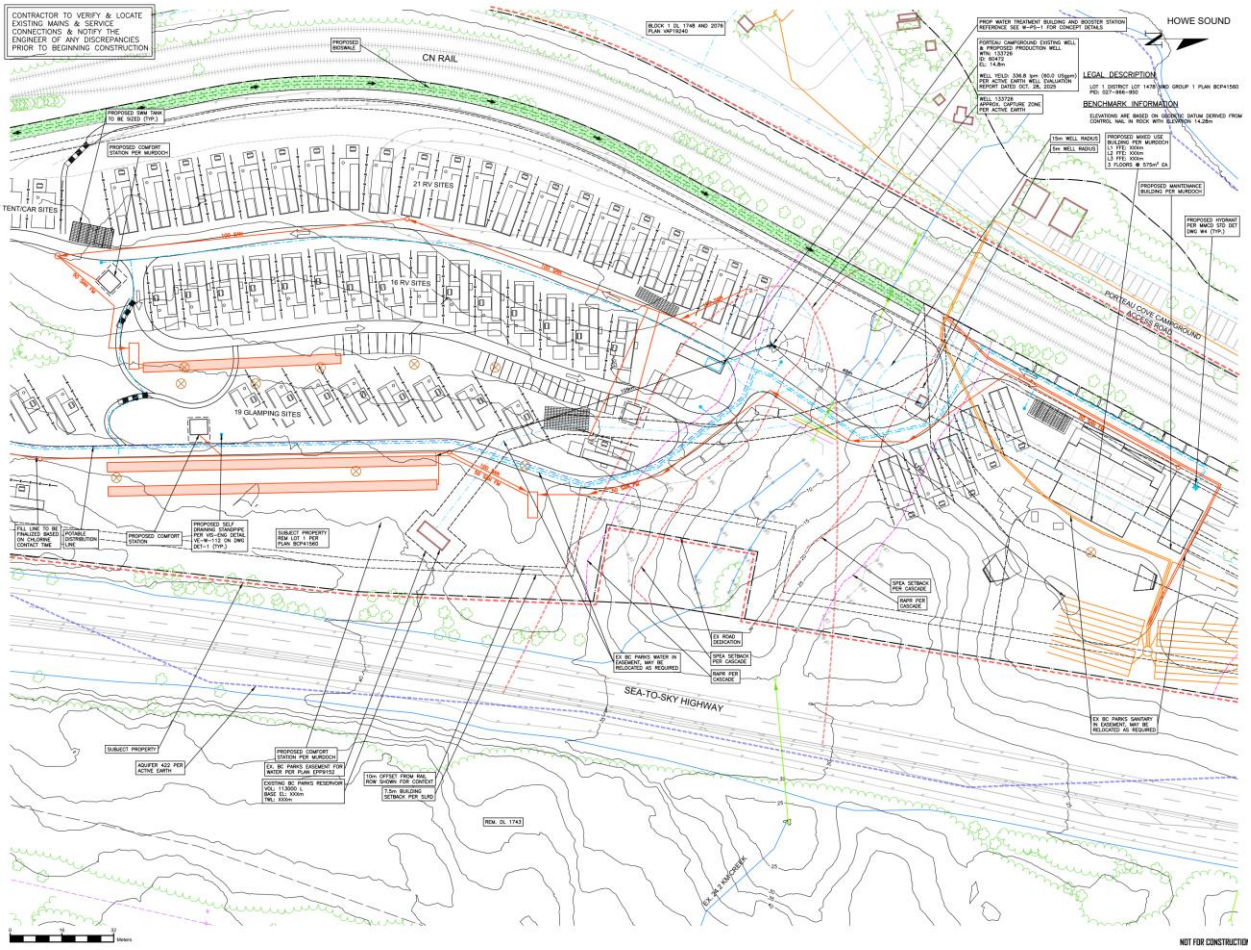

Figure 6: Water Supply Preliminary Plan

VIS-ENG has reviewed the required water supply for the overall water system. The SLRD bylaw is not really applicable to campgrounds. VIS-ENG has used Standard Practice Manual as well as feedback on actual consumption at WOP and other RV sites. A max day demand of 50,000 l/d was established. AEE has also commented on MDD with comments on a previous McElhanney assessment of 55,700 L/day is and 46,500 L/day estimated based on BC's

Drinking Water Guidelines. It should be noted that RV/Campsite water use is often greater then sewage flows. Arden Engineering have also calculated flow based on the standard practice manual of . As indicated in the AEE report the available water supply is far in excess of the demand. VIS-ENG will provide detailed flow analysis as part of the detailed design.

8.2. POTABLE WATER TREATMENT

The Well Evaluation report identifies that the Creek is a likely source of recharge and that the aquifer is at moderate risk of contamination. The report also confirm that the well is sourcing Groundwater at Risk of Containing Pathogens (GARP). The water samples, however confirm that water meets all GCDQ with the exception of total coliforms.

VIS-ENG have reviewed the data and the parameters are supportive of a filter and UV system, and have included a preliminary plans on W-PS-1 and 2 in Appendix 5 based on initial review. It is proposed that the system will have 5 and 10 um filters ahead of a duplex UV system prior to Chlorine treatment. The preliminary design intent is to have the well pump through the system to the reservoir. Chlorine contact time will be calculated as part of the detail design to achieve design requirements. The Chlorine system will be housed in a separate segment of the treatment building with injector pump system. All system elements will be NSF/AWWA certified.

The filters will be arranged in duplex series with alarms tied to loss in pressure across the filter. The UV system will also be duplex with alarm system for UV Transmittance and bulb activation. Each side of the duplex system will be adequate to address the MDD. A raw and treated sampling port will be included in the system plumbing. There will be further alarms and shut off based on low well level. The pump system will be tied to reservoir levels with high and low level alarms. This will be in addition to standard power off, high pressure, low pressure, high heat and other system protection alarms. The alarm system will have a UPS source to deliver the alarm in power outage.

The pump/treatment stations shall be designed to meet maximum day demand consistent with good engineering practice and in line with Bylaw 741. The Reservoir will provide buffer storage for peak hour demand and emergency storage. As such the regular pump rate will be established in consultation with AEE to best match the well performance objectives, with variable speed drive on pump to achieve higher recharge of the reservoir in peak hour demand where levels are still dropping.

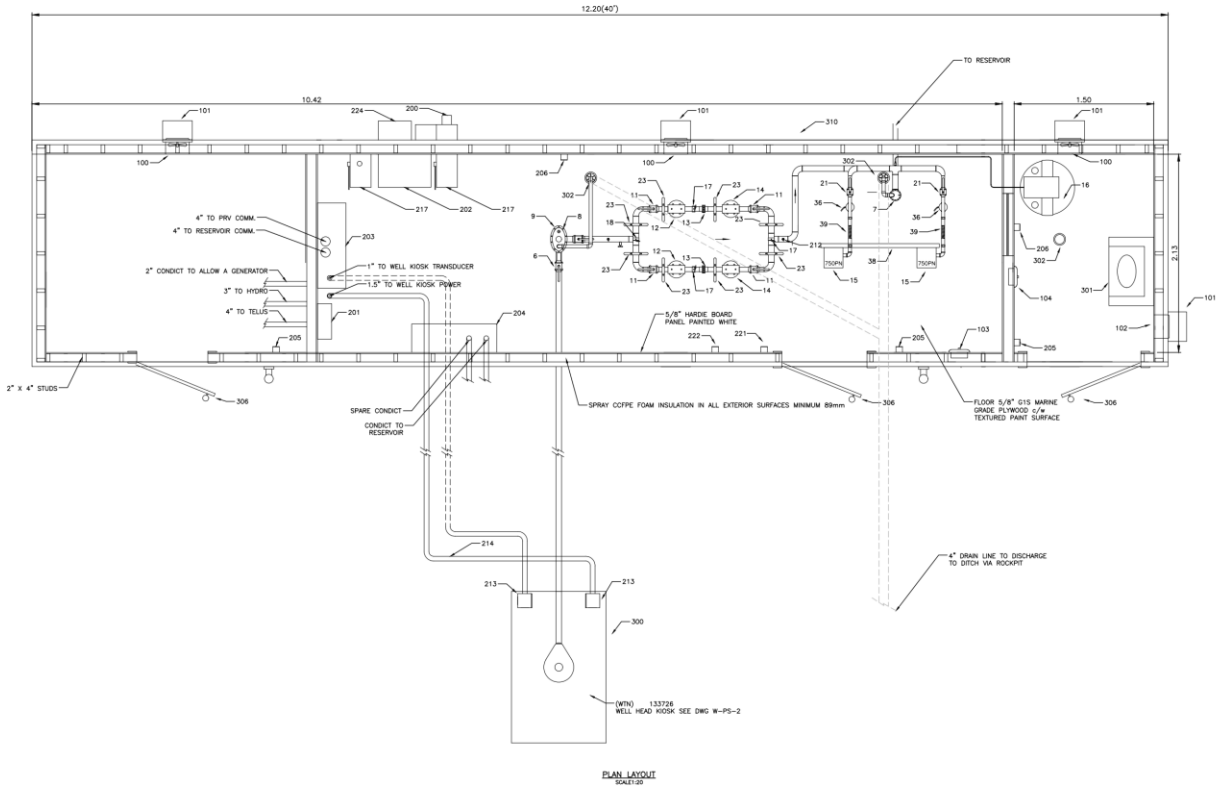

Figure 7: Preliminary Treatment Plant Layout

This submission is for the purposes of rezoning and proving out viability of a robust water system to meet VCH and SLRD requirements. A detailed design brief will be included with the actual Detailed design for VCH Construction permit. The concept plan is subject to adjustments based on detailed design feedback.

8.3. POTABLE WATER DISTRIBUTION

The proposed campground does not involve a subdivision. Relevant portions of the SLRD Subdivision Servicing Bylaw 741 will be adopted recognizing this is not a municipal system. Water and sewage collection piping will be maintained at 3 m separation per VCH requirements. The lower portion of the site with permanent buildings and access to emergency service vehicles will be supplied with water to meet FUS and NFPA requirements for sprinkler for the building as discussed below. The upper sections of the system will not provide FUS flow and will have booster for domestic use.

The preliminary servicing plan contemplates moving elements of the existing BCP water and sewer system distribution and collection piping located within easements on site. These will follow developed access routes and will involve replacing and realigning some of the pipework with current design standard pipe. This will be done without negatively affecting the functionality of the BC Parks system. In preliminary review with legal counsel, this is possible per the terms of Easement BB1742893 and BB1742894. This would also require adjusting the easement area at the owner's cost. No change in Septic Treatment plant is envisioned in this layout.

The layout of the system has been reviewed against AEE recommendations for clearance from the well and well capture zone, some adjustments to the original Murdoch plan have been shown but do not change the overall zoning intent.

- Both the operating BC Parks well and the Proposed Campground well are outside of the SPEA of 24.2 Km creek but within the 30 RAPR area. This will provide protection in that any work within the RAPR study area would be subject of a DP.
- The permanent buildings have been adjusted so they are outside of the Well capture Zone. The comfort stations have been moved outside the capture zones in excess of the recommendations by AEE.
- While RV sites may be within the capture zone the servicing connections will be maintained outside the capture zone
- The Proposed Potable Water treatment plant is proposed to be within the well capture zone, however the only potential risk is chlorine and there will be a capture pan matching the Chlorine tank capacity. The building is outside 15 m radius of the well and beyond 8 m offset from the top of slope towards the rail. AEE has reviewed the site and provided preliminary support. This will be clarified in the detailed design
- The nearest Septic Field to the Well is the existing BC Parks septic which is separated from the well by 24.2 Km Creek. The existing field is in excess of 100 metres from the new well
- The proposed Septic Fields are Slightly further away at 107 metres.
- The Existing BC Parks well is separated from the Campground well by approximately 48.5 metres in excess of the GWR
- Sewage Lift Station will be maintained outside of the 15 m radius from all wells, outside the RAPR zone and outside the well capture zone established for the Campground Well
- The stormwater system will involve a combination of bioswales, raingardens and detention/infiltration tanks. All bioswales, raingardens and detention/infiltration tanks will be maintained outside 15 m radius from all wells, outside the RAPR zone and outside the well capture zone established for the Campground Well
- The well location would give more than 30 metres clearance from obvious surface water risks such as the highway or the proposed septic. The water system would be owned by the campground operation that will take on the responsibilities of operation, treatment, testing and reporting.

Regional District Development Approval Information, Fees and Notification Procedures Bylaw 1301-2014.

4.2 Water and Sewerage Systems

.1 Where the proposed *campground* will not be connected to a *community water system* or a *community sewerage system*:

.a a map showing the location of the source of the proposed water supply, and the location and extent of the area proposed for sewage treatment and wastewater treatment.

.b a report from a qualified professional that details how the proposed water supply system will meet the requirements of the Vancouver Coastal Health Authority or the Interior Health Authority as applicable.

.c a report from a qualified professional that details how the proposed wastewater and sewage treatment system will meet the requirements of the Vancouver Coastal Health Authority or the Interior Health Authority as applicable.

.d alternative approaches such as composting toilets, outhouses with holding tanks, and greywater systems, will be considered subject to the requirements in section 4.2.1.

.2 Confirmation from the Vancouver Coastal Health Authority or the Interior Health Authority as applicable, that an application for a water supply system Construction Permit and a Permit to Operate a Water Supply System has been received.

.3 Confirmation from the Vancouver Coastal Health Authority or the Interior Health Authority as applicable, that a sewerage system filing has been received.

Per Bylaw 741 Waterworks system shall be designed to deliver the greater of the peak hour demand or the maximum day demand plus fire flows according to the criteria in this schedule.

The distribution piping will be designed for municipal pressure range even though the range of pressure in the system will not reach normal municipal maximum of 150 psi. VIS-ENG will work with RMTEC to determine the anticipated differential and total settlement in the various areas of the site to determine if any areas would require joint restraints or possibly a welded system.

A detailed design will be required for VCH Construction Permit.

8.4. POTABLE WATER SYSTEM OPERATION

The water system will be operating to service this single parcel of land. As such a CPCN will not be required. AEE have confirmed that an Industrial Use (Commercial Enterprise Subpurpose) license application was submitted in September 2024. A VCH Operating Permit will be applied for in consultation with VCH.

A well head protection plan will be developed per Ground Water Protection Regulation requirements in consultation with AEE and VCH. An operation plan including Operation and Maintenance material for equipment operation, WMIS form and Emergency Preparedness Plan to meet the requirements of the Drinking Water Protection Regulation. This document will outlines possible emergency scenarios and the required responses for the parties involved. Contact information of key personnel and templates for written notifications for emergency scenarios will be included in this report. Operational response details, WHIMIS forms etc. will be included in the accompanying Operating and Maintenance Manual. The plan will also detail operational requirements such spill kit for fuel and/or chemical to be stored in the well treatment building related to operations in the well. In consultation with VCH it will also detail the testing requirements.

The system will be supervised by a Certified Water Operator. There are many water operators operating in the corridor working on adjacent systems such as Furry Creek, Brittania and other smaller system in the corridor to facilitate easy access. Staff will be trained and the opportunity may be achieved to

9. FIRE PROTECTION

It is understood that the SLRD Sprinkler Bylaw 7o. 879-2003 does not apply to Porteau Provincial Park or the subject property. The intent is to sprinkler the Reception/Amenity building and to provide hydrant coverage to that building. Fire Separation will be introduced in the building to facilitate a reasonable reservoir storage volume and fire flow. Building Cladding will take into consideration fire and interface fire risks.

As indicated in section 5, the lower loop road will be designed to accommodate emergency service vehicles. The available elevation for a reservoir limits the fire protection zones to the lower lands. Self draining standpipes, meeting NSF 551 certification for potable water will be placed around the site. The reservoir will be sized for NFPA flows for the sprinkler and be NSF 551 approved.

10. SEWAGE DISPOSAL SYSTEM

The site does not have a community sewer system. The adjoining BC Park operates a Septic System on the subject lands via an easement. BC Parks indicated they do not have capacity in their system.

10.1. SEWAGE TREATMENT SYSTEMS

Arden Consulting Engineers (ACE) was retained to determine the site capacity to support an onsite wastewater treatment system. They have prepared a “Feasibility Assessment for Proposed On-Site Wastewater Treatment System: report dated February 14, 2023. ACE reviewed the site and noted the existing well and septic systems on the subject lands. The report is included in Appendix 3.

ACE also evaluated the MDD flows and calculated a flow of 42,590 l/day similar to VIS-ENG calculations. This exceeds the maximum flow under the Sewerage system Regulations (SSR) which is limited to 22,700 l/d as pointed out in the report and if done as one system would be done under MOE Municipal Wastewater Regulation (MWR). Both systems were reviewed in the report and it was determined that for a number of reasons two SSR systems would be preferable solution.

The report details the site investigations, test pit and percolation results. The underlying native materials are supportive and areas 2 and 3 of their investigation. ACE has recommended Type 2 or 3 systems to manage field size and protect water quality. The collection system for each treatment system would be segregated from source to field to maintain flows with SSR range.

Figure 8: Sample Photo from ACE Report showing Area 2 with native sand and gravel

It is understood that a full septic investigation and design and VCH filing will be required as a condition of PLR. Further work will be done to finalize the location and ACE will coordinate submission with VCH.

10.1. SEWAGE COLLECTION SYSTEMS

VIS-ENG will be designing sewage collection system for the fixed buildings, the comfort stations and the RV sites. The RV servicing is proposed to mimic the installations at WOP. The collection system will be a series of gravity collection system running to a communal sewage lift station. The lift stations and comfort stations will be maintained outside the well catchment zones of the wells. The collection system will be managed to segregate flows to below the SSR limits and pump to the treatment system. VIS-ENG will work with ACE to coordinate the pump rates with the tank equalization for each of the two systems.

Alarm systems will maintained in the pump station if the even of high flow alarms. The forcemain are anticipated to be HDPE welded pipe with a high factor of safety of operating pressure versus working pressure. VIS-ENG will work with RMTEC to determine the anticipated differential and total settlement in the various areas of the site to determine if any areas would require joint restraints or possibly a welded system. Preliminary feedback is that is not required.

Some adjustment of the comfort station was required to meet groundwater protection objectives. VIS-ENG will work with Murdoch to maintain a maximum distance of 100m from a washroom facility is being met for the tent sites. Whilst the distance from the existing day lodge to the RV sites is over 100m, the RV sites will each have their own sanitary service. A future comfort station will also provide additional washrooms if future demand requires it.

11. STORMWATER AND DRAINAGE

It is being proposed that a bioswale be installed along the length of the roads. As a combination of raingarden, infiltration ponds and detention/infiltration tanks will be designed to meet SLRD stormwater objectives. The main features have been maintained a minimum of 5 m from the slope armoring and away from the septic fields. They have been maintained outside a 30 m radius of the wells. The intent is to maintain post development flows for 2 year storm to predevelopment conditions. The catchments of pre and post drainage will largely be maintained. The nature of the underlying native soils that are available on site should allow for reasonable SWM objectives.

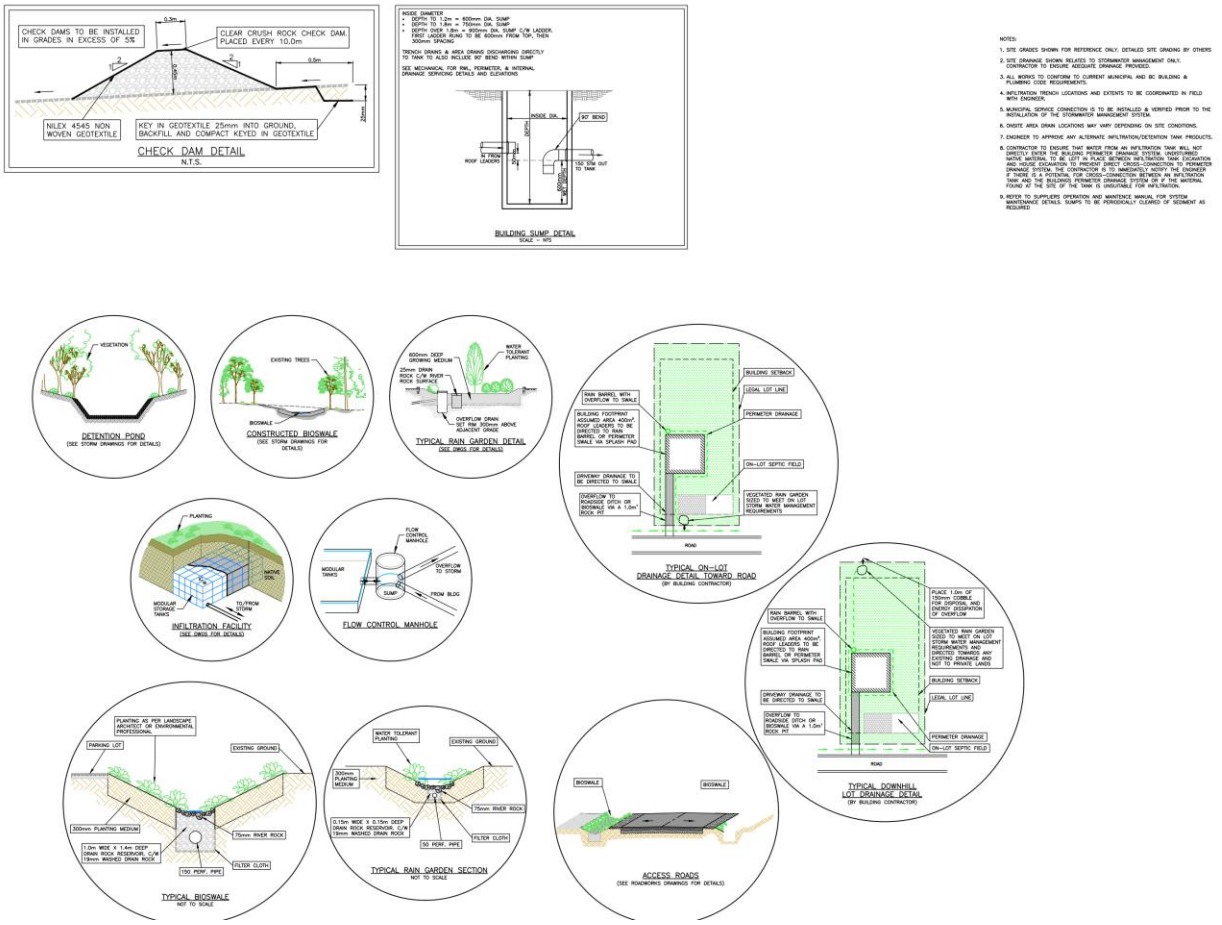

Figure 9: Stormwater Management Preliminary Plan

VIS-ENG has reviewed the preliminary plan with RSTech and have adjusted Stormwater features based on feedback. Detailed plans for DP and BP will be included with a review from the Geotch.

12. BC HYDRO, TELUS AND PRIVATE UTILITIES

BC Hydro electrical and Telus infrastructure exists through the site to the existing BC Parks Well and Septic Systems. VIS-ENG will work with utilities to coordinate

Electrical service hookups are proposed for each RV site and for the caretaker's residence. The future comfort station will also have an electrical service. Each service will have minimum 30 amperes service.

Temporary power will be permitted and installed by a licensed electrician and will include power supply to each RV site.

13. SOLID WASTE MANAGEMENT

SLRD does not provide solid waste management service to the area. The service will be done by private contractor. VIS-ENG will work with Murdoch to confirm access to the proposed collection system points is reasonably accessible See Murdoch reports for details of wildlife protection features and solid waste management plans.

14. CONCLUSION

As indicated in Murdoch report and SLRD rezoning report the site is superior location for a campground and RV Resort Facility. The water supply has reviewed by AEE and deemed to have adequate supply and superior water quality. The treatment parameter will be reasonable to achieve. ACE has located and identified 2 very favorable locations for Septic. These can connected to two separate sewage collection systems based on the preliminary servicing plan servicing areas. The proximately of the septic and the water source and required development on the site does not conflict with the ground water objectives of the AEE Technical Assessment. Stormwater objectives will coordinate with the RMTEC report and the AEE report to meet SLRD objectives. Access requirements of the site can be reasonably met

The Civil Engineering servicing for the proposed rezoning uses of the site is viable to build and sustainable to service the proposed uses. The works will be detailed in further submission and coordinated further with the hydrogeologist, on-site sewage engineer, geotechnical engineer, traffic engineer and environmental consultant.

The design will be further detailed and coordinated and submitted for input and permitting with VHC for Sewer and water and with SLRD in regards to all BP and DP requirements.

If you have any questions in this regard, please do not hesitate to contact me.

Respectfully yours,

VIS-ENG Consulting Ltd.

Kevin Healy, P.Eng.
Permit to Practice 1005639

Appendices

APPENDIX 1	TITLE SEARCH AND REGISTERED DOCUMENTS
APPENDIX 2	TECHNICAL ASSESSMENT WATER SUPPLY WELL
APPENDIX 3	FEASIBILITY ASSESSMENT WASTEWATER TREATMENT
APPENDIX 4	RMTECH
APPENDIX 5	VIS-ENG PRELIMINARY DRAWINGS