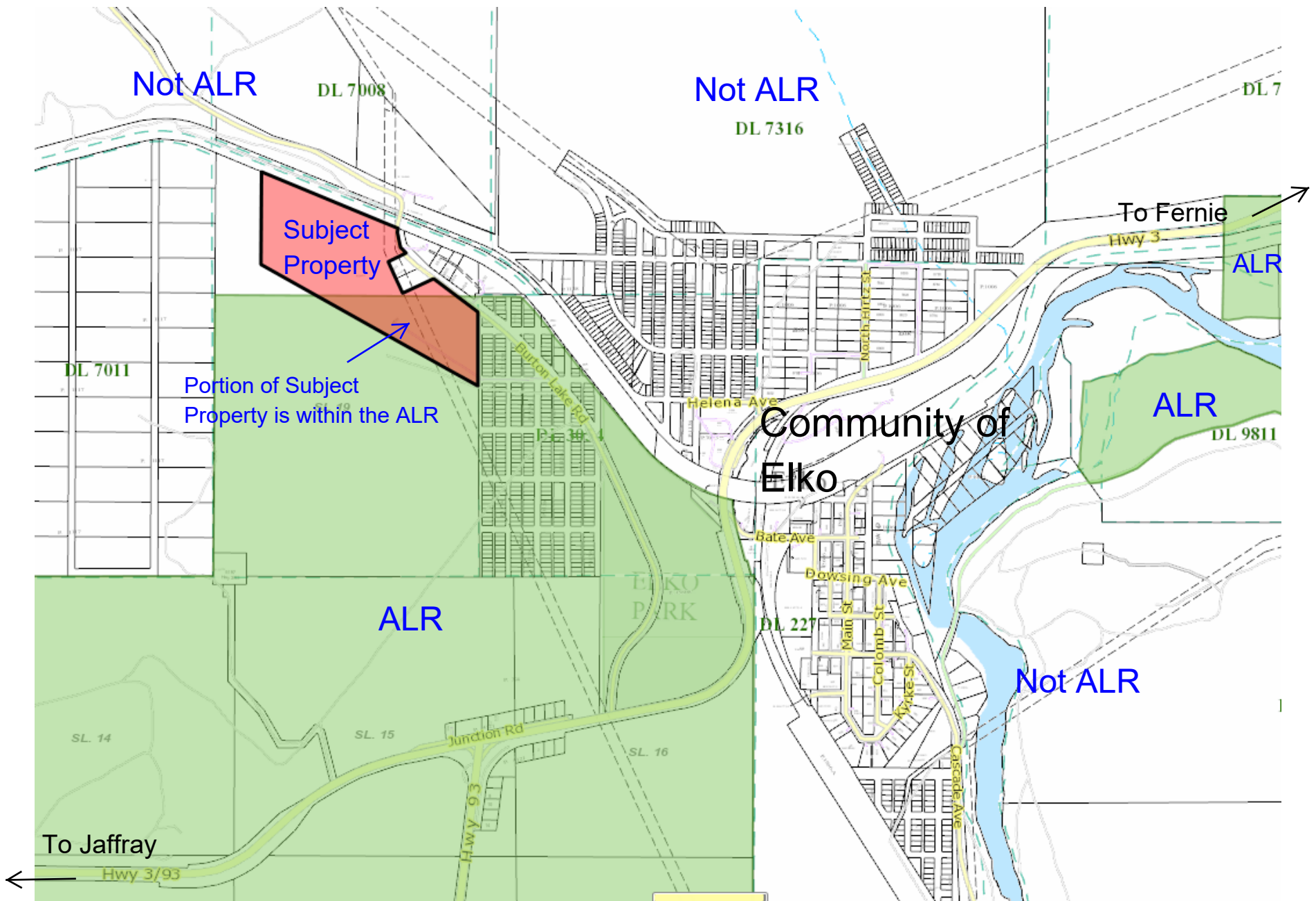
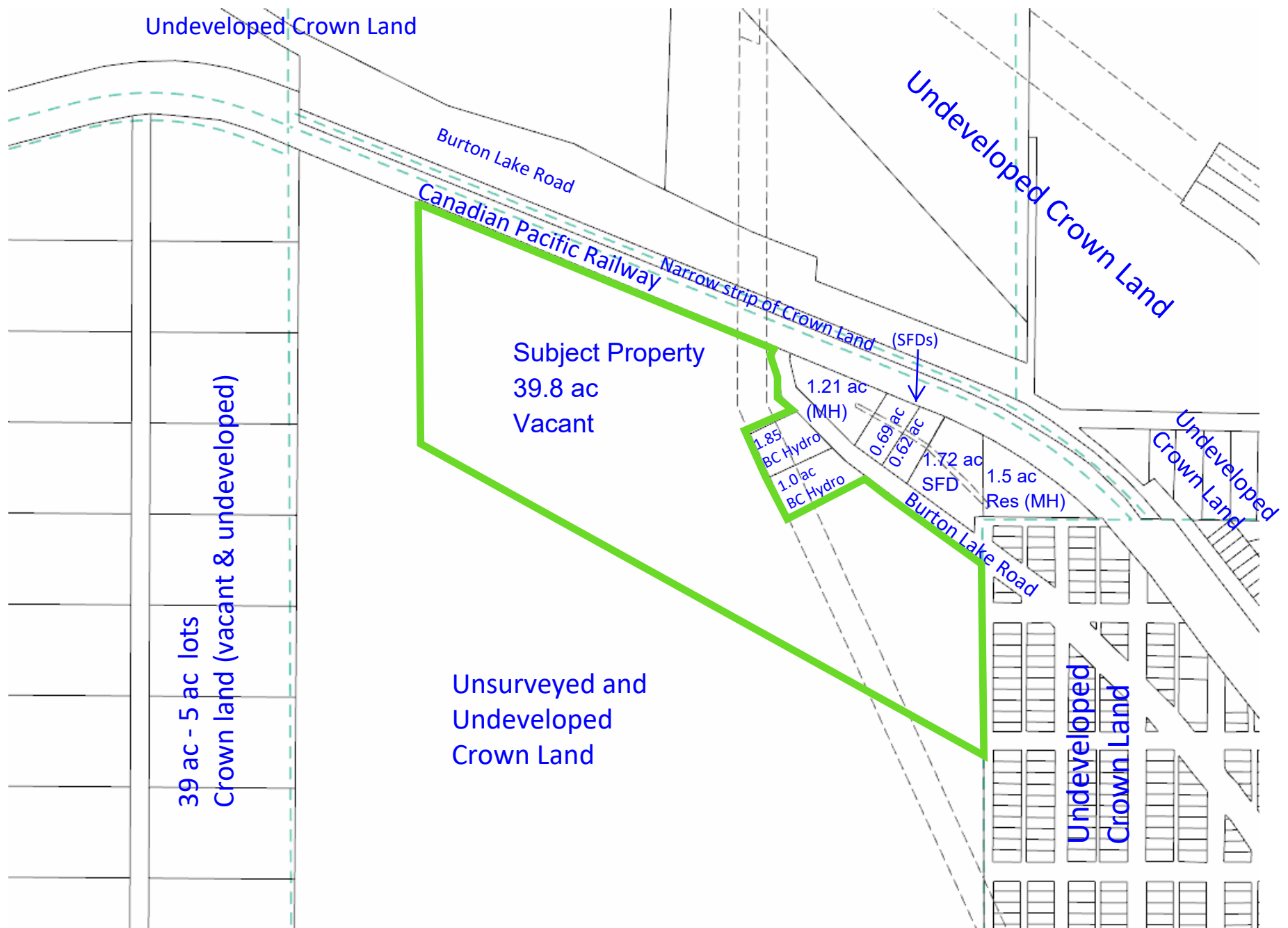


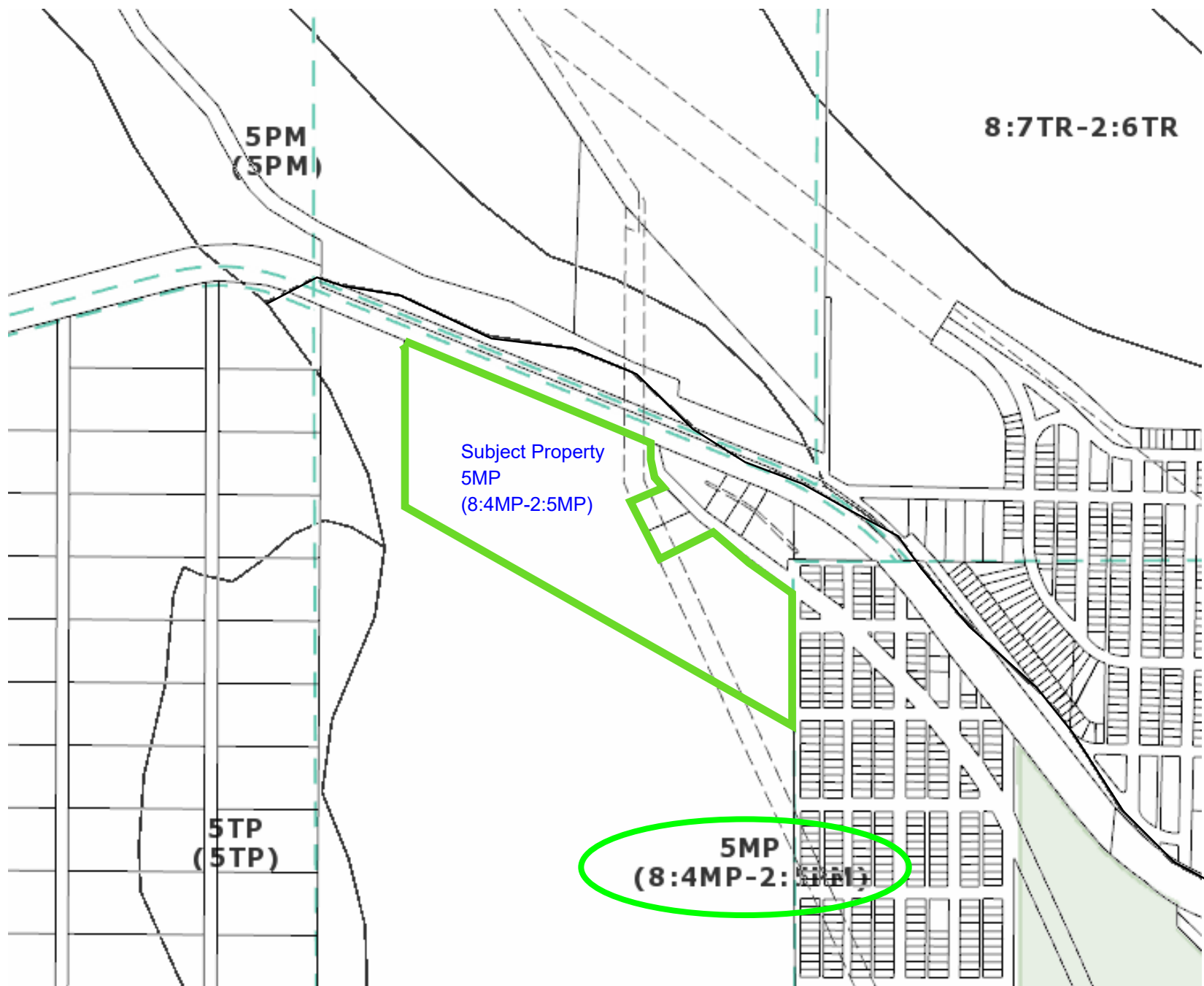
Location and ALR Boundaries



Land Use Map



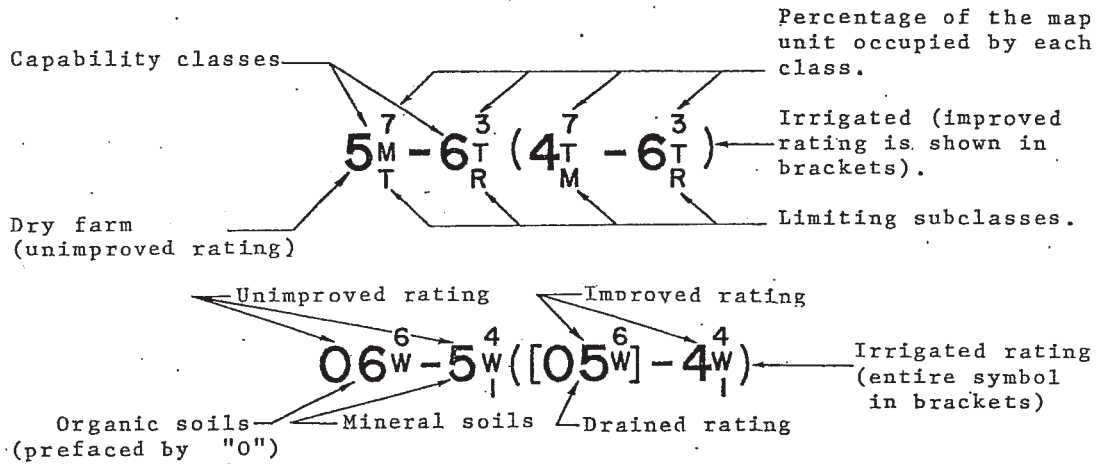
Agricultural Capability of Soils



KEY FOR INTERPRETATION OF AGRICULTURE CAPABILITY MANUSCRIPT MAPS (B.C.)

There are 7 capability classes for agriculture with 1 representing the highest class and 7 representing the lowest. In some areas of the province, two ratings are shown: one for dry farming and a second for irrigated or drained (improved) conditions. The irrigated ratings are shown enclosed in round brackets while the drained ratings appear in square brackets. In all cases improved ratings have precedence over dry farm ratings.

Example Classifications



The agriculture capability classes are determined on the relative range of crops the land can produce.

a) Capability Classes

- Class 1 - widest range of crops
- Class 2
- Class 3 } reduced range of crops caused by a number of limiting
- Class 4 } factors (subclasses)
- Class 5 - only permanent pasture or forage
- Class 6 - natural grazing
- Class 7 - no productivity

b) Limiting Subclasses

- C - adverse climate
- D - undesirable soil structure
- E - erosion
- F - low fertility
- I - inundation (flooding)
- M - moisture deficiency (droughtiness)
- N - salts
- P - stoniness
- R - bedrock near the surface
- T - topography (slope)
- W - excess water
- X - combination of soil factors
- S - cumulative and minor adverse characteristics

Tree fruit and grape growing areas: these crops are tolerant of soil conditions that limit field crops. Steep and stonier soils in suited climates have been upgraded to accommodate the expanded range of crops. e.g. A class 5T soil dry farmed becomes a 3T irrigated in an area climatically suited to tree fruits.

Note: A more detailed 16 page manual entitled Soil Capability Classification for Agriculture is available from the Lands Directorate, Lands Forests and Wildlife Service, Department of the Environment, Ottawa, Ontario, K1A 0H3.



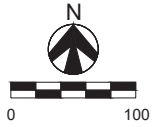
SITE PLAN FOR RV PARK:

THIS PLAN SHOWS SITES THAT ARE PURPOSED ON ALR LAND AND SITE THAT ARE NOT LOCATED ON ALR LAND.

PURPOSED ROADS ARE ON DOCUMENT "PURPOSED ROADS".

LENGTHS OF PURPOSED SYSTEMS AND MATERIAL ARE ON DOCUMENT "PURPOSED SYSTEMS".

MULTIPLE PICTURES ARE USED FOR EASE OF READING.



DRAFT ONLY - NOT FOR CONSTRUCTION

PERMIT TO PRACTICE No. P10913
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REV	DATE	DESCRIPTION
0	7/14/22	ISSUED FOR REVIEW

CONSULTANTS

SD CONSULTING
 SUITE 811
 104 - 743 RAILWAY AVE
 CAMBRIE, AB
 TEL: 612-260-9128
 TEL: 403-688-7366

PICKERING RV PARK

SITE PLAN AND SOILS INFORMATION

C1
 C01_1283.dwg






















Plot Date: 14 July 2022

Client
Mr. Kris Pickering
Earthrite Industries Ltd
Bull River, BC

Project Title
Earthrite Campground
8891 Burton Lake RD
PID: 014-222-892
Rem. Lot 1 Plan NEP2915 DL 4589
Land District 26
Elko BC, V0B 1T3

Drawing Title
Site Plan

Legend

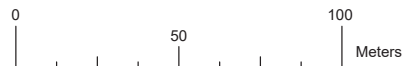
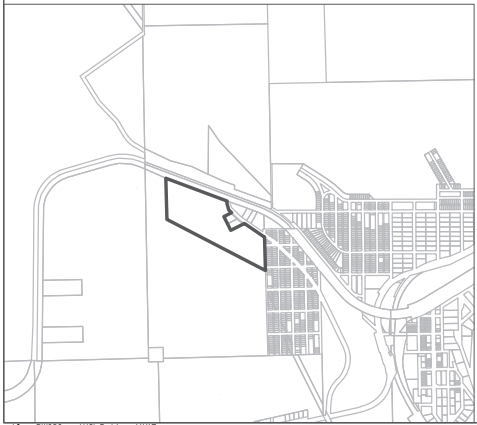
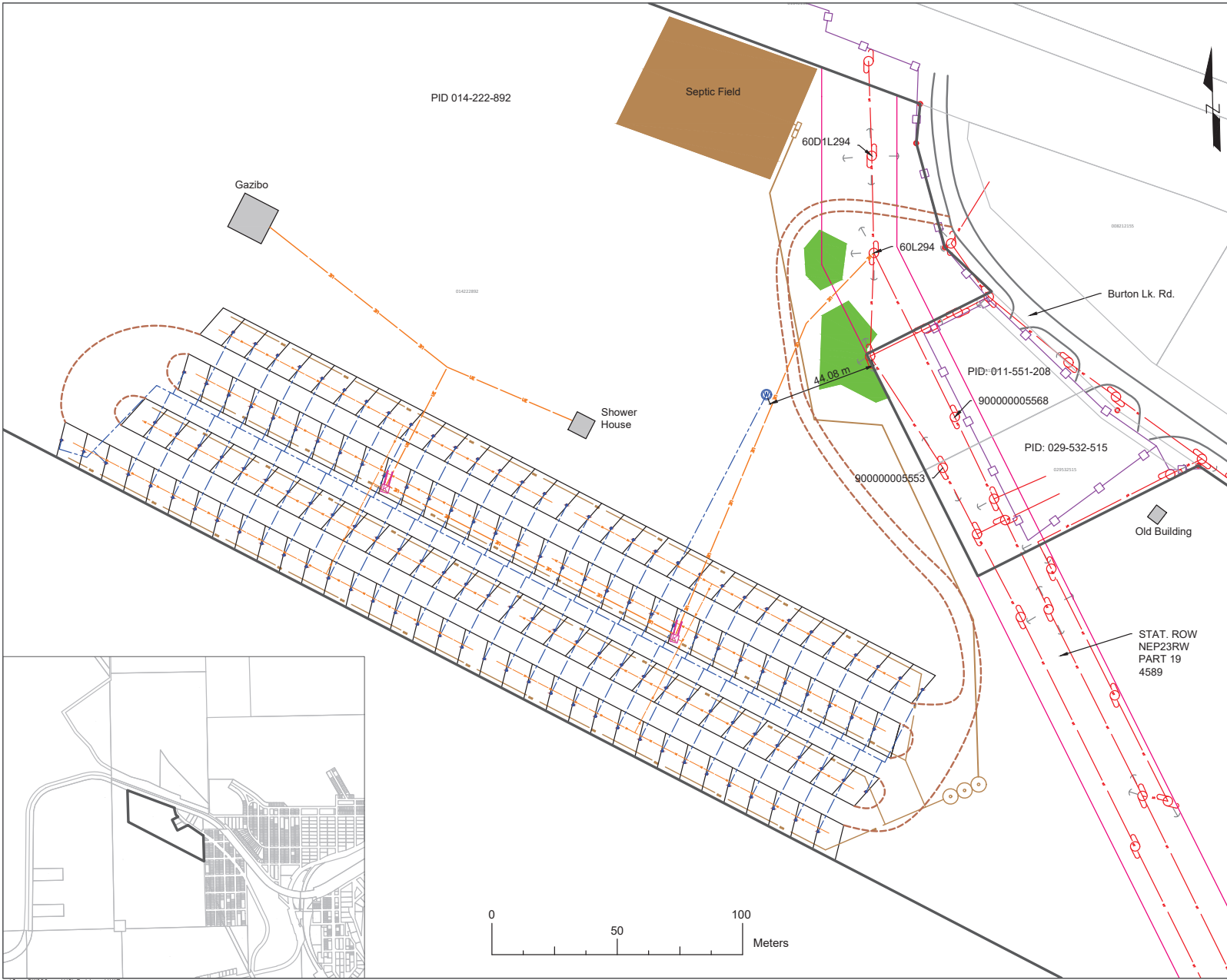
- Subject Property 
- Parcel Map BC Lot Boundary 
- Existing Building Footprint 
- Treed Area 
- Campsite Lot Boundary 
- ROW Boundary 
- Overhead Hydro Line 
- Proposed Underground Hydro Line 
- Proposed Electric Service to Campsites 
- 2" Water Distribution Line - 1.8 m UG 
- Septic Pipe - 1.5 m UG 
- Fence 
- Access Road 
- Road Edge 
- Utility Pole 
- Pole Anchor 
- Proposed Hydro Transformer Kiosk 
- Proposed 800 Amp Metering Cabinet 
- Septic Tank 
- Well 
- Iron Pin 

Designed by
D. George - JUNE 17, 2022

5		
4		
3		
2		
1		
0	Site Plan	22/06/17

Revision	Description	Date YY/MM/DD
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Project No.	Sheet	Revision no.
22.0052.00	1	0
	OF 01	



2.2 Property Land Use and Development

The Property is currently vacant with no buildings, structures or apparent land uses. Approximately three-quarters of the Property is grassland/forb vegetation; the remaining area is open forest (Figure 2). A BC Hydro powerline corridor passes through the Property. Approximately 14.7 acres of the Property are located within the ALR.



Figure 2. Land cover, use and development (Google Earth, 2021)

A sawmill operated on the Property from approximately 1952 to 1973 (Figure 3). Following the removal of the sawmill infrastructure, the Property was occasionally used for livestock grazing.

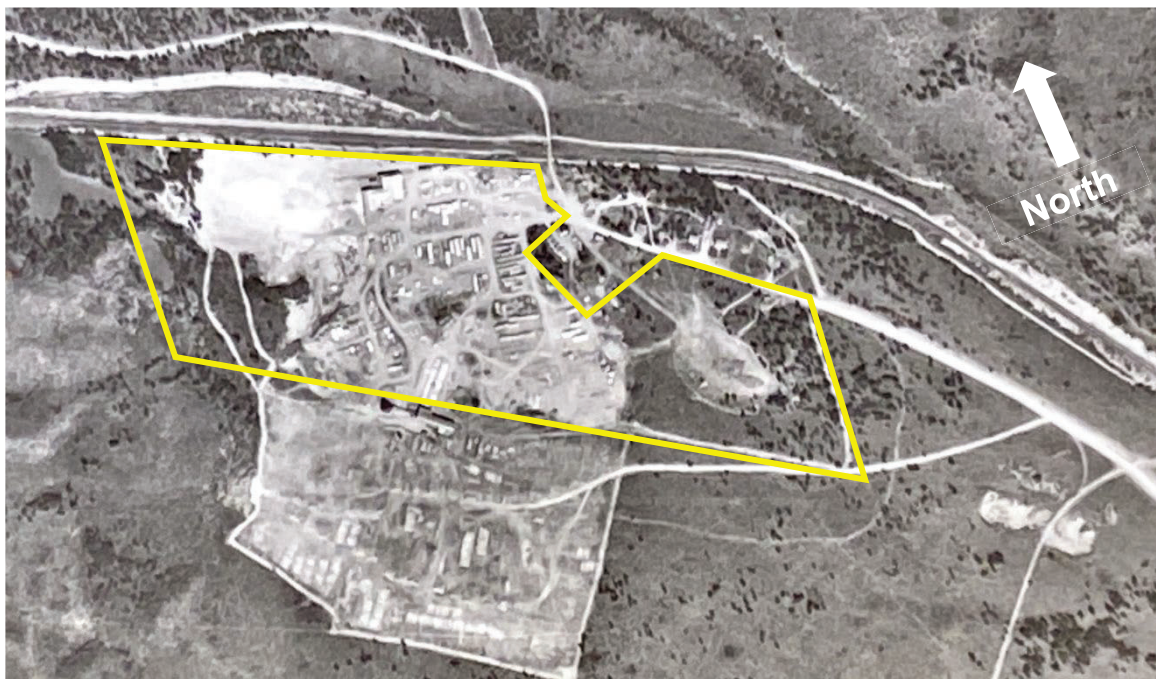


Figure 3. Former sawmill location showing approximate property boundary (UBC, 1968)

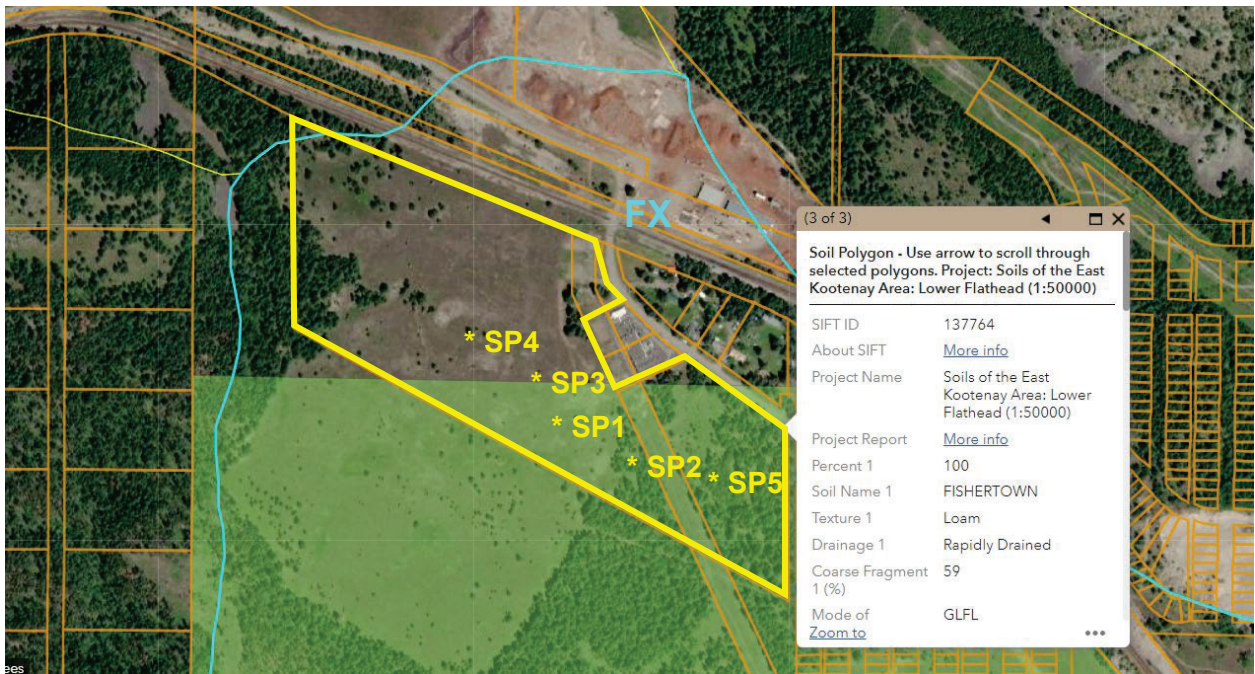


Figure 6. Soil survey map unit for the Property (BC SIFT, from Lacelle, 1990)

3.3 Detailed On-site Soil Inventory and Classification

The Property was thoroughly investigated to classify and inventory the soils and landforms. Five soil pits were excavated, three in areas previously disturbed by the former sawmill operations (SP1, SP3, SP4) and two in undisturbed sites (SP2, SP5). Approximate soil pit locations are shown above in Figure 6. At each pit, soil profiles were characterized according to the *Canadian System of Soil Classification, Field Manual for Describing Terrestrial Ecosystems (2010)* and ALC Policy P-10 “Criteria for Agricultural Capability.” The soil examinations confirmed coarse-textured, gravelly glaciofluvial deposits consistent with the Fishertown soil series (Figure 7). Field notes and photos describing the soil profile at each pit location, and soil moisture deficit (SMD) calculations, are presented in Appendix A.



Figure 7. Gravelly/cobbly soils in previously disturbed non-ALR areas of the Property.

Soil Pit SP1

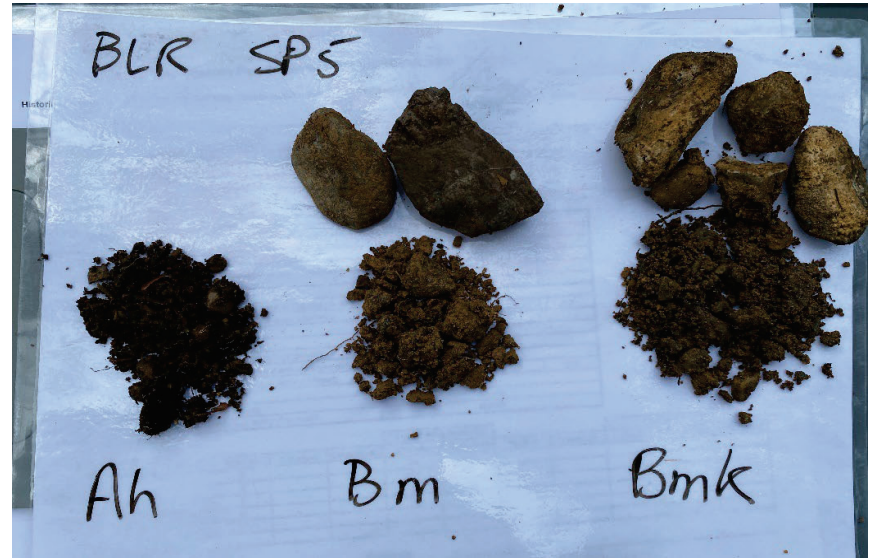
Date & Time: Tue, May 31, 2022, 10:28:42 MDT
8891 Burton Lake Road



Soil Pit SP2



Soil Pit SP5



5.2.1 Limitations and Potential Capability Improvements

A or M - Soil Moisture Deficiency (SMD)

ALC Policy P-10, "Criteria for Agricultural Capability Assessments," requires the determination of soil moisture deficits (SMD) for each identified soil type. The soil moisture deficiency subclass limitation (A or M) is used where crop growth is adversely affected by drought either through insufficient growing season precipitation that results in a climatic moisture deficit (CMD) or low available water storage capacity (AWSC) of the soil, or both. CMD is the seasonal deficit between precipitation (P) and potential evapotranspiration (PE); $CMD = P - PE$. According to long-term normal climatic data compiled by ClimateBC, the Property is located in an area with a CMD of -306 mm. AWSC measures the soil's capacity to store water and mainly depends upon soil texture and structure in the upper 50 cm of soil. Based on soil textures determined during the assessment, the average AWSC in previously disturbed sites (SP1, SP3 and SP4) is 26.7 mm, while undisturbed sites (SP2 and SP5) had an average AWSC of 38.9 mm.

SMD, the difference between CMD and AWSC (i.e., $SMD = CMD - AWSC$), was calculated for each soil pit excavated on the Property using the procedures provided in *Land Capability Classification for Agriculture in British Columbia (1983)*. Unimproved capability classifications based on SMD were then determined for the upper 50 cm of soil, as were improved capability ratings based on removing coarse fragments (cobbles and stones) from the upper 25 cm. The inherent low water-holding capacity of the soils, combined with the climatic moisture deficit, results in an average SMD of 279 mm in previously disturbed sites (SP1, SP3 and SP4) and 267 mm in undisturbed sites (SP2 and SP5). These SMD values equate to a BCLI Class **5A** unimproved agricultural capability. Refer to Appendix A for the detailed AWSC and SMD calculations.

Irrigation Potential and Agricultural Water Demand

Soil moisture limitations can generally be improved by one agricultural capability class through the application of irrigation water, provided that a suitable source (quality, quantity and proximity) is available. A query of the BC Water Licenses Report database indicates no existing water licenses associated with the Property. The BC Groundwater Wells and Aquifers database identifies two wells on the Property. Well Tag Number 13691, a legacy record registered to Knight Lumber, is located in the northwest corner of the Property. The well was drilled to 144 feet below ground level; no static water level or well yield information is included in the records. WTN 123047, located near the centre of the Property, is a new private domestic well registered to the Property owner, Kris Pickering. This well was drilled to 237 feet below ground level, has a static water level of 160 feet below the top of the well casing and an estimated yield of 20 US gallons per minute.

Agricultural irrigation water demand was calculated for various potentially suitable crop types using the BC Agricultural Water Calculator, <http://www.bcagriculturewatercalculator.ca/>. Total annual irrigation water demand was calculated on a per acre basis using a 108-day growing season, loam soil texture, and a sprinkler irrigation system (Table 3). It should be noted that no existing irrigation infrastructure, such as water pumps, water intakes, irrigation piping or sprinkler heads, were identified on the Property during the site inspection, so substantial financial investment would be required to establish irrigation for crops.

Table 3. Annual irrigation water demand (per acre) for various crops

Crop type	Annual irrigation water demand (m ³) per acre*					
	May	June	July	August	September	Total
Cereal grains	0	59	340	300	88	787
Forage/Pasture	0	120	680	590	180	1570
Nursery	0	120	680	590	180	1570
Vegetables	0	89	510	450	130	1179

Due to the lack of access to irrigation water, the *improved* agricultural capability classification based on soil moisture deficiency is equivalent to the unimproved classification, Class **5A**.

F – Fertility

A fertility (F) limitation may be due to a lack of available nutrients, low cation exchange capacity or nutrient holding ability, high acidity or alkalinity, high levels of carbonates, the presence of toxic elements, or high fixation of plant nutrients. A representative sample of soil from the upper 25 cm of the soil profile was collected from soil pit SP2 (undisturbed site) and submitted to Element Labs for “farm soil analysis” (Appendix B). The results indicate soils with low nitrogen supply capacity and high base saturation dominated by calcium. Annual supplementary fertilizer applications would be required to support the growth, development and maturity of most crop types. The unimproved agricultural capability rating based on fertility is Class **4F**; the improved rating, assuming intensive and judicious applications of fertilizer and/or other soil amendments, is **2F**.

P - Stoniness

A stoniness (P) subclass limitation applies to soils with sufficient coarse fragments to hinder tillage, planting and/or harvesting operations. The guidelines for class designation are based on the proportion of coarse gravels, cobbles and stones in the upper 25 cm of mineral soil.

The coarse fragment content in the upper 25 cm of previously disturbed sites (SP1, SP3 and SP4) ranged from 50% to 72%, which correlates to a BCLI unimproved stoniness capability ranging from 5P to 6P. Stoniness in undisturbed sites (SP2 and SP5) ranged from 34% to 40%, resulting in a BCLI unimproved stoniness capability of 4P. Due to the prevalence of gravel-sized coarse fragments, which are impractical to remove, the overall property-wide average unimproved and *improved* capability ratings for stoniness are equivalent, **5P (5P)**.

5.2.2 Agricultural Capability Ratings

The primary factors limiting agricultural capability are stoniness related to gravel-sized coarse fragments and soil moisture deficiency resulting from the combined effects of insufficient growing season precipitation, high seasonal evaporation losses and low available water storage capacity. A summary of the agricultural capability classifications for the Property is provided in Table 4.

Table 4. Agricultural capability classes on the Property

Limitation	Unimproved Capability	Improved Capability
A: Soil Moisture Deficiency (CMD)	5A	5A
F: Fertility	4F	2F
P: Stoniness	5P	5P

6.0 AGRICULTURAL SUITABILITY

The agricultural capability classification system does not consider factors such as distance to markets, available transportation infrastructure (roads, etc.), location, farm size, type of ownership, cultural patterns, skills or resources of individual operators, or hazard of crop damage by storms (wind, hail, etc.). As a result, capability classifications do not provide an interpretation of the agricultural suitability of land for the production of specific crops, the potential productivity of those crops, or the feasibility of improvements that may be required to achieve acceptable production levels. Instead, an assessment of agricultural suitability considers the practical commercial options for agricultural use of the land considering the cumulative effects of multiple limitations and the feasibility of improvements.

6.1 Soil-Bound Agricultural Uses

Soil-bound uses rely on growing crops in soil on-site to support a specific agricultural enterprise. In its present state, the Property has low suitability for soil-bound cultivated agricultural uses such as cereal/oilseed crop production, green feed production, tame forage production, market gardening (fruit and/or vegetable production), etc. for the following reasons:

- *Climate* - The climatic moisture deficit (CMD) severely restricts cropping options.
- *Soil moisture-holding capacity and drainage characteristics* - Soil pit excavation confirmed that the soils on the Property are underlain by coarse-textured deposits that drain water quickly, resulting in nutrient depletion and soil moisture deficits limiting plant growth. While irrigation would alleviate the soil moisture deficit, it could also increase the potential for leaching or off-site migration of applied nutrients and amendments.
- *Stoniness* – The Property has a significant (Class 5) stoniness limitation related to the prevalence of gravel-sized coarse fragments, which are impractical to remove through stone-picking.

The most suitable soil-bound agricultural use for the Property is low intensity, low carrying capacity seasonal livestock grazing of existing (i.e., unimproved) grass/forb vegetation.

6.2 Non-Soil-Bound Agricultural Uses

Non-soil-bound uses do not rely on growing crops in soil on-site to support a specific agricultural enterprise. Examples of non-soil-bound uses include beef or horse feedlots, hog production, poultry (eggs and meat birds), veal production, production of fur-bearing animals, mushroom barns, greenhouses or potted nursery stock production, and indoor cannabis production.

Intensive operations such as feedlots, hog or poultry barns, or mushroom barns, are not appropriate for the Property due to the rapid soil drainage characteristics and proximity to existing rural residential properties. Greenhouses and/or potted nursery stock could be established. However, a suitable source of irrigation water would be required, as well as fertilizer and other soil amendments and inputs. No apparent economic, logistical or market advantages are associated with developing non-soil-bound agricultural enterprises on the Property.

7.0 PROPOSED DEVELOPMENT

EarthRite proposes to establish a 132-lot campground/RV park on the Property. Developments would include access/egress roads, electricity, potable water and septic tank connections, and a washroom/shower facility. The site plan for the development is provided in Appendix C.

8.0 POTENTIAL IMPACTS

8.1 Local and Regional Agricultural Capacity

Presently, there is no agricultural use of the Property. Soil capability limitations restrict the feasibility of potential capacity improvements. Excluding the portion of the Property currently within the ALR will not impact the local and/or regional agricultural production capability.

8.2 Surrounding Agricultural Operations

Agricultural use of the surrounding properties is limited to low intensity, low carrying capacity, seasonal livestock grazing on nearby Crown lands. Excluding the portion of the Property currently within the ALR and developing the proposed campground/RV park is unlikely to negatively impact the productive capacity, day-to-day operational management, or access to resources or markets of other agricultural operations in the area.

8.3 Conflicts with Adjoining Land Uses

Adjoining land uses include a landscape bark processing facility, BC Hydro substation and powerline right-of-way, rural residences, and Crown land with existing grazing leases. Visual sightlines to the nearest occupied residences are obscured by forest cover and the existing hydro substation and right-of-way. Proposed site operations are unlikely to impact these properties.

8.4 Regional and Community Planning Objectives

No RDEK zoning, Official Community Plan (OCP) or land use bylaws exist for the Property and surrounding area. EarthRite has discussed the proposed development with RDEK planning staff to ensure the Property is developed following the RDEK campground bylaw and permit application requirements.

9.0 SUMMARY AND CONCLUSIONS

- (a) The Property has an unimproved agricultural capability of Class 5 due to stoniness and soil moisture deficiency resulting from the combined effects of insufficient growing season precipitation, high seasonal evaporation losses, and low available water storage capacity of the soil. Improvements are not considered feasible; the improved capability is equivalent to the unimproved.
- (b) Suitable soil-bound uses are generally restricted to low intensity, low carrying capacity seasonal livestock grazing.
- (c) Suitable non-soil-bound agricultural uses include greenhouses, potted nursery stock and indoor cannabis production facilities. Intensive uses such as livestock feedlots, hog or poultry barns, or mushroom barns are inappropriate.
- (d) Most of the Property is not designated as ALR. Exclusion of the remaining area will have a negligible impact on the local and/or regional agricultural productive capability of surrounding land uses