

Agricultural Capability Assessment

1650 KLO Road, Kelowna, BC



1. Introduction

- Landowner Gary Feeny of Danco Developments Ltd. requested an Agricultural Capability Assessment in support of his application to exclude his property (1650 KLO Rd) from the ALR.
- A detailed site assessment was conducted by Catherine Orban, M.Sc., P.Ag. on Nov 1, 2008. The results were used to determine the Agricultural Capability of the Subject Property.
- Catherine is a Professional Agrologist with a Master's Degree in Geography, specializing in Soil Science.
- She has 20+ years experience in soil survey, assessment, remediation, and reclamation for a wide variety of environmental and agricultural projects.

2. Property Description & Zoning



Subject Property is rectangular (+/- 162 m x 122 m) +/- 1.97 ha (4.86 ac) in size and nearly level.

Subject Property – SW Corner



Subject Property – SE Corner




Parking Area – W Side



Riparian Area – N Side



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- The Subject Property is being used as an informal dump site, as evidenced by debris throughout the property.
 - Broken concrete, asphalt and other construction debris was encountered during excavation of two test pits (TP-1 and TP-2) near the N boundary and NE corner.
 - Historically the Subject Property has been extensively disturbed, and as a result, weed control is a persistent issue.

Piles of Brush & Debris – N Side



Debris in Riparian Area N Side



Buried Concrete Debris – N Side



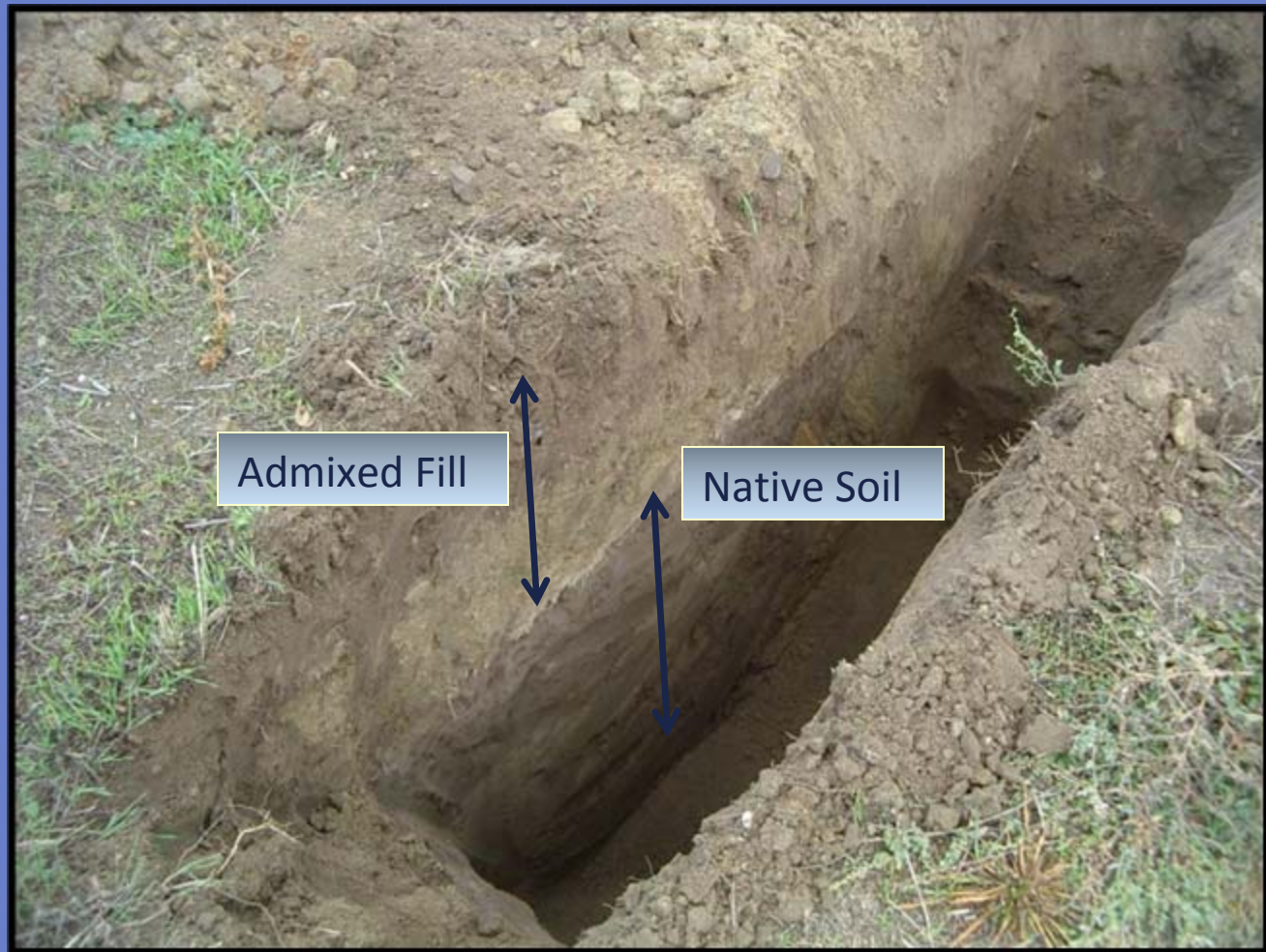
Weeds & Adjacent Property – E Side



20m wide Fill Strip – S Side




Admixed Fill over Native Soil



Transient Campsite – N Side



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- Subject Property lies within the ALR - zoned A1 “Agricultural 1” by the City of Kelowna
 - City of Kelowna Zoning Bylaw 8000, Section 11 - most agricultural uses are permitted, with the exception of intensive agriculture which ...”means the use of a confined livestock area, buildings or structures by a commercial enterprise or an institution for:
 - (a) the confinement of poultry, livestock (excluding horses) or fur bearing animals;
 - (b) on-farm composting or more than five cubic metres of material;
 - (c) production of mushroom medium. “

Debris Piles & Riparian Area – N Side






3. Surrounding Land Use

- There are a variety of land-uses in the local area including single & multi-family residential, light commercial/industrial, parkland, agricultural & institutional.
- Medium density, multi-family housing is located to the W (across Burtch Rd ROW) on property which is out of the ALR.
- Properties to N, E and S are all in the ALR.

Medium Density Housing – W Side

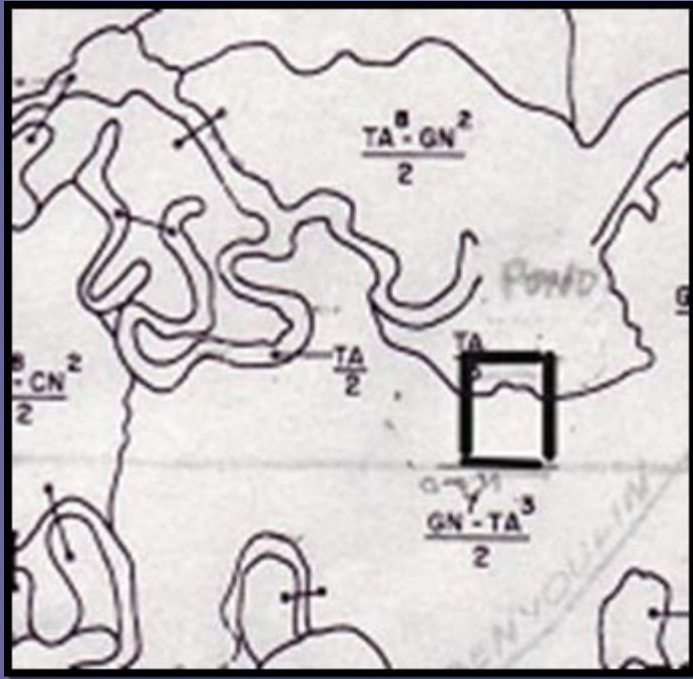


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- To the S, across KLO Road with there is a small agricultural operation with a single family residence.
 - On the E, there is a cultivated field with a single family residence built on a fill pad.
 - A fallow hay field (with abundant weeds) is located to the NW.
 - An intermittent stream & riparian area is located on the N boundary, with Munson Pond located beyond the riparian area, NE of the Subject Property

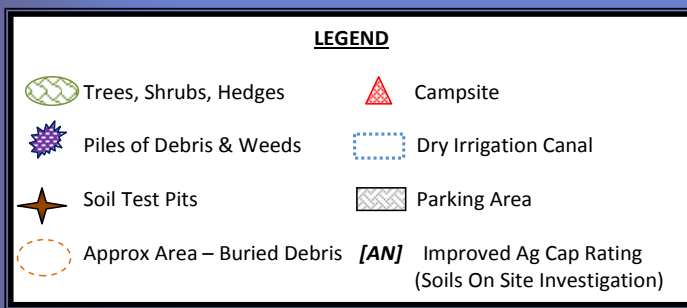
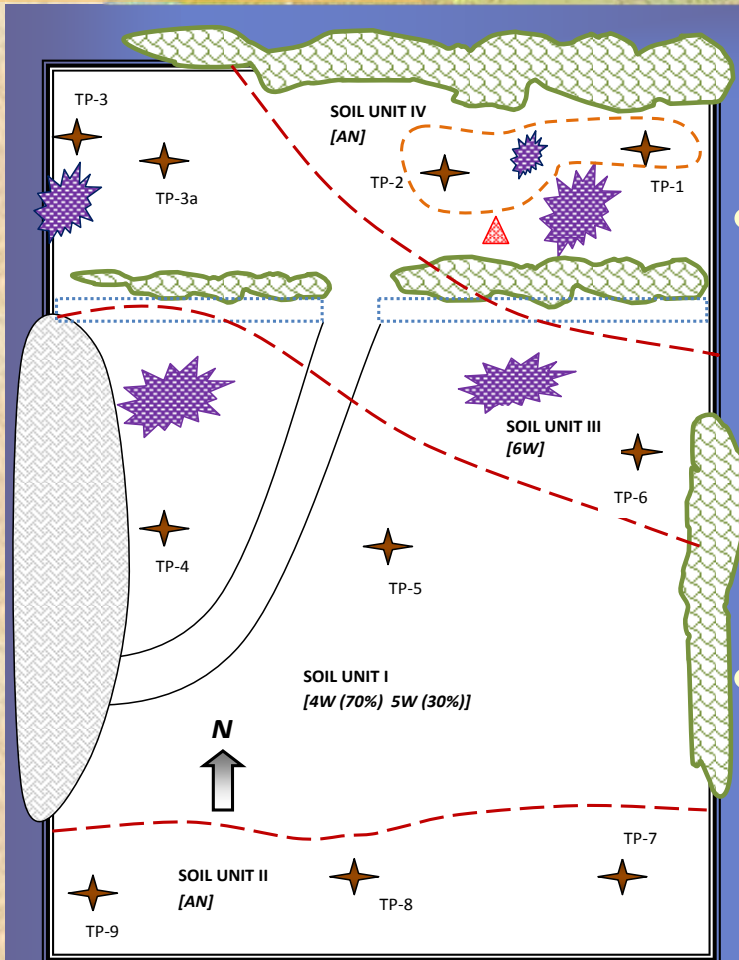
Munson Pond – N Side



4. Soils & Vegetation



- MOE Soil Survey @1:20,000 (1986) identified 2 Soil Series (Guisachan & Tanaka)
 - It was not within the scope of this assessment to classify soils at the Series Level. However, the soils found on site generally fit the MOE descriptions .
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- Ten soil test pits were excavated to depths of 50 - 210 cm with an excavator on November 1, 2007.
 - Representative samples were taken from the test pits and submitted for laboratory analysis of selected parameters



Detailed Soils Assessment

- Both soils are poorly to very poorly drained & characterized by high water storage capacity, slow water runoff & seasonally high groundwater tables which gradually recede by autumn.
- The groundwater table fluctuates between surface and 1.5m. Depressional areas are subject to flooding.
- High water tables & excess water - main restriction to agricultural use.



- TP-1 & TP-2 – Disturbed profiles with rocks, cobbles, admixed soil and construction debris.



- TP-3, TP-3a & TP-6 – Native profiles with silt & sandy loam textures and high water tables.



- TP-4 & TP-5 – Native profiles with rapidly drained pure sand textures.



- TP-7, TP-8 & TP-9 – Disturbed profiles with ~50 cm admixed soil (fill) overlying loam & sandy loam textures.



5. Agricultural Capability

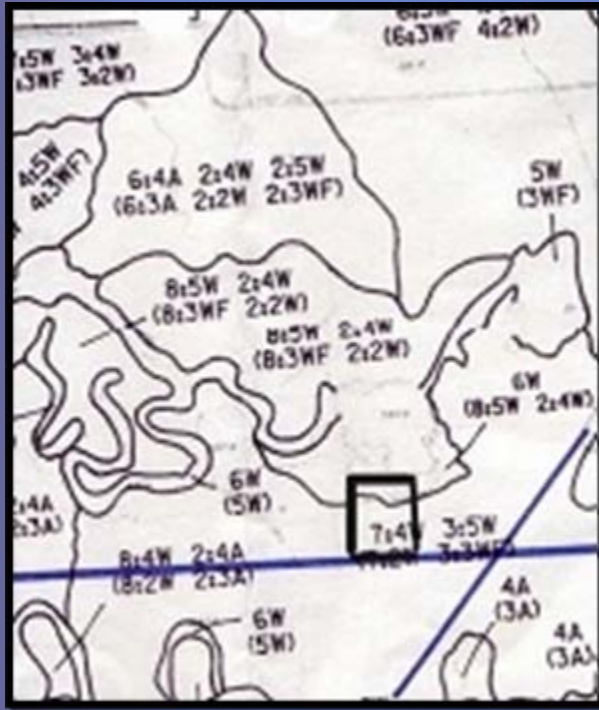
- Agricultural capability ratings are based on the combined conditions of soils, topography and climate for any given site.
- Primary reference is “Land Capability Classification for Agriculture in BC, Manual 1” (MOE 1986)
- Ratings: Class 1 (no limitations) – Class 7 (non-productive) – with various subclasses (soil moisture, structure, texture, rockiness, topography, climate)



5. Agricultural Capability (cont'd)

- Some subclasses cannot be improved (topography, rockiness, climate)
- Others can be improved under certain circumstances (soil moisture, structure, texture)
- Classification includes - “Unimproved” & “Improved” ratings, based on potential improvements to site.

Subject Property Agricultural Capability



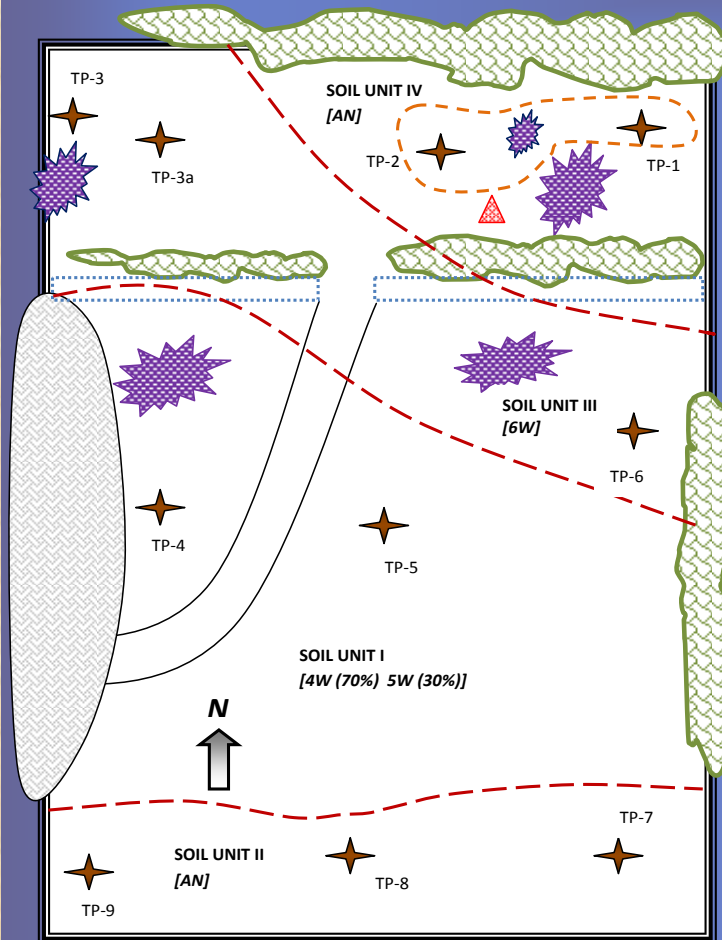
- According to MOE, excess water and high water tables are the primary limitations to agricultural use of the Subject Property.
- With theoretical improvements to drainage, the agricultural capability ratings improve, although excess water as well as low fertility become less severe limitations.



Detailed Site Assessment 2007-11-01

- Information obtained from the site assessment and published sources provided the basis for the site-specific agricultural capability rating for the Subject Property.
- Such information included soil identification, local climatic data, site topography and water regime, and adjacent land use.
- The ratings were mapped along with other relevant field data as depicted in the site diagram.

Subject Property - Agricultural Capability Ratings



LEGEND

- Trees, Shrubs, Hedges
- Piles of Debris & Weeds
- Soil Test Pits
- Campsite
- Dry Irrigation Canal
- Parking Area
- Approx Area – Buried Debris
- Improved Ag Cap Rating (Soils On Site Investigation)

SOIL UNIT	UNIMPROVED AG CAP	IMPROVED AG CAP	AREA (ha) ¹	% AREA ¹
I	4W (70%) 5W (30%)	4W (70%) 5W (30%) ²	.79	40
II	AN ³	AN ³	.24	12
III	6W	6W ²	.70	36
IV	AN ³	AN ³	.24	12

¹Estimates based on Field Investigation

²Improvements to drainage are not likely to be technically feasible.

³Anthropogenic Alteration

- Land in Class 4 has limitations that require special management practices or severely restrict the range of crops, or both.
- Land in Class 5 has limitations that restrict its capability to producing perennial forage crops or other specially adapted crops.
- Land in Class 6 is non-arable but is capable of producing native and/or uncultivated perennial forage crops.
- AN refers to anthropogenic alterations that have made the soil unit unsuitable for agricultural activities.

Excess water was the primary limitation to agricultural capability in the subject property. According to the MOE Classification (1:20,000 scale), the a for improving drainage on this site may be severely limited by high groundwater levels (Appendix D). In addition, information obtained from Robin Barnes, P.Eng. capacity to accept contributions from ongoing dewatering activities.” (Appendix D).

Agricultural Limitations

- Although agricultural capability could be theoretically increased with improvements to drainage, a study by Golder Associates Ltd. (Oct 2, 2007), states that the options for improving drainage on this site may be severely limited by high groundwater levels.
- In addition, information obtained from Robin Barnes, P.Eng., a Water/Drainage Engineer from the City of Kelowna states that ...”the existing storm sewer system network was not designed for, and does not have adequate capacity to accept contributions from ongoing dewatering activities.”



6. Agricultural Suitability

- Most of the subject property has very low suitability for any cultivated agricultural crops due to excess water and technical difficulties associated with developing and maintaining artificial drainage.
- Those areas that have been anthropogenically altered are not suitable for agricultural activities in their current state.
- The small size and relative isolation of the subject property create logistical issues. Access for heavy farming equipment would be difficult and somewhat dangerous as KLO Road, is a busy, 4-lane urban transportation route.
- The Subject Property is not suitable for any livestock operations due to its' small size and City of Kelowna Bylaw restrictions.
- The Subject Property may be suitable for small greenhouses and/or a pot nursery. However, there may be issues with the management of runoff from watering plants.



7. Impact Analysis

- The Subject Property has no development potential of forage for agricultural production. Therefore, there would be no impacts on local or regional productive capacity if the subject property were excluded from the ALR.
- There are agricultural operations on properties to the NW, E and S of the subject property. However, there are no agricultural activities located on the subject property.
- If the subject property was to be excluded from the ALR, there would be no anticipated changes in access or other impacts to the surrounding agricultural operations.




8. Exclusion Precedent

- The Subject Property has very low agricultural capability, and the exclusion of this parcel from the ALR would be in character with similar lands to the west across the Burtch Road extension.
- Such an exclusion would only potentially affect other properties in the area that are similarly encumbered by very low agricultural capability.
- Exclusion of the Subject Property from the ALR is not anticipated to have any impacts on applications by properties with higher agricultural capability ratings.



9. Summary

- Approximately .79 ha (40%) of the Subject Property is rated Class 4W (70%) and Class 5W (30%) unimprovable capability.
- Approximately .70 ha (36%) of the Subject Property is rated Class 6W unimprovable capability.
- The remaining .48 ha (24%) has unimprovable anthropogenic alterations that make it unsuitable for agricultural activities.
- The potential agricultural capability of the site is primarily limited by excess moisture and high groundwater levels. In addition, there are issues associated with access and pre-existing anthropogenic disturbance.
- The potential for improvements to drainage on the Subject Property is severely inhibited by the technical issues associated with the ongoing disposal of excess water in an urban area with high groundwater levels.

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- Areas that have been anthropogenically altered cannot be simply or economically remediated to enhance agricultural capability. Even if it were feasible to restore the native soil profiles, the issues with drainage (as described above) would persist and inhibit agricultural activities.
 - The Subject Property may be suitable for a small greenhouse and/or a pot nursery, although water management could be a serious issue.
 - The Subject Property is not considered to be suitable for cultivation or livestock production.
 - The Subject Property is not currently connected with local or regional agricultural operations.
 - Exclusion of the Subject Property from the ALR is not anticipated to have adverse impacts on surrounding agricultural operations or on local or regional agricultural productive capacity.



10. Recommendations

- Under current conditions, the Subject Property is a source of weeds, which can result in a negative impact on surrounding properties.
- It is not suitable for agricultural activities, so any development of the site that involves landscape improvements will have a net positive impact on the surrounding agricultural properties.
- Any residential development of the Subject Property must include buffers to help soften the edge between agricultural and residential properties.
- A landscaped buffer is required on the E side of the Subject Property, where it shares a boundary with a property that is currently being used for agricultural purposes.
- Therefore, a buffer that reduces airborne particles and provides a visual screen is recommended for the Subject Property.
- This buffer will be constructed in accordance with Schedule A3 of the ALC Landscaped Buffer Specifications.

