Memo

City of Kelowna

Date: July 20, 2011

To: City Manager

From: Land Use Management, Community Sustainability (GS)

Application: A11-0008

Applicant: City of Kelowna (Terry Barton)

Address: 219 Valley Road
229 Valley Road
253 - 259 Valley Road
279 Valley Road
289 Valley Road

Owners: Mary Carr
Hendrikus Roelofs
Cornelia Issler
Barbara Kwiatowski
Dieter Tripke
Adolf & Olga Kaplun
Suresh Khurana
Sunita Sood
Surinder Khurana

Subject: Block Exclusion of Land from the Agricultural Land Reserve

Existing OCP Designation: Rural/Agricultural
Major Park/Open Space

Existing Zone: A1 - Agriculture 1

Proposed Zone: P3 - Parks & Open Space

1.0 Recommendation

THAT Agricultural Land Reserve Appeal No. A11-0008 for: part of Lot 12 Block 9 Section 4 Township 23 and of Section 33 Township 26 Osoyoos Division Yale District Plan 896; Lot 11 Block 9 Sections 32 and 33 Township 26 Osoyoos Division Yale District Plan 896; Lot 10 Block 9 Section 4 Township 23 and of Section 33 Township 26 Osoyoos Division Yale District Plan 896; Lot 9 Block 9 Section 33 Township 26 Osoyoos Division Yale District Plan 896; Lot A Section 33 Township 26 Osoyoos Division Yale District Plan 30721 located at 219, 229, 253 - 259, 279, 289 Valley Road, Kelowna, B.C. for a block exclusion of land from an Agricultural Land Reserve (ALR), pursuant to Section 29(1) of the Agricultural Land Commission Act, be supported by Municipal Council;

AND THAT Agricultural file No. A11-0008 be forwarded to the Public Hearing on August 09, 2011 for public input;

AND FURTHER THAT Municipal Council directs staff to forward the application to the Agricultural Land Commission following the Public Hearing.

2.0 Purpose

The City of Kelowna is requesting permission from the Agricultural Land Commission (ALC) for a block exclusion of land from an Agricultural Land Reserve (ALR) under Section 29(1) of the Agricultural Land Commission Act to develop a Community Recreation Park.

3.0 Land Use Management

Great cities are the composition of a great many uses, functions and interactions among the inhabitants, visitors and the natural environment. The City of Kelowna is a great city as reflected in tourism and in-migration. Kelowna endeavours to continue to be a great community to live, work and play for both current and future generations. While the City has grown significantly in terms of population and land mass in the past few decades, our ability to provide some services has not kept pace. This is true with respect to publicly accessible parks and recreation space in the Glenmore area, where existing facilities are recognized as well below standards at present. Public requests, complaints and surveys which all focus on Glenmore residents' desire for more park and recreation facilities validate this need.

It is unfortunate, albeit true that within the City of Kelowna and Glenmore area specifically, the bulk of the undeveloped land is zoned for agriculture use and is within the ALR. It is also true that much of the land already developed for urban uses in Glenmore is a result of the release of ALR land including two large blocks of land in 1987 and 1988. This reality sets up a true dilemma given that the City's stated commitment and desire to preserve and enhance agriculture and agricultural land is being confronted by a need to provide services to existing and future populations. The dilemma is multiple bottom line (economic, social/cultural, and environmental) in nature, with the need to preserve agriculture up against the desire to promote a healthy and active community.

Excluding land from the ALR and developing said land for recreational uses is a difficult decision and has not been taken lightly by City staff. A Recreation Park for the Glenmore area has long been envisioned as a significant community amenity that will serve both residents in the local Glenmore area and the greater Kelowna community (including non-residents). In fact, since at least 1989 (Glenmore Valley Sector Plan) and following the release of the two large blocks, the City has been anticipating the need for a Community Recreation Park to serve Glenmore. Further, since at least 1998 (Agriculture Plan and Glenmore/Clifton/Dilworth Sector) it has been anticipated that the land to accommodate the Recreation Park would be obtained from the ALR. Through these planning documents the public and approving authorities (including the ALC) have been made aware of this direction.

Given this direction, City staff has worked toward the acquisition of land and development of a Recreation Park, exercising prudence and due diligence along the way. Examples include the production of a "Location Analysis" of five sites wherein the "impact to Agricultural Land Reserve" was a central criterion. It is worthy of note that parcel size and the need for flat land were the two significant components that resulted in the site-selection process narrowing in on just five sites. Unfortunately no sites outside of the ALR met the criteria established for the proposed park. The Glenmore Recreation Park Location Analysis states[1]:

> *"The potential site that minimizes the impact to the Agricultural Land Reserve will be preferred. Sites will be favoured if they have lower growing potential and/or less of an impact to the overall agricultural activity in the Glenmore Valley."*

[1] Glenmore Recreation Park Location Analysis, 2010; p. 6.

Also considered in the Analysis were topography, area, area shape, proximity to major roads, proximity to population, and ability to assemble parcels. After considering the five sites based on these criteria, the proposed site was selected as the preferred option.

Of additional importance is that the Location Analysis[2] concluded that:

> *"From a park planning perspective, the site at Scenic Road and Valley Road (Site #2) makes the best site for the Recreation Park because it is both centrally located and forms one large contiguous parcel. However, this site was also identified as having the best growing conditions of all the options investigated.*
>
> *The second best site would be the Tutt Ranch on the Eastern side (Site #3). However the land is considered to be a higher class of agricultural land and is not available due to UBCO's intentions to establish an agricultural research centre."*

The information obtained from the Location Analysis demonstrates that the site selected was not among the top two identified as most desirable from a "park planning perspective". Rather it was a less desirable option exhibiting lower agricultural viability relative to the four other sites considered for their potential to host this use.

In addition to a thorough Location Analysis, an Agriculture Assessment has been completed which provides assurance of the diminished agricultural viability of the proposed site relative to other locations. The Agriculture Assessment was heavily focused on the soil and land attributes. That being said, land use decisions should never be based upon criteria such as soil and land capability metrics solely. These metrics focus heavily on the ability to grow certain crops (e.g. tree fruits), whereas agriculture should be viewed as a diverse industry. While orchards or vineyards may not be viable, an array of agricultural pursuits (e.g. grazing of livestock) can effectively utilize lesser soil conditions or land with climate constraints (e.g. frost concerns).

With respect to the subject properties, staff are mindful that the subject properties do possess agricultural viability for a number of agricultural pursuits, and further, could be improved through a variety of efforts (e.g. wind turbine to reduce frost impacts). However, the approach taken through both the Location Analysis and Agriculture Assessment was to ensure that a site with lower agricultural value relative to the others was selected. While avoidance of agricultural land is ideal, the approach taken recognizes that all of the suitable locations were all in the ALR and therefore focused on mitigation first and foremost.

The Agriculture Assessment further prescribes mitigation options to reduce the impact on adjacent agricultural land. "Edge Planning" suggestions include a buffer consisting of "a double row deciduous/coniferous trees; triple row trespass inhibiting shrubs; a double row screening shrubs; and a solid wood fence or chain link fence (1.8 m high) to prevent trespass and littering" and a "2 m separation distance between the vegetative buffer and the farm boundary"[3] The proposed buffer treatment is consistent with Ministry of Agriculture and ALC specifications.

The City is proposing a number of additional measures to offset the loss of this agricultural land. Details of agricultural mitigation and compensation measures are provided in Section 4.0 below.

The City's Agricultural Advisory Committee (AAC) was consulted on this proposal on July 14. The AAC's mandate[4] is quite clear with respect to how they consider agricultural files such as this proposed exclusion and includes:

- The effect of the proposal on the agricultural potential of the subject property;

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[2] Glenmore Recreation Park Location Analysis, 2010; p. 20.
[3] Glenmore Recreation Park Agriculture Assessment, 2011.
[4] Agriculture Advisory Committee - Terms of Reference, 2009.

- The effect of the proposal on adjacent ALR properties and surrounding agricultural production;
- A rating of the priority of the application for the maintenance of the ALR lands;
- Possible acceptable alternatives to the proposal, where deemed appropriate; and,
- The identification of issues relating to the protection of ALR lands specific to the application.

The AAC was not able to put forward a positive recommendation, citing no net benefit to agriculture - a criteria that is central to their consideration. The AAC noted a number of concerns with the proposal as follows:

1. The subject properties are still agriculturally viable and are known to have been agriculturally productive (including tree fruits) in the past;
2. Valley Road provides a suitable buffer from "normal farm practices" such as pesticide spraying and bird scaring devices (e.g. propane cannons);
3. More effort should be directed to establishing an institutional partnership with either the School District (SD #23) or UBC and developing a joint site with fewer net impacts;
4. Agricultural land should not be viewed as an opportunity for cheaper land to accommodate urban uses; and
5. Valley Road represents a defensible boundary for the agricultural properties east of Valley Road and this proposal could set a precedent for future exclusion, subdivision, or non-farm use applications.

Each of the AAC's comments is valid and worthy of consideration. The comments are addressed individually below.

Agricultural Viability

The AAC noted that while the Agriculture Assessment of the land has suggested that the agricultural viability is diminished, long standing residents will recall that this land was once productive. Anecdotally, it was suggested that the "frost pocket" actually enhanced the apples once produced. City staff do concur that this land has been productive in the past. Soil placement over large portions many years ago has had a detrimental impact on the productive potential and is a factor in identifying this property. Fill placement is thought to be between one and three metres deep and covering approximately 6.7 ha of the 10.5 ha area proposed for exclusion. While City staff agree that the subject properties would be viable for a range of agricultural ventures, it is suggested that relative to other options, the productive capacity is somewhat impaired by the poor quality fill, saline conditions and frost pocket.

Valley Road as Buffer/Boundary

Valley Road represents an approximate 20 metre cross-section and serves to buffer properties west of Valley Road from agricultural impacts. The AAC is concerned that parks and open space and agriculture are not necessarily consistent land uses and that normal farm practices could create land use conflicts. Again, AAC's concerns are valid. City staff along with a consultant (Professional Agrologist) are adhering to best practices in terms of buffering dissimilar uses. In fact, the current proposed buffering reflects ALC buffering guidelines. Further, staff remain flexible as to the final cross-section based on input from the adjacent property owners and ALC. It is expected that the implementation of an appropriate buffer with a significant cross-section width and employing multiple rows of hedges, trees and fencing will mitigate most impacts. It is expected that the planted buffer (15 metres) and road will result in a greater than 20 metre cross-section.

Institutional Partnership

The AAC felt strongly that the City should be proactively and aggressively pursuing joint use arrangements with an institutional partner. City staff believe strongly in the joint use and partnership model of providing for recreation and sport. Many great synergies exist where this is the case. Unfortunately both School District #23 and UBC have indicated to the City that they are not in a position to partner on a joint use site/facility for their own reasons, largely to do with timing. The City meanwhile is in a deficit position with respect to sports fields in Glenmore, and cannot accommodate their time lines, or hold off indefinitely as these partners identify and secure funding for their portion of the costs. Of further note is that while a partnership with UBC represents undeniable benefits, significant drawbacks from this arrangement are also evident. Among them, conflict for times which would be in high demand for both the University and public in the evenings and on weekends, and the lack of close proximity to Glenmore residents are most significant. The distance to UBC would do little to resolve residents desire to have a Recreation Park in Glenmore and further to reduce travel times, enhance walkability and bicycle access for Glenmore residents.

Agricultural Land as a Cheaper Land Alternative

The AAC is concerned that when it comes to the need to provide for a public use, agricultural land is a convenient and less expensive target when compared to other land uses. In terms of a Recreation Park, the need for a large, flat, contiguous area largely disqualified most opportunities. The proposed Recreation Park is a significant compromise in terms of what would be ideal or preferred. To acquire developed land adjacent to existing, smaller park spaces is challenging at best. In addition to extensive delays to acquire properties, a strong likelihood that expropriation would be necessary, and extensive infrastructure (e.g. utilities) already invested in to service these areas and which would no longer be necessary, the costs are prohibitive. While unimproved agricultural land ranges between $80,000 and $120,000 per acre, the cost to acquire residentially developed land is estimated in the neighbourhood of $1.9 million per acre. The premium for developed (residential) land works out to approximately 16 to 23 times the cost of agricultural land based on the above land values.

Valley Road as a Defensible Boundary

Finally, there is little doubt that roadways and especially roads with a wide cross section provide a defensible boundary against future exclusion, subdivision, or non-farm use applications. This is especially true when the adjacent land is also agriculturally zoned and in larger parcels. This is a reality east of Valley Road. The nature of these properties does provide for a significant disincentive for the City and it is true that excluding and developing these lands for a non-farm use could create expectations for others. That being said, City staff are proposing a number of mitigation and compensation options in exchange for exclusion of the subject properties. Mitigation and compensation opportunities are discussed in Section 4.7 below. The City's ability to protect and strengthen agriculture is a relatively unique attribute that we possess and which differentiates this exclusion request. Further, the Official Community Plan, Future Land Use Map, implementation of the Permanent Growth Boundary, and other agricultural policies are compelling and should limit the viability/success of future requests.

The AAC is a respected City of Kelowna Council advisory committee and has raised some challenging and valid concerns with the proposed block exclusion. Staff do not disregard this feedback and admittedly struggle with the dilemma of balancing residents needs for health and recreation with the need to preserve and protect agriculture. While the ability to resolve some of the identified concerns is hampered by challenging timelines, City staff are committed to working with our AAC to improve the mitigation and compensation plan. Staff will be reviewing compensation and mitigation options that will ideally allow the AAC to support this proposal, or

at a minimum not oppose it. Seeking AAC support will occur concurrent with the processing of this file and consideration by Council and the public by virtue of the Public Hearing.

From a non-agricultural, but community benefit perspective, the acquisition of these parcels will provide an additional benefit to the natural environment and Brandt Creek specifically. The East Fork of Brandt Creek is located along the east side of Valley Road and on the parcels proposed to host the new Recreation Park. Confined between Valley Road and agricultural parcels the stream is in poor condition at present and which is true for Brandt Creek generally. This assertion is supported by the City's stream inventory and assessment (SHIM)[5] which notes that:

> *"Brandt Creek has been modified over its entire length. Over 70% of the creek has been channelized and ditched".*

Further,

> *"Over 63% of Brandt Creek is devoid of riparian shrub cover and tree canopy with a 0% crown closure...Approximately 70% of Brandt Creek has little cover habitat (0-10% total cover) for fish. Severe impairments along the majority of Brandt Creek are clearly reflected in the stream impact rating* [just 8%]."

Public ownership of nearly 425 metres of Brandt Creek will provide an opportunity to ensure a net benefit to nature and biological diversity in Kelowna with the stream and land adjacent to the stream being restored as part of this development. A wetland is also proposed to manage stormwater from the site and which will provide additional habitat and water quality improvements to Brandt Creek.

Finally, community greenhouse gas (GHG) emissions are an important aspect of the City's move to enhanced community sustainability. It can be reasonably expected that this community amenity will reduce vehicle kilometres traveled (VKT), especially for Glenmore residents. The proposed location is partially adjacent to the Glenmore Valley Village Centre. The Village Centre provides good synergies for a Recreation Park with commercial uses and higher than average densities of residential development. Thus is it can be reasonably expected that average travel distances and vehicle trips will be reduced, especially as walkability is enhanced and active transportation alternatives become viable options. In addition to the health benefits of active transportation, a reduction in VKT is a direct reduction in community GHGs and air quality concerns.

In conclusion, the Land Use Management Department is satisfied that the Parks & Public Spaces Branch have executed a thorough analysis of the options and tradeoffs. While the City is committed to preserving and enhancing agriculture and agricultural land, a concurrent need to enhance our community and ensure healthy populations has been demonstrated. Further, extensive mitigation and compensation accompany this proposal and which demonstrate a holistic approach to planning has transpired.

4.0 Proposal

4.1 Background/Site Context

The subject properties and proposed Recreation Park site are located in the Glenmore/Clifton/Dilworth Sector of the City of Kelowna. The site is situated at the southeast corner of Longhill and Valley Road. All of the proposed area is within the ALR.

The proposed park area is based on the subdivision of 4 lots (219, 229, 253-259 and 279 Valley Road, and full acquisition of 1 lot (289 Valley Road). The result is a consolidated park parcel of approximately 10.5 hectares (26 acres).

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[5] Sensitive Habitat Inventory and Mapping (SHIM) Volume 2, 2007; pp. 6-8.

Upon successful exclusion, the City would be required to undertake subdivision/lot consolidation, and rezoning (to P3 Parks & Institutional) to create the new park parcel and establish the appropriate zoning. The Official Community Plan, Future Land Use Map currently designates part of the proposed parcels as Park in anticipation of this use. An OCP amendment is therefore not required. The east fork of Brandt Creek runs along the western property line of the subject parcels and adjacent to Valley Road. As a result, a Natural Environment Development Permit will be required prior to development of the proposed Recreation Park.

Parcels Summary:

Cumulative Parcel Size: 22.71 ha (56.11 ac)
Elevation: 402 - 444 masl

4.2 Zoning of Adjacent Property

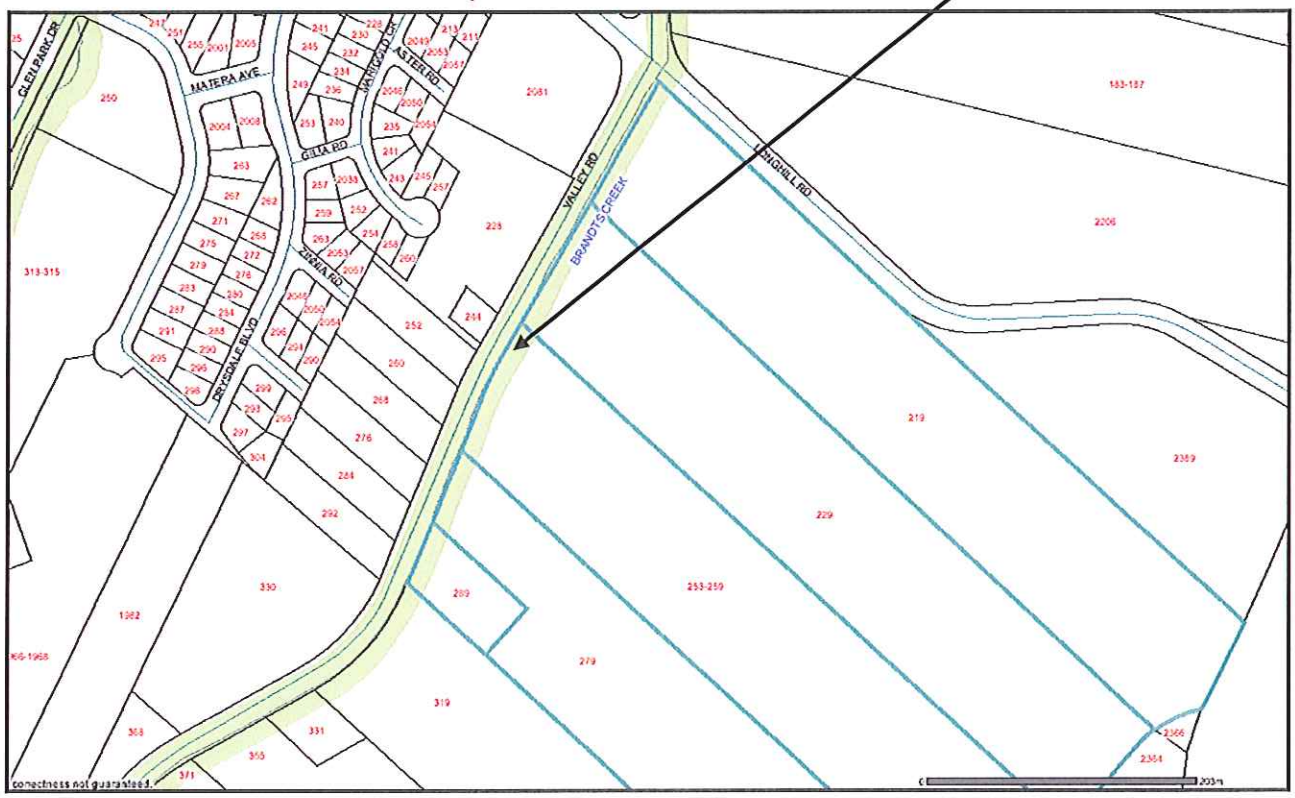
The surrounding properties are zoned as follows:

Direction	*Zoning Designation*	*Land Use*
North	A1 - Agriculture 1	Agricultural
East	A1 - Agriculture 1	Agricultural
South	A1 - Agriculture 1	Agricultural
West	RR3 - Rural Residential P2 - Educational & Minor Institutional RM3 - Low Density Multiple Housing	Residential Religious Assembly Multi-family Residential

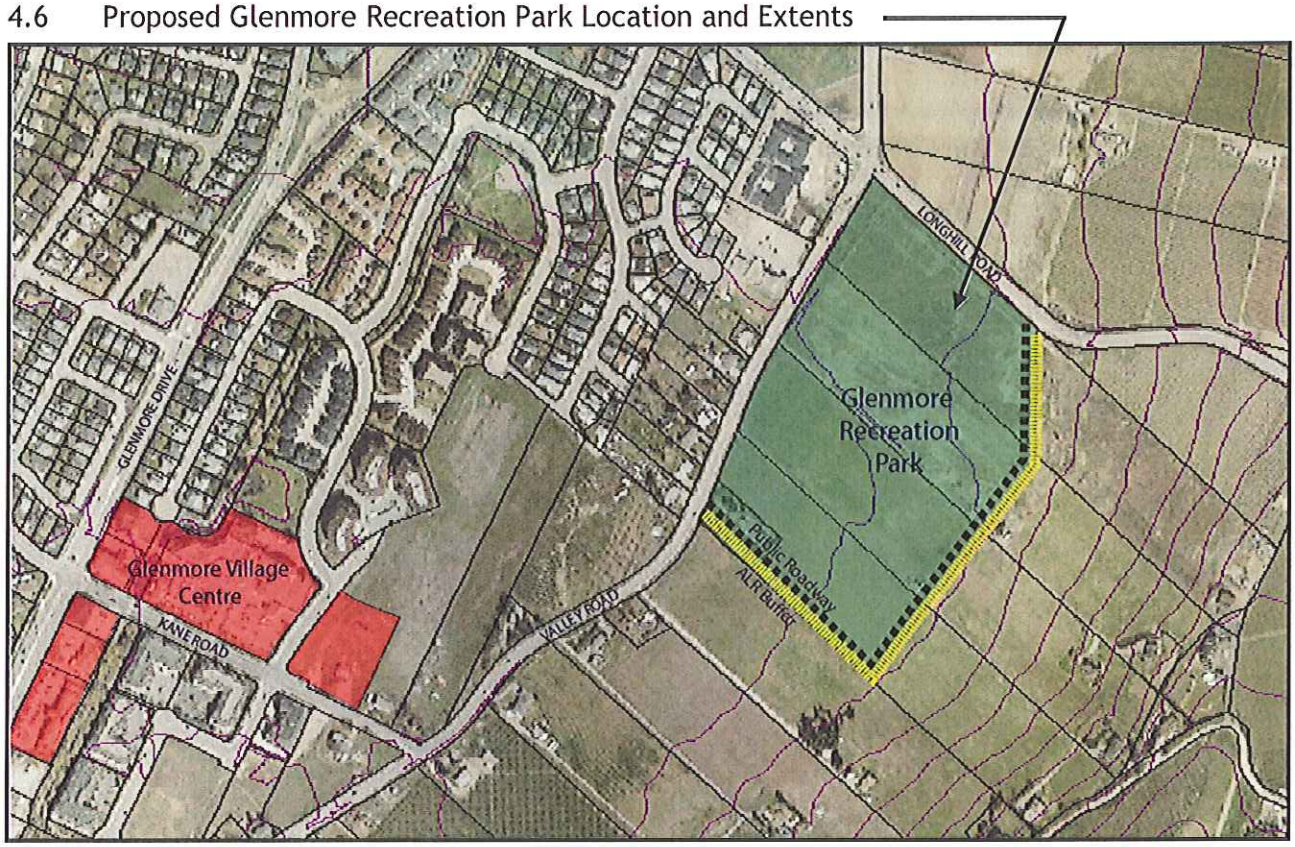
4.3 Subject Properties Map: 219, 229, 253 - 259, 279, 289 Valley Road

4.4 Future Land Use Map: 219, 229, 253 - 259, 279, 289 Valley Road

4.5 Natural Environment Development Permit Area (Brandt Creek)



4.6 Proposed Glenmore Recreation Park Location and Extents



4.7 Additional Details of Proposal

Glenmore Recreation Park has long been envisioned as a significant community amenity to serve both residents in the local Glenmore area and the larger community. In fact, since the 1980s, the City instituted a consistent planning framework that has anticipated the need for a major park in Glenmore. The Glenmore Valley Sector Plan (1989) followed the block approval of ALR land in 1988 and was the first to formally recognize the need.

Subsequent plans including the Agriculture Plan (1998), the Glenmore/Clifton/Dilworth Sector Plan (1998), and Kelowna's Official Community Plans, including the City's recently adopted 2030 OCP reference the need for a Recreation Park in Glenmore. It is important to note that the parkland received support from approval authorities with each subsequent planning document; and further that these documents recognize the Recreation Park would likely require land within the ALR to be realized (see Land Use Policies, Section 5.0 below).

The 1989 Glenmore Sector Plan anticipated an additional built-out population of approximately 12,000. At present the Glenmore sector is home to approximately 23,000 residents. Further, approximately 11,000 additional residents are projected to locate in the Glenmore sector by 2030, with additional growth taking place in Glenmore's neighbouring areas.

The City's park service standard[6] which dates back to the 1980s establishes a benchmark of 2.2 ha of active parks for every 1,000 new residents. This standard includes 0.6 ha of Recreation Parks and 0.4 ha of Community Parks per 1,000 residents. The standard recognizes the importance that parks and recreation have in creating healthy populations and healthy communities.

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[6] City of Kelowna 2030 Official Community Plan: Greening Our Future (2011); pp. 7.8 & 7.9.

A 2010 Sports Fields Needs Assessment[7] concluded that compared to a number of mid-sized B.C. municipalities, Kelowna ranks in the bottom third in terms of soccer and baseball/softball field-to-population ratio. Assuming stable participation rates and the accuracy of growth projections, the City would need to increase the current field capacity by the equivalent of 12.5 fields by 2030 to maintain current levels of service.

The Assessment further noted[8]:

> *The provision of new sports fields through the development of a new Recreation Park in the Glenmore sector, coupled with a strategy of improving and upgrading existing fields where appropriate, could accommodate future growth while maintaining existing service levels. The Glenmore sector is currently under serviced in this regard, and the Recreation Park approach to sports fields development allows for a cluster of fields, the provision of artificial turf, sports lighting and supportive infrastructure that cannot typically be justified with development of a single field (i.e. seating, washrooms, warm-up areas, parking, high quality transit service, etc.).*

In the Glenmore area, parkland currently occurs in the form of a series of relatively small "Neighbourhood Parks" ranging between 0.2 and 0.8 ha in size, a single 2.9 ha "Community Park" and no "Recreation Parks". Based on the above noted standards and the current population, the Glenmore area should contain approximately 9.2 ha of Community Park space and 13.8 ha of Recreation Park. Specific to Glenmore, the City currently owns and operates just 10.2 total hectares of parkland (0.45 ha per 1,000 residents).

Existing parks have been designed to meet the needs of the immediate neighbourhood, though their capacity and function is limited due to their relatively small size. The Glenmore area does not have a large park space that can accommodate more intense community recreation activities such as skateboard parks, community-sized playgrounds, spray parks, play fields, sport courts, etc.. These types of larger parks and uses are typical in other neighbourhoods in Kelowna.

Kelowna's existing Recreation Parks are distributed in major population centres (i.e. Rutland, Mission, City Centre). The proposed park location reflects a move toward an equitable distribution of Recreation Parks throughout Kelowna. Recreation Parks are generally designed to serve a population of 45,000 people within 5 kilometres, but in fact serve city-wide and regional interests. While the City's Parkland Acquisition Guidelines[9] recommend Recreation Parks of approximately 30 hectares, the proposed location and size represent a considerable compromise on the City's ideal. The 10.5 hectare proposed site is a reflection of the challenge of land assembly in an urbanized setting and with the suitable areas all occurring in the ALR.

The City's selection of the site at Longhill and Valley Roads is a function of the site's ability to meet a range of planning criteria as determined in the Location Analysis. In addition to the City's interest in addressing the basic site-selection and land assembly criteria, the City shares the ALC's interest in minimizing impacts on agricultural land. With the help of a professional agrologist and in consultation with the ALC, the City selected a site with a low "Climate Capability Rating for Agriculture" and limited growing conditions due to poorly drained, heavy clay soils and saline conditions at the lower elevations.

The City has developed a Preliminary Concept Plan to illustrate how the land could be developed. The Concept Plan is provided for discussion purposes only and is subject to revisions following public consultation and discussion with the ALC. Key program elements of the park design currently include:

- Baseball fields

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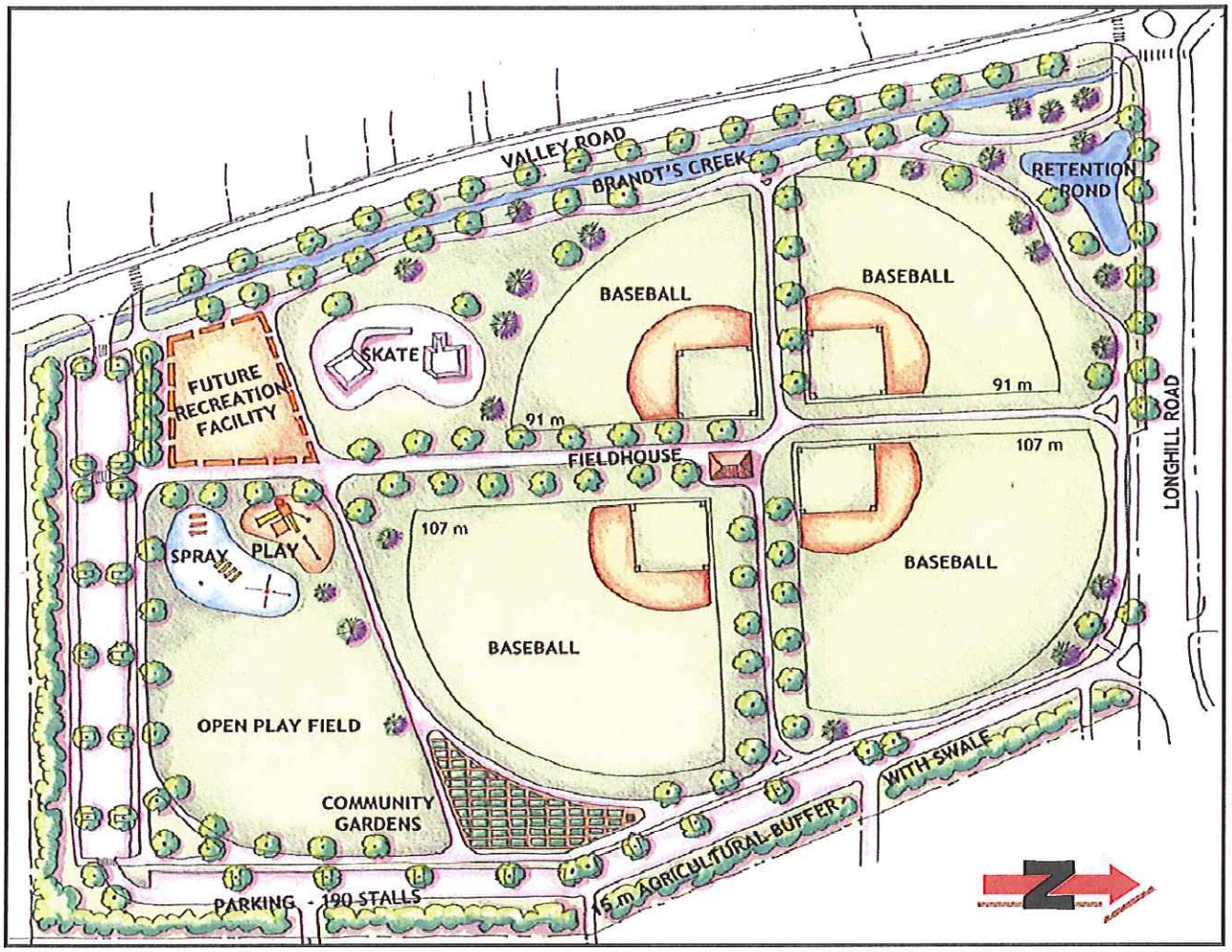
[7] City of Kelowna Sports Field Needs Assessment (2010)
[8] City of Kelowna Sports Field Needs Assessment (2010); p.13.
[9] City of Kelowna Parkland Acquisition Guidelines, 2011; p. 4.

- Play fields, playgrounds
- Perimeter walking trail
- Brandt Creek restoration, wetland construction and overall drainage improvements
- Site circulation and parking
- Minor buildings such as washrooms and field houses
- Community garden
- Agricultural design themes for the park could also be explored to promote public awareness on local food issues (e.g. local food security, horticulture, arboriculture practices, etc.)

Preliminary Concept Plan



The cost of park development is estimated at approximately $6.9 million. A preliminary investigation of site servicing has revealed that existing sanitary, water and electrical utilities are located within the Valley Road right-of-way. Further, the existing East Fork of Brandt Creek located along Valley Road conveys surface and rainwater runoff. Impacts to agricultural lands for the provision of utilities are expected to be negligible.

The Glenmore Recreation Park Preliminary Concept Plan features a strong agricultural buffer. The eastern boundary of the site will be separated from adjacent agricultural operations by a two-lane, rural standard public road right-of-way, and a planted agricultural buffer consistent with landscape buffer specifications created by the ALC.

The agricultural buffer along the south and east property lines will provide a visual screen, reduce the transmission of noise and the transfer of air-born particles, help prevent trespassing on and vandalism of the adjacent agricultural operations and will contain a swale to convey upland surface drainage. The agricultural buffer, together with the rural road separation, will help to protect adjacent agricultural operation from conflicts with the proposed public uses. Additional measures could include appropriate signage to emphasize respect for agricultural operations and increase public awareness of farming practices in Glenmore. City staff will also meet with individual property owners immediately adjacent to the park to help ensure the buffer is designed to meet their specific needs.

A comprehensive compensation and mitigation strategy is proposed for the exclusion of parkland in Glenmore through a holistic approach which includes protection and enhancement of agriculture and agricultural land in addition to compensation for land removed. The OCP provides direction for civic infrastructure including the Glenmore Recreation Park in order to support the needs of the community, but also seeks creative solutions to strengthen agriculture. A multi-objective approach and commitment to agriculture has been demonstrated with the adoption of several recent policies in the 2030 OCP and a zoning bylaw amendment as follows:

- Provision of a Permanent Growth Boundary to direct urban growth to appropriate areas and add another level of protection to the Agricultural Land Reserve.
- The establishment of Farm Protection Development Permit Areas and Development Permit Guidelines for the protection of farming, including any development located adjacent to agricultural lands.
- The Agri-tourist Accommodation (A1t) zone designed to better regulate this use on agricultural land.

Additional policies in the development and planning stages to further strengthen agriculture include:

- Introduction of homeplating to better locate and regulate residential uses on farm parcels.
- Raising the minimum allowable subdivision area in the ALR from 2.0ha to 4.0ha.

In addition to the above policy work, City staff also propose to explore other measures to strengthen agriculture and the ALR. Preliminary ideas include, but are not limited to:

- Disposition of City Land & Consolidation with Adjacent Parcels - The City owns several road rights-of-way within the Glenmore area equivalent to approximately 4 ha (9.8 acres). The agricultural qualities of the land are Class 2 unimproved and of higher value than the Valley and Longhill Road Site and would also result in fewer and larger parcels in the ALR.
- Long Term Farm Lease - The City could decommission the existing Glenmore Sports Park 2.9 ha (7.2 acres) and convert the land to farm/agricultural use. The park is located near the intersection of Scenic and Valley Roads, within the ALR and is surrounded by farm lands. The agricultural capability of the land is Class 4 unimproved, a higher rating than the Valley and Longhill Road site. The City could explore potential partnerships with Okanagan College (or other third party) for an 'incubator' (i.e. experimental/learning) farm program. Alternatively, the City could explore a long term lease of the land to a farmer. This model has been used successfully in other areas of the City.
- Urban Agriculture - The City has been successful in recent years in starting a community gardens program within the municipal park system on non-ALR land. The last five years has seen five different community gardens constructed in urban park to promote local food production and education. The City is committed to continuing this program and has several more community garden projects in the planning and design stages. The City could explore creative ways to expand the program to include a focus on local food

security, small production farming and urban agriculture. While each individual location will be relatively small compared to more traditional farms in the ALR, the proximity within urban centres is an opportunity for greater exposure to promote agriculture and the importance of local production with our residents.

- Agricultural Heritage - The City could incorporate an agricultural heritage theme to the development of the park to provide opportunities for public awareness on the evolving role of agriculture in the Glenmore Valley over the past 100 years. Storyboards and interpretive heritage signs could explain settlement patterns, evolving crop production, irrigation and water flume developments, and/or profile important farms and farmers.
- Enforcement - In the 2010 Auditor General of BC's report on the ALC, recommendations included the development of a robust compliance and enforcement program for the ALR. The City may wish to explore ways to improved enforcement of ALC regulations within Kelowna with the ALC.

5.0 Land Use Policies

5.1 2030 Official Community Plan: Greening Our Future

Objective 5.33 Protect and enhance local agriculture[10].

Policy. 1 Protect Agricultural Land. Retain the agricultural land base by supporting the ALR and by protecting agricultural lands from development by supporting a "no net loss" approach, except as otherwise noted in the City of Kelowna Agricultural Plan. Ensure that the primary use of agricultural land is agriculture, regardless of parcel size.

Policy .2 ALR Exclusions. The City of Kelowna will not forward ALR exclusion applications to the ALC except in extraordinary circumstances where such exclusion is otherwise consistent with the goals, objectives and other policies of this OCP. Soil capability alone should not be used as justification for exclusion.

Objective 7.12 Provide active and passive parks for a diversity of people and a variety of uses[11].

Policy .1 Active Park Standard. Using Development Cost Charge revenue provide 2.2 ha of parks per 1000 new population growth. As a guideline the 2.2 ha standard will include provision for 0.6 ha neighbourhood, 0.4 ha community, 0.6 ha recreation and 0.6 city-wide types of parks.

Policy .4 Parks in Agricultural Areas. Where parks and linear pathways are proposed adjacent to farm areas they will be designed so as not to negatively affect farming operations. Mitigation techniques may include: deer fencing, signage, and trash bins to ensure trespass and field contamination is minimized. Any parks affecting lands in the ALR will be subject to detailed design based on the Ministry of Agriculture's guidelines.

Policy .6 Glenmore Recreation Park. As a key park initiative establish a major Recreation Park in the Glenmore Valley that complements the existing park system. This site is identified on Map 4.1 Generalized Future Land Use. The City recognizes that use of this site for park purposes will require provision of off-setting agricultural benefits on adjacent or nearby ALR land in the Glenmore Valley to the satisfaction of the Agricultural Land Commission.

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[10] City of Kelowna 2030 Official Community Plan: Greening Our Future (2011); p. 5.33.

[11] City of Kelowna 2030 Official Community Plan: Greening Our Future (2011); pp. 7.8 & 7.9.

5.2 City of Kelowna Agriculture Plan

Urban - Rural/Agricultural Boundary Policies[12]

Glenmore District Park. Seek Agricultural Land Commission concurrence toward the release of ALR land to serve as a District Park site at a location that maximizes facility potential, possibly in conjunction with other civic resources.

East of Valley Road. Encourage non-soil bound agricultural activities in the bottom lands east of Valley Road, and support the creation of smaller lots west of the toe of the slope for hobby farms, as a transition to more productive lands to the east.

ALR Application Criteria. Require applicants to substantiate the marginal nature of farming (for a full range of cropping options) based on soil capability, climate, topography (slope), elevation, and/or drainage/wetland conditions. In addition to the above background data, any City decision will use the following criteria as the basis of support or non-support of individual applications:

- Location / use context in terms of impact on adjacent agricultural properties with respect to conflict of uses and speculation/land value;
- Necessity for urban growth needs or as logical infill;
- Availability of sufficient services, particularly road access and sanitary sewer, and the impact of expansion of these services on adjacent agricultural properties; and
- Benefits or sensitivity to agriculture in the form of buffering or complementary/transition uses.

5.3 City of Kelowna - Glenmore/Clifton/Dilworth Sector Plan

Agriculture[13]

Pursue either the release of property from the ALR or permission for park use within the ALR to provide for the creation of a District Park.

Parks, Recreation and Open Space[14]

Seek Agricultural Land Commission concurrence toward the release of ALR land to serve as a District Park site at a location that maximizes facility potential, possibly in conjunction with other civic resources.

5.4 City of Kelowna - Glenmore Valley Sector Plan

Objective 5 - Public Open Space[15]

Park standards outlined in the Official Community Plan provide for 2.2 hectares (5.5 acres) per 1,000 people on an overall basis, comprised of neighbourhood, district and City-wide facilities. With a potential population of 12,000 new people in the Glenmore Valley, the overall park requirement would be 27 hectares (68 acres). The land area allocations previously outlined include the provision of 18 hectares (45 acres) of parks within the development area. **This will require approximately 9 hectares (23 acres) in the form of a major district park to be located and provided within this overall section of the City in the future as the resident population grows and the needs will require.**

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[12] City of Kelowna Agriculture Plan (1998); p. 133.
[13] City of Kelowna - Glenmore/Clifton/Dilworth Sector Plan (1998); p. 102.
[14] City of Kelowna - Glenmore/Clifton/Dilworth Sector Plan (1998); p. 113.
[15] City of Kelowna - Glenmore Valley Sector Plan (1998); p. 20.

6.0 Technical Comments

6.1 Subdivision Approving Officer

The Subdivision Approvals Branch has been involved in the land acquisition process with the Real Estate Services Branch and has had input into the potential park development and subdivision of these lands. Remainder parcels cannot be left without road frontage and the City must bond for any road construction, fencing, landscaping that is required against the ALR lands.

7.0 Application Chronology

Date of Application Received: June 29, 2011

Agricultural Advisory Committee: July 14, 2011

The above noted application was reviewed by the Agricultural Advisory Committee at the meeting on July 14, 2011 and the following recommendation and comments were passed:

> THAT the Agricultural Advisory Committee NOT support Agricultural Land Reserve Application No. A11-0008 for 219, 229, 253-259, 279 and 289 Valley Road by the City of Kelowna to obtain approval from the Agricultural Land Commission for a block exclusion of land from the Agricultural Land Reserve under Section 29(1) of the *Agricultural Land Commission Act* to develop a Community Recreation Park.

The Agricultural Advisory Committee did not support the application for a block exclusion of land from the ALR as the Members believed that the application will have a negative impact on agriculture. See discussion, Section 3.0.

Report prepared by:

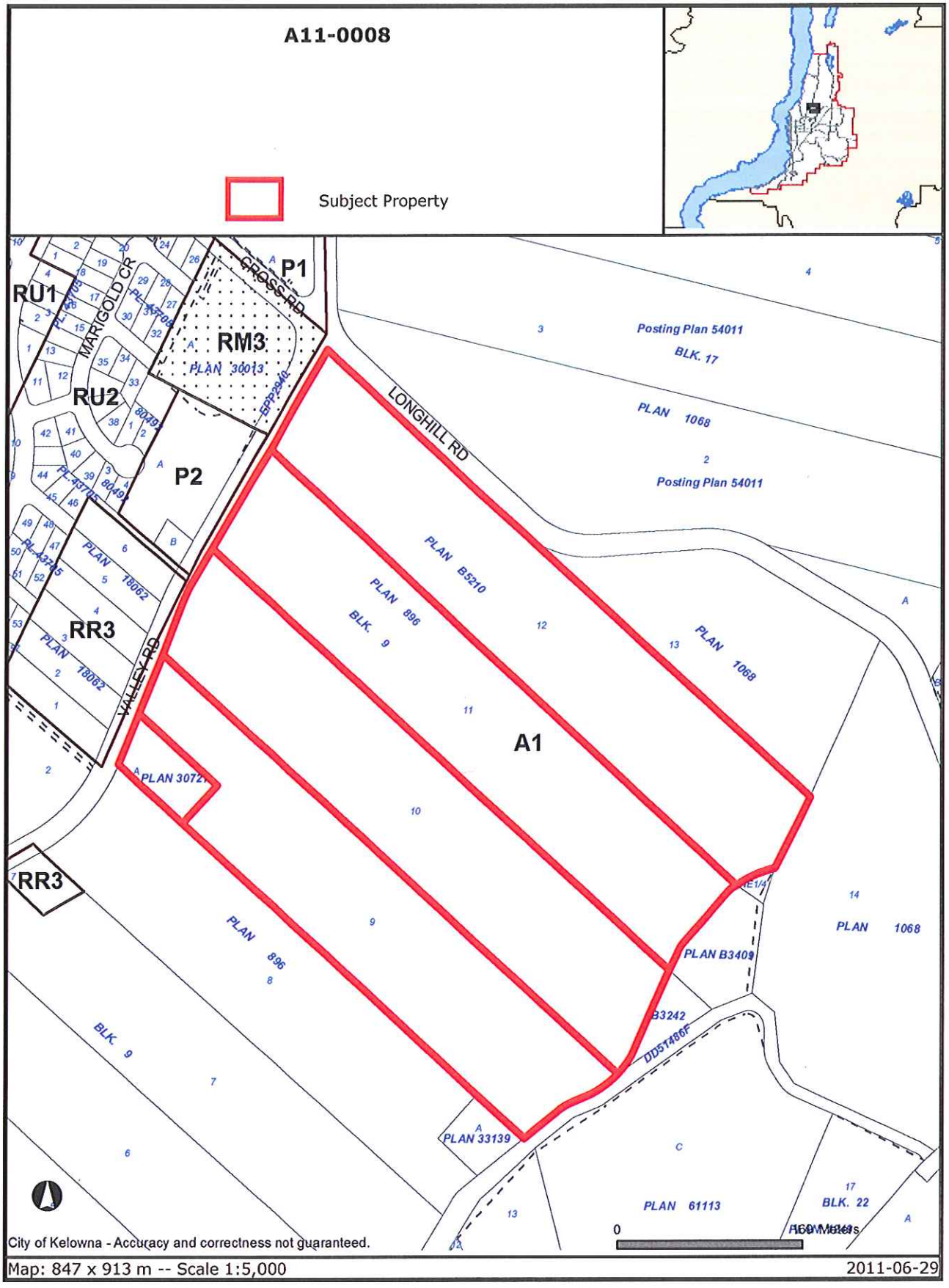
Greg Sauer, Land Use Planner

Reviewed by: Todd Cashin, Manager, Environment & Land Use

Approved for Inclusion Shelley Gambacort, Director, Land Use Management

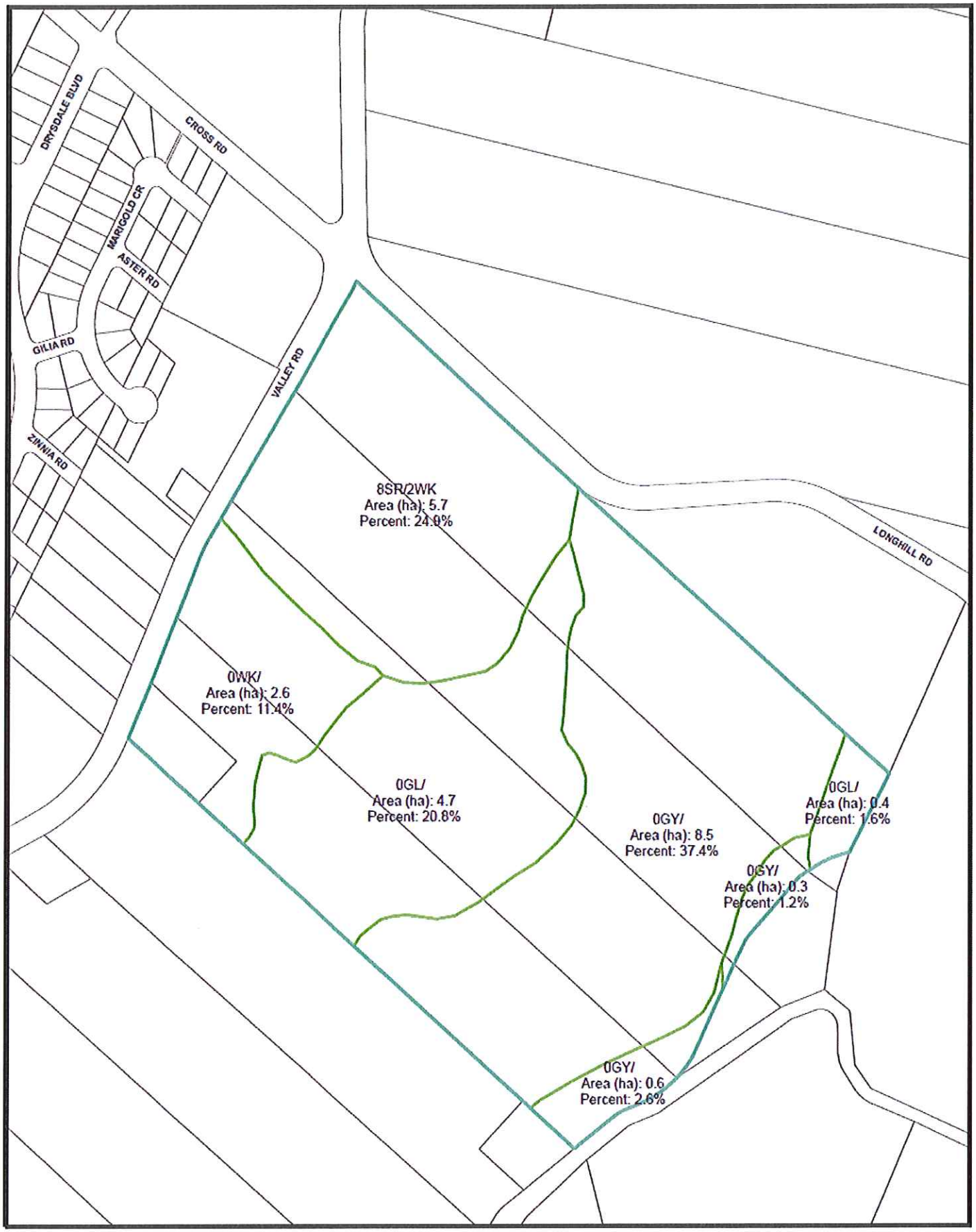
Attachments:
Soil Classification Map
Subject Property Soil Classification Description
BCLI Land Capability Map
Subject Property BCLI Land Capability Description
Subject Property Map/ALR Map
Owner's Application
Agriculture Assessment

Location Analysis
Conceptual Elevations (N/A)
Landscape Plan (N/A)
Sustainability Checklist (N/A)
Summary of Technical Comments (N/A)



Certain layers such as lots, zoning and dp areas are updated bi-weekly. This map is for general information only. The City of Kelowna does not guarantee its accuracy. All information should be verified.

Land Capability = Brown/ Soil Class = Green



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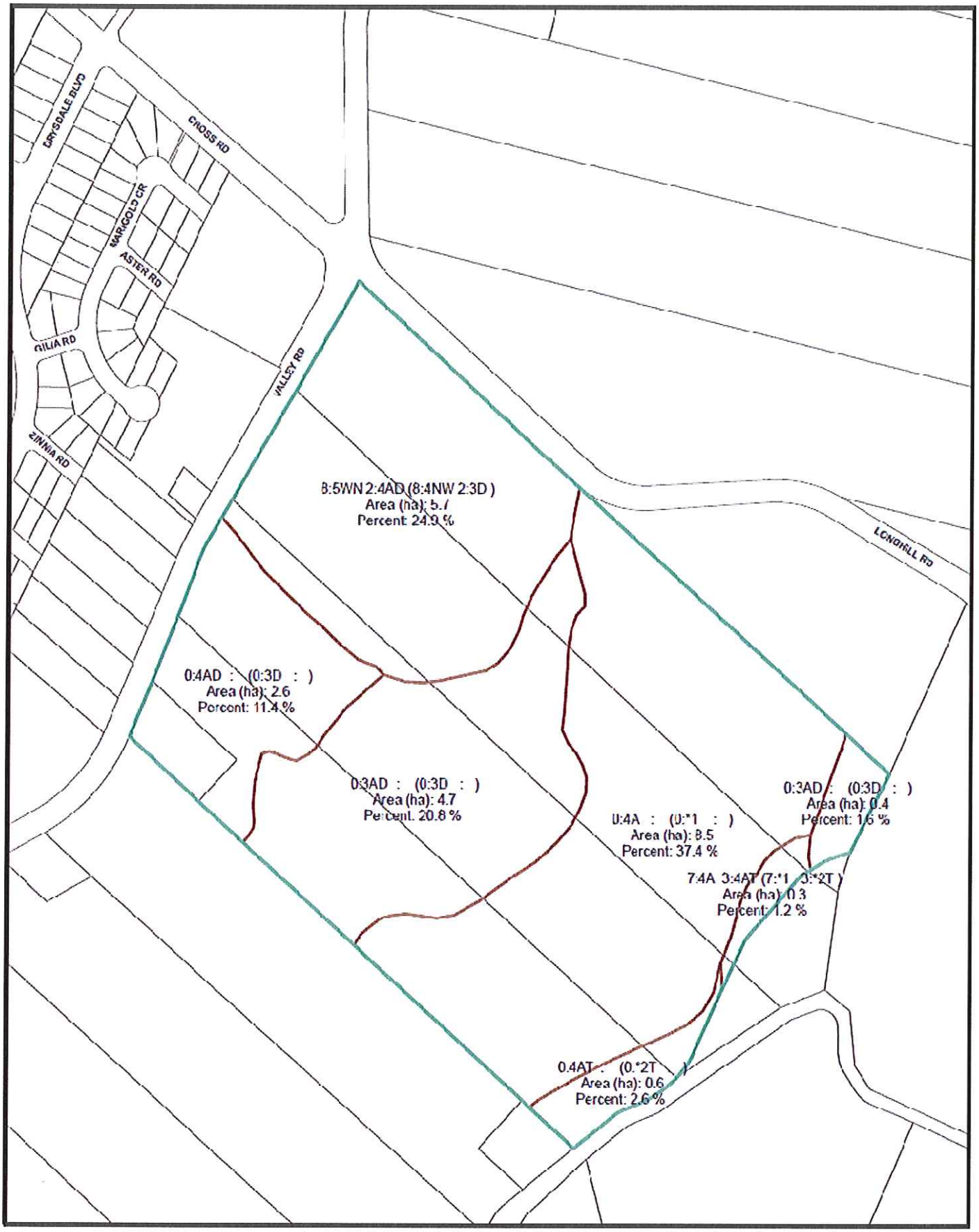
Please note that additional, more extensive soil and land capability information can be found in the "Agricultural Assessment for the Proposed Glenmore Recreation Park" prepared by Golder Associates Ltd. and dated June 24, 2011.

Soil Classification

The soil classification for the subject property is broken into two sections with soil types as defined below.

Portion of Site / %	Soil Type	Description
Northwest (5.7 ha / 24.9%) 80%	SR - Summerland	Land: nearly to strongly sloping fluvial veneer over glaciolacustrine sediments. Texture: 10 to 100cm of silty clay loam grading to clay loam. Drainage: dominantly poor, ranging to imperfect; fluctuating groundwater table or seepage, subject to flooding. Classification: Orthic Humic Gleysol: calcareous and saline phases.
20%	WK - Westbank	Land: nearly to strongly sloping fluvial veneer over glaciolacustrine sediments. Texture: 100 cm or more of clay, clay loam or silty clay. Drainage: moderately well. Classification: Orthic Gray Luvisol.
Southwest (2.6 ha / 11.4%) 100%	WK - Westbank	Land: nearly to strongly sloping fluvial veneer over glaciolacustrine sediments. Texture: 100 cm or more of clay, clay loam or silty clay. Drainage: moderately well. Classification: Orthic Gray Luvisol.
Central (4.7 ha / 20.8 %) 100%	GL - Glenmore	Land: nearly level to moderately sloping stratified glaciolacustrine sediments. Texture: 100 cm or more silt loam, silty clay loam or clay loam. Drainage: well to moderately well. Classification: Eluviated Dark Brown.

Land Capability = Brown/ Soil Class = Green



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BCLI Land Capability

Portion of Site	Land Capability Rating, Unimproved	Land Capability Rating, With Improvements
Northwest 5.7 ha / 24.9%	**80% Class 5.** Land in this Class has limitations which restricts its capability to producing perennial forage crops or other specially adapted crops. Land in Class 5 is generally limited to the production of perennial forage crops or other specially adapted crops. Productivity of these suited crops may be high. Class 5 lands can be cultivated and some may be used for cultivated field crops provided unusually intensive management is employed and/or the crop is particularly adapted to the conditions peculiar to these lands. Cultivated filed crops may be grown on some Class 5 land where adverse climate is the main limitation, but crop failure can be expected under average conditions. Soils are limited by excess water, other than from flooding, which limits agricultural use. The excess water may be due to poor drainage, high water tables, seepage, and/or runoff from surrounding areas. Soils are adversely affected by soluble salts which reduce crop growth or restrict the range of crops.	**80% Class 4.** Land in this Class has limitations that require special management practices or severely restrict the range of crops, or both. Land in Class 4 has limitations which make it suitable for only a few crops, or the yield for a wide range of crops is low, or the risk of crop failure is high, or soil conditions are such that special development and management practices are required. The limitations may seriously affect one or more of the following practices: timing and ease of tillage, planting and harvesting, and methods of soil conservation. Soils are adversely affected by soluble salts which reduce crop growth or restrict the range of crops. Soils are limited by excess water, other than from flooding, which limits agricultural use. The excess water may be due to poor drainage, high water tables, seepage, and/or runoff from surrounding areas.
	20% Class 4. Land in this Class has limitations that require special management practices or severely restrict the range of crops, or both. Land in Class 4 has limitations which make it suitable for only a few crops, or the yield for a wide range of crops is low, or the risk of crop failure is high, or soil conditions are such that special development and management practices are required. The limitations may seriously affect one or more of the following practices: timing and ease of tillage, planting and harvesting, and methods of soil conservation. Crops are adversely affected by droughtiness caused low soil water holding capacity or insufficient precipitation. Soils are difficult to till, require special management for seedbed preparation, pose trafficability problems, have insufficient aeration, absorb and distribute water slowly, and/or have rooting zone depth restricted by conditions other than high water table, bedrock, or permafrost.	**20% Class 3.** Land in this Class has limitations that require moderately intensive management practices or moderately restrict the range of crops, or both. The limitations are more severe than for Class 2 land and management practices are more difficult to apply and maintain. The limitations may restrict the choice of suitable crops or affect one or more of the following practices: timing and ease of tillage, planting and harvesting, and methods of soil conservation. Soils are difficult to till, require special management for seedbed preparation, pose trafficability problems, have insufficient aeration, absorb and distribute water slowly, and/or have rooting zone depth restricted by conditions other than high water table, bedrock, or permafrost.

Portion of Site	Land Capability Rating, Unimproved	Land Capability Rating, With Improvements
Southwest 2.6 ha / 11.4%	**100% Class 5.** Land in this Class has limitations that require special management practices or severely restrict the range of crops, or both. Land in Class 4 has limitations which make it suitable for only a few crops, or the yield for a wide range of crops is low, or the risk of crop failure is high, or soil conditions are such that special development and management practices are required. The limitations may seriously affect one or more of the following practices: timing and ease of tillage, planting and harvesting, and methods of soil conservation. Crops are adversely affected by droughtiness caused low soil water holding capacity or insufficient precipitation. Soils are difficult to till, require special management for seedbed preparation, pose trafficability problems, have insufficient aeration, absorb and distribute water slowly, and/or have rooting zone depth restricted by conditions other than high water table, bedrock, or permafrost.	**100% Class 3.** Land in this Class has limitations that require moderately intensive management practices or moderately restrict the range of crops, or both. The limitations are more severe than for Class 2 land and management practices are more difficult to apply and maintain. The limitations may restrict the choice of suitable crops or affect one or more of the following practices: timing and ease of tillage, planting and harvesting, and methods of soil conservation. Soils are difficult to till, require special management for seedbed preparation, pose trafficability problems, have insufficient aeration, absorb and distribute water slowly, and/or have rooting zone depth restricted by conditions other than high water table, bedrock, or permafrost.
Central 4.7 ha / 20.8%	**100% Class 3.** Land in this Class has limitations that require moderately intensive management practices or moderately restrict the range of crops, or both. The limitations are more severe than for Class 2 land and management practices are more difficult to apply and maintain. The limitations may restrict the choice of suitable crops or affect one or more of the following practices: timing and ease of tillage, planting and harvesting, and methods of soil conservation. Crops are adversely affected by droughtiness caused low soil water holding capacity or insufficient precipitation. Soils are difficult to till, require special management for seedbed preparation, pose trafficability problems, have insufficient aeration, absorb and distribute water slowly, and/or have rooting zone depth restricted by conditions other than high water table, bedrock, or permafrost.	**100% Class 3.** Land in this Class has limitations that require moderately intensive management practices or moderately restrict the range of crops, or both. The limitations are more severe than for Class 2 land and management practices are more difficult to apply and maintain. The limitations may restrict the choice of suitable crops or affect one or more of the following practices: timing and ease of tillage, planting and harvesting, and methods of soil conservation. Soils are difficult to till, require special management for seedbed preparation, pose trafficability problems, have insufficient aeration, absorb and distribute water slowly, and/or have rooting zone depth restricted by conditions other than high water table, bedrock, or permafrost.

APPLICATION BY LOCAL GOVERNMENT OR COMMISSION PROPOSAL

R.D./Mun. File No.
Fee Receipt No.
Fee Amount
ALR Base Map No.
ALR Constituent Map No.
Air Photo No.

TYPE OF APPLICATION *(Check appropriate box)*

☒ EXCLUSION
under Sec. 29(1) of the Agricultural Land Commission Act

☐ INCLUSION
under Sec. 17(1) of the Agricultural Land Commission Act

APPLICANT

Terry Barton, Infrastructure Planning Division
City of Kelowna
1435 Water Street,
Kelowna, B.C., V1Y 1J4

Telephone: 259-469-8830
Fax: 250-862-3363
Email: tbarton@kelowna.ca

LAND UNDER APPLICATION
(Show land on ALR map & legal plan and attach Certificate(s) of Title or Title Search Prints)

Title Number	Size of Each Parcel (Ha.)
part of Plan B5210, Lot 12, Blk 9, Sec. 4, Twp 23	2.85
part of Plan 896, Lot 11, Block 9, Twp 23	3.09
part of Plan 896 Lot 10, Blk 9, Sec 4 & 33, Twp 23	2.97
part of Plan 896 Lot 9, Blk 9 Section 3, Twp 26	2.20
Plan 30721 Lot A, Section 33, Twp 26	0.40

PROPOSAL *(Show on plan or sketch)*

The City of Kelowna is requesting exclusion of farmland in the ALR for the purposes of establishing a major recreation park in the Glenmore Valley. The proposed park area will be based on the subdivision of 4 lots (219, 229, 253-259 and 279 Valley Road) and the full acquisition of 1 lot (289 Valley Road) and will result in a consoldated park parcel of approximately 11.5 ha (28.5 acres). Please see the attached Project Report for a detail explanation and rationale.

The proposed recreation park will include baseball fields, playfields, playground, walking trails, site circulation, parking, washrooms, field house and drainage improvements.

CURRENT USE OF LAND UNDER APPLICATION *(Show information on plan or sketch)*

List uses and describe all buildings

With the exception of a temporary storage container, one single family residence (home site severence) with detached garage, there are no existing buildings on the lands under consideration. Existing land use is a combination of uncultivated fields (fallow) with imported fill, hay, and riparian area associated with a secondary tributary of Brandt's Creek. Please refer to attached current land use map and adjacent land use map.

USES ON ADJACENT LOTS *(Show information on plan or sketch)*

North	agricultural and institutional (school)
East	agricultural
South	agricultural
West	single & multiple housing, institutional (church) and commercial

LOCAL PLANNING *(Attach relevant sections of bylaws)*

Community Plan or Rural Land Use Bylaw name and designation:

Please see Local Government Report

Zoning Bylaw name and designation:

Please see Local Government Report

Uses permitted: Please see Local Government Report

Minimum lot size permitted: Please see Local Government Report

Services available or scheduled:

Roads : Existing road frontage on two sides (Valley Road to the east and Longhill Road to the north.) A new perimeter park road is proposed to maintain legal road frontage for the upland properties which will help to increase the effectiveness of the required agricultural buffer.

Water : The Glenmore Ellison Improvement District (GEID) has a domestic water main in Valley Road with sections of 200 mm PVC and 100mm AC, and fire hydrants on west side of the road. A new water service would be installed as part of the park. Existing water services to upland owners would be maintained.

Sewage disposa l: Existing 400mm sanitary trunk main is located on the west side of Valley Road.

Others : Storm Water: surface runoff is directed into a drainage swale (a secondary tributary to Brandt's Creek) which flows through the site on the western frontage.
Electrical Service: there are existing power poles with electric service within the Valley Road right-of-way.

AUTHORIZATION, COMMENTS AND RECOMMENDATIONS *(Include copies of resolutions)*

Resolution of Board or Council authorizing application:

Comments and Recommendations:

Advisory Planning Commission

Agriculture Advisory Committee

Planning staff

Others

REPORT OF PUBLIC HEARING

Include a record of the hearing date, location, number attended, a synopsis of the comments and a copy of the Public Hearing notice along with a photo of the sign posting on the property. Also include any written submissions along with a photo of the sign posting on the property.

Signature of Responsible Local Government Officer

July 5, 2011
Date

Registered Property Owners

219 Valley Road - part of Plan B5210, Lot 12, Blk 9, Sec. 4, Twp 23

Registered Owner #1: **Hendrikus (Henry) Theodorus Roelofs**	
Address: 2364 Rojem Road Kelowna, BC	Postal Code: V1V 2G3
Telephone (Home) 250-763-4632 (Work) 250-469-8801 (Fax) work 250-862-3371	
Email : hroelofs@kelowna.ca	

Registered Owner #2: **Mary Frances Carr**	
Address: 1385 Edgewood Drive Kelowna, BC	Postal Code: V1V 3V7
Telephone (Home) 250-712-0407 (Work) (Fax)	
Email	

229 Valley Road - part of Plan 896, Lot 11, Block 9, Twp 23

Registered Owner: **Cornelia Issler**	
Address: 229 Valley Road Kelowna, BC	Postal Code: V1V 2G2
Telephone (Home) 250-868-0982 (Work) Harry Issler 250-763-2305 (Fax) work Harry Issler 250-763-4244	
Email: Harry Issler (hissler@alstober.com)	

.../2

253-259 Valley Road - part of Plan 896 Lot 10, Blk 9, Sec 4 & 33, Twp 23

Registered Owner #1: **Dieter Tripke**	
Address: c/o PO Box 781 Station A Kelowna, BC OR 259 Valley Road Kelowna, BC	Postal Code: V1Y 7P4 V1V 2G2
Telephone (Home) 250-762-3049, 250-762-3089 (Work) 250-862-3044 (Fax) work 250-864-3049	
Email	

Registered Owner #2: **Barbara Kwiatkowski**	
Address: 253 Valley Road Kelowna, BC	Postal Code: V1V 2G2
Telephone (Home) 250-763-8218 (Work) (Fax)	
Email	

279 Valley Road - part of Plan 896 Lot 9, Blk 9 Section 3, Twp 26

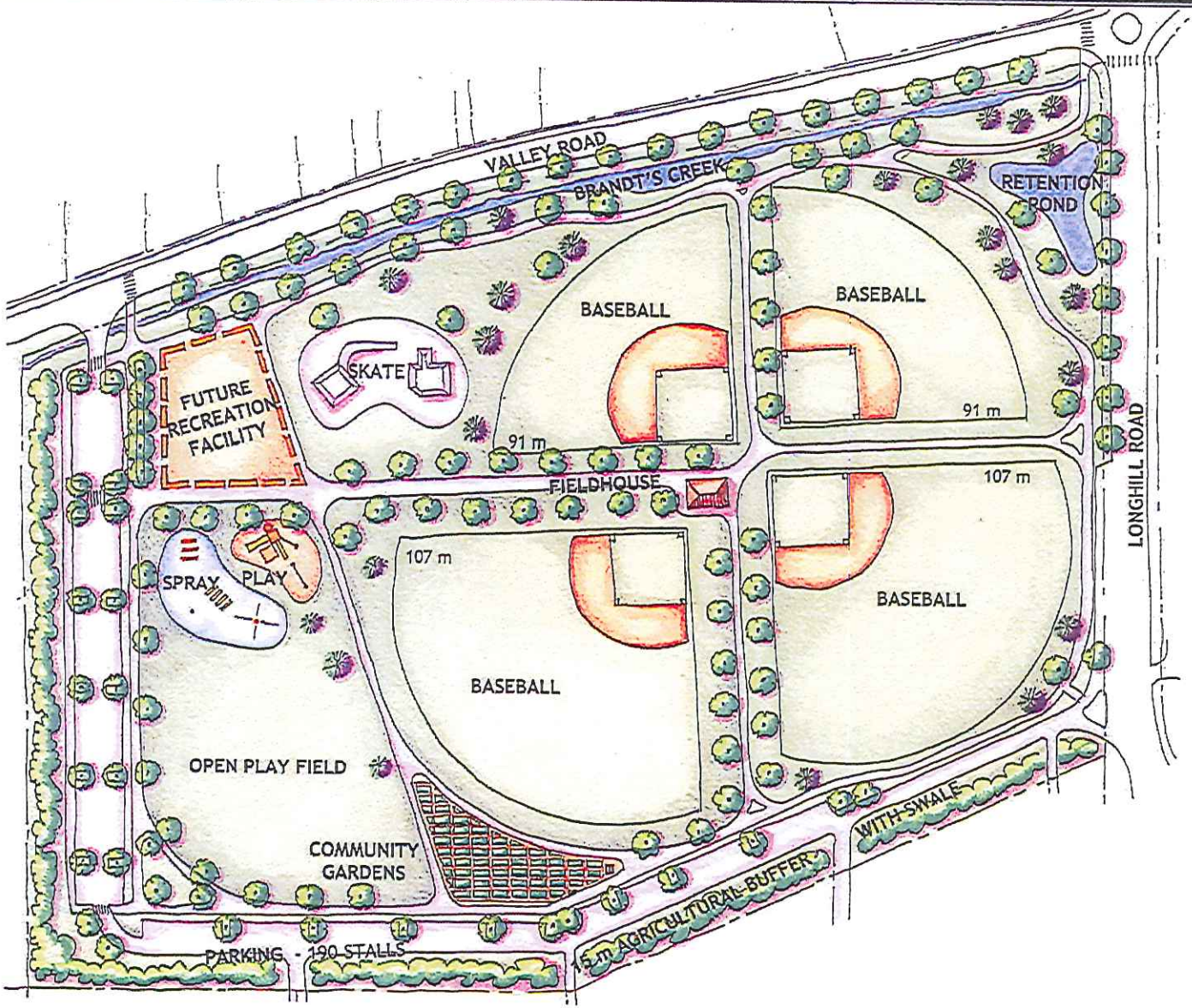
Registered Owner: **Adolf Kaplun** **Olga Kaplun**	
Address: 279 Valley Road Kelowna, BC	Postal Code: V1V 2G2
Telephone (Home) 250-763-2350 (Work) (Fax)	
Email	

289 Valley Road - Plan 30721 Lot A, Section 33, Twp 26

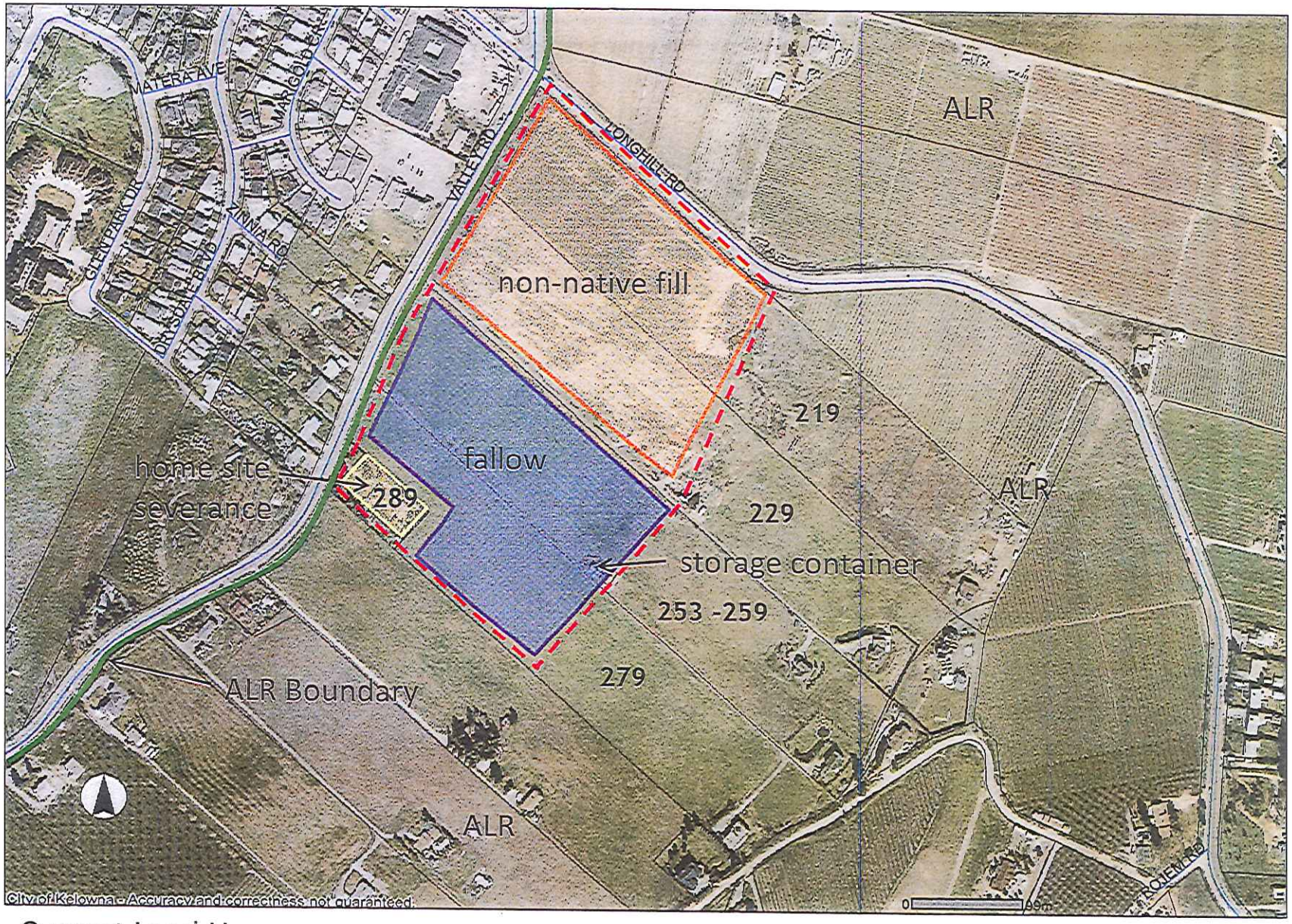
Registered Owner #1: **Surresh Khurana**	
Address: 1558 Homestead Court Kelowna, BC	Postal Code: V1V 2N8
Telephone (Home) (Work) (Fax)	
Email	

Registered Owner #2: **Sunita Sood**	
Address: 6783 133 St. Surrey, BC	Postal Code: V3W 7J5
Telephone (Home) (Work) (Fax)	
Email	

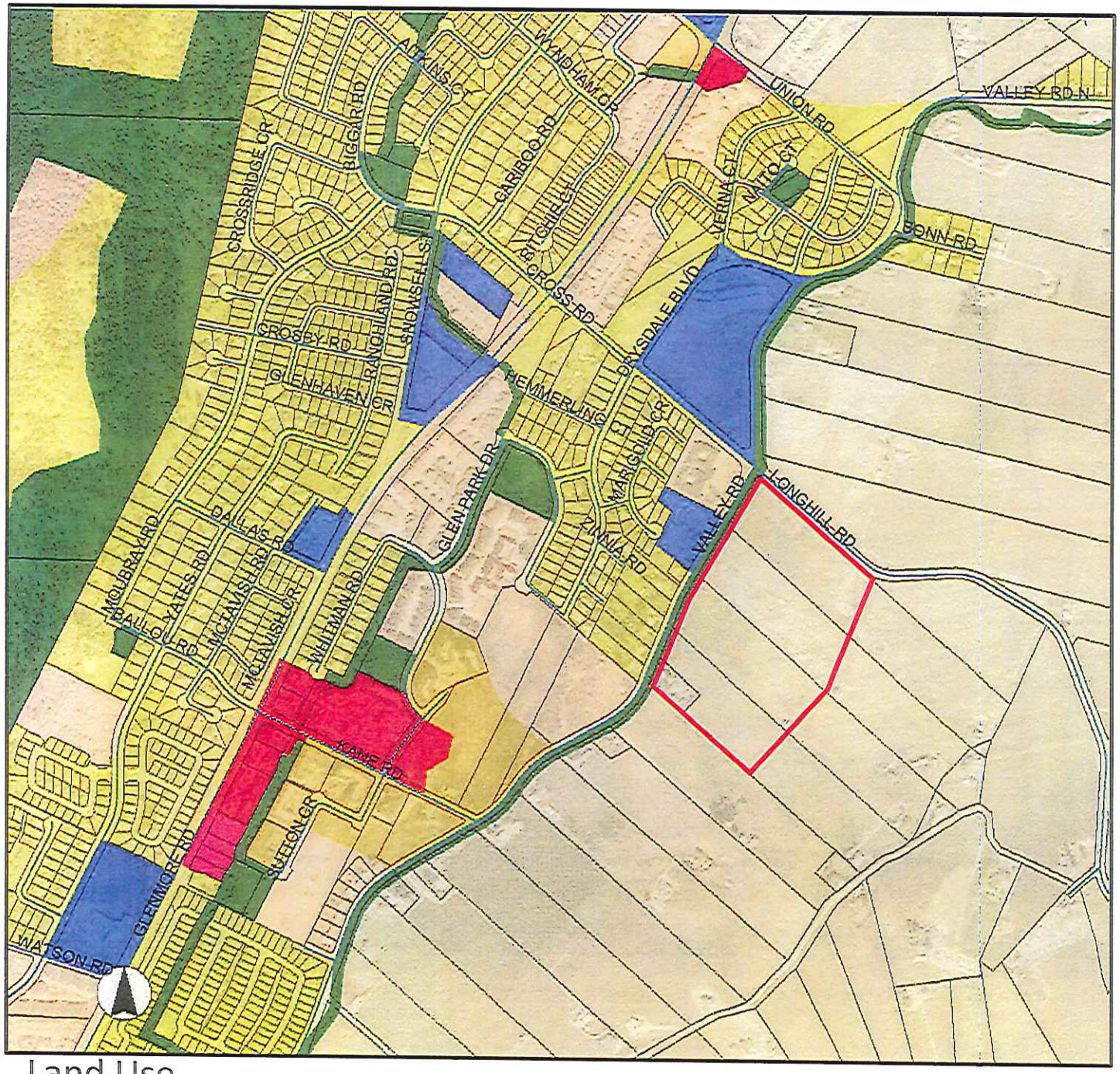
Registered Owner #3: **Surinder Khurana**	
Address: 2389 Rojem Road Kelowna, BC	Postal Code: V1V 2G3
Telephone (Home) (Work) (Fax)	
Email	



Attachment 4: Preliminary Concept Plan



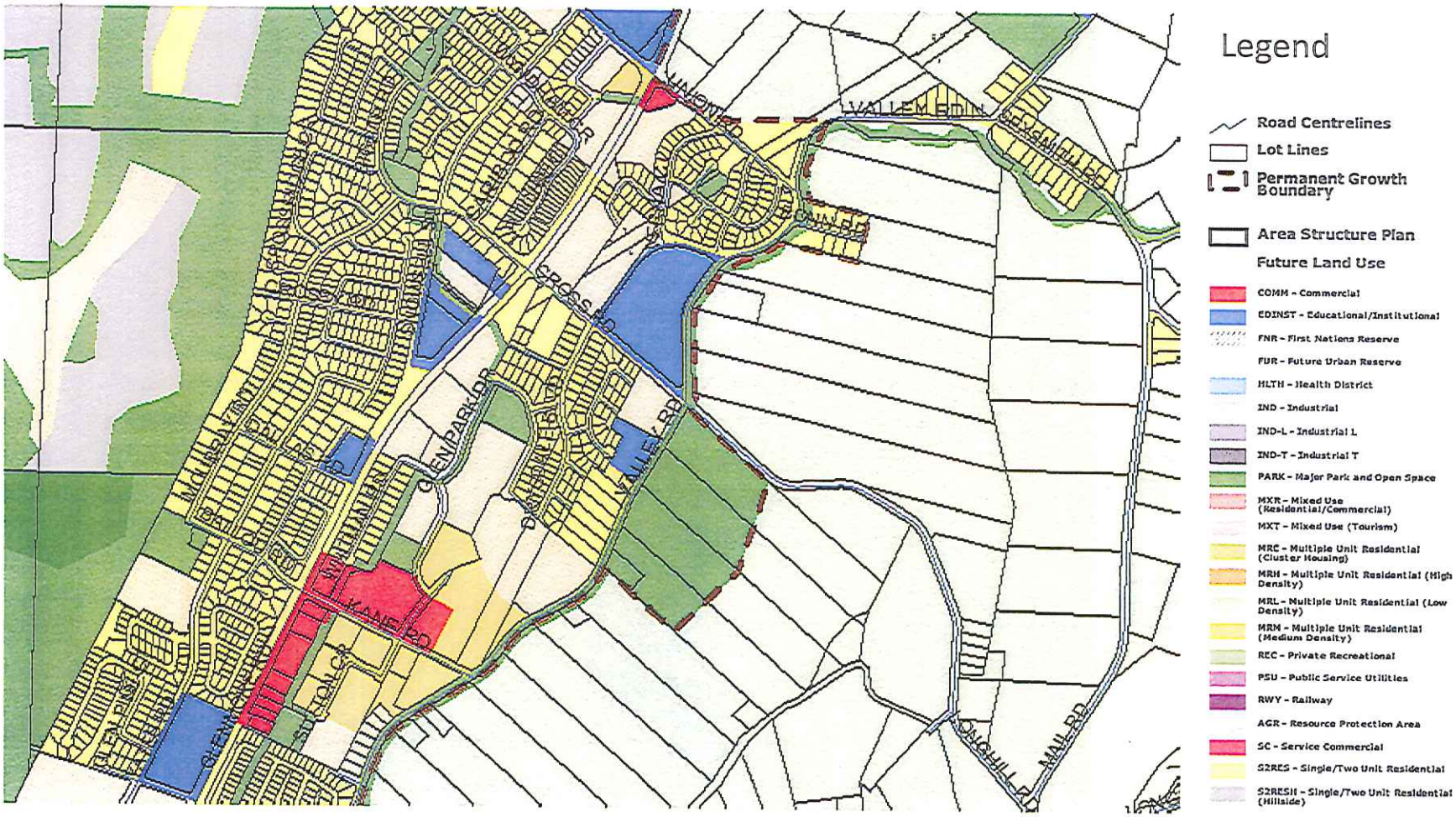
Current Land Use



Land Use

Legend

- Subject Property
- AGR - Rural/Agricultural
- S2RES - Single/Two Unit Residential
- NRC - Multiple Unit Residential - Cluster Housing
- NRL - Multiple Unit Residential - Low Density
- NRM - Multiple Unit Residential - Medium Density
- NRH - Multiple Unit Residential - High Density
- COMM - Commercial
- EDINST - Educational/Major Institutional
- PSU - Public Services/Utilities
- IND - Industrial
- PARK - Major Park/Open Space (public or private)



OCP – Future Land Use Map

Glenmore Recreation Park
REQUEST FOR EXCLUSION
PROJECT REPORT

June 2011

This report is submitted in support of an application for exclusion in the Agricultural Land Reserve under Section 29(1) of the Agricultural Land Commission Act. Upon successful exclusion the City will undertake a lot consolidation subdivision and rezoning (to P3 Parks & Institutional) to create the new park parcel and establish the proper zoning.

The subject site is located in the Glenmore/Clifton/Dilworth Sector in the City of Kelowna as indicated in Attachment 1. The site is situated at the southeast corner of Valley Road and Longhill Road within the ALR. The site and adjacent farm lands are outlined on Attachment 2.

The proposed park area is based on the subdivision of 4 lots (219, 229, 253-259 and 279 Valley Road, and full acquisition of 1 lot (289 Valley Road) and will result in a consolidated park parcel of approximately 10.5 hectares (26 acres).

2.0 BACKGROUND

Glenmore Recreation Park has long been envisioned as a significant local, community and recreation park which will serve both residents in the local Glenmore area and the larger community.

2.1 Historical Planning Context

Since the 1980s, the City has had a consistent planning framework that has anticipated the need for a major park in the Glenmore area. The Glenmore/Clifton/Dilworth Sector Plan, approved in 1989, was the first to formally recognize the need. The Plan followed the block approval of ALR land in 1988, and although the development climate at the time did not support municipal acquisitions, the parkland need continued to be supported by approval authorities with each subsequent planning document.

At the time the Glenmore/Clifton/Dilworth Sector Plan was approved, the fast-paced and fierce competition for land had developers lining up to be the first to develop in the area. The City was not able to compete with private developers for large tracts of land, either with respect to the price or the timing of land deals.

The Agriculture Plan, the Glenmore/Clifton/Dilworth Sector Plan, and Kelowna's new 2030 OCP all continue to reference the need for a Recreation Park. The Agriculture Plan and the Glenmore/Clifton/Dilworth Sector Plan note that the creation of the Recreation Park would not be possible within urban areas and would likely require land within the ALR. The Sector Plan directs the City to seek concurrence with the ALC for the release of ALR land for the Recreation

Park; and the City's OCP supports ALR exclusions where civic objectives for park and recreation uses are achieved.

2.2 Park Deficiency

The Glenmore sector has an approximate existing population of 23,000 people. There are a series of neighbourhood parks that range in size between 0.3 and 1.0 ha (see Attachment 3) These parks generally serve the needs of the immediate neighbourhood or within an approximate 5 minute walking distance. However, their capacity is limited due to their relatively small size. Typically, they are developed with small playgrounds, passive recreational open space, non-bookable recreation spaces, sidewalks, picnic areas, irrigated turf, trees, shrubs, and park furniture.

The Glenmore area does not have any large park space that can accommodate more intense community recreation activities such as skateboard parks, community sized playgrounds, spray parks, play fields, sport courts, etc. These types of larger parks are typical in other neighbourhoods in Kelowna and in most municipalities in BC.

2.3 Planning for Growth

Future population growth projections for the Glenmore area and Kelowna as a whole continue to reinforce the need for the Glenmore Recreation Park. Kelowna's newly adopted 2030 OCP anticipates Kelowna's population to grow by 43,044 people between 2010 and 2030. Approximately 11,000 of those people are projected to locate in the Glenmore sector, with additional growth taking place in Glenmore's neighbouring areas. Population growth, together with the existing park deficiency and our public's stated demand for such facilities creates the need for the City to provide a major park.

2.4 Park Standard

The City's park service standard (as far back as the 1980s) has been to provide 2.2 ha of active parks for every 1000 new residents; this includes 0.6 ha of Recreation Parks and 0.4 ha of Community Parks. This standard recognizes the importance that parks and recreation have in creating healthy communities and healthy populations.

The City currently owns and operates 10.2 ha of parkland in the Glenmore area and based on an existing population of 23,000, this represents 0.45 ha/1000 population, well short of the City's parkland standard (50.6 ha). Recent public requests, complaints and surveys in the Glenmore area all focus on the desire of residents for more park and recreation facilities.

3.0 GLENMORE RECREATION PARK - SITE SELECTION

3.1 Park Planning Criteria

Kelowna's existing Recreation Parks are geographically located in major population centres. The selection of the Glenmore Valley for Kelowna's fourth Recreation Park is consistent with the City's goal to help ensure a healthy and active population, to serve the Glenmore area and to locate Recreation Parks within easy reach of existing and future residents. The park location also reflects an equitable distribution of Recreation Parks throughout Kelowna at an approximate five (5) kilometre radius. Our desire to ensure equity among our communities and neighbourhoods was discussed with the ALC during the Mission Recreation Park Exclusion Application in 2002.

The City's selection of the site at Longhill and Valley Roads is a function of the site's ability to meet a range of planning criteria. The Glenmore Recreation Park Location Analysis (February 2010) established a series of planning criteria to determine a preferred site for the Recreation Park. Planning criteria for site-selection included specifications for topography, park size and shape, proximity to major roads and service areas (i.e. population served), the ease of land assembly and the agricultural impact. The entire Glenmore Valley, including land both within and outside of the ALR, was analyzed for possible sites as part of the Location Analysis. Only five potential sites met the City's park requirements. Parcel size and the need for flat land were the two significant components that resulted in the site-selection process narrowing in on the five sites reviewed in the Location Analysis.

3.2 Desire to Minimize Agricultural Impacts

In addition to the City's interest in addressing the basic site-selection and land assembly criteria, the City shares the ALC's interest in minimizing impacts on agricultural land. Although location options meeting the basic planning criteria were not available outside the ALR, the City has aimed to minimize the impact on agriculture as part of the site-selection process. With the help of a professional agrologist and in consultation with the ALC, the City has selected a site with a low Climate Capability Rating for Agriculture. The rating of the Longhill and Valley Roads site reflects the limited growing conditions on the land. Specifically, the site contains poorly drained, heavy clay soils and saline conditions at the lower elevations. A detailed agrologist report has recently been completed by Anton Schori, P. Ag of Golder Associates (see Agricultural Assessment Proposed Glenmore Recreation Park, 2011).

4.0 PRELIMINARY CONCEPT PLAN

Prior to completing a Park Development Plan, the City will conduct public consultation with stakeholders, park user groups, local residents and the general public. Typically, a Recreation Park provides high activity sports fields, recreation and community facilities. These sites generate significant volumes of participants and spectators; therefore access via a major roadway is essential including accessibility by public transit and bikeways. Recreation Parks also serve the adjacent residential population with community amenities such as walking and biking trails, picnic areas, playfields, skateboard parks, playgrounds and gardens. Recreation Parks are

generally designed to serve a population of 45,000 people within 5 kilometers, but in fact serve city wide and regional interests as well.

The first step in the planning process was to review how this recreation park will be designed to meet the needs of the Glenmore area based on the population projected to the year 2030. The second step was to analyze more city-wide interests, current deficiencies and needs based on projected population of the City to the year 2030. This information is important as it allows the City to potentially satisfy future citywide needs without causing the City to develop more recreation parks in other parts of the City.

The City has developed a Preliminary Concept Plan for the ALC to show how the land could be developed. The concept plan is provided for discussion purposes only and is subject to revisions following public consultation and discussion with ALC (see Attachment 4). Key program elements of the park design include:

- Baseball fields
- Play fields, playgrounds
- Perimeter walking trail
- Drainage Improvements
- Site circulation and parking
- Buildings such as washrooms and field houses.

The estimated cost of park development is approximately $6.9 million.

Initial considerations for site servicing have revealed that existing sanitary, water and hydro utilities are located within the Valley Road right-of-way. As well, the existing south branch of Brandt's Creek located along the Valley Road site frontage, conveys surface and storm water runoff. Impacts to agricultural lands for the provision of utilities will be negligible.

Strong Agricultural Buffer

The Glenmore Recreation Park preliminary concept plan also features a strong agricultural buffer. The eastern boundary of the site will be separated from adjacent agricultural operations by a two-lane rural standard public road right-of-way, and a planted agricultural buffer consistent with the Landscape Buffer Specifications of the ALC.

The agricultural buffer will provide a visual screen, reduce the transmission of noise and the transfer of air-born particles, help prevent trespassing on and vandalism of the adjacent agricultural operations and will contain a swale to convey upland surface drainage. The agricultural buffer, together with the rural road separation, will protect adjacent agricultural operation from conflicts with the proposed public uses. The role of the agricultural buffer could also be reinforced by appropriate signage, emphasizing respect for agricultural operations and increasing public awareness for farming practices in Glenmore. The City will also meet with the individual property owners immediately adjacent to the park to help ensure the buffer is designed to meet their specific needs.

5.0 MOVING FORWARD

5.1 Shared Interest in Long Term Agricultural Protection

The City approaches a mitigation strategy for the exclusion of parkland in Glenmore through a holistic and comprehensive approach to community planning which includes protection and enhancement of agricultural land and the industry. The OCP 2030 provides direction for civic infrastructure including the Glenmore Recreation Park in order to support the needs of the community, but it also seeks to find creative ways to strengthen agriculture in the region. The City has demonstrated this multi-objective approach and commitment to agriculture with the adoption of several recent policies in the OCP 2030 which include:

- Provision of a Permanent Growth Boundary to direct urban growth to appropriate areas and add another level of protection to the agricultural land reserve.
- The City adopted the Agri-tourist Accommodation (A1t) zone in September 2010 with the intent of better regulating this use on agricultural land. The new regulations are substantially more onerous and require a minimum 10 ha lot to achieve the maximum 10 units of agri-tourist accommodation. The City has received just one rezoning request since this time and which was rejected by Council for a number of reasons including the impacts on agricultural land. While less than 1 year old, the regulations appear to be achieving the desired result.Development Permit areas have been established for the purposed of protecting farm land and farm operations; minimizing the impact of urban encroachment and land use conflicts on agricultural land; and minimizing conflicts created by activities designated as farm use by ALC regulation and non-farm uses within agricultural areas. The use of DPs on both lands adjacent to agricultural land and on agricultural land for specific activities that are not exempted should generate significant incremental improvements moving forward.

There are several other policies in the development and planning stages that would further strengthen agriculture which include:

- Introduction of home plating to help properly locate and size home sites on farm parcels. This initiative is still in the research and justification stages with staff undertaking a GIS approach to illustrate the cumulative loss of agricultural land due to large homes and peripheral, non-agricultural uses. Staff are confident that the City will have a homeplating requirement as part of the Zoning Bylaw later this year.
- Raising the minimum allowable subdivision area in the ALR from 2.0ha to 4.0ha.

5.2 Urban Agriculture – Non ALR lands

The City has been successful in recent years in starting a community gardens program within the municipal park system. The last five years has seen six different community gardens constructed in urban park representing 215 community garden plots (average plot size 8' x 16') to promote local food production and education. The City is committed to continuing this program and has several more community garden projects in the planning and design stages. The City will continue to explore creative ways to provide and diversify the urban agriculture program that may include a focus on local food security, small production farming and urban agriculture.

5.3 Agricultural Heritage

The City could incorporate an agricultural heritage theme to the development of the park to provide opportunities for public awareness on the evolving role of agriculture in the Glenmore Valley over the past 100 years. Storyboards and interpretive heritage signs could explain settlement patterns, evolving crop production, irrigation and water flume developments, and/or profile important farms and farmers.

5.4 Disposition of City Land & Consolidation with Adjacent Farms

In addition to the above measures, the City is also prepared to explore additional ideas to strengthen agriculture within the ALR and the Glenmore Valley.

The City owns several undeveloped road right-of-ways, the remnants of an old highway plan through the Glenmore Valley ALR area (see Attachment 5). The City could commit to selling these parcels of land to the adjacent farmers to consolidate with their parcels of land. The land area is approximately 3.8 ha (9.4 acres) and would result in fewer and larger parcels in the ALR. The agricultural qualities of the land are classified as Class 5 unimproved lands, Class 3 improved rating and of higher value than the Valley and Longhill Road site.

In Closing ...

The City acknowledges the ALC's concerns with respect to our proposed project's impacts to agriculture and we do not take this exclusion request lightly. However, it is important to emphasize that this project is unique in its scale of community benefit and to ensuring a healthy and vibrant community. Further, the City is committed to working with the ALC to strengthen agriculture not only in the Glenmore Valley but in the whole of Kelowna. It is our contention that the new Permanent Growth Boundary in the OCP coupled with the Future Land Use Map which shows the area designated as "Park" will not set dangerous precedent for further private exclusions elsewhere in the ALR.

June 24, 2011

VALLEY ROAD, KELOWNA, BC

AGRICULTURAL ASSESSMENT PROPOSED GLENMORE RECREATION PARK

Submitted to:
City of Kelowna
Infrastructure Planning
1435 Water Street
Kelowna BC V1Y 1J4

Attention: Barbara Davidson, BCSLA, Parks Planner

Report Number: 1114920014-001-R-Rev0

Distribution:

2 Copies - City of Kelowna, Infrastructure Planning

1 Copy - Golder Associates Ltd.

REPORT

Golder Associates

Table of Contents

1.0 INTRODUCTION

This report presents the results of the work conducted by Golder Associates Ltd. (Golder) for the City of Kelowna, Infrastructure Planning (the client) to assess the agricultural capability of lands for the proposed Glenmore Recreation Park (GRP). The scope of work was described in Golder's Proposal P01-0014 dated January 31, 2011. Authorization to proceed was provided by the client on March 21, 2011 (e-mail and City of Kelowna Purchase Order 507060, dated February 21, 2011).

The area investigated for the proposed GRP comprises the lowland parts of four contiguous properties at 219, 229, 253-259 and 279 Valley Road, Kelowna (Figure 1). These four properties (Figure 2) are in the Agricultural Land Reserve (ALR).

The work was conducted by a Professional Agrologist, Anton Schori, PAg (BCIA # 772) and Certified Agricultural Consultant, assisted by a field technician (Kristen Forsyth).

2.0 METHODOLOGY

Golder conducted field investigations on February 28, 2011. Eight test pits were excavated with a backhoe on the two properties at 253-259 and 279 Valley Road. Soils were identified, described and classified according to the *Canadian System for Soil Classification*[1], and the *Land Capability Classification for Agriculture in British Columbia*[2]. Field soils description sheets for the 8 field inspection sites are in Appendix A.

Observations were made of surficial soil material on the two properties at 219 and 229 Valley Road, which have been covered with fill material. Drill log data from Golder's Hydrological Study on these 2 properties are in Appendix A.

Soil samples were collected and analyzed from 10 locations, including 7 from properties at 253-259 and 279 Valley Road and 3 from the fill on properties at 219 and 229. A total of 24 samples were analyzed by Pacific Soils Analysis Inc. in Richmond, BC. Analytical results are in Appendix B.

Interviews were conducted with the owners of the 4 properties on Valley Road. Three interviews were conducted on March 29 (two in person and one by telephone) and one on April 5 (by telephone). Records of the interviews are in Appendix C.

[1] The Canada Soil Survey Committee, Subcommittee on Soil Classification. 1998. The Canadian System of Soil Classification. Agriculture Canada Publication 1646, 3rd Edition. NRC Research Press, Ottawa.

[2] Kenk, E. and I. Cotic, 1983. Land Capability Classification for Agriculture in British Columbia. MOE Manual 1. B.C. Ministry of Agriculture and Food, Victoria, B.C.

3.0 PROPERTY DESCRIPTIONS

The four properties on Valley Road are shown on Figure 1. A summary of the property descriptions, as provided by the respective owners, is shown in Table 1.

Table 1: Summary Descriptions of the Lowland Portions by Owners of Four Properties on Valley Road

	# 219	# 229	# 253-259	# 279
Years Owned by Current Owner	5	18	25	31
Area of the Lowland	2.83 ha	3.09 ha	2.97 ha	2.04 ha
Current Land Use	none-lowland filled	none-lowland filled	hay-alfalfa & orchard grass	hay-alfalfa & orchard grass
Historic land Use	not cropped	not cropped	apples -hay in past 8 years	hay-31 yrs
Drainage	since 1959	none	yes	yes
Current Irrigation	none	none-no water rights	yes	yes
Soil Problems	very wet and salinity[(a)]	very wet and salinity[(b)]	wet and some salinity	wet and some salinity
Extent of Fill (ha)	2.83	3.09	~0.75[(c)]	none

Notes: a - prior to placement
b - Fill is good quality. Placed to increase topsoil thickness and raise land elevation slightly.
c – Area is approximate and calculated using GIS on Figures 1 and 2.

Landowners indicated that all four properties are in a "frost pocket'. Elevation is 400 m to 410 m asl, near the lowest elevation in the Glenmore Valley. Owners of the properties which have been covered with fill (219 and 229 Valley Road) indicated that the parties (companies / individuals) who placed the fill had arranged for all required permits for fill placement on ALR land.

4.0 SOILS AND AGRICULTURAL CAPABILITY

4.1 Soils

4.1.1 Properties at # 253-259 and # 279 Valley Road

GRP-2. Moderately well drained Westbank soil. Soil texture is silty clay loam. Profile is calcareous below 20 cm. Gypsum deposits (white material below knife). Improved agricultural capability is 3D

The soil survey of the Okanagan valley (Wittneben[3], 1986) mapped the soils on these two properties as Westbank (WK) soils with a minor area of Summerland (SR) soils on the NE boundary of 253-259 Valley Road. Our field investigations confirmed the presence of the WK and SR soil series and also a transitional soil with characteristics of both WK and SR. The characteristics of the solids identified on the two properties are listed in Table 2. The soils map is on Figure 2.

[3] Wittneben, U. 1986. Soils of the Okanagan and Similkameen Valleys. BC Ministry of Environment. Victoria, BC.

Table 2: Characteristics of Soils and Properties #253 - 259 & #279 Valley Road

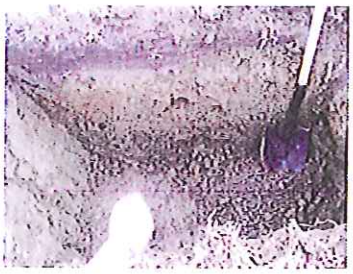
Site[4]	Soil Series[5]	Taxonomy	Drainage	Horizon	Depth (cm)	Texture	pH ($CaCl_2$)	Salinity (mm/cm)	SAR	Agricultural Capability[6]	
										unimproved	improved
GRP-1	WK	Orthic Gray Luvisol	moderately well	Ap	0-22	silt loam	7.2	0.80	0.30	5A	3WD
				Btk	22-38	silty clay loam	7.7	2.70	0.94		
				BC	38-55	silty clay loam	7.9	3.90	3.26		
				Ck	55-80	silty clay loam	8.0	4.20	3.44		
GRP-2	WK/SR	Orthic Gray Luvisol	moderately well	Ap	0-20	frozen	6.4	0.88	-	5A	3WD
				Btkj	20-37	silty clay	6.8	2.18	-		
				BC	37-55	silty clay	-	-	-		
				Ck	55-80	silty clay	-	-	-		
GRP-3	WK/SR	Orthic Gray Luvisol	imperfect	Ap	0-22	frozen	7.0	0.92	-	5A	4DN
				Bt	22-40	silty clay	7.9	4.60	-		
				BCk	40-50	silty clay	-	-	-		
				Ckg	50-80	silty clay	-	-	-		
GRP-4	WK	Orthic Gray Luvisol	moderately well	Ap	0-28	silty clay	7.5	1.10	-	5A	3D
				Bt	28-40	silt loam	7.4	0.66	-		
				BC	40-55	silty clay loam	-	-	-		
				Ck	5-88	silty clay loam	-	-	-		
GRP-5	WK/SR	Orthic Gray Luvisol	imperfect	Ap	0-26	frozen	7.9	2.44	-	5A	4ND
				Bt	26-46	silty clay loam	7.9	5.00	-		
				BC	46-66	clay loam	-	-	-		
				Ck	66-90	clay loam	-	-	-		
GRP-	SR	Orthic Humic	poor	Apg	0-26	silt loam	7.8	7.96	5.18	5A	5NW

[4] Field inspection sites GRP-1 to 7 are on properties 253-259 and 279.

[5] WK are Westbank soils; SR are Summerland soils; WK/SR are transition soils with characteristics of both WK and SR.

[6] The agricultural capability classification ranges from Class 1 to 7; Class 1 has no restrictions and Class 7 has no capability for agriculture. The agricultural capability subclasses (restrictions) are as follows: A=soil moisture deficiency (lack of precipitation); D=compact subsoil; N=salinity; W=wetness.

Site[4]	Soil Series[5]	Taxonomy	Drainage	Horizon	Depth (cm)	Texture	pH ($CaCl_2$)	Salinity (mm/cm)	SAR	Agricultural Capability[6]	
										unimproved	improved
6		Gleysol-saline phase		Bg	26-56	silt loam	8.0	11.00	8.21		
				Cgk	56-90	silty clay loam	-	-	-		
GRP-7	WK SR	Orthic Gray Luvisol-gleyed phase	imperfect	Ap	0-18	frozen	5.8	2.86	-	5A	4ND
				Btg	18-30	clay loam	7.0	2.86	-		
				BC	30-40	clay loam	-	-	-		
				Cg	40-90	clay loam	-	-	-		



GRP-3. Imperfectly drained transition soil between a Westbank and Summerland soil. Soil texture is silty clay. Profile is calcareous below 40 cm and wet below 50 cm. Improved agricultural capability is 4ND.

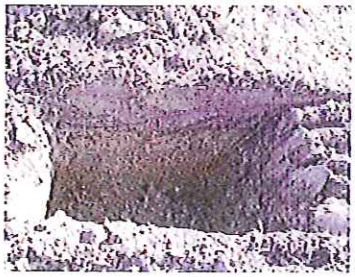
The WK soils have developed in fine to moderately fine textured glaciolacustrine surficial deposits. The WK soils are moderately well drained and non saline[7] or weakly saline (inspection sites GRP-1 and GRP-4). The SR soils have developed in medium to moderately fine textured calcareous and saline glaciolacustrine surficial deposits. The SR soils are imperfectly or poorly drained and are generally saline[8] (inspection site GRP-6). The soils designated as transitional with characteristics of both WK and SR are imperfectly drained and generally moderately saline[9] (inspection sites GRP-2, GRP-3, GRP-5 and GRP-7).

4.1.2 Properties at # 219 and # 229 Valley Road

The lowland portions of these properties have been covered with fill material, most or all of which was placed several, or many, years ago. Depth of fill ranges from 1 m to 3 m (details are in Golder's hydrogeology report). Golder is not aware of when the fill was placed, or if permits were issued for placing fill on ALR land, or if the fill was deposited subsequent to establishment of the ALR.

Table 3: Characteristics of Fill Material on Properties #219 & #229 Valley Road

Site #	Drainage	Depth (cm)	Size Fraction		Texture	pH (H_2O)	Salinity (mm/cm)	SAR	Agricultural Capability
			>2mm (%)	<2mm (%)					
TP11-2	poor	0-61	15.6	84.4	clay	7.9	3.36	-	NA
TP11-4	poor	0-46	14.6	85.4	clay	8.1	1.80	4.57	NA
TP11-8	poor	0-15	15.0	85.0	clay loam	8.0	1.76	-	NA



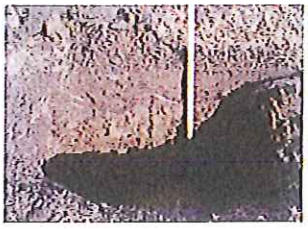
GRP-5. Imperfectly drained transition soil between a Westbank and Summerland soil. Soil texture is silty clay to clay loam. Profile is calcareous below 60 cm. free water at 90 cm. Improved agricultural capability is 4DW.

Analyses of samples representative of the surface 50 cm indicate that the pH is moderately alkaline (pH 8.0), Ec (salinity) is weak (<4), phosphorous and nitrogen are negligible, sodium adsorption ratio (SAR) is not sodic, average texture is 15% gravel, 20% sand, 25% silt and 40% clay. The fill material is therefore very slowly permeable and poorly drained during part of the growing season. The fill material, as is, is not suitable for agricultural production due to: the low permeability and resulting poor drainage during part of the growing season; compact soil which restricts root penetration and air exchange; complete lack of organic matter; and lack of fertility (the fill has effectively no available nitrogen or phosphorous). Topsoil was not salvaged (if any was salvaged it is no longer on the properties) and is thus not available for reclamation. To rehabilitate the fill material for commercial agricultural production would require drainage, addition of large quantities of organic matter and/or topsoil and fertilizer, and many years of forage production to improve the poor (massive) soil structure.

[7] Non-saline soils have a low salt content with an EC (electrical conductivity <4 mmho/cm) throughout the surface 50 cm.

[8] Saline soils have high salt content with an EC from 4 to 8 mmho/cm.

[9] Moderately saline soils have moderate salt content with an EC from 2 to 4 mmho/cm.



GPR-6. Poorly drained Summerland soil. Soil texture is silt loam. Gypsum deposits (white) in dark surface horizon. Profile is calcareous below 60 cm. Soil is saline. Free water at 90 cm. Some topsoil was added in this area. Improved agricultural capability is 5NW.

4.2 Agricultural Capability

4.2.1 Properties at 219, 229, 253-259 and 279 Valley Road

Table 4: Agricultural Capability of the Four Properties on Valley Road

Property	Area[(a)] (ha)	Agricultural Capability Class and area (ha) unimproved				Agricultural Capability Class and area (ha) improved[(b)]			
		3	4	5	NA	3	4	5	NA
219	2.83	-	-	-	2.83	-	-	-	2.83
229	3.08	-	-	-	3.08	-	-	-	3.08
253-259	2.97	-	-	2.97	-	-	-	-	-
279	2.20	-	-	2.20	-	-	-	-	-
Total Area	11.08	-	-	5.17	5.91	1.5	3.2	0.51	5.91

(a) Areas for the lowland part of each property area provided by City of Kelowna.

(b) Areas for the improved ratings are slightly different from the areas for unimproved areas, as these (improved) are calculated by GIS on Figures 1 and 2.

Note: - = NA

5.0 EDGE PLANNING FOR ALR LANDS

5.1 Introduction

A buffer at the edge of the GRP should be planned and established to minimize any possible conflicts between GRP users and the adjacent farm lands, and also to improve aesthetics. A buffer is appropriate on the SE and SW perimeters where the GRP will be adjacent to farm fields. The NW and NE perimeter is bounded by Longhill Road and Valley Road, and a buffer, although not specifically required for an agricultural / recreation park boundary should be considered for aesthetic and safety reasons.

The following discussion is drawn from two publications which provide specifications and key planning considerations for buffers at the ALR boundary. Only a brief summary is presented here and the reader should consult the two pertinent publications for details.

- *Landscaped Buffer Specifications.* March 1993, reprinted 1998. British Columbia Agricultural Land Commission. Burnaby, BC, and
- *Planning Along Agriculture's Edge.* 2008. BC Ministry of Agriculture and Lands, Victoria, BC (http://www.alc.gov.bc.ca/publications/planning/Planning_For_Agriculture/).

The objectives for planning along the interface are to enhance the compatibility between land uses and ensure the permanency of the "edge".

BC Ministry of Agriculture and Lands (2008) research indicates that the most effective ALR edge buffers combine separation, vegetation and fencing. This combination is considered the most effective way to mitigate the impacts from farming activities (e.g. noise, dust/spray drift, light) and impacts from urban activities (e.g. trespass, litter, crop damage, livestock harassment from dogs). Although the proposed use for the properties at 219, 229, 253-259 and 279 Valley Road is not urban, but a recreational park, the general principles for edge planning are the same.

5.2 Key Planning Considerations

- There is no single "right" way to buffer. Innovation may be the source of the best solution.
- Agricultural land should not be compromised in applying buffering solutions.
- Consultation and the eventual "buy-in" of landowners along the interface is critical.
- Ideally the buffer should consist of (direction from the GRP to the farm boundary): a double row deciduous/coniferous trees; triple row trespass inhibiting shrubs; a double row screening shrubs; and a solid wood fence or chain link fence (1.8 m high) to prevent trespass and littering.
- A 2 m separation distance between the vegetative buffer and the farm boundary is desirable as it provides space, on the farm side for less shading, more air circulation and greater manoeuvrability for farm equipment.
- Ensure the buffer is installed prior to building construction.
- Ensure the buffer is maintained.

6.0 CONCLUSIONS

Table 4 illustrates the unimproved and improved agricultural capability ratings for the four properties on Valley Road.

The unimproved agricultural capability, of the 11.1 ha of the properties on Valley Road, includes 5.2 ha of Class 5 and 5.9 ha of land with fill, unsuitable for commercial agriculture.

The improved agricultural capability of the 11.1 ha of the properties on Valley Road include 1.5 ha of Class 3 and 3.2 ha of Class 4 and 0.5 ha of Class 5. The 5.9 ha of land with fill, remains unsuitable for commercial agriculture, as improvements are not considered feasible.

7.0 CLOSURE

We trust this report provides the information you require. Please contact Tony Schori at 250-860-8424 if you have any questions.

GOLDER ASSOCIATES LTD.

for Anton Schori, P.Ag.
Soil Scientist and Agrologist

Jacqueline Foley, M.Sc., Geo.L.
Managing Associate

AS/JF/jc

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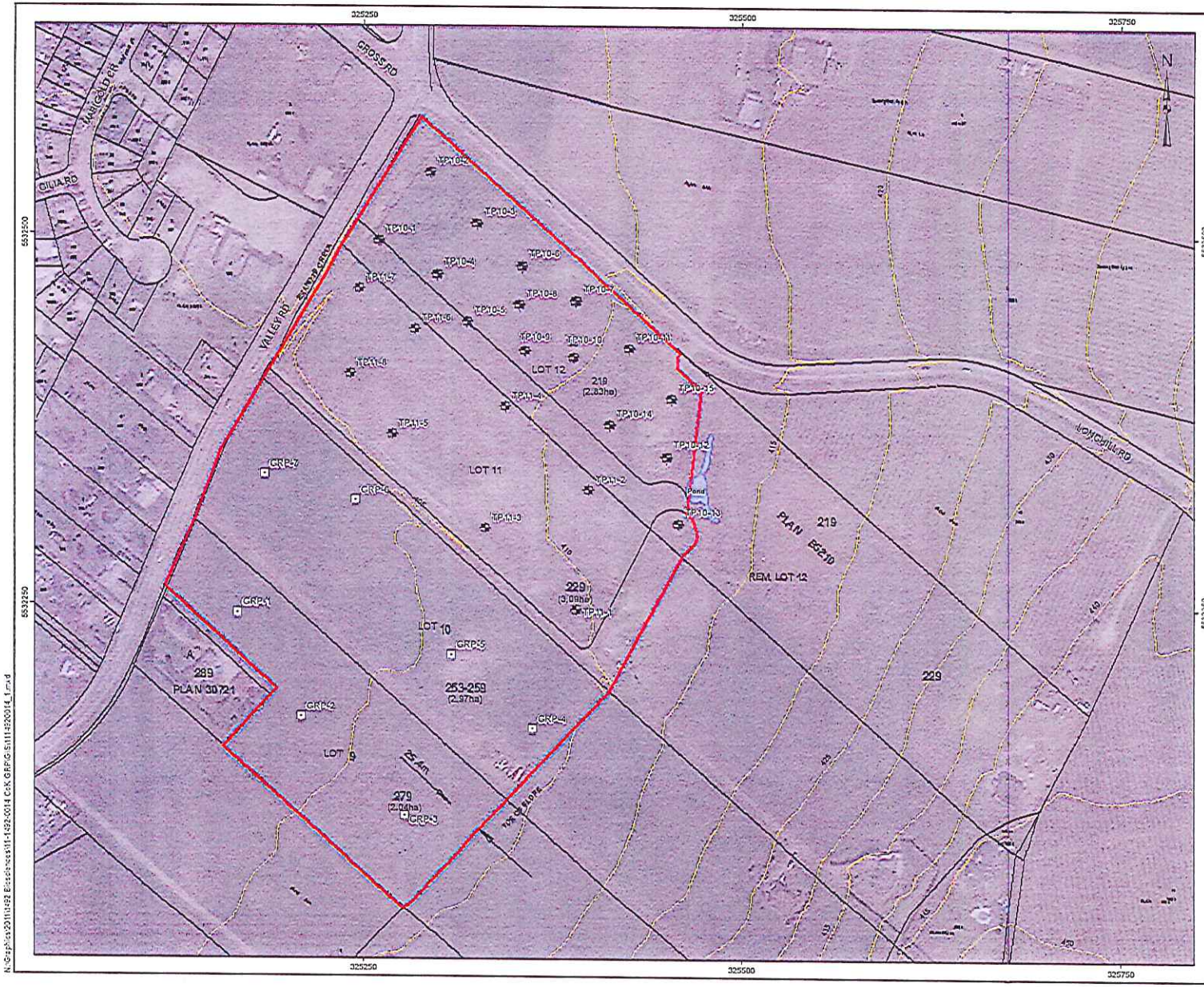

VICINITY MAP

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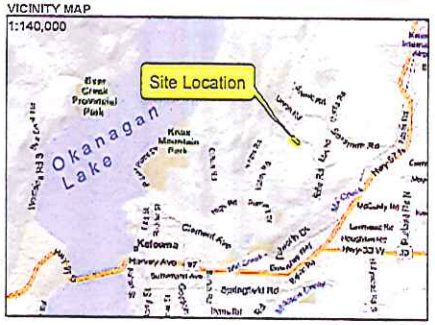

LEGEND

- Pond / Wetland
- Test Pit in Agricultural Field
- Testpit in Fill Area
- Site Boundary (219, 229, 253-259,279 Valley rd.)

NOTES

1. Site elevations referenced to Geodetic Control Marker (GCM) 358606; Elevation 408.331masl.

REFERENCE

1. Basemap: Bing Maps.
2. Legal base: Ease1617.dwg
3. Brandts Creek: Regional District of Central Okanagan.

Projection: UTM Zone 11 Datum: NAD 83

50 0 50 Meters

SCALE 1:2,500

PROJECT

CITY OF KELOWNA
AGRICULTURAL ASSESSMENT
VALLEY ROAD, KELOWNA, BC

TITLE

SITE PLAN AND
TEST PIT LOCATIONS

Golder Associates
Kelowna Office, B.C.

PROJECT No.		11-1492-0014	PHASE No. 2000	
DESIGN	AS	04-APR-11	SCALE AS SHOWN	REV. 0
CD	RKL	04-APR-11		
CHECK	AS	04-APR-11		
REVIEW	AS	04-APR-11		

FIGURE: 1

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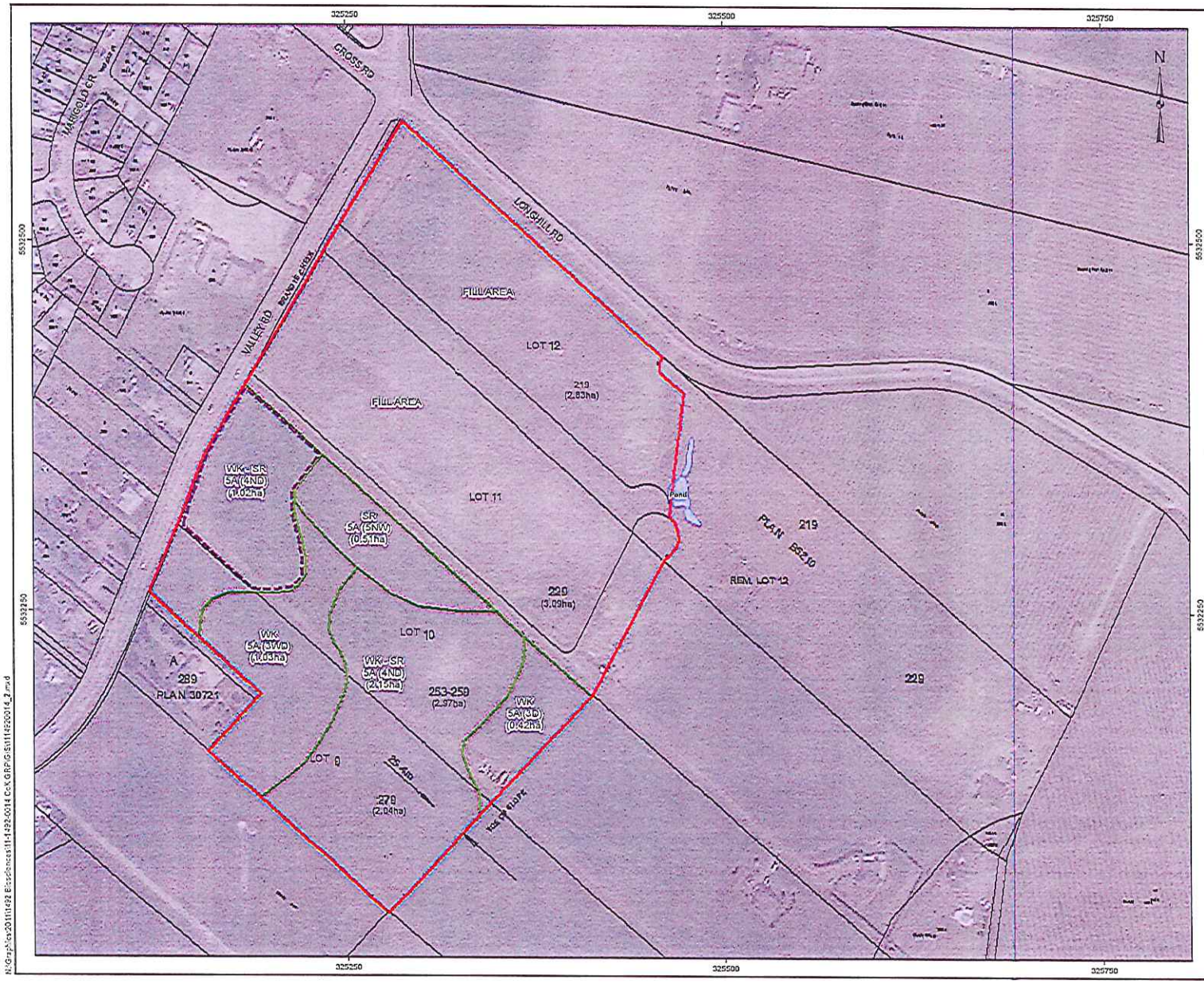

VICINITY MAP

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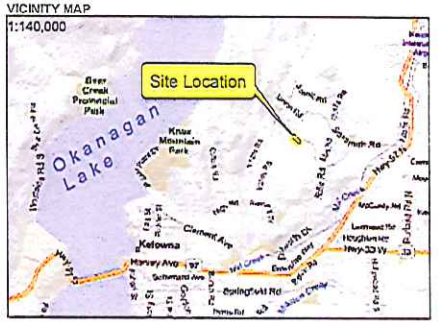

LEGEND

- Pond
- Site Boundary (219, 229, 253-259,279 Valley rd.)
- Soil Boundary
- Estimated Area of Good Quality Fill

WK — Soil
Unimproved Agricultural Capability — 5A(3D) — Improved Agricultural Capability

WK - Westbank Soil Series
SR - Summerland Soil Series
WK-SR - Transition Soil from WK to SR

Agricultural Capability Class Limitations
A - Soil Moisture Deficit
D - Undesirable Soil Structure/Low Permiability
N - Salinity

NOTES

1. Site elevations referenced to Geodetic Control Marker (GCM) 358606; Elevation 408.331masl.

REFERENCE

1. Basemap: Bing Maps.
2. Legal base: Base1017.dwg
3. Brandts Creek: Regional District of Central Okanagan.

Projection: UTM Zone 11 Datum: NAD 83

50 0 50 Meters

SCALE 1:2,500

PROJECT
CITY OF KELOWNA
AGRICULTURAL ASSESSMENT
VALLEY ROAD, KELOWNA, BC

TITLE
SOILS AND AGRICULTURAL CAPABILITY

Golder Associates
Kelowna Office, B.C.

PROJECT No.	11-1492-0014		PHASE No. 2000	
DESIGN	AS	04-APR-11	SCALE AS SHOWN	REV. 0
GIS	RKL	04-APR-11		
CHECK	AS	04-APR-11		
REVIEW	AS	04-APR-11		

FIGURE: 2

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APPENDIX A

Field Soil Description Sheets and Drill Logs

Golder Associates Ltd.

SOIL SURVEY DATA SHEET **Project Name:** City of Kelowna GRP Ag Capability **Project #** 11.1492.0014

Site #	GRP~~2~~ 1	Waypoint ID		Surveyors	AS & KF	Date (d/m/y)	28/02/2011
Datum	27 83	UTM Zone	E		N	Photo start/end:	1, 2

Landform Class	Upland Bog Fen Swamp Other Wetland	Land Use	Cultivated/Crop Orchard/Vineyard (Hay) Improved Pasture Rough Grazing Wooded Disturbed Bog Fen Marsh/Water
Surface Expression	Depressional Level (Nearly Level) Inclined Undulating Rolling Dissected Hummocky Ridged Steep Terraced		

Parent Material	Slope Position	Aspect	Slope Length (m)
GL	Crest Upper Mid Lower Toe (Level) Depression	NA	NA

Slope Class (%): (1) 0-0.5 (2) >0.5-2 (3) >2-5 (4) >5-10 (5) >10-15 (6) >15-30 (7) >30-45 (8) >45-70 (9) >70-100

Surface Stoniness (% of ground surface covered with stones >8 cm diametre): (S0-non (<0.01)) S1-slightly (0.01-0.1) S2-moderately (0.1-3) S3-very (3-15) S4-exceedingly (15-50) S5-excessively (>50)

VEGETATION COVER

Ecosite Phase/Vegetation Type:

Plant Species (record dominant species/ Indicator species)

Layer	species	%cover	species	%cover	species	%cover
Trees						
Shrubs						
Ground cover	ALFALFA			~100		
Ground cover	ORCHARD GRASS					

Depth to Groundwater(cm): >1m Depth to Bedrock (cm): NA

Drainage: Very Rapid Rapid Well (ModWell) Imperfect Poor Very Poor

Soil Profile Description

Horizon	Depth (cm) Top	Depth (cm) Bot.	Colour	LAB Texture	Structure Grade	Structure Class	Structure Kind	Consist- (d/(m)/w)	Crs. Frags %Vol	Crs. Frags Size	Efferve-scence	Mottles Abun	Mottles Size	Mottles Con	Roots Fine	Roots Crs	Sample
Ap	0	22	10YR3/2	SiL	M	M	GR	FROZEN	0		N	X	-	-	P	F	YES
Btk	22	38		sicl	M	M	SBK	FROZEN	0		W	X	-	-	F	F	YES
BC	38	55		sicl	-	-	MA	FI	0		S	F	F	F	VF	VF	YES
Ck	55	80+		sicl	-	-	MA	FI	0		S	F	D	F	X	X	YES

Comments/Site diagram:

- SOIL WAS FROZEN TO ABOUT 30 cm
- 1/4" ALFALFA ROOTS IN BC
- ALFALFA IS GROWING HERE
- CAPABILITY CLASS 3D - IMPROVED.

Parent Material Texture	CLAY-sicl	Soil Subgroup	OGL	Soil Series	WESTBANK

Parent Material
Glaciolacustrine (GL)
Glaciofluvial (GF)
Morainal (M)
Lacustrine (L)
Fluvial (F)
Eolian (E)
Organic (O) Fill (A)

Coarse Fragments
% Volume of CF per horizon in profile
Size (cm): <8-gravel, 8to25-cobble, 25to60-stone, >60-boulder

Structure (pick one from each: Grade, Class, Kind)
Grade (distinctness):
W - Weak (weakly formed peds)
M - Moderate (MW formed peds)
S - Strong (peds clearly evident)

Class (size):
F - Fine
M - Medium
C - Coarse

Kind (shape):
SG - Single grain (sand
GR - Granular (topsoil
PL - platy (Ae)
SBK - Subangular blocky
ABK - Angular blocky
PR - Prismatic
CO - Columnar
MA - Massive

Consistence (choose appropriate soil moisture)
Dry:
L - Loose
S - Soft
SH - Slightly Hard
H - Hard
VH - Very Hard
EH - Extremely Hard
R - Rigid

Moist:
L - Loose
VFR Very Friable
FR - Friable
FI - Firm
VFI - Very Firm

Wet:
NS - Nonsticky
SS - Slightly Sticky
ST - Sticky
VST - Very Sticky

Effervesence (bubbles from HCl are:)
N - None
VW - Very Weak (few; can hear)
W - Weak (readily observed)
M - Moderate (low foam formed)
S - Strong (thick foam formed)

Fine and Coarse Roots
X - None, VF - Very Few, F - Few, P - Plentiful, A - Abundant

Mottling (pick one from all three)
Abundance (%):
X - None
F - Few (<2)
C - Common (2-20)
M - Many (>20)

Contrast:
F - Faint
D - Distinct
P - Prominent

Size (mm):
F - Fine (<5)
M - Medium (5-15)
C - Coarse (>15)

Golder Associates Ltd.

SOIL SURVEY DATA SHEET **Project Name:** City of Kelowna GRP Ag Capability **Project #** 11.1492.0014

Site #	GRP-~~X~~ 2	Waypoint ID		Surveyors	AS & KF	Date (d/m/y)	28/02/2011
Datum	27 83	UTM Zone	E	N		Photo start/end:	3

Landform Class: (Upland) Bog Fen Swamp Other Wetland

Surface Expression: (Depressional) Level Nearly Level Inclined Undulating Rolling Dissected Hummocky Ridged Steep Terraced

Land Use: Cultivated/Crop Orchard/Vineyard (Hay) Improved Pasture Rough Grazing Wooded Disturbed Bog Fen Marsh/Water

Parent Material	Slope Position	Aspect	Slope Length (m)
GL	Crest Upper Mid Lower Toe Level (Depression)		

Slope Class (%): (1) 0-0.5 (2) >0.5-2 (3) >2-5 (4) >5-10 (5) >10-15 (6) >15-30 (7) >30-45 (8) >45-70 (9) >70-100

Surface Stoniness (% of ground surface covered with stones >8 cm diametre): S0-non (<0.01) S1-slightly (0.01-0.1) S2-moderately (0.1-3) S3-very (3-15) S4-exceedingly (15-50) S5-excessively (>50)

VEGETATION COVER

Ecosite Phase/Vegetation Type:

Plant Species (record dominant species/ Indicator species)

Layer	species	%cover	species	%cover	species	%cover
Trees						
Shrubs						
Ground cover	ALFALFA		}	100%		
Ground cover	ORCHARD GRASS					

Depth to Groundwater(cm): >80 Depth to Bedrock (cm): —

Drainage: Very Rapid Rapid Well (Mod Well) ~~Imperfect~~ Poor Very Poor — MOD WELL

Soil Profile Description

Horizon	Depth (cm) Top	Depth (cm) Bot.	Colour	Field Texture	Structure Grade	Structure Class	Structure Kind	Consist- (d/m/w)	Crs. Frags %Vol	Crs. Frags Size	Effervescence	Mottles Abun	Mottles Size	Mottles Con	Roots Fine	Roots Crs	Sample
Ap	0	20		—	m	m	GR	FROZEN	0	—	X	X			A	F	YES ~~NO~~
Btkj	20	37		SiC	m	m	SBK	FROZEN	0	—	W	X			VF	F	YES ~~NO~~
BC	37	55		sic	-	-	MA	FI	0	-	S	F	F	F	X	VF	YES
Ck	55	80+		sic	-	-	MA	FI	0	-	S	F	D	M	X	VF	NO

Comments/Site diagram:

- GYPSUM DEPOSITS (SMALL) SPECKS IN BC
- AG CAPABILITY 3D IMPROVED
- SOIL FROZEN TO ABOUT 35cm

Parent Material Texture	SiC	Soil Subgroup	OGL	Soil Series	WESTBANK

Parent Material: Glaciolacustrine (GL); Glaciofluvial (GF); Morainal (M); Lacustrine (L); Fluvial (F); Eolian (E); Organic (O); Fill (A)

Coarse Fragments: % Volume of CF per horizon in profile

Size (cm): <8-gravel, 8to25-cobble, 25to60-stone, >60-boulder

Structure (pick one from each: Grade, Class, Kind)

Grade (distinctness): W - Weak (weakly formed peds); M - Moderate (MW formed peds); S - Strong (peds clearly evident)

Class (size): F - Fine; M - Medium; C - Coarse

Kind (shape): SG - Single grain (sand); GR - Granular (topsoil); PL - platy (Ae); SBK - Subangular blocky; ABK - Angular blocky; PR - Prismatic; CO - Columnar; MA - Massive

Consistence (choose appropriate soil moisture)

Dry: L - Loose; S - Soft; SH - Slightly Hard; H - Hard; VH - Very Hard; EH - Extremely Hard; R - Rigid

Moist: L - Loose; VFR Very Friable; FR - Friable; FI - Firm; VFI - Very Firm

Wet: NS - Nonsticky; SS - Slightly Sticky; ST - Sticky; VST - Very Sticky

Effervesence (bubbles from HCl are:)

N - None; VW - Very Weak (few; can hear); W - Weak (readily observed); M - Moderate (low foam formed); S - Strong (thick foam formed)

Fine and Coarse Roots

X - None, VF - Very Few, F - Few, P - Plentiful, A - Abundant

Mottling (pick one from all three)

Abundance (%): X - None; F - Few (<2); C - Common (2-20); M - Many (>20)

Contrast: F - Faint; D - Distinct; P - Prominent

Size (mm): F - Fine (<5); M - Medium (5-15); C - Coarse (>15)

Golder Associates Ltd.

SOIL SURVEY DATA SHEET **Project Name:** City of Kelowna GRP Ag Capability **Project #** 11.1492.0014

Site #	GRP-3	Waypoint ID		Surveyors	AS & KF	Date (d/m/y)	28/02/2011
Datum	27 83	UTM Zone	E		N	Photo start/end:	4, 5, 6

Landform Class: (Upland) Bog Fen Swamp Other Wetland

Surface Expression: Depressional Level Nearly Level (Inclined) Undulating Rolling Dissected Hummocky Ridged Steep Terraced

Land Use: Cultivated/Crop Orchard/Vineyard (Hay) Improved Pasture Rough Grazing Wooded Disturbed Bog Fen Marsh/Water

Parent Material	Slope Position	Aspect	Slope Length (m)
GL	Crest Upper (Mid) Lower Toe Level Depression	NW	120

Slope Class (%): (1) 0-0.5 (2) >0.5-2 (3) >2-5 (4) >5-10 (5) >10-15 (6) >15-30 (7) >30-45 (8) >45-70 (9) >70-100

Surface Stoniness (% of ground surface covered with stones >8 cm diametre): (0-non (<0.01) S1-slightly (0.01-0.1) S2-moderately (0.1-3) S3-very (3-15) S4-exceedingly (15-50) S5-excessively (>50)

VEGETATION COVER

Ecosite Phase/Vegetation Type:

Plant Species (record dominant species/ Indicator species)

Layer	species	%cover	species	%cover	species	%cover
Trees						
Shrubs						
Ground cover	ALFALFA		GRASS	100%		
Ground cover	ORCHARDGRASS					

Depth to Groundwater(cm): 80 Depth to Bedrock (cm): –

Drainage: Very Rapid Rapid Well ModWell (Imperfect) Poor Very Poor

Soil Profile Description

Horizon	Depth (cm) Top	Depth (cm) Bot.	Colour	Field Texture	Structure Grade	Structure Class	Structure Kind	Consist- (d/m/w)	Crs. Frags %Vol	Crs. Frags Size	Efferve-scence	Mottles Abun	Mottles Size	Mottles Con	Roots Fine	Roots Crs	Sample
Ap	0	22		–	M	M	GR	FRIABLE	0	–	N	X			A	F	YES
Bt	22	40		–	M	M	SBK	FRIABLE	0	–	N	X			P	F	YES
BCk	40	50		sic	X	X	MA	VFI	0	–	W	F	F	F	VF	VF	NO
Ckg	50	80	grey	sic	X	X	MA	ST	0	–	M	F	D	M	X	X	NO

Comments/Site diagram:

- SOIL IS FROZEN TO ABOUT 30 cm.
- PROFILE IS WET BELOW 50 cm
- SOIL IS CLASSED AS WB, BUT GRADES TO SR.

Parent Material Texture: sic **Soil Subgroup:** OGL **Soil Series:** WESTBANK

Parent Material	Structure (pick one from each: Grade, Class, Kind)		Consistence (choose appropriate soil moisture)		Effervesence (bubbles from HCl are:)	Mottling (pick one from all three)
Glaciolacustrine (GL) Glaciofluvial (GF) Morainal (M) Lacustrine (L) Fluvial (F) Eolian (E) Organic (O) Fill (A)	Grade (distinctness): W - Weak (weakly formed peds) M - Moderate (MW formed peds) S - Strong (peds clearly evident)	Kind (shape): SG - Single grain (sand GR - Granular (topsoil PL - platy (Ae) SBK - Subangular blocky ABK - Angular blocky PR - Prismatic CO - Columnar MA - Massive	Dry: L - Loose S - Soft SH - Slightly Hard H - Hard VH - Very Hard EH - Extremely Hard R - Rigid	Moist: L - Loose VFR Very Friable FR - Friable FI - Firm VFI - Very Firm Wet: NS - Nonsticky SS - Slightly Sticky ST - Sticky VST - Very Sticky	N - None VW - Very Weak (few; can hear) W - Weak (readily observed) M - Moderate (low foam formed) S - Strong (thick foam formed)	Abundance (%): X - None F - Few (<2) C - Common (2-20) M - Many (>20) Contrast: F - Faint D - Distinct P - Prominent Size (mm): F - Fine (<5) M - Medium (5-15) C - Coarse (>15)
Coarse Fragments % Volume of CF per horizon in profile Size (cm): <8-gravel, 8to25-cobble, 25to60-stone, >60-boulder	Class (size): F - Fine M - Medium C - Coarse				**Fine and Coarse Roots** X - None, VF - Very Few, F - Few, P - Plentiful, A - Abundant	

Golder Associates Ltd.

SOIL SURVEY DATA SHEET **Project Name:** City of Kelowna GRP Ag Capability **Project #** 11.1492.0014

Site #	GRP-4	Waypoint ID		Surveyors	AS & KF	Date (d/m/y)	28/02/2011
Datum	27 83	UTM Zone	E	N		Photo start/end:	7, 8

Landform Class: (Upland) Bog Fen Swamp Other Wetland

Surface Expression: Depressional Level Nearly Level (Inclined) Undulating Rolling Dissected Hummocky Ridged Steep Terraced

Land Use: Cultivated/Crop Orchard/Vineyard (Hay) Improved Pasture Rough Grazing Wooded Disturbed Bog Fen Marsh/Water

Parent Material	Slope Position	Aspect	Slope Length (m)
GL	Crest Upper (Mid) Lower Toe Level Depression	NW	150

Slope Class (%): (1) 0-0.5 (2) >0.5-2 (3) >2-5 (4) >5-10 (5) >10-15 (6) >15-30 (7) >30-45 (8) >45-70 (9) >70-100

Surface Stoniness (% of ground surface covered with stones >8 cm diametre): (S0-non) (<0.01) S1-slightly (0.01-0.1) S2-moderately (0.1-3) S3-very (3-15) S4-exceedingly (15-50) S5-excessively (>50)

VEGETATION COVER

Ecosite Phase/Vegetation Type:

Plant Species (record dominant species/ Indicator species)

Layer	species	%cover	species	%cover	species	%cover
Trees						
Shrubs						
Ground cover	ALFALFA		100%			
Ground cover	ORCHARD GRASS					

Depth to Groundwater(cm): 100 Depth to Bedrock (cm): —

Drainage: Very Rapid Rapid Well (ModWell) Imperfect Poor Very Poor

Soil Profile Description

Horizon	Depth (cm) Top	Depth (cm) Bot.	Colour	Texture	Structure Grade	Structure Class	Structure Kind	Consist- (d/m/w)	Crs. Frags %Vol	Crs. Frags Size	Efferve-scence	Mottles Abun	Mottles Size	Mottles Con	Roots Fine	Roots Crs	Sample
Ap	0	28		LAB SiC	M	M	GR	FROZEN	0	—	N	X	—	—	P	F	YES
BC	28	40		LAB SiL	M	M	SBK	FR	0	—	N	X	—	—	VF	VF	YES
BC	40	55		FIELD SiCl	W	M	SBK	FI	0	—	VW	F	F	F	VF	VF	NO
Ck	55	88		FIELD SiCl	-	-	MA	FR	0	—	M	F	F	F	X	X	NO

Comments/Site diagram:

SOIL IS FROZEN TO ABOUT 30 cm

TOPSOIL DEEPER THAN AT SITE 1, 2 AND 3

PROFILE NOT WET TO 88 cm

Parent Material Texture	SiCL	Soil Subgroup	OGL	Soil Series	WESTBANK

Parent Material	Structure (pick one from each: Grade, Class, Kind)		Consistence (choose appropriate soil moisture)		Effervesence (bubbles from HCl are:)	Mottling (pick one from all three)
Glaciolacustrine (GL)		Kind (shape):	Dry:	Moist:	N - None	Abundance (%):
Glaciofluvial (GF)	Grade (distinctness):	SG - Single grain (sand	L - Loose	L - Loose	VW - Very Weak (few; can hear)	X - None
Morainal (M)	W - Weak (weakly formed peds)	GR - Granular (topsoil	S - Soft	VFR Very Friable	W - Weak (readily observed)	F - Few (<2)
Lacustrine (L)	M - Moderate (MW formed peds)	PL - platy (Ae)	SH - Slightly Hard	FR - Friable	M - Moderate (low foam formed)	C - Common (2-20)
Fluvial (F)	S - Strong (peds clearly evident)	SBK - Subangular blocky	H - Hard	FI - Firm	S - Strong (thick foam formed)	M - Many (>20)
Eolian (E)		ABK - Angular blocky	VH - Very Hard	VFI - Very Firm		Contrast:
Organic (O) Fill (A)	Class (size):	PR - Prismatic	EH - Extremely Hard	Wet:	Fine and Coarse Roots	F - Faint
Coarse Fragments	F - Fine	CO - Columnar	R - Rigid	NS - Nonsticky	X - None, VF - Very Few, F - Few, P - Plentiful, A - Abundant	D - Distinct
% Volume of CF per horizon in profile	M - Medium	MA - Massive		SS - Slightly Sticky		P - Prominent
Size (cm): <8-gravel, 8to25-cobble, 25to60-stone, >60-boulder	C - Coarse			ST - Sticky		Size (mm):
				VST - Very Sticky		F - Fine (<5)
						M - Medium (5-15)
						C - Coarse (>15)

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SOIL SURVEY DATA SHEET **Project Name:** City of Kelowna GRP Ag Capability **Project #** 11.1492.0014

Site #	GRP-5	Waypoint ID		Surveyors	AS & KF	Date (d/m/y)	28/02/2011
Datum	27 83	UTM Zone	E		N	Photo start/end:	21, 22

Landform Class: (Upland) Bog Fen Swamp Other Wetland

Surface Expression: Depressional Level Nearly Level (Inclined) Undulating Rolling Dissected Hummocky Ridged Steep Terraced

Land Use: Cultivated/Crop Orchard/Vineyard (Hay) improved Pasture Rough Grazing Wooded Disturbed Bog Fen Marsh/Water

Parent Material	Slope Position	Aspect	Slope Length (m)
GL	Crest Upper Mid (Lower) Toe Level Depression	NW	200

Slope Class (%): (1) 0-0.5 (2) >0.5-2 (3) >2-5 (4) >5-10 (5) >10-15 (6) >15-30 (7) >30-45 (8) >45-70 (9) >70-100

Surface Stoniness (% of ground surface covered with stones >8 cm diametre): (S0-non (<0.01)) S1-slightly (0.01-0.1) S2-moderately (0.1-3) S3-very (3-15) S4-exceedingly (15-50) S5-excessively (>50)

VEGETATION COVER

Ecosite Phase/Vegetation Type:

Plant Species (record dominant species/ Indicator species)

Layer	species	%cover	species	%cover	species	%cover
Trees						
Shrubs						
Ground cover	ALFALFA	100 %				
Ground cover	ORCHARD GRASS	10 %				

Depth to Groundwater(cm): **Depth to Bedrock (cm):**

Drainage: Very Rapid Rapid Well ModWell (Imperfect) Poor Very Poor

Soil Profile Description

Horizon	Depth (cm) Top	Depth (cm) Bot.	Colour	Texture (Field)	Structure Grade	Structure Class	Structure Kind	Consist- (d/m/w)	Crs. Frags %Vol	Crs. Frags Size	Efferve-scence	Mottles Abun	Mottles Size	Mottles Con	Roots Fine	Roots Crs	Sample
Ap	0	26		—	M	M	GR	FROZEN	0	—	N	X	—	—	A	VF	YES
Bt	26	46		sicl	M	M	SBK	FROZEN	0	—	N	X	—	—	F	VF	YES
BC	46	66		cl	W	M	SBK	FR	0	—	W	F	D	M	X	VF	NO
Ck	66	90		cl	—	—	MA	FR	0	—	S	M	F	M	X	X	NO

Comments/Site diagram:

- PROFILE FROZEN TO 35cm B
- FREE WATER @ 88cm

Parent Material Texture: cl **Soil Subgroup:** OGL **Soil Series:** WESTBANK

Parent Material	Structure (pick one from each: Grade, Class, Kind)		Consistence (choose appropriate soil moisture)		Effervesence (bubbles from HCl are:)	Mottling (pick one from all three)
Glaciolacustrine (GL) Glaciofluvial (GF) Morainal (M) Lacustrine (L) Fluvial (F) Eolian (E) Organic (O) Fill (A)	Grade (distinctness): W - Weak (weakly formed peds) M - Moderate (MW formed peds) S - Strong (peds clearly evident) Class (size): F - Fine M - Medium C - Coarse	Kind (shape): SG - Single grain (sand GR - Granular (topsoil) PL - platy (Ae) SBK - Subangular blocky ABK - Angular blocky PR - Prismatic CO - Columnar MA - Massive	Dry: L - Loose S - Soft SH - Slightly Hard H - Hard VH - Very Hard EH - Extremely Hard R - Rigid	Moist: L - Loose VFR Very Friable FR - Friable FI - Firm VFI - Very Firm Wet: NS - Nonsticky SS - Slightly Sticky ST - Sticky VST - Very Sticky	N - None VW - Very Weak (few; can hear) W - Weak (readily observed) M - Moderate (low foam formed) S - Strong (thick foam formed)	Abundance (%): X - None F - Few (<2) C - Common (2-20) M - Many (>20) Contrast: F - Faint D - Distinct P - Prominent Size (mm): F - Fine (<5) M - Medium (5-15) C - Coarse (>15)

Coarse Fragments

% Volume of CF per horizon in profile

Size (cm): <8-gravel, 8to25-cobble, 25to60-stone, >60-boulder

Fine and Coarse Roots

X - None, VF - Very Few, F - Few, P - Plentiful, A - Abundant

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SOIL SURVEY DATA SHEET **Project Name:** City of Kelowna GRP Ag Capability **Project #** 11.1492.0014

Site #	GRP-6	Waypoint ID		Surveyors	AS & KF	Date (d/m/y)	28/02/2011
Datum	27 83	UTM Zone		E	N	Photo start/end:	23, 24

Landform Class: (Upland) Bog Fen Swamp Other Wetland

Surface Expression: Depressional Level Nearly Level (Inclined) Undulating Rolling Dissected Hummocky Ridged Steep Terraced

Land Use: Cultivated/Crop Orchard/Vineyard (Hay) Improved Pasture Rough Grazing Wooded Disturbed Bog Fen Marsh/Water

Parent Material	Slope Position	Aspect	Slope Length (m)
GL	Crest Upper Mid (Lower) Toe Level Depression	NW	70

Slope Class (%): (1) 0-0.5 (2) >0.5-2 (3) >2-5 (4) >5-10 (5) >10-15 (6) >15-30 (7) >30-45 (8) >45-70 (9) >70-100

Surface Stoniness (% of ground surface covered with stones >8 cm diametre): (S0-non (<0.01) S1-slightly (0.01-0.1) S2-moderately (0.1-3) S3-very (3-15) S4-exceedingly (15-50) S5-excessively (>50)

VEGETATION COVER

Ecosite Phase/Vegetation Type:

Plant Species (record dominant species/ Indicator species)

Layer	species	%cover	species	%cover	species	%cover
Trees						
Shrubs						
Ground cover						
Ground cover	ORCHARD		GRASS	~100%		

Depth to Groundwater(cm): Depth to Bedrock (cm):

Drainage: Very Rapid Rapid Well ModWell Imperfect (Poor) Very Poor

Soil Profile Description

Horizon	Depth (cm) Top	Depth (cm) Bot.	Colour	Texture	Structure Grade	Structure Class	Structure Kind	Consist- (d/m/w)	Crs. Frags %Vol	Crs. Frags Size	Efferve-scence	Mottles Abun	Mottles Size	Mottles Con	Roots Fine	Roots Crs	Sample
Apg	0	26		LOAM SiCL	W	F	GR	FRZ	0	-	N	N	-	-	P	X	YES
Bg	26	56		LOAM SiCL	W	M	ABK	FR	0	-	N	C	M	F	VF	X	YES
Cgk	56	90	gley	FIELD SiCL	-	-	MA	FI	0	-	W	C	M	F	VF	X	YES

Comments/Site diagram:

- NO ALFALFA AT THIS SITE - POOR DRAINAGE
- PROFILE FROZEN TO 30 cm
- FREE WATER @ 90 cm
- GYPSUM IN LOWER A AND IN B HORIZON
- AG. CAPABILITY 5NW

Parent Material Texture: SiCL **Soil Subgroup:** OHG SALINE PHASE **Soil Series:** SUMMERLAND

Parent Material	Structure (pick one from each: Grade, Class, Kind)		Consistence (choose appropriate soil moisture)		Effervesence (bubbles from HCl are:)	Mottling (pick one from all three)
Glaciolacustrine (GL)		Kind (shape):	Dry:	Moist:	N - None	Abundance (%):
Glaciofluvial (GF)	Grade (distinctness):	SG - Single grain (sand	L - Loose	L - Loose	VW - Very Weak (few; can hear)	X - None
Morainal (M)	W - Weak (weakly formed peds)	GR - Granular (topsoil	S - Soft	VFR Very Friable	W - Weak (readily observed)	F - Few (<2)
Lacustrine (L)	M - Moderate (MW formed peds)	PL - platy (Ae)	SH - Slightly Hard	FR - Friable	M - Moderate (low foam formed)	C - Common (2-20)
Fluvial (F)	S - Strong (peds clearly evident)	SBK - Subangular blocky	H - Hard	FI - Firm	S - Strong (thick foam formed)	M - Many (>20)
Eolian (E)		ABK - Angular blocky	VH - Very Hard	VFI - Very Firm		Contrast:
Organic (O) Fill (A)	Class (size):	PR - Prismatic	EH - Extremely Hard	Wet:	Fine and Coarse Roots	F - Faint
Coarse Fragments	F - Fine	CO - Columnar	R - Rigid	NS - Nonsticky	X - None, VF - Very Few, F - Few, P - Plentiful, A - Abundant	D - Distinct
% Volume of CF per horizon in profile	M - Medium	MA - Massive		SS - Slightly Sticky		P - Prominent
Size (cm): <8-gravel, 8to25-cobble, 25to60-stone, >60-boulder	C - Coarse			ST - Sticky		Size (mm):
				VST - Very Sticky		F - Fine (<5)
						M - Medium (5-15)
						C - Coarse (>15)

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SOIL SURVEY DATA SHEET **Project Name:** City of Kelowna GRP Ag Capability **Project #** 11.1492.0014

Site #	GRP-7	Waypoint ID		Surveyors	AS & KF	Date (d/m/y)	28/02/2011
Datum	27 83	UTM Zone	E	N		Photo start/end:	25 26

Landform Class: (Upland) Bog Fen Swamp Other Wetland

Surface Expression: Depressional Level Nearly Level Inclined Undulating Rolling Dissected Hummocky Ridged Steep Terraced

Land Use: Cultivated/Crop Orchard/Vineyard Hay improved Pasture Rough Grazing Wooded Disturbed Bog Fen Marsh/Water

Parent Material	Slope Position	Aspect	Slope Length (m)
GL	(Crest) Upper Mid Lower Toe Level Depression	NW	—

Slope Class (%): (1) 0-0.5 (2) >0.5-2 (3) >2-5 (4) >5-10 (5) >10-15 (6) >15-30 (7) >30-45 (8) >45-70 (9) >70-100

Surface Stoniness (% of ground surface covered with stones >8 cm diametre): S0-non (<0.01) S1-slightly (0.01-0.1) S2-moderately (0.1-3) S3-very (3-15) S4-exceedingly (15-50) S5-excessively (>50)

VEGETATION COVER

Ecosite Phase/Vegetation Type:

Plant Species (record dominant species/ Indicator species)

Layer	species	%cover	species	%cover	species	%cover
Trees						
Shrubs						
Ground cover						
Ground cover	ORCHARD GRASS- 80%					

Depth to Groundwater(cm): Depth to Bedrock (cm):

Drainage: Very Rapid Rapid Well (Mod Well) Imperfect Poor Very Poor

Soil Profile Description

Horizon	Depth (cm) Top	Depth (cm) Bot.	Colour	Texture	Structure Grade	Structure Class	Structure Kind	Consist- (d/m/w)	Crs. Frags %Vol	Crs. Frags Size	Efferve-scence	Mottles Abun	Mottles Size	Mottles Con	Roots Fine	Roots Crs	Sample
Ap	0	18		—	W	F	GR	FROZEN	0	—	VW	X			P	VF	YES
Bg	18	30		cl	S	M	ABK	VFR	0	—	W	C	M	F	F	VF	YES
BC	30	40		cl	—	—	MA	VFR	0	—	S	C	M	F	X	X	NO
Cg	40	90		cl	—	—	MA	FR	0	—	N	C	C	F	X	X	YES

Comments/Site diagram:

PROFILE IS FROZEN TO ABOUT 20 cm
NO ALFALFA
FREE WATER @ 90 cm

C HORIZON HAS GYPSUM

Parent Material Texture: | Soil Subgroup: gleyed OGL | Soil Series: gl SUMMERLAND

Parent Material	Structure (pick one from each: Grade, Class, Kind)		Consistence (choose appropriate soil moisture)		Effervesence (bubbles from HCl are:)	Mottling (pick one from all three)
Glaciolacustrine (GL)		Kind (shape):	Dry:	Moist:	N - None	Abundance (%):
Glaciofluvial (GF)	Grade (distinctness):	SG - Single grain (sand	L - Loose	L - Loose	VW - Very Weak (few; can hear)	X - None
Morainal (M)	W - Weak (weakly formed peds)	GR - Granular (topsoil	S - Soft	VFR Very Friable	W - Weak (readily observed)	F - Few (<2)
Lacustrine (L)	M - Moderate (MW formed peds)	PL - platy (Ae)	SH - Slightly Hard	FR - Friable	M - Moderate (low foam formed)	C - Common (2-20)
Fluvial (F)	S - Strong (peds clearly evident)	SBK - Subangular blocky	H - Hard	FI - Firm	S - Strong (thick foam formed)	M - Many (>20)
Eolian (E)		ABK - Angular blocky	VH - Very Hard	VFI - Very Firm		Contrast:
Organic (O) Fill (A)	Class (size):	PR - Prismatic	EH - Extremely Hard	Wet:	Fine and Coarse Roots	F - Faint
Coarse Fragments	F - Fine	CO - Columnar	R - Rigid	NS - Nonsticky	X - None, VF - Very Few, F - Few, P - Plentiful, A - Abundant	D - Distinct
% Volume of CF per horizon in profile	M - Medium	MA - Massive		SS - Slightly Sticky		P - Prominent
Size (cm): <8-gravel, 8to25-cobble, 25to60-stone, >60-boulder	C - Coarse			ST - Sticky		Size (mm):
				VST - Very Sticky		F - Fine (<5)
						M - Medium (5-15)
						C - Coarse (>15)

Golder Associates Ltd.

SOIL SURVEY DATA SHEET **Project Name:** City of Kelowna GRP Ag Capability **Project #** 11.1492.0014

Site #	GRP-8	Waypoint ID		Surveyors	AS & KF	Date (d/m/y)	28/02/2011
Datum	27 83	UTM Zone	E	N		Photo start/end:	27, 28

Landform Class: Upland Bog Fen Swamp (Other Wetland)

Surface Expression: Depressional (Level) Nearly Level Inclined Undulating Rolling Dissected Hummocky Ridged Steep Terraced

Land Use: Cultivated/Crop Orchard/Vineyard Hay improved Pasture Rough Grazing Wooded Disturbed Bog (SPORTSFIELD) Fen Marsh/Water

VEGETATION COVER

Ecosite Phase/Vegetation Type:

Parent Material	Slope Position	Aspect	Slope Length (m)
GL	Crest Upper Mid Lower Toe (Level) Depression	NA	—

Slope Class (%): (1) 0-0.5 (2) >0.5-2 (3) >2-5 (4) >5-10 (5) >10-15 (6) >15-30 (7) >30-45 (8) >45-70 (9) >70-100

Surface Stoniness (% of ground surface covered with stones >8 cm diametre): (S0-non (<0.01) S1-slightly (0.01-0.1) S2-moderately (0.1-3) S3-very (3-15) S4-exceedingly (15-50) S5-excessively (>50)

Plant Species (record dominant species/ Indicator species)

Layer	species	%cover	species	%cover	species	%cover
Trees						
Shrubs						
Ground cover	grass	100%				
Ground cover						

Depth to Groundwater(cm): **Depth to Bedrock (cm):**

Drainage: Very Rapid Rapid Well ModWell (Imperfect) Poor Very Poor

Soil Profile Description

Horizon	Depth (cm) Top	Depth (cm) Bot.	Colour	Texture	Structure Grade	Structure Class	Structure Kind	Consist- (d/(m)/w)	Crs. Frags %Vol	Crs. Frags Size	Efferve-scence	Mottles Abun	Mottles Size	Mottles Con	Roots Fine	Roots Crs	Sample
Ap	0	10		—	W	F	GR	FROZEN	0	—	N	X	—	—	P	X	YES
Cgj	10	45	grey	HEAVY CLAY	-	-	NA	VFI	0	—	W	F	M	F	X	X	YES

Comments/Site diagram:

- GROUND FROZEN TO ABOUT 20 cm
- SITE 8 IS AT EAST CORNER OF BALL FIELD—(OPPOSITE FIREHALL)
- SPORTS FIELD AREA HAS BEEN CUT AND FILLED. AREA OF SITE 8 HAS BEEN CUT (<30 cm) AND TOPSOIL REPLACED

THIS PAGE WAS MAPPED PREVIOUSLY AS WK

Parent Material Texture: HEAVY CLAY **Soil Subgroup:** NA **Soil Series:** NA.

Parent Material	Structure (pick one from each: Grade, Class, Kind)		Consistence (choose appropriate soil moisture)		Effervesence (bubbles from HCl are:)	Mottling (pick one from all three)
Glaciolacustrine (GL)		Kind (shape):	Dry:	Moist:	N - None	Abundance (%):
Glaciofluvial (GF)	Grade (distinctness):	SG - Single grain (sand	L - Loose	L - Loose	VW - Very Weak (few; can hear)	X - None
Morainal (M)	W - Weak (weakly formed peds)	GR - Granular (topsoil	S - Soft	VFR Very Friable	W - Weak (readily observed)	F - Few (<2)
Lacustrine (L)	M - Moderate (MW formed peds)	PL - platy (Ae)	SH - Slightly Hard	FR - Friable	M - Moderate (low foam formed)	C - Common (2-20)
Fluvial (F)	S - Strong (peds clearly evident)	SBK - Subangular blocky	H - Hard	FI - Firm	S - Strong (thick foam formed)	M - Many (>20)
Eolian (E)		ABK - Angular blocky	VH - Very Hard	VFI - Very Firm		Contrast:
Organic (O) Fill (A)	Class (size):	PR - Prismatic	EH - Extremely Hard	Wet:	Fine and Coarse Roots	F - Faint
Coarse Fragments	F - Fine	CO - Columnar	R - Rigid	NS - Nonsticky	X - None, VF - Very Few, F - Few, P - Plentiful, A - Abundant	D - Distinct
% Volume of CF per horizon in profile	M - Medium	MA - Massive		SS - Slightly Sticky		P - Prominent
Size (cm): <8-gravel, 8to25-cobble, 25to60-stone, >60-boulder	C - Coarse			ST - Sticky		Size (mm):
				VST - Very Sticky		F - Fine (<5)
						M - Medium (5-15)
						C - Coarse (>15)

PROJECT No.: 10-1493-0016.3100

RECORD OF TEST PIT: TP11-1

SHEET 1 OF 1

LOCATION: 229 Valley Road, Kelowna, B.C.

BORING DATE: January 25, 2011

DATUM: Local

PENETRATION TEST HAMMER, Variable

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	Headspace (ppm) ⊕ 20 40 60 80 / Soil Vapour Content (% LEL) □ 20 40 60 80	BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL LAB. TESTING	MONITORING WELL
0		Ground Surface		0.00							
		Firm to stiff light brown CLAYEY SILT, with cobbles, some coarse gravel. (TOPSOIL)			1	GS	⊕				
		Loose dark red-brown GRAVELLY SAND, trace to some silt. (TOPSOIL)		0.61	2	GS	⊕				
		Firm brown-grey SILTY CLAY, dark brown with black staining organic seams. (FILL)		0.71	3	GS					
1		Firm dark brown and blue-black CLAYEY SILT, organic rootlets, organic odour. (FILL)		1.07	4	GS	⊕				
		Soft light brown SILTY CLAY, black pockets of organic staining.		1.37	5	GS	⊕				
2		--- Groundwater seepage observed at 1.8 m.									
		Very soft brown SILTY CLAY, trace coarse sand.		1.93	6	GS	⊕				
		Stiff brown SILTY CLAY, till-like.		2.44							
3		End of TEST PIT.		3.05							
4											
5											
6											
7											
8											
9											
10											

BECKER 1014930016_3100_2011 LOGS.GPJ GLDR_CAN.GDT 22/3/11

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: KF/SA
CHECKED: JF/AR

PROJECT No.: 10-1493-0016.3100

RECORD OF TEST PIT: TP11-2

SHEET 1 OF 1

LOCATION: 229 Valley Road, Kelowna, B.C.

BORING DATE: January 25, 2011

DATUM: Local

PENETRATION TEST HAMMER, Variable

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	Headspace (ppm) / Soil Vapour Content (% LEL)	BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL LAB. TESTING	MONITORING WELL
0		Ground Surface									
		Stiff brown CLAYEY SILT, trace gravel. (FILL)		0.00	1	GS					
		Firm to dense brown silty SAND, trace to some sub-rounded to sub-angular gravel, asphalt pieces, grading to stiff silty SAND and GRAVEL, trace to some clay. (FILL)		0.38	2	GS					
1		Very dense to compact plastic grey-brown silty SAND, trace to some clay, rootlets. (FILL)		0.91	3	GS					
2		Soft to firm brown CLAYEY SILT, trace organics and wood debris grading to firm brown SILTY CLAY, trace coarse sand and fine gravel.		1.83	4	GS					
3					5	GS					
		End of TEST PIT.		3.05							
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: KF/SA
CHECKED: JF/AR

BECKER 1014930016_3100_2011 LOGS.GPJ GLDR_CAN.GDT 22/3/11

PROJECT No.: 10-1493-0016.3100

RECORD OF TEST PIT: TP11-3

SHEET 1 OF 1

LOCATION: 229 Valley Road, Kelowna, B.C.

BORING DATE: January 25, 2011

DATUM: Local

PENETRATION TEST HAMMER, Variable

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	Headspace (ppm) ⊕ 20 40 60 80 / Soil Vapour Content (% LEL) □ 20 40 60 80	BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT Wp — W — Wl 20 40 60 80	ADDITIONAL LAB. TESTING	MONITORING WELL
0		Ground Surface		0.00							
		Firm brown CLAYEY SILT. (FILL)		0.30	1	GS	⊕				
		Loose brown fine SAND and GRAVEL, contains cobbles, some rootlets and wood debris. (FILL)		0.46	2	GS	⊕				
1		CLAYEY SILT, trace to some gravel, wood debris. (FILL)		0.91							
		Soft to firm grey-brown SILTY CLAY, some rootlets.			3	GS	⊕				
		Soft grey-brown CLAY.		1.52	4	GS	⊕				
2		Firm black-brown SILTY CLAY, organics and wood debris, white nodules.		1.68	5	GS	⊕				
		Soft grey-brown CLAYEY SILT, trace fine sand.		2.29	6	GS	⊕				
3		End of TEST PIT.		2.74							
4											
5											
6											
7											
8											
9											
10											

BECKER 1014930016_3100_2011 LOGS.GPJ GLDR_CAN.GDT 22/3/11

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: KF/SA

CHECKED: JF/AR

PROJECT No.: 10-1493-0016.3100

RECORD OF TEST PIT: TP11-4

SHEET 1 OF 1

LOCATION: 229 Valley Road, Kelowna, B.C.

BORING DATE: January 25, 2011

DATUM: Local

PENETRATION TEST HAMMER, Variable

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	Headspace (ppm) / Soil Vapour Content (% LEL)	BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL LAB. TESTING	MONITORING WELL
0		Ground Surface		0.00							
		Firm brown CLAYEY SILT, organics and rootlets. (FILL)			1	GS					
		Firm brown SAND and GRAVEL, contains cobbles. (FILL)		0.46	2	GS					
1		— Asphalt at 0.76 m.		0.91							
		Very firm dark brown SILTY CLAY, contains cobbles, some sand, trace gravel. (FILL)			3	GS					
2											
		Very firm grey-brown SILTY CLAY, trace rootlets.		2.59	4	GS					
3		End of TEST PIT.		3.05							
4											
5											
6											
7											
8											
9											
10											

Headspace (ppm): 20 40 60 80

Soil Vapour Content (% LEL): 20 40 60 80

BOUNCE CHAMBER PRESSURE (psig)

WATER CONTENT PERCENT: Wp — W — Wl; 20 40 60 80

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: KF/SA

CHECKED: JF/AR

BECKER 1014930016_3100_2011 LOGS.GPJ GLDR_CAN.GDT 22/3/11

PROJECT No.: 10-1493-0016.3100

RECORD OF TEST PIT: TP11-5

SHEET 1 OF 1

LOCATION: 229 Valley Road, Kelowna, B.C.

BORING DATE: January 25, 2011

DATUM: Local

PENETRATION TEST HAMMER, Variable

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	Headspace (ppm) / Soil Vapour Content (% LEL)	BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL LAB. TESTING	MONITORING WELL
0		Ground Surface									
		Firm brown CLAYEY SILT, contains cobbles and rootlets, trace sand and gravel. (FILL)		0.00	1	GS					
1		Firm light brown SAND and GRAVEL, contains cobbles, trace organics and rootlets. (FILL)		0.61	2	GS					
		Firm light brown-grey SILTY CLAY, oxidation.		1.52	3	GS					
2		End of TEST PIT.		1.93							
3											
4											
5											
6											
7											
8											
9											
10											

Headspace (ppm) / Soil Vapour Content (% LEL): 20 40 60 80

BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT: Wp — W — Wl; 20 40 60 80

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: KF/SA

CHECKED: JF/AR

BECKER 1014930016_3100_2011 LOGS.GPJ GLDR_CAN.GDT 22/3/11

PROJECT No.: 10-1493-0016.3100

RECORD OF TEST PIT: TP11-6

SHEET 1 OF 1

LOCATION: 229 Valley Road, Kelowna, B.C.

BORING DATE: January 25, 2011

DATUM: Local

PENETRATION TEST HAMMER, Variable

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	Headspace (ppm) / Soil Vapour Content (% LEL)	BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL LAB. TESTING	MONITORING WELL
0		Ground Surface		0.00							
		Firm light brown CLAYEY SILT, trace sand and organics. (FILL)									
		Firm brown CLAYEY SILT, with cobbles, some sand and gravel, trace asphalt. (FILL)		0.61	1	GS					
1		Loose light brown silty SAND, trace gravel. (FILL)		0.97	2	GS					
		Loose red-brown potting SOIL with clayey silt, trace organics and rootlets. (FILL)		1.22	3	GS					
		Firm brown CLAYEY SILT, some fine sand, trace organics. (FILL)		1.37	4	GS					
2		Soft grey-black SILTY CLAY, organics, organic odour and staining.		2.44	5	GS					
		Soft to very soft light brown SILTY CLAY, trace organics.		2.74	6	GS					
3		End of TEST PIT.		3.66							
4											
5											
6											
7											
8											
9											
10											

BECKER 1014930016_3100_2011 LOGS.GPJ GLDR_CAN.GDT 22/3/11

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: KF/SA

CHECKED: JF/AR

PROJECT No.: 10-1493-0016.3100

RECORD OF TEST PIT: TP11-7

SHEET 1 OF 1

LOCATION: 229 Valley Road, Kelowna, B.C.

BORING DATE: January 25, 2011

DATUM: Local

PENETRATION TEST HAMMER, Variable

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	Headspace (ppm) / Soil Vapour Content (% LEL)	BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL LAB. TESTING	MONITORING WELL
0		Ground Surface		0.00							
		Firm brown CLAYEY SILT, trace fine sand and organics. (FILL)			1	GS					
		Firm grey-brown CLAYEY SILT, contains cobbles, some sand and gravel, trace asphalt. (FILL)		0.61	2	GS					
1		Firm brown CLAYEY SILT. (FILL)		1.07							
		Soft black-brown SILTY CLAY, some roots and vegetation, trace organics, slight organic odour and staining.		1.22	3	GS					
2		Soft light brown CLAY, some silt, trace organics.		1.83							
3		End of TEST PIT.		2.74							
4											
5											
6											
7											
8											
9											
10											

Headspace (ppm) / Soil Vapour Content (% LEL): 20, 40, 60, 80

BOUNCE CHAMBER PRESSURE (psig)

WATER CONTENT PERCENT: Wp — W — Wl; 20, 40, 60, 80

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: KF/SA

CHECKED: JF/AR

BECKER 1014930016_3100_2011 LOGS.GPJ GLDR_CAN.GDT 22/3/11

PROJECT No.: 10-1493-0016.3100

RECORD OF TEST PIT: TP11-8

SHEET 1 OF 1

LOCATION: 229 Valley Road, Kelowna, B.C.

BORING DATE: January 25, 2011

DATUM: Local

PENETRATION TEST HAMMER, Variable

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	Headspace (ppm) 20 40 60 80 / Soil Vapour Content (% LEL) 20 40 60 80	BOUNCE CHAMBER PRESSURE (psig) / WATER CONTENT PERCENT Wp W Wl 20 40 60 80	ADDITIONAL LAB. TESTING	MONITORING WELL
0		Ground Surface									
		Stiff brown CLAYEY SILT, trace sand and gravel, trace organics. (TOPSOIL)		0.00	1	GS					
				0.15							
1		Stiff brown CLAYEY SILT, contains cobbles, some fine sand and gravel, trace organics. (FILL)			2	GS					
		Soft grey-blue and black SILTY CLAY, organics,organic odour.		1.22	3	GS					
2		Soft light brown SILTY CLAY, trace organics.		1.52	4	GS					
		--- Rootlets at 2.13 m.									
		End of TEST PIT.		2.44							
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: KF/SA

CHECKED: JF/AR

BECKER 1014930016_3100_2011 LOGS.GPJ GLDR_CAN.GDT 22/3/11

APPENDIX B

Analytical Results

	Sample			pH	pH	E.C.	Ca	Mg	Na	K	SAR
	Site no.	Horizon	Depth	CaCl2	Water	mm	me	me	me	me	
			cm			cm	L	L	L	L	
1	GRP-1	Ap	-22	7.2	7.6	0.80	5.0	1.82	0.55	0.47	0.30
2	GRP-1	Btk	-16	7.7	7.8	2.70	16.0	12.90	3.57	0.12	0.94
3	GRP-1	BC	-17	7.9	8.1	3.90	17.0	19.80	14.00	0.17	3.26
4	GRP-1	Ck	55-90+	8.0	8.1	4.20	18.0	21.45	15.30	0.17	3.44
5	GRP-2	Ap	-20	6.4	6.8	0.88					
6	GRP-2	Btkj	-17	6.8	7.0	2.18					
7	GRP-2	BC	-18								
8	GRP-3	Ap	-22	7.0	7.4	0.92					
9	GRP-3	Bt	-18	7.9	8.1	4.60					
10	GRP-4	Ap	-22	7.5	7.7	1.10					
11	GRP-4	Bt	-18	7.4	7.7	0.66					
12	GRP-5	Ap	-26	7.9	8.0	2.44					
13	GRP-5	Bt	-20	7.9	7.9	5.00					
14	GRP-6	Ah	-26	7.8	7.9	7.96	22.5	37.95	28.50	0.47	5.18
15	GRP-6	Bg	-30	8.0	8.1	11.00	21.5	49.50	48.90	0.21	8.21
16	GRP-6	Ckg	56-90+								
17	GRP-7	Ap	-18	7.8	8.0	2.86					
18	GRP-7	Btg	-12	7.8	8.0	2.86					
19	GRP-7	Cg	40-90+	7.8	7.9	9.80					
20	GRP-8	AP	-10	5.8	6.2	2.72					
21	GRP-8	Cg	10-40+	7.0	7.3	0.82	2.1	2.23	0.55	0.16	0.38

22	TP11-2	Sample #1	-61		7.9	3.36					
23	TP11-4	Sample #1	-46		8.1	1.80	3.5	4.13	8.93	0.37	4.57
24	TP11-8	Sample #1	-15		8.0	1.76					

APPENDIX C

Records of Owner Interviews

Questionnaire for City of Kelowna GRP Agricultural Assessment **(#11-1492-0011)**

Date of Interview	MARCH 29/11	In person	by telephone	Area of Lowland 2.83 ha
Property Address	LOT 12	219 VALLEY ROAD		
Name of Owner	HENRY ROELFS			
Peron Interviewed	HENRY ROELFS		Relationship to Owner	OWNER

History of Property

How long have you owned the property?	(5 YRS) SINCE 2006	Who owned it before you?	(46 yrs) PARENTS OWNED IT SINCE 1959
Current land use	UPPER SLOPE IN HAY – LOWER SLOPE NOT USED.		

What crops have you grown in the past?	Lowland	Crop	How many years?
		NO SIGNIFICANT AG CROPS – GRASS AND WEEDS	SINCE 1959
		LOWLAND – NEVER FARMED	
		ATTEMPTED PRUNE TREES – THEY DIED.	
	Upland	Crop TREE FRUITS	How many years?
		CHERRIES	FROM BEFORE 1959 TO LATE 1990's
		APPLES	40+ YEARS
		PEARS	

Why did you change crops?	TREE FRUITS WERE NO LONGER ECONOMIC.		
Soil and crop management practices	ALFALFA ON SLOPE IS SOLD AS HAY FOR HORSES (LOCALLY) 3 CUTS OF HAY		
What improvements have you made?	Irrigation	Drainage – UPLAND THIS WAS IN PLACE IN 1959	Other FERTILIZER
What crops could be grown now?	UPLAND – TREE FRUITS IF ECONOMIC – ALFALFA / GRASS – HAY. LOWLAND – NOT SUITABLE FOR AGRICULTURE		
Soil problems	LOWLAND WAS POORLY DRAINED AND SOILS SALINE (SALTS)		

Has fill been placed on the lowland?	Yes	No	When FOR A FEW YEARS	Source of Fill CONSERVANCY AND THE H2O SITE	Area of fill (ha) 2.83

Was ALR in place at time of fill placement?	Yes / No	Was permit issued for placement of fill	2000 ON PERMITS ISSUED – ALL WAS EXPEDITED BY PERSON/COMPANIES THAT PLACED FILL CITY AND ALC PROVIDED EXEMPTIONS

Any other Comments?

BOTTOM DITCH ALONG LOWRIE RD IS 15cm ABOVE LAND SURFACE AT #219 BEFORE AREA WAS FILLED.

THE PROPERTIES (ie LOWLANDS) ARE IN A FROST POCKET – THIS AREA IS AT THE LOWEST ELEVATION IN GLENMORE VALLEY.

Questionnaire for City of Kelowna GRP Agricultural Assessment (#11-1492-0011)

Date of Interview	APRIL 5/11	In person	by telephone	Area of Lowland	3.09 ha
Property Address	LOT 11 #229 VALLEY ROAD				
Name of Owner	CORNELIA ISSLER				
Peron Interviewed	HARRY ISSLER			Relationship to Owner	HUSBAND
History of Property					
How long have you owned the property?	18 yrs			Who owned it before you?	PARENTS OF MRS ISSLER
Current land use	LOWLAND AREA IS FILLED – NO USED.				
What crops have you grown in the past?	Lowland	Crop – NONE LOWLAND WAS NEVER PRODUCTIVELY FARM. PARENTS ATTEMPTED TO GROW GRASS(HAY) BUT NEVER ACHIEVED AN ACCEPTABLE CROP		How many years?	
	Upland	Crop TREE FRUITS – PRIMARILY APPLES		How many years? 40+? TREES CUT AND REMOVED IN 1999	
Why did you change crops?	FRUIT TREES WERE MATURE – LACK OF FRUIT PRODUCTION				
Soil and crop management practices	HAY GROWN ON SLOPE IS IRRIGATE AND SOLD				
What improvements have you made?	Irrigation – ON LOWLAND NO	Drainage NO	Other		
What crops could be grown now?	> NONE ON THE FILL OR ON LOWLAND.				
Soil problems	LOWLAND POORLY DRAINED AND SALINE PRIOR TO FILLING				
Has fill been placed on the lowland?	Yes	No	When 2003 (?)	Source of Fill GLENMORE ROAD WIDENING	Area of fill (ha) 3.09 ha
Was ALR in place at time of fill placement?	Yes	No	Was permit issued for placement of fill	YES – THE CONTRACTOR "BC UNDERGROUND" ARRANGED FOR PERMITS)	
Any other Comments?	LOWLAND HAS NEVER SUCCESSFULLY FARMED. THERE ARE NO WATER RIGHTS FOR THE LOWLAND – GRADE (CLASS) D LAND FOR IRRIGATION.				

Questionnaire for City of Kelowna GRP Agricultural Assessment **(#11-1492-0011)**

Date of Interview	MARCH 29/11	In person	by telephone	Area of Lowland 2.97ha
Property Address	LOT 10 - 253-259. VALLEY ROAD			
Name of Owner	BARBARA KWIATKOWSKI			
Peron Interviewed	DIETER TRIPKE		Relationship to Owner	BROTHER

History of Property

How long have you owned the property?	(25yrs) SINCE 1986	Who owned it before you?	PARENTS
Current land use	- HAY -	ALFALFA + ORCHARD GRASS	

What crops have you grown in the past?	Lowland	Crop	How many years?
		ALFALFA/ORCHARD GRASS HAY	SINCE 1980 (31yrs)
	Upland	Crop	How many years?
		APPLES - SINCE 1980 - NOW IN HAY	~~23yrs~~ APPLE TREES REMOVED IN 2003

Why did you change crops?	FARMER WHO LEASED THE ORCHARD MAY NO LONGER
Soil and crop management practices	HAY IS MARKET FOR TREE FRUITS LOWLAND - FERTILIZED 4 YEARS AGO. AND RESEEDED

What improvements have you made? LOWLAND	Irrigation	Drainage	Other
	YES	YES	
What crops could be grown now?	HAY IS GROWN ON LOWLAND AND UPLAND		
Soil problems	LOWLAND IS ALKALINE IN MID FIELD		

Has fill been placed on the lowland?	Yes	No	When ?	Source of Fill	Area of fill (ha) APPX. 3/4 ha
Was ALR in place at time of fill placement?	Yes	No	Was permit issued for placement of fill		

Any other Comments?

Good agricultural topsoil was under the main fill of the area adjacent to the road. Only a shallow depth (<25cm?) was added

Questionnaire for City of Kelowna GRP Agricultural Assessment **(#11-1492-0011)**

Date of Interview	MARCH 29/11	In person	by telephone	Area of Lowland 2.04 ha
Property Address	LOT 9 #279 VALLEY ROAD			
Name of Owner	OLGA + ADOLF KAPLUN			
Peron Interviewed	OLGA + ADOLF KAPLUN		Relationship to Owner	OWNERS

History of Property

How long have you owned the property?	SINCE 1980 (31 yrs)		Who owned it before you? VICTOR WEISBECK
Current land use	HAY - CUT AND SOLD - ALFALFA + ORCHARD GRASS		

What crops have you grown in the past?	Lowland	Crop	How many years?
		HAY (FORAGE) (3/yrs)	SINCE 1980
	Upland	Crop	How many years?
		CHERRIES - ON UPPER SLOPE APPLES - MID SLOPE PEARS - ON LOWER SLOPE	TREES REMOVED AT IN 1996

Why did you change crops?	TREE FRUITS WERE NOT ECONOMIC			
Soil and crop management practices	THREE CUTS OF HAY ANNUALLY, FERTILIZE MOST YEARS			
What improvements have you made?	Irrigation ON BOTH UPLAND AND LOWLAND	Drainage LOWLAND HAS UNDRAINS FOR MANY YEARS	Other	
What crops could be grown now?	HAY ON UPLAND AND LOWLAND W/IRRIGATION			
Soil problems	PARTS OF UPPER SLOPE ARE GRAVELLY - LOWLAND IS WET. ALFALFA WEEVIL 2 YEARS AGO.	FOR POSSIBLE IF ECONOMIC		

Has fill been placed on the lowland?	Yes	No	When	Source of Fill	Area of fill (ha)
			—	—	—

Was ALR in place at time of fill placement?	Yes No	Was permit issued for placement of fill	—

Any other Comments?

—

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Golder Associates

City of Kelowna

Glenmore Recreation Park Location Analysis

February 2010

Infrastructure Planning
Parks & Public Places
1435 Water Street
Kelowna, BC V1Y 1J4
TEL 250 469-8610
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kelowna.ca

1.0 INTRODUCTION

The City of Kelowna is in the process of developing a long-term land acquisition strategy in the Glenmore Valley to achieve active parkland and recreation facilities. The key objectives are as follows:

- The acquisition of a 30.0 - 40.0 ha. site for a Recreation Park;
- A comprehensive approach that not only benefits City objectives, but also presents opportunities to partner with School District #23 and the University of British Columbia -Okanagan (UBC-O); and
- A solution that minimizes the impact to the Agricultural Land Reserve (ALR).

A Location Analysis was conducted to help identify the most appropriate sites for future parkland. A professional agrologist, Herb Luttmerding, was retained as part of the process to provide an overview of the agricultural capability of each potential site.

1.1 Background

A **Recreation Park** is defined as a high intensity sports park with facilities such as baseball diamonds, softball diamonds, soccer fields, hockey arenas, indoor soccer fields, aquatic facilities, and community buildings. The size requirements for a Recreation Park range between 30.0 - 40.0 ha. of flat developable land that generally serves all residents of Kelowna. The City has three existing Recreation Parks that include Parkinson Recreation Park, Rutland Recreation Park and Mission Recreation Park (see Figure 1.1). As part of the City of Kelowna's growth strategy, the Official Community Plan envisions the provision of a fourth Recreation Park in the Glenmore Valley to meet the demands of the growing population.

1.2 Existing Glenmore Valley Park Network

The Glenmore Valley has a series of **Neighbourhood Parks** that range in size between 0.3 and 1.0 ha. Each of these parks generally serves a population between 1000-2000 people within a five minute walking radius (see Figure 1.2). Typically, they are centrally located within a neighbourhood and are developed with playgrounds, passive recreational open space, non-bookable recreation spaces, trails, picnic areas, irrigated turf, trees, shrubs and park furniture.

Several of the Glenmore Neighbourhood Parks are located along Brandt's Creek, connected by a linear park corridor stretching approximately five kilometers through the Glenmore Valley.

The City maintains a small sports field park called Glenmore Sports Park at the corner of Scenic Road and Valley Road. The park is 2.9 ha. in size and has been developed with three minor softball fields.

1.3 The Rationale for Glenmore Recreation Park

The growth strategy for the City is being updated this year together with the Official Community Plan. The provision of parkland in the Glenmore Valley will be a key objective of the OCP Update.

OCP 14.2 Parks Standard.

Using Development Cost Charge revenue, provide 2.2 ha. of parks per 1000 population growth. The 2.2 ha. will include provisions of 0.6 ha Neighbourhood, 0.4 ha. Community, 0.6 ha. Recreation and 0.6 ha. City-wide type parks per 1000 population growth.

The rationale for additional parkland is directly attributed to population growth in the City (OCP 14.2). Based upon 2006 Census figures from Statistics Canada, the City of Kelowna has a population of 106,707 people and growth models anticipate the City to reach 162,000 by 2030. The City expects to see an overall increase in the demand for parks and recreation facilities due to this increased population. While population projections indicate that Kelowna will undergo growth in all major urban areas of the City, the highest level of growth is projected for the north quadrant of the City which includes the Glenmore Valley.

The need for Glenmore Recreation Park was identified in the 1998 City of Kelowna Agricultural Plan and acknowledged the possible impact to the ALR:

> *21. Glenmore Recreation Park. Seek Agricultural Land Commission concurrence toward the release of ALR land to serve as a Recreation Park site at a location that maximizes facility potential, possibly in conjunction with other civic resources;*

Recreation Parks are geographically located in each of the major population centres of the City. The three existing Recreation Parks are located in the Downtown area (Parkinson Recreation Centre), Mission area (Mission Recreation Park), and Rutland (Rutland Recreation Park) - see Figure 1.1. Theses parks and recreation facilities are well used by residents. Rising sport participation numbers and the development of new sports and pastimes are placing greater demands on the ability of the City to meet community needs. In particular, the demand for sport fields is greater than the current supply.

The selection of the Glenmore Valley for the fourth Recreation Park is consistent with this approach of locating major park facilities in areas of significant population. This provides residents with easily reachable park and recreation facilities that support increased exercise and healthy lifestyles, reduces dependence on automobile travel, promotes walking and cycling within the neighbourhood, and strengthens the overall community.

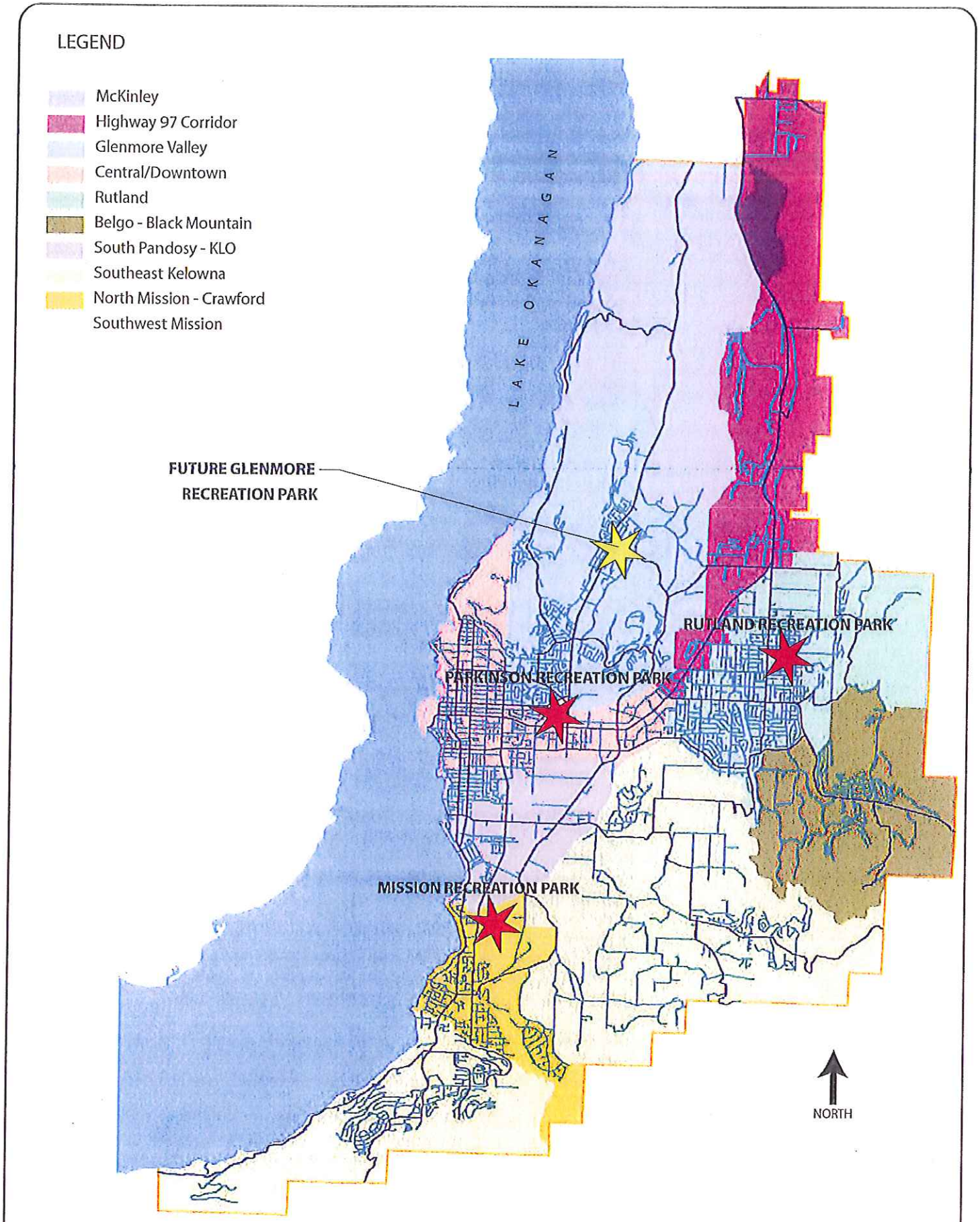

Figure 1.1 Existing Recreation Parks

LEGEND

	NAME	ADDRESS	CLASS	SIZE (HA)
1	Sonora Park	1634 Sonara Dr	Neighbourhood	0.8
2	Caro Park	27 Caro Rd	Neighbourhood	0.4
3	Golfview Park	810 Valley Rd	Neighbourhood	0.8
4	Valley Glen Wetland	530 Valley Rd	Natural Area	0.7
5	Sutton Glen Park	464 Sutton Cr	Neighbourhood	0.6
6	Whitman Glen Park	308 Whitman Rd	Neighbourhood	0.5
7	Matera Glen Park	250 Glen Park Dr	Neighbourhood	0.8
8	Cross Glen Park	207 Biggar Rd	Neighbourhood	0.7
9	Newport Glen Park	130 Applebrooke Cr	Neighbourhood	0.5
10	Millard Glen Park	1840 Millard Ct W	Natural Area	0.5
11	Wyndam Park	131 Wyndam Cr	Neighbourhood	0.2
12	Naito Park	115 Naito Ct	Neighbourhood	0.3
13	Glenmore Sports Park	500 Valley Rd	Community	2.9
14	Still Pond Park	550 Still Pond Pl	Neighbourhood	0.3
15	Ballou Park	1859 Ballou Rd	Neighbourhood	0.2

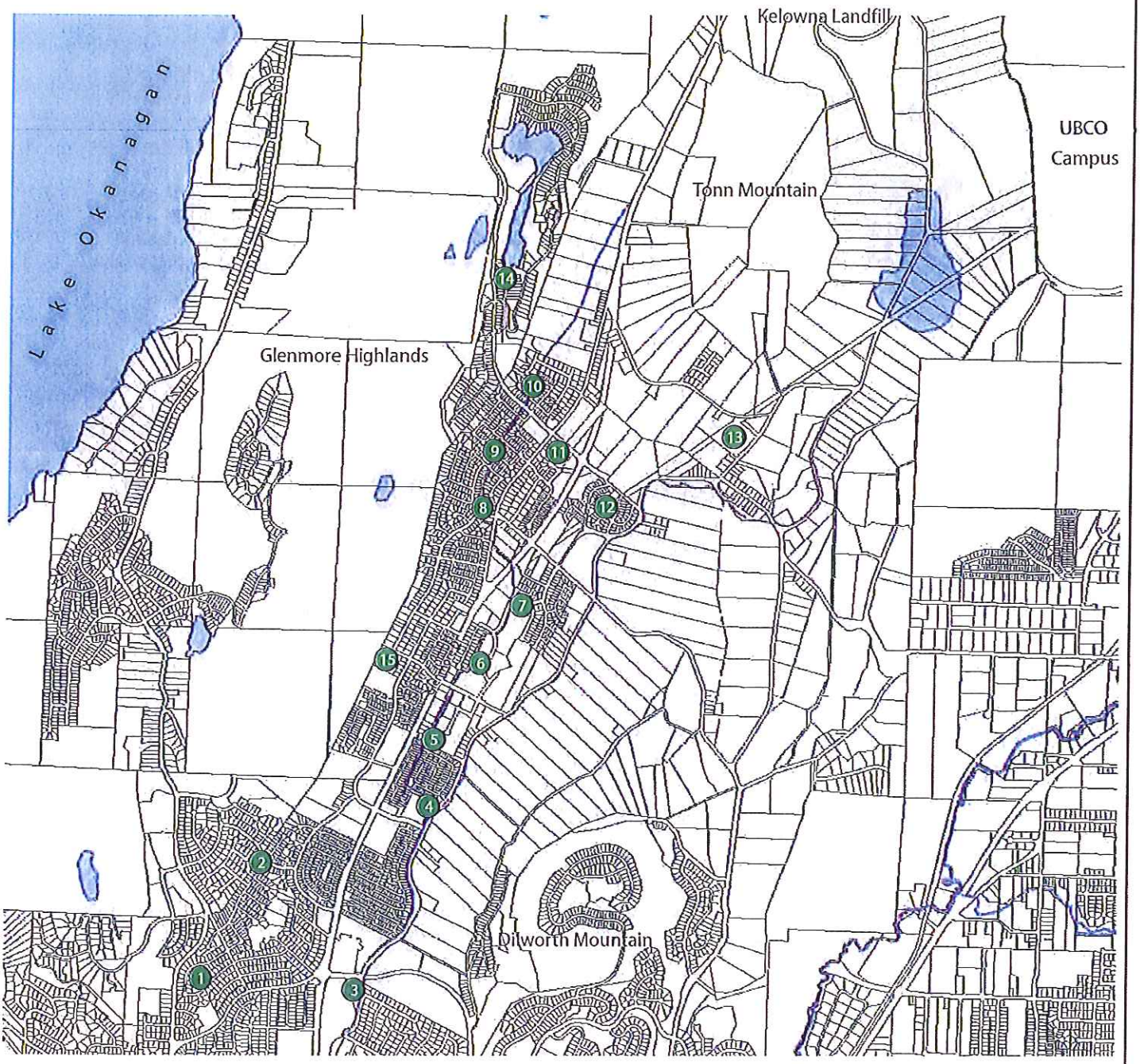

Figure 1.2 Glenmore Valley Existing Parks Network

2.0 SITE CRITERIA

In determining an appropriate location for the Recreation Park in the Glenmore Valley, a location analysis was conducted and a series of planning criteria were developed to help evaluate potential sites.

2.1 Flat Topography

The potential site must be relatively flat or have the ability to be graded in order to accommodate park facilities like sports fields, community buildings and parking lots.

Mission Recreation Park – Softball Quad

2.2 Area

The potential site must meet the minimum standards for park sizes e.g. minimum 30.0 ha for a Recreation Park. A contiguous site is advantageous to form one large park for efficient circulation, public safety and efficient layout of facilities. Smaller, split-sites are possible, but some of the space and cost efficiency disappear such as shared parking lots between facilities. Steep slopes, agricultural buffers and riparian areas associated with creeks and ponds may form the backdrop to the site and are an aesthetically pleasing element to a park, but are not included in the minimum areas.

2.3 Area Shape

The shape and dimensions of the site are important to ensure efficiency in the layout of sports fields and recreation facilities. Potential sites should be square shaped where possible. Long, linear shaped sites are to be avoided due to poor site circulation and extended infrastructure costs. Sites must be wide enough to accommodate minimum sports field dimensions. For example, it is preferable to layout several softball fields in a quad formation similar to Mission Recreation Park rather than orient several softball fields side by side.

2.4 Proximity to Major Roads

These types of park facilities are expected to generate a significant amount of traffic. The main entrance should be located directly off a major road. The park will also be served by local transit and therefore it is important for the park to be located adjacent to a bus route. Road frontage is also important to the park to provide public exposure and sightlines for safety and security.

2.5 Impact to Agricultural Land Reserve

The potential site that minimizes the impact to the Agricultural Land Reserve will be preferred. Sites will be favoured if they have lower growing potential and/or less of an impact to the overall agricultural activity in the Glenmore Valley.

2.6 Land Parcels Assembled

Potential sites with many land owners are challenging to acquire for the City as they are potentially more expensive and usually take many years to achieve. Sites with fewer land owners are preferred to simplify land negotiations.

2.7 Proximity to Population

The potential site that allows for residents in the area to walk and bike as preferred modes of transportation will be favoured. Sites that are located within 5-10 minute walking radius to an existing neighbourhood are preferred.

3.0 SITE COMPARISIONS

The entire Glenmore Valley was analyzed for possible sites. Five potential sites were identified that showed some merit in meeting the park requirements. All the sites are located within the Agricultural Land Reserve because there are no large parcels outside of it. Where possible, and to minimize impacts to the ALR, the sites are located on the perimeter of the ALR (see Figure 1.3). Two of the sites are located on the City owned Tutt Ranch in North Glenmore.

Site #1 - Longhill Road & Valley Road
Site #2 - Scenic Road & Valley Road
Site #3 - Tutt Ranch - Eastern Side
Site #4 - Tutt Ranch - Western Side
Site #5 - Begbie Road & Glenmore Road North

The criteria developed in Section 2.0 SITE CRITERIA was used to analyze each of the sites. A colour coding methodology was developed with the following parameters:

- Green represents acceptable;
- Yellow represents some challenges, and
- Red represents a condition that is unacceptable

LEGEND

1. Longhill Road & Valley Road Site
2. Scenic Road & Valley Road Site
3. Tutt Ranch - Eastern Side
4. Tutt Ranch - Western Side
5. Glenmore Rd N & Begbie Road Site

Agricultural Land Reserve

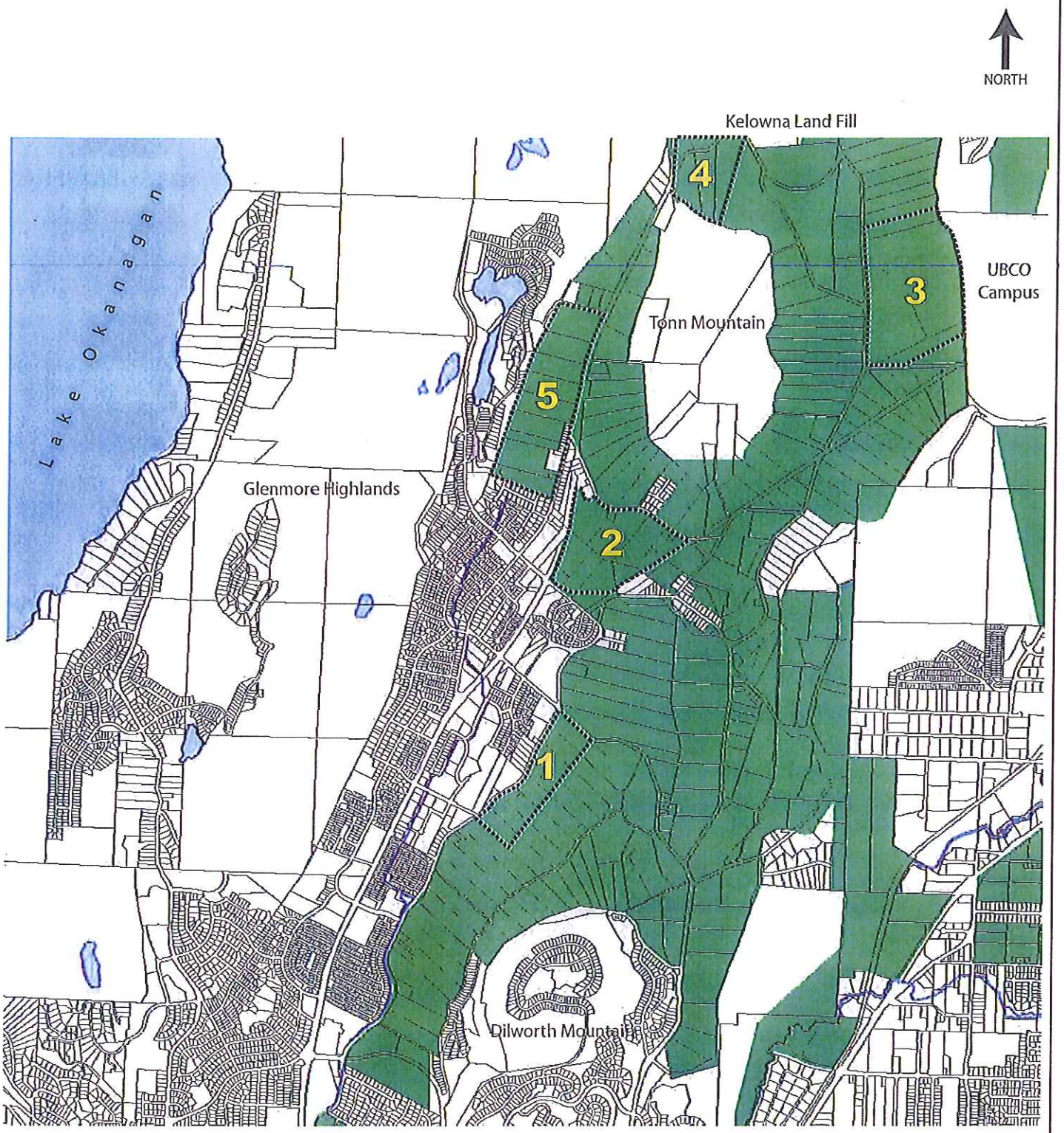

Figure 1.3 Glenmore Valley - Potential Sites

Site #1 Longhill Road & Valley Road

This site is located on the corner of Longhill Road and Valley Road and extends south to Kane Road. The land lies at low elevations with Brandt's Creek on the western side of the site.

3.1.1 Site Assessment Chart

CRITERIA	NOTES	RATING
Flat Topography	Flat site	
Area Size	Maximum area for parkland is 20 hectares	
Area Shape	Rectangular	
Proximity to Major Roads	Valley Road	
Impact to ALR	Poor Growing Conditions - Lower Impact	
Number of Parcels	Portions of 11 Properties	
Proximity to Neighbourhoods	Within 5-10 minute walking radius	

3.1.1 Agricultural Considerations

The Climatic Capability Rating for Agriculture is Class 5A (unimproved) for the site suggesting farming without irrigation is mainly limited to forage production. The Improved Climatic Rating is Class (1F) in the lower lying western portion of the site and suggests that tree fruit and grapes are unlikely to be successful due to frost limitations. The site contains poorly drained, heavy clay soils and saline conditions at the lower elevations. The sloped portions of the lands to the east of the site have higher agriculture value and are currently actively farmed. An agricultural buffer would need to be established to effectively reduce urban/rural conflicts (see Appendix B for full analysis).

3.1.2 Assessment

This site does not meet the minimum size requirements for a full Recreation Park. However, a portion of the Recreation Park Site could be fulfilled if a secondary site is provided elsewhere in the Glenmore Valley. This site provides several key benefits including the provision of a major park within a 5 minute walking distance of the Glenmore Village Centre and Dr. Knox Middle School. From an overall planning perspective, this location reinforces the Official Community Plan objectives on sustainability in promoting walkable neighbourhoods.

LEGEND

- Longhill Road & Valley Road Site
- Glenmore Valley Village Centre
- Brandt's Creek & Riparian Area
- 5.0 m contours

NORTH

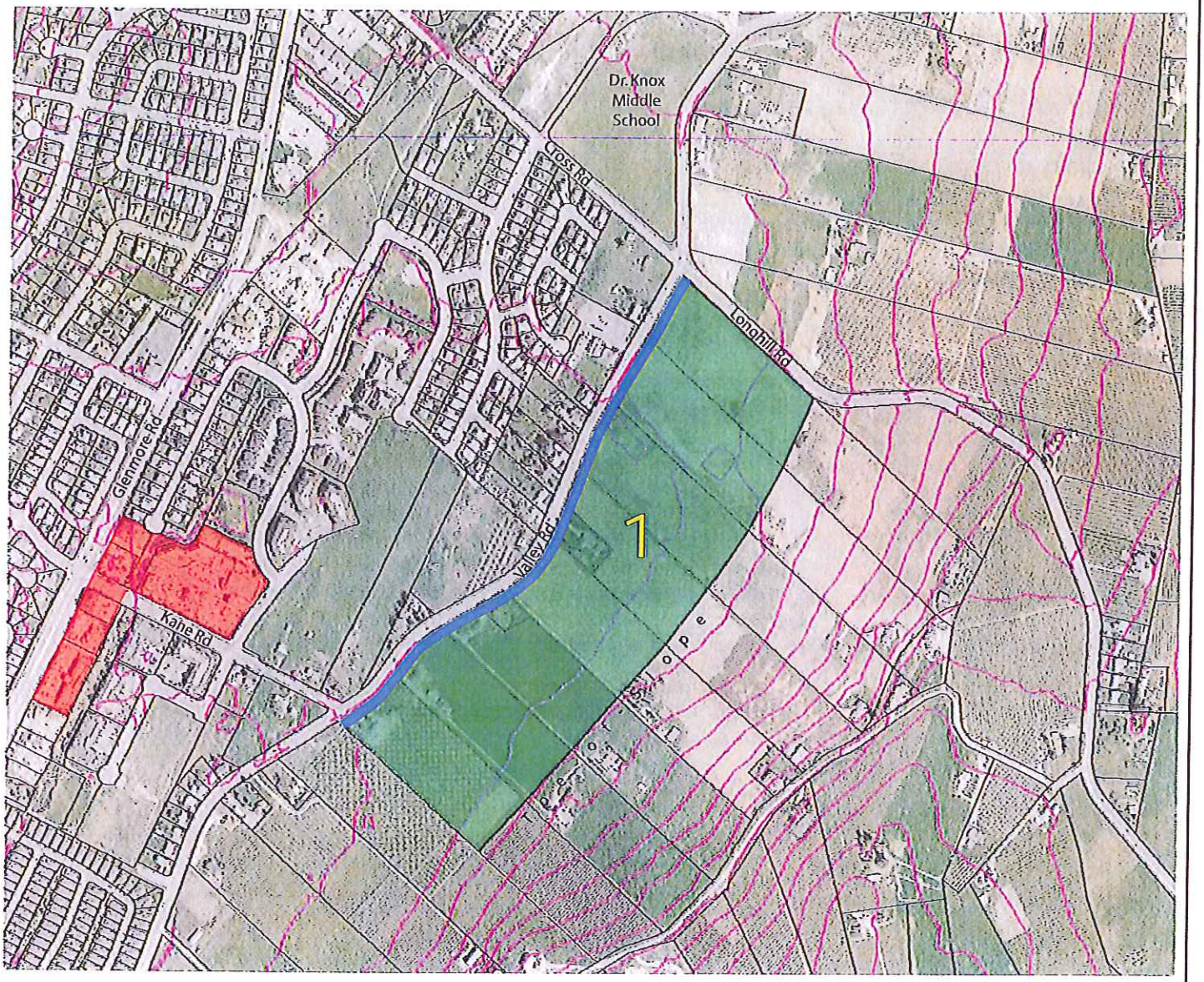

Figure 1.4 Site 1 - Longhill Road & Valley Road

Site #2 - Scenic Road & Valley Road Site

This site is located at the corner of Scenic Road and Valley Road adjacent to the existing Glenmore Sports Park. It is bounded by roadways on four sides: Glenmore Road North, Union Road, Valley Road and Scenic Road.

3.2.1 Site Assessment Chart

CRITERIA	NOTES	RATING
Flat Topography	Gently rolling site that can be favourable graded to achieve sports fields	
Area Size	One large contiguous site - extension to existing parkland	
Area Shape	Generally square	
Proximity to Major Roads	Glenmore Road N and Union Road	
Impact to ALR	Better soil growing conditions	
Number of Parcels	8	
Proximity to Neighbourhoods	Within 5-10 minute walking radius	

3.2.2 Agricultural Considerations

The Climatic Capability Rating for agriculture is Class 5A (unimproved) for the site suggesting unirrigated framing is limited to forage production. The Improved Capability Rating is Class 1aF indicating hardy tree fruits and grapes can be produced in addition to a wide range of other annual and perennial crops. The soils have good drainage and a portion of the site has favourable south/west slope aspect. The site is surrounded by roads on all four sides and does not immediately border on to farmland. However, a traffic management plan would need to be developed to minimize traffic conflicts on the roads with the neighbouring farm operations (see Appendix A for full analysis).

3.2.3 Assessment

The site ranks high in many park planning criteria and would make an excellent Recreation Park site. However, when considering the argologist's comments, this land also has good growing conditions for farming and exclusion could potentially result in a higher impact to the ALR.

LEGEND

- Scenic Road & Valley Road Site
- Existing Glenmore Sports Park
- Future Road Projects
- 5.0 m contours

NORTH

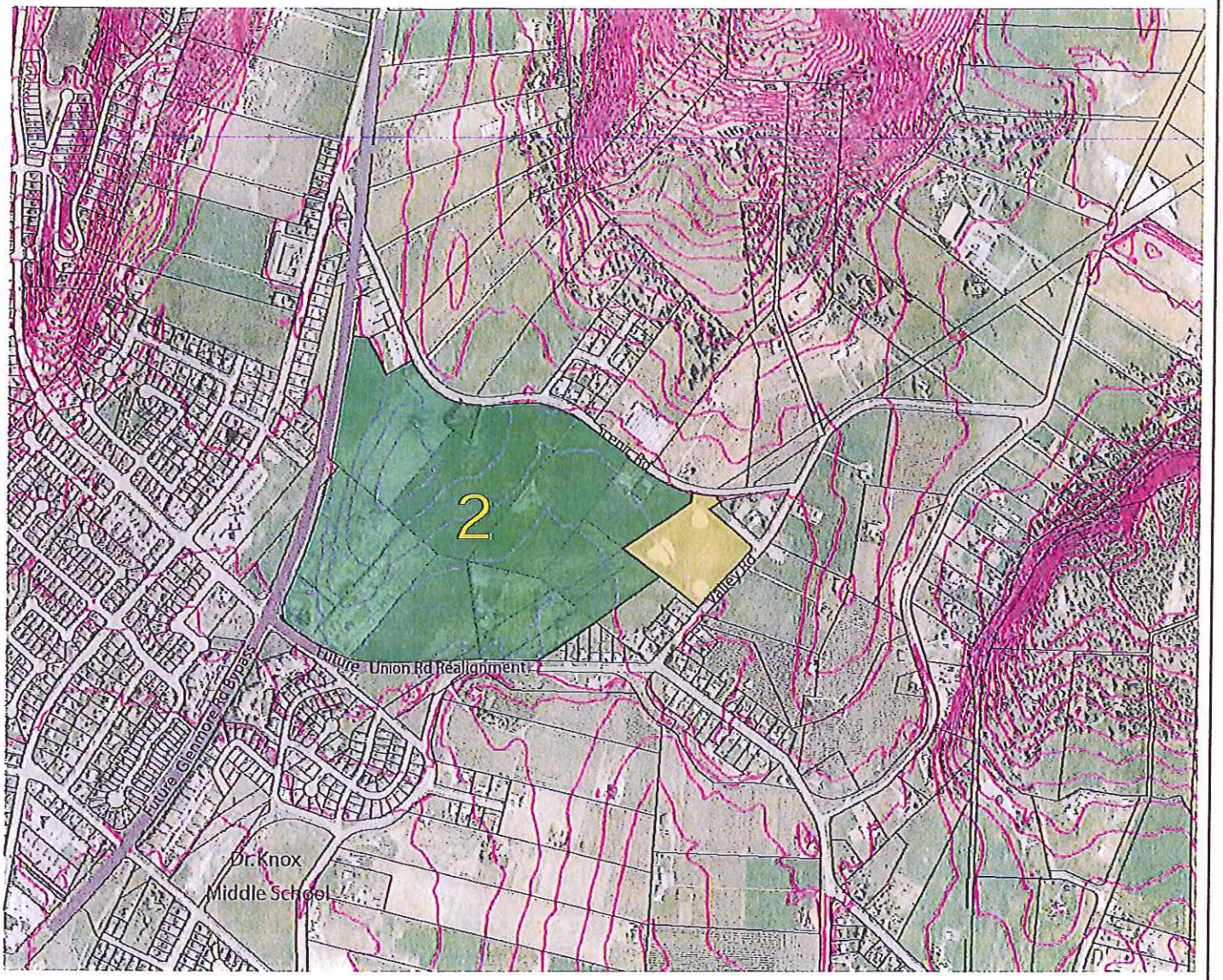

Figure 1.5 Site 2 - Scenic Road & Valley Road

Site #3 Tutt Ranch - Eastern Side

This site is located on a portion of the Tutt Ranch immediately adjacent to the UBCO campus. A future east west connector road is planned to link UBCO with Glenmore Road North.

3.3.1 Site Assessment Chart

CRITERIA	NOTES	RATING
Flat Topography	Flat site	
Area Size	One large contiguous site - 30 ha	
Area Shape	Square	
Proximity to Major Roads	Glenmore Road North and future east west connector	
Impact to ALR	Better Soil Growing Conditions	
Amount of Parcels	1	
Proximity to Population	Within 5-10 minute vehicular radius, 5 minute walking radius to UBCO.	

3.3.1 Agricultural Considerations

The Climatic Capability Rating for agriculture is Class 5A (unimproved) for the site suggesting unirrigated framing is limited to forage production. The Improved Climatic Rating for this site would be Class (1bG) to (1cG) indicating potential to grow a wide range of tree fruits and grapes as well as a variety of annual and perennial crops. Most of the site is currently rated Class 3D and 3DT (irrigated) indicating some clay and topographic constraints. The sloped aspect of the site is only rated Class 4 (improved rating) due to topographic and excessive stoniness. The portion near the edge of Roberts Lake contains much more limiting soils due to poor drainage and excess salinity (see Appendix B for full analysis).

3.3.2 Assessment

This site would make an excellent Recreation Park and there would be potential to partner with UBCO for the development of athletic facilities and buildings. However, recent negotiations between the City and UBCO have determined that the objective for this parcel of land will be to establish an agricultural research centre as part of the University.

LEGEND

- Tutt Ranch - Eastern Side Site
- Future Road Projects
- 5.0 m contours

NORTH

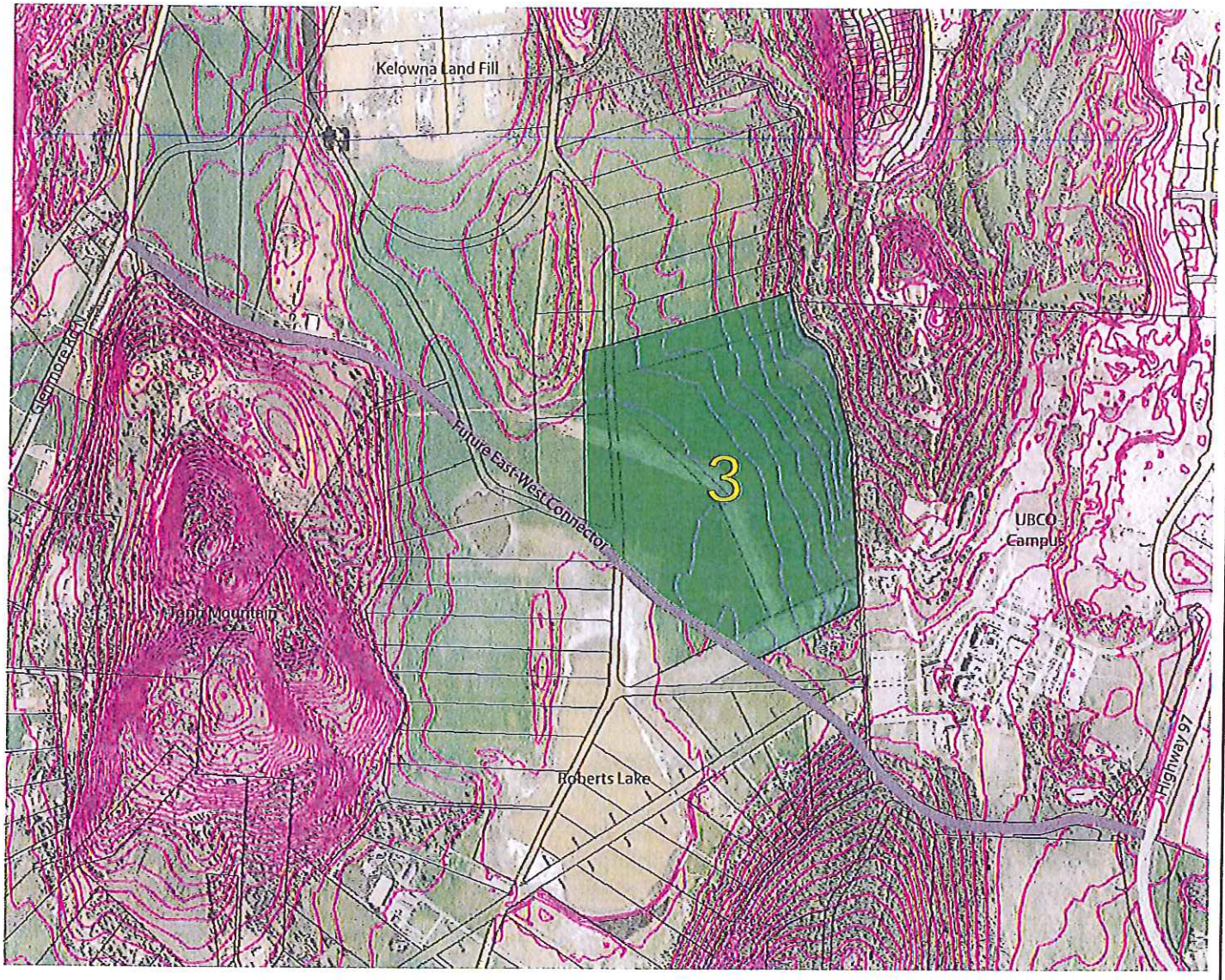

Figure 1.6 Site 3 - Tutt Ranch - Eastern Side

Site #4 Tutt Ranch - Western Side

This site is located on a portion of the Tutt Ranch in North Glenmore adjacent to the City Land Fill and west of the University of British Columbia's Okanagan (UBCO) Campus. The site is bounded by Glenmore Road North on the west side and a future east west connector road leading to the UBCO Campus.

3.4.1 Site Assessment Chart

CRITERIA	NOTES	RATING
Flat Topography	Gently rolling site that can be favourably graded to achieve sports fields	
Area Size	Maximum area for parkland is 20 hectares	
Area Shape	Rectangular shape	
Proximity to Major Roads	Glenmore Road N and future east west connector	
Impact to ALR	Average Growing Conditions - Isolated parcel - Lower Impact	
Number of Parcels	1	
Proximity to Neighbourhoods	Within 5-10 minute vehicular radius	

3.4.1 Agricultural Considerations

The Climatic Capability Rating for agricultural is Class 5A (unimproved) for the whole site suggesting that unirrigated cropping is mainly limited to forage production. The Improved Capability Rating is Class (1aF) indicating hardy tree fruits and grapes can be produced in addition to a wide range of other annual and perennial crops. This site, as a park, would have the fewest urban/rural conflicts as it would not be adjacent to any actively farmed areas and border on to the City Land Fill (see Appendix B for full analysis).

3.4.2 Assessment

The site does not meet the minimum requirements for a Recreation Park site. However a portion of the Recreation Park could be fulfilled on this site as long as a secondary site is provided elsewhere in the Glenmore Valley. The site is not located in close proximity to existing populations and the majority of trips would be generated by vehicles. However, due to the close proximity to the UBCO campus, there is potential for future partnership on the development of athletic facilities.

LEGEND

- Tutt Ranch - Western Side Site
- Future Road Projects
- 5.0 m contours

NORTH

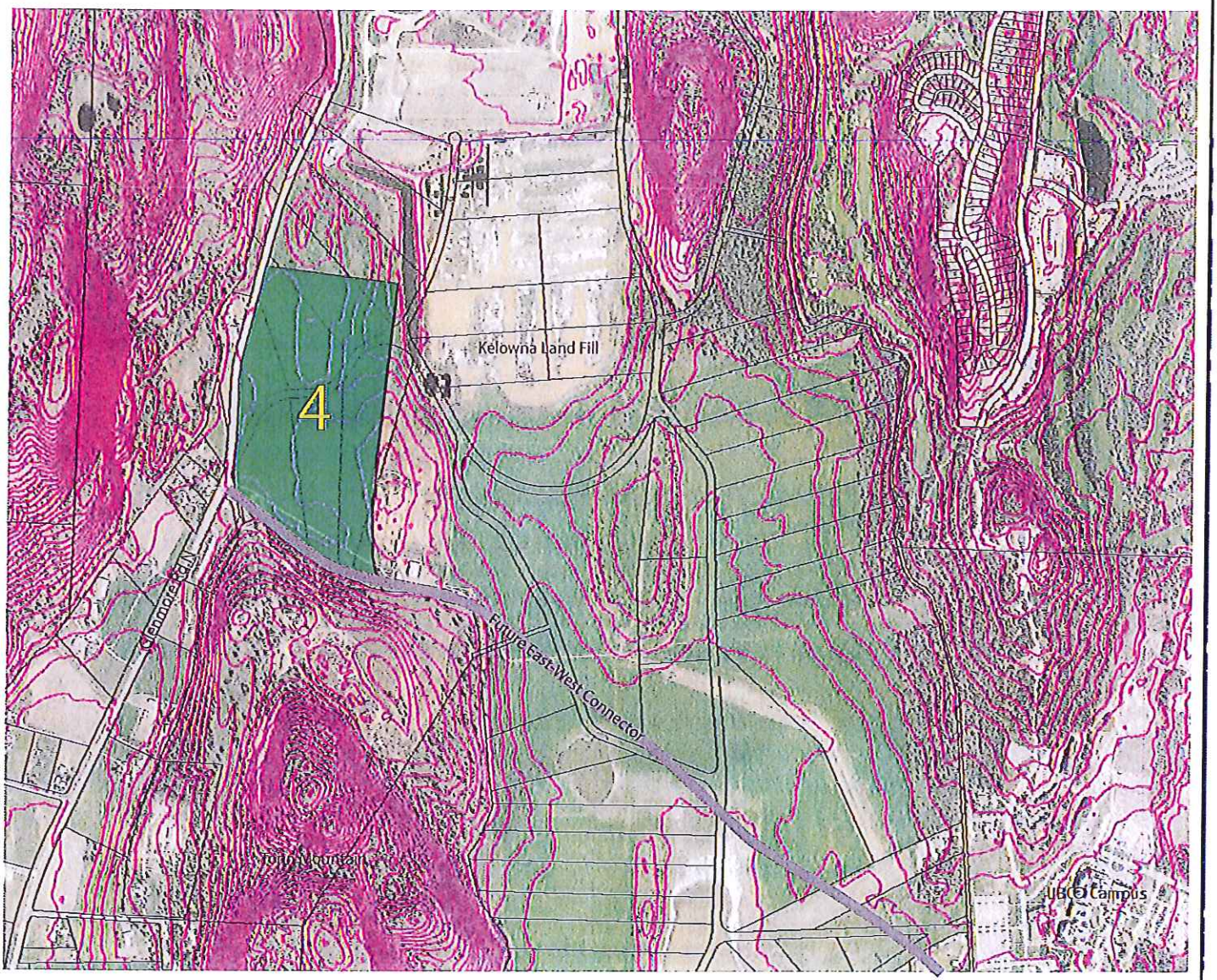

Figure 1.7 Site 4 - Tutt Ranch - Western Side

Site #5 Begbie Road & Glenmore Road Site

This linear site is located at Begbie Road and Glenmore Road North and extends north to south. Further investigation of the site reveals several constraints for the development of parkland that include Brandt's Creek through the centre of the site and topographic restraints due to an adjacent hillside. The site is too narrow for the development of sports fields and recreation facilities.

3.5.1 Site Assessment Chart

CRITERIA	NOTES	RATING
Flat Topography	Flat site adjacent to steep hillsides	
Area Size	Physical constraints do not accommodate sports fields	
Area Shape	Poor - Long and Linear	
Proximity to Major Roads	Glenmore Road North	
Impact to ALR	Poor Growing Conditions - Low Impact	
Amount of Parcels	10	
Proximity to Neighbourhoods	Within 5-10 minute vehicular radius, 5 minute walking radius to UBCO.	

3.5.1 Agricultural Considerations

The Climatic Capability Rating for Agriculture is Class 5A (unimproved) for the site which indicates unirrigated farming is limited to forage production. The Improved Capability Rating ranges from Class (1F) to (1aF) suggesting that production of hardy varieties of tree fruit and grapes is marginal due to frost limitations. Cold air pooling in this area produces what is commonly called a '*frost pocket*'. Poor drainage and excessive salinity in the soil add additional problems. A wide range of annual and perennial crops is still possible (see Appendix B for full analysis).

3.5.1 Assessment

This site cannot be used for a Recreation Park due to the constraints from Brandt's Creek and its associated riparian setbacks, and the hillside slopes. The constraints are too severe to even consider this site for a portion of the Recreation Park.

LEGEND

- Glenmore Rd N & Begbie Rd Site
- Future Road Projects
- Brandt's Creek & Riparian Area
- 5.0m contours

NORTH

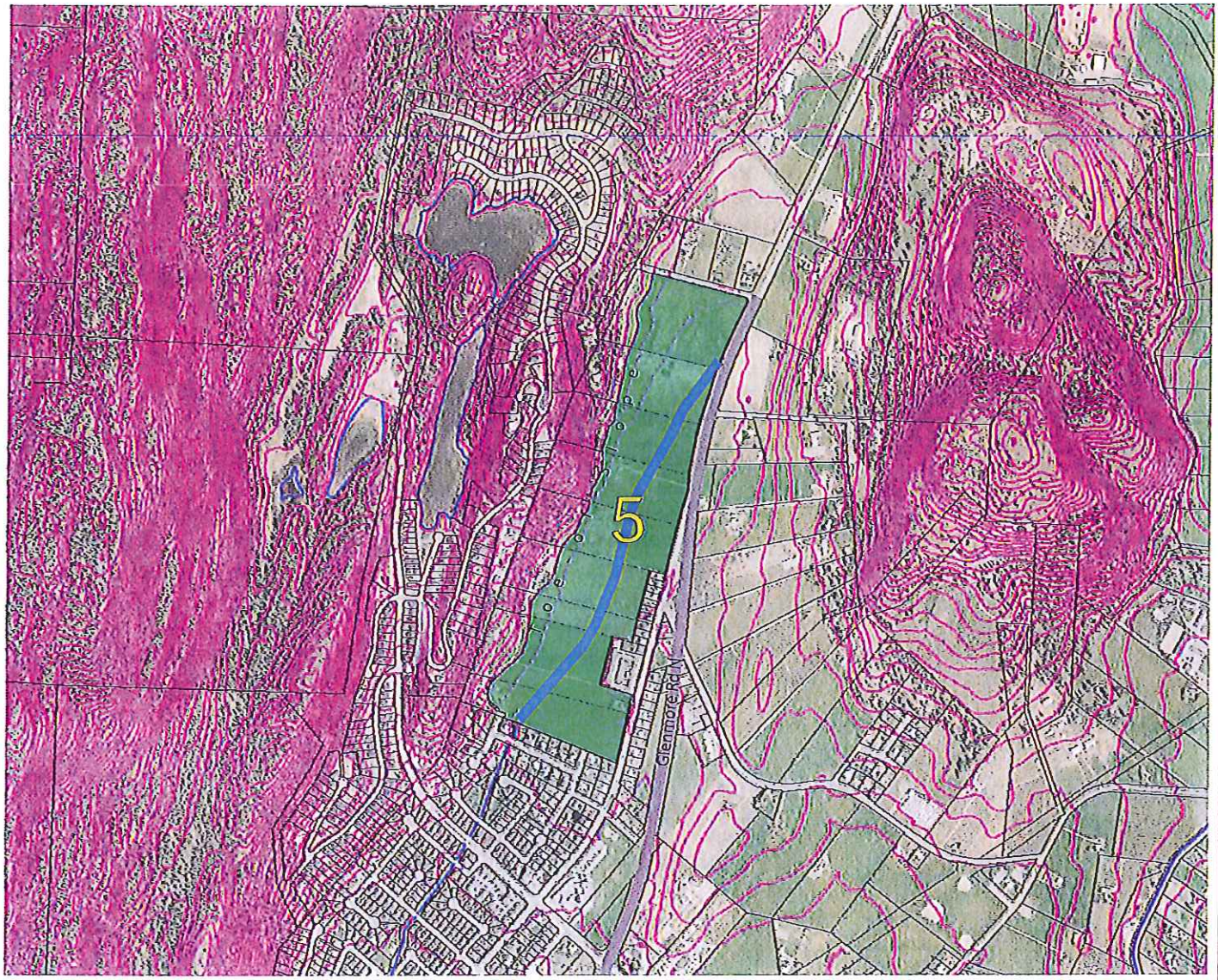

Figure 1.8 Site 5 - Glenmore Rd N & Begbie Rd

4.0 SUMMARY

From a park planning perspective, the site at Scenic Road and Valley Road (Site #2) makes the best site for the Recreation Park because it is both centrally located and forms one large contiguous parcel. However, this site was also identified as having the best growing conditions of all the options investigated.

The second best site would be the Tutt Ranch on the Eastern side (Site #3). However the land is considered to be a higher class of agricultural land and is not be available due to UBCO's intentions to establish an agricultural research centre.

In order to find a solution that not only provides a good park site, but also a solution that is acceptable to the Agricultural Land Commission, an alternative strategy was developed that proposes a split-site option, meaning the use of two smaller sites that together meet the needs for a recreation park. Normally a split site would not be considered as the three other recreation parks in the City are located on large contiguous sites. However, in this specific situation it is hoped that the split-site approach would have less of an impact to the agricultural community. The split-site approach could also provides the opportunity to accommodate a future high school site for SD23.

Key Recommendation:

- A 20.0 ha Recreation Park on the Longhill and Valley Road Site as described by Site #1. A location immediately adjacent to this site could be provided for a High School Site for SD23 with the possibility of joint use facilities e.g. parking lot, community room, sports fields, etc.
- A 20.0 ha Recreation Park on the Tutt Ranch - Western side as described by Site #4. This location would allow for future partnership opportunities with UBC-O on the park and facility development.

Note: There will be limitations on the use of the Tutt Ranch - Western side (Site #4) as regulated by the Ministry of Environment as a portion of the Land Fill Buffer falls on this site.

4.1 Agricultural Considerations

The proposed park on the Longhill and Valley Road Site will convert marginal farm land to higher use parkland for community benefit. An ALR buffer will need to be provided to

ensure no conflicts with the adjacent farming areas to the east and south.

The park site on the Tutt Ranch - Western side is located in an isolated area adjacent to the Landfill with no conflicts with other farming areas.

LEGEND

- Glenmore Recreation Park
- Glenmore Valley Village Centre
- High School
- Brandt's Creek & Riparian Area
- 5.0 m contours
- Public Roadway
- ALR buffer

NORTH

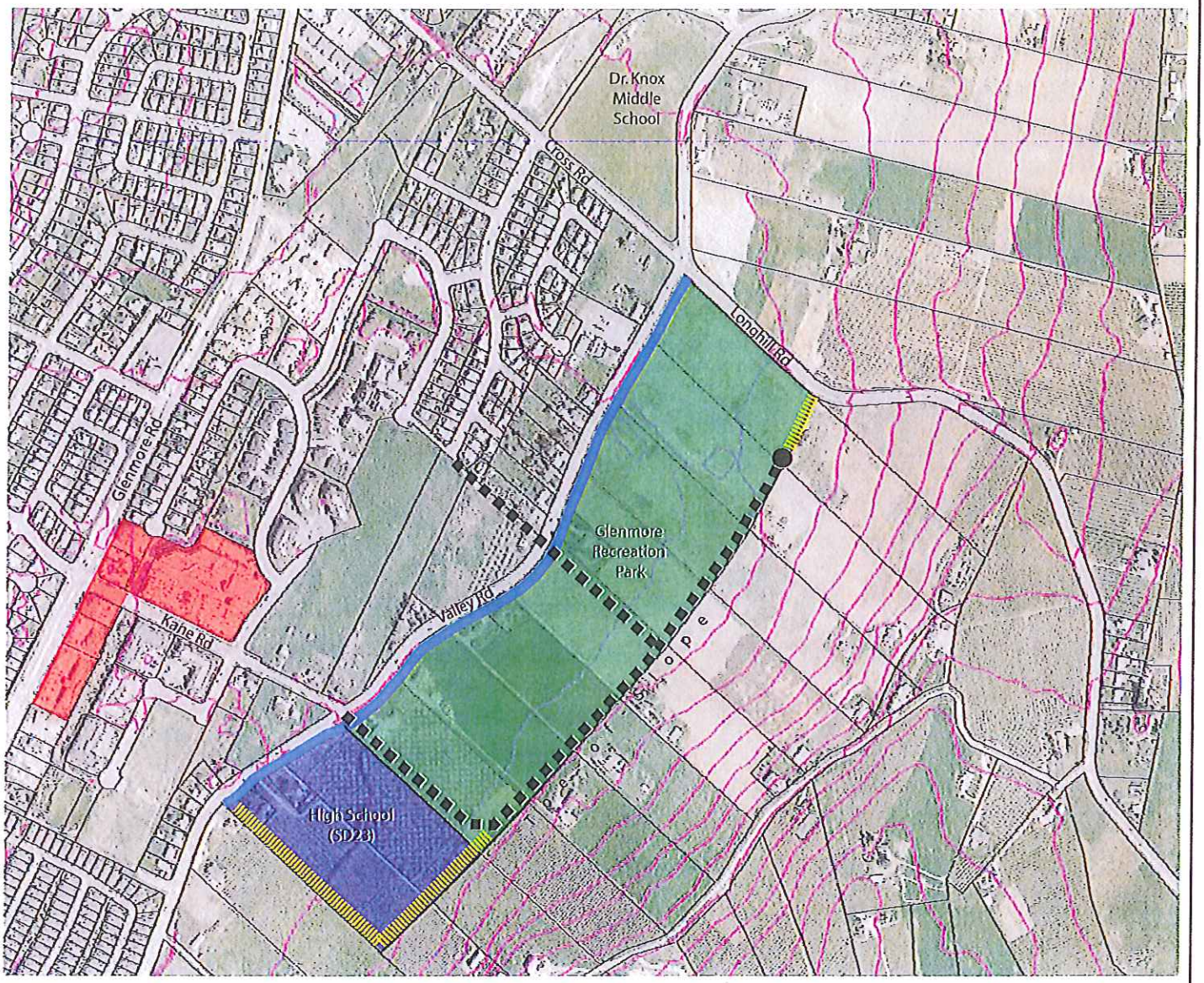

Figure 1.9 - Longhill Road & Valley Road Site

LEGEND

- Glenmore Recreation Park
- Future Road Projects
- 5.0 m contours

NORTH

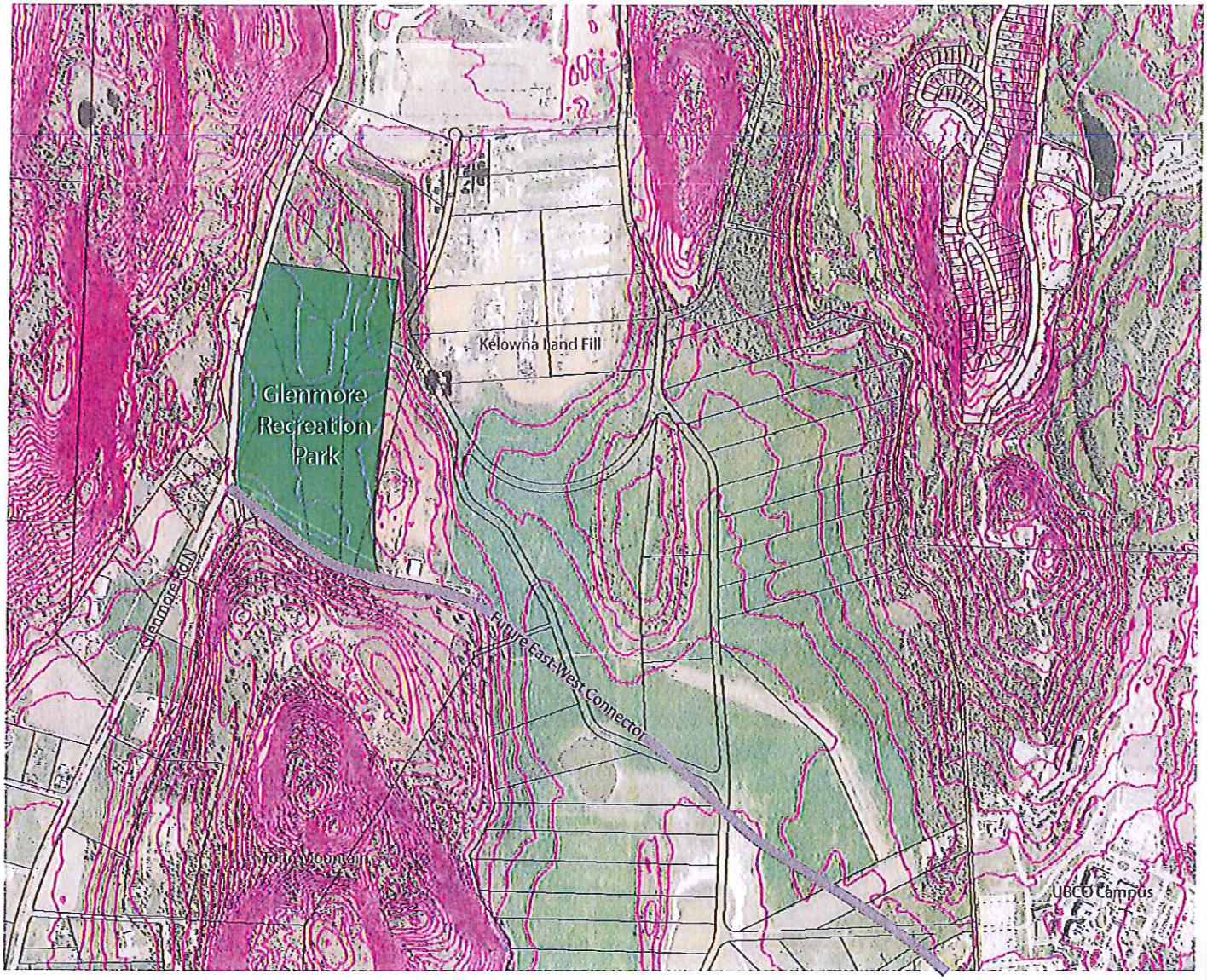

Figure 2.0 - Tutt Ranch - Western Side

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Glenmore Recreation Park Analysis
Soils and Land Capability for Agriculture Review of Candidate Sites

The following describes the soil, agricultural capability and landscape conditions of five specific land areas in Glenmore that are being considered as potential recreational centers together with playing fields and other ancillary uses. All of the sites are currently in the Agricultural Land Reserve.

The agricultural assessment and capability of the lands is based on data contained in:

1) Wittneben, U. 1986. *Soils of the Okanagan and Similkameen Valleys.* MOE Tech. Report 18; B.C. Ministry of Environment. Victoria, BC. Mapsheet 82E.093. Scale 1: 20 000.

2) Canada Land Inventory. 1972. *Soil Capability for Agriculture, Map 82E/NW (Kelowna).* Scale 1: 125 000.

3) Ministry of Agriculture and Food, and Ministry of Environment. April, 1983. *Land Capability Classification for Agriculture in British Columbia.* MOE Manual 1; Kelowna, BC

4) *Land Capability for Agriculture of the Okanagan and Similkameen Valleys, Mapsheet 82E.093.* Scale 1: 20 000.

5) Color orthophotos of the Glenmore Area (Scale 1: 5 000 or 1: 7 500 with one meter contours).

6) Climate Capability for Agriculture map 82E/NW (Kelowna). 1986. Scale 1: 100 000.

7) Detailed visual assessments of all sites.

The BCLI land capability for agriculture ratings were generated based on the soil and climate capability maps and on the methodology outlined in the methodology manual. Both 'unimproved' and 'improved' land capability ratings were determined as was the tree fruit and grape modified rating, where applicable. These ratings are shown on the orthophotos for each site area; supplemental data for each site is summarized in the following sections.

Site # 1 (Longhill Road)

Climatic capability for agriculture ratings are Class 5A (unimproved) for the whole site suggesting agricultural cropping without irrigation is mainly limited to forage production. The improved climatic rating is Class (1F) in the lower lying western portion of the site and suggests that tree fruit or grapes are unlikely to be successful due to frost-free limitations. Cold air pooling in this area leads to what is commonly referred to as a 'frost pocket'. A wide range of other perennial and annual crops are still possible, however. The eastern higher lying and sloping portion of the site has improved climatic rating of Class (1aF) indicating hardy varieties of tree fruits and grapes could be produced here.

The soils mainly consist of moderately well drained, dense clays which are slowly pervious. Poorly drained and saline conditions prevail at the lowest elevations (parts of these areas have had 'fill' added to raise their elevation such as near the intersection of Valley and Longhill Roads). The quality of the soils in the 'fill' area appears, visually, to be somewhat variable. Excessive stone content in small areas is evident and 'fill' addition is ongoing in some areas. Topography varies from gently sloping or undulating with gradients less than 5 % in the western part of the site to moderately or steeply sloping along the eastern side with gradients from about 10 % to over 25 %.

The distribution of the land capability for agriculture ratings is shown on the attached orthophoto of the site.

Most of the site is currently used for forage production (both hay and pasture) although some parcels contain tree and small fruits. Some areas are fallow where 'fill' addition is ongoing.

Site # 2 (Scenic Road)

The climatic capability for agriculture rating is Class 5A (unimproved) for the whole site suggesting unirrigated cropping is mainly limited to forage production. The improved capability rating is Class (1aF) indicating hardy tree fruits and grapes can be produced in addition to a wide range of other annual and perennial crops.

Well or moderately well drained, slowly permeable and dense clayey soils predominate. More gravelly materials may occur in the subsoil of the top and slopes of the ridge in the western portion. The topography has a generally southerly aspect with

slopes that are gentle in the southeast and east (less than 5 %). These become moderately sloping or undulating further west and north with gradients up to about 10 %. Gradients to 20 % or more are associated with parts of the ridge on the west side.

The distribution of the land capability for agriculture ratings is shown on the attached orthophoto of the site.

Most of the site is currently used for forage production (both hay and pasture) although some parcels appear to have been in tree fruit production in the recent past. A few parcels currently support treefruits as well.

Site # 3 (UBC-O)

The climatic capability for agriculture rating is Class 5A (unimproved) for the whole site suggesting that unirrigated cropping is mainly limited to forage production. The improved capability rating is Class (1bG) to (1cG) indicating a wide range of tree fruits and grapes can be grown in addition to a wide variety of annual and perennial crops.

Well to moderately well drained, slowly pervious and dense clayey soils predominate. Poorly drained, saline soils occur near Roberts Lake. Gravelly loamy and variably stony, well drained soils occupy the eastern margin of the site and a rocky ridge occurs along a portion of the western margin. The topography of most of the site is gently to moderately sloping or undulating with gradients between 5 % and 10 %. The area near Roberts Lake is nearly level to very gently sloping with gradients of mostly 2 % or less. The eastern margin of the site and the rocky ridge on the west are steeply to strongly sloping with gradients at least 10 % to over 20 %.

The distribution of the land capability of agriculture ratings is shown on the attached orthophoto of the site.

Essentially all of the developed part of the site is used for forage production. Most of the eastern margin and the rocky ridge are uncleared and under forest.

Site # 4 (Landfill)

The climatic capability for agriculture rating is Class 5A (unimproved) for the whole site suggesting unirrigated cropping is mainly limited to forage production. The improved capability rating is Class (1aF) indicating hardy tree fruits and grapes can be produced in addition to a wide range of other annual and perennial crops.

The northeast part of the site is severely disturbed and part of the Kelowna Landfill. The western part of the site consists of primarily well or moderately well drained, slowly pervious clayey soils. The topography here is undulating to gently

rolling with most gradients between 5 % and 10 %. A large ridge traverses the site trending northwest to southeast. The upper parts of the ridge consists of discontinuous rock outcrops or areas shallow to bedrock interspersed with areas of deeper, well drained, gravelly, often stony soils. The lower slopes grade into the lower lying clayey soils. The topography of the ridge is somewhat variable but generally is between 15 % and 25 %.

The distribution of the land capability for agriculture ratings is shown on the attached orthophoto of the site.

Except for the landfill operation on the north, the developed portions of the site are primarily used for forage production. The northern portion of the ridge is under more-or-less natural conditions while the southern part is occupied by buildings and other ranch operation facilities.

Site # 5 (Begbie Road)

The climatic capability for agriculture rating is Class 5A (unimproved) for the whole site which indicates unirrigated cropping is basically limited to forage production. The improved capability rating grades from Class (1F) to (1aF) which suggests that production of even hardy varieties of tree fruit and grapes is marginal due to frost-free period limitations. Cold air pooling in this area produces what is commonly called a 'frost pocket'. A wide range of other annual and perennial crops is still possible, however.

The soils on the valley bottom are moderately well drained, slowly pervious, dense clayey soils on the south part of the site. Further north, these are interspersed with poorly drained, saline, similarly textured soils which occupy the lowest elevations in the very gently undulating and sloping landscape. Overall, topographic gradients are less than 5 %. The west side of the site is steeply to very steeply sloping with gradients generally in excess of 25 %. Here the soils are gravelly loamy in texture and usually stony. Rock outcrops and areas shallow to bedrock also occur.

The distribution of the land capability for agriculture rating over the site is shown on the attached orthophoto of the site.

The valley floor is essentially being used for forage production (both hay and pasture). Most of the steep western margin is uncleared except for small areas used as pasture or homesites.

Summary

All of the potential recreation sites are in the Agricultural Land Reserve so, no matter which site is chosen, the development of the facility will have a negative impact on the Reserve. A proportion of arable land currently farmed will have to be excluded.