Agricultural Impact Assessment

19963 McNeil 5 Lot Pitt Meadows, BC

Prepared for 1344317 BC LTD

5 February 2025

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Deep Roots Horticulture

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2 Executive Summary

The following summarized points only highlight identified topics that have not been addressed by other professional reports or guides (Section 7), or risk that remains unmitigated through a Professional Agrologist's risk assessment (Section 8).

The proposed development appears to fall in line with the proposed development guidelines prepared by a Registered Professional Planner, delivered through the Ministry of Agriculture as the Guide for Edge Planning (2015), except for a few exceptions in the Table below. Potential mitigative actions were also recommended in this Guide for Edge Planning (2015); however, their applicability and effectiveness are outside the scope of any Professional Agrologist. **Please refer to the Disclaimer relating to this Section (Section 7) outlined in Section 3** Disclaimer**, on page 5.** Unless already specifically addressed in another report, specific mitigation recommendations for this section cannot be provided.

1. Lot sizes are large (1 Ha). The Guide for Edge Planning (2015) identifies that large lots tend to have residents that have greater expectation for peace and quiet. For other prescribed options around mitigating agricultural-social-conflict between, please see Section 7.6, p.33
2. The Vegetative Buffer between Lot 1 and the adjacent agricultural property (PID: 014-852-462) is inadequate (density of 50% to 75%). The adjacent property (PID: 014-852-462) faces risk of complaints relating to agricultural odours, dust, and noise. Lot 1 faces unmitigated risk of residential lighting illuminating agricultural property. Despite lack of vegetative buffer adjacent to Lot 1, the current practices observed on the agricultural property is small-scale livestock. Risk of excessive odour, dust, and noise is currently low. Changes to agricultural operating practices on this property could lead to future high risk. For other prescribed options around mitigating agricultural-social-conflict between, please see Section 7.6, p.33
3. Social conflicts relating to perceived agricultural liability, economic instability, increased public road traffic, increased litter from road traffic, and free-mobility of farm equipment on public-roads are not addressed in other Registered Professional Reports. They cannot be addressed here. For other prescribed options around mitigating agricultural-social-conflict between, please see Section 7.6, p.33
4. Fencing around the development site, along the agricultural perimeter has not been specifically detailed. The Guide for Edge Planning (2015) document specifies a wood or chain link fence with a height of 6ft is required on the agricultural boundary. Specifics for this wooden fence are outlined in Appendix C, I: Solid wood Fence (Guide for Edge Planning, 2015, pg. 68).
5. Long-term buffer maintenance was identified by the Guide for Edge Planning (2015) to be at risk of deterioration. Prescribed mitigation strategies in this document were:

a. Subdividing this 30m buffer into a separate lot, and giving it to the city for maintenance
b. Allocating the 30m buffer into common property, shared by the free-land strata
c. Adding a restrictive covenant to the Land-titles, where vegetation is to be maintained within the buffer, as per a pre-approved maintenance plan signed off by a Registered Professional Biologist
d. Use of Disclosure statements and information packets outlining the importance of maintaining Buffers.

All agricultural properties within the proposed EPA, assuming they are independently managed, fall within the guidelines of 'small-farm', precluding them from imposition by EPA Guidelines. Some notable exceptions may exist:

1. If future property uses changes to intensively managed livestock. These properties are outlined in Table 12 and Figure 3 on page 38 and 39.
2. Fields which are solely used for perennial forage production, without livestock presence on the property, are likely to be leased to larger operations; these properties will have restrictions relating to manure use. The implications of this impact are described in Sections 8.2.1 (p. 40) and 8.2.2 (p. 40).
3. Properties with existing berry fields within 200m and 300m of the proposed development perimeter will have new imposed restrictions relating to bird-scare devises. The implications of this are discussed in Section 8.2.4 (p. 41), with the properties in question highlighted in Figure 4 on page 42.

3 Disclaimer

Expected farm use within this area was assumed with the help of satellite imagery, and is assumed to be current. All farms within the observed area are assumed to be in compliance with current municipal, provincial, or federal laws; thus, impacts to farm practices that fall outside these regulations are not discussed. The author of this report cannot forecast all potential future uses, or utilization of properties in combination with other farmed properties; thus, discussing potential future impact thereof, is beyond the ability of the author and this report. Furthermore, this report was prepared by the author acting independently and objectively. The compensation paid is not contingent on any action or event resulting from the use of this report.

The author of this report was asked to reference reports and informal guides prepared by other Registered Professionals. Due to the nature of the instructions and requirements set out on 03 January 2025 (See Section 4, p.7), any information provided in Section 7 are provided entirely “as is” and no representations, warranties, or conditions, either expressed or implied, are made in connection with your use of, or reliance upon, that information. That information is summarized from reports and guides provided to the author, prepared by other Registered Professionals. The author of this report will not be liable for any claims, damages or losses of any kind whatsoever arising out of the use of, or reliance upon, the information contained in these expert reports, represented in Section 7. While every effort has been made to ensure the accuracy and completeness of these materials, additional materials may be required to complete more advanced assessments. Advice from appropriate professionals may assist in completing assessments that are not covered in this report.

The author cannot comment on proposed designs, analysis, and risk assessments conducted by professionals in other designations, as they are outside the scope of practice of an Agrologist. The entirety of Section 7 relates to Urban development design, with topics related to: rural density, road design, lot patterns, residential building set-backs, utility management, residential stormwater management, residential drainage management, and managing of public comfort and expectations. These topics are outside the scope of any Professional Agrologist, and lie within the scope of a Regional Professional Planner and other Professional Designations. With this in mind:

1. The author references risk assessment reports prepared by these other Professional Designations, and a Guide prepared by a Registered Professional Planner; but does not endorse nor hold liability for their recommendations.
2. The author will not prescribe risk associated with the above topics
3. The author will outline mitigation strategies, recommended by the other Registered Professionals and outlined guides, but cannot verify if other mitigation strategies are available, or recommend which mitigation is appropriate nor their efficacy.

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Within Section 7, the author under the designated Profession of Agrology can comment on:

1. Current Agricultural practices in the area, and their potential for contributing to social conflict without mitigating strategies;
2. Characteristics of a vegetative buffer, and risk relating to its intended purpose;
3. The potential impact of unmitigated social conflict on agricultural operations.

Signed,

5 February 2025

4 Purpose

29 May 2024: I was asked to prepare an Agricultural Impact Assessment, regarding the proposed development of 19963 McNeil 5 Lot Pitt Meadows, BC. Instructions were delivered informally, and are paraphrased here within. I was asked to utilize the *Guide to Edge Planning* Document prepared and published by the British Columbia Ministry of Agriculture in the preparation of this report. A report was prepared covering the impact of EPA restrictions imposed by the Guide to Edge Planning Document on Agricultural Activities, from the proposed development. The entirety of Part 4 Farm-side Edge Planning Tools was addressed. This report, titled 1344317 BC LTD_Impact_Assessment_2024_07_08_Final, was delivered in accordance to requirements set out in Section 4 – Farm Side Edge Planning Tools.

30 August 2024: The city asked for an updated Professional Agrologist report relating to subjects that are outside the scope of a Professional Agrologist, to be included in an agrologist report. These topics include geotechnical, infrastructure engineering, and city planning. These issues were highlighted topics under Permit Area 5: Farmland Protection in the city of Pitt Meadows' Official Community Plan (See Appendix B). What remained within the scope of practice for a Professional Agrologist were common practices at mitigating agricultural – urban conflict by the use of buffers and fencing. These topics were outlined in a report delivered on 27 September 2024, titled, 1344317 BC LTD_Addendum_2024_09_27

03 January 2025: The city of Pitt Meadows has asked for an updated Professional Agrologist report that addresses the following:

> *This report should be reviewing the impacts of the residential development on the surrounding agricultural land, not vice versa. This report, or a new report, should be submitted with that consideration in mind. The addendum report tries to address the considerations, but indicates that several considerations are outside of the author's scope of practice, and the report submitted does not adequately address the intent of an agricultural impact assessment.*

Upon discussion with Allison Dominelli (06 January 2025), I was instructed to review Ministry of Agriculture produced guidelines for development on and near Agricultural Land, along with addressing and referencing other professional reports, relating their findings to agricultural impact. These documents our outlined in Section 6 Documents Reviewed. Despite reviewing reports prepared by other Registered Professionals, these topics still remain outside the scope of Practice for a Professional Agrologist.

5 Assumptions

1. Each impacted agricultural lot is currently operating in accordance with all existing legislation and bylaw.
2. Individual properties will be discussed assuming they are operated as individual and independent units. Separate sections will discuss the potential for properties that are leased, and are part of larger farm operations.
3. The topics identified as outside the scope of practice for a Professional Agrologist, will rely on expertise from reports outlined in Section 6: Documents reviewed.
4. The recommendations of the referenced Registered Professional reports are accurate to current industry practices, and will be effective in their purpose to acceptable standards.
5. The recommendations outlined in the Guide prepared by a Registered Professional Planner, presented by the Ministry of Agriculture (2015), are effective in their purpose to acceptable standards.

6 Documents Reviewed:

Agricultural Land Commission (ALC, 2024) Subdivision Near Agriculture: A Guide for Planners and Approving Officers in BC. Ministry of Agriculture and Food

The ALC (2024) document outlines considerations relating to mitigating urban – agricultural conflict (already discussed in the Addendum report). Secondly the document outlines city planning strategies and development strategies to mitigate risk of future development, or other conflicting development interests; these topics are solely outside the scope of a Professional Agrologist. This document was prepared for use by Registered Professional Planners. This document was prepared by Janine de la Salle, a Registered Professional Planner. I can confidently point out if the proposed development appears to meet requirements set in the guideline; however, I not verify if these guidelines are effective. I can not comment on, or suggest, planning and design implementation relating to development, or the risk that may be present as a result of its implementation.

AquaTerra Environmental LTD (2024). Environmental Impact Assessment

This report outlines environmental impacts of the proposed development, including construction and long-lasting affects. The findings represented in this report will be discussed in the context of Agricultural impact below.

BC Ministry of Agriculture (2015) Guide to Edge Planning: Promoting Compatibility Along Agricultural – Urban Edges

Part 1 and Part 2 describe the scope of applicability for this document.

Part 3 outlines Urban-side Edge Planning. The entirety of this section and the contents within are outside the scope of a Professional Agrologist. These topics are covered in the ALC (2024) document above, and belong under the practice of a Registered Professional Planner. Just as above, I can confidently point out if the proposed development appears to meet requirements set in the guideline; however, I not verify if these guidelines are effective. I can not comment on, or suggest, planning and design implementation relating to development, or the risk that may be present as a result of its implementation.

Part 4 outlines Farm-side Edge Planning. Aspects in this category are entirely within the scope of a Professional Agrologist. The Guide for Edge Planning specifies that the Ministry of Agriculture was consulted and involved regarding aspects within this section. Aspects, risk, and impact relating to this section were outlined in their entirety within the first delivered report, and are present in Section 8 below.

*BC Ministry of Agriculture (2020) Guide for Bylaw Development in Farming Areas.

It was suggested to review and reference: The Guide for Bylaw Development in Farming Areas; however, this guide specifies "standards for developing…farming areas (land in the ALR, land zoned for agriculture, and land affected by a valid and subsisting *aquaculture license*…)" (pg.3). Rather, standards developed by the Ministry of Agriculture and Food relating to developments adjacent to the ALR are detailed in the Guide to Edge Planning (2015) document.

BC Ministry of Agriculture (2020). Vegetative Buffers: For Intensive Agricultural Operations in British Columbia. Second Edition.

This guide details the vegetative and structural qualities that make an effective vegetative buffer. It lists species that are commonly used, and are acceptable standards for spray buffers and shelter-belts.

CREUS Engineering Ltd. (2024). Rezoning application Report

This report outlines environmental impacts of the proposed development, including construction and long-lasting affects. The findings represented in this report will be discussed in the context of Agricultural impact below.

Kontur Geotechnical Consultants (2024). Geotechnical Assessment

This report outlines environmental impacts of the proposed development, including construction and long-lasting affects. The findings represented in this report will be discussed in the context of Agricultural impact below.

7 Urban-Side Edge Planning Areas – Agricultural Impact

Please refer to the disclaimer set out in Section 3, p.5 relating to the content of this section.

The following sub-sections discuss this proposed development in relation to recommended practices, developed and by a Registered Professional Planner (RPP), outlined in a guide presented by the Agricultural Land Commission (2024), and represented in Section 3 of the Guide for Edge Planning (2015). Please consult a RPP for a risk assessment that directly addresses the specifics of this proposed development, specifically in Section 7.1 Type and Location of Urban Development, and Section 7.3.2 Open Space and Landscape Design. A RPP should be consulted, along with other Registered professionals should may be relied upon for unaddressed topics in Table 8. A RPP could be consulted to specify which mitigation strategy, summarized in Section 7.4 Social Conflict Risk Summary and Prescribed Mitigation, is best to use.

Section 7.2 Storm and Ground Water Management appears adequately addressed by other Registered Professional Reports.

Section 7.3.1 Buffer Composition and Characteristics can be assessed by a Professional Agrologist, with details and risk outlined in that section below. Similarly, Table 7 in Section 7.4 Social Conflict Risk Summary and Prescribed Mitigation outlines risk to proposed development residents from Agricultural Practices, that in turn, drive agricultural complaints, impacting agricultural operation.

7.1 Type and Location of Urban Development

The Guide to Edge Planning (2015) outlines that Residential – low density (lots 0.20 to 0.40 hectares in size), have low to moderate compatibility with agriculture. The risks and impacts cited are: trespass, dogs at large, damage to crops and equipment, litter, theft, and livestock harassment.

The proposed development presents lot sizes at 1.0 – 1.1 hectares each, which are lot sizes larger than what are discussed in the report. Additional risks and impacts are discussed “that more-affluent residents on larger suburban lots adjacent to farms have higher expectations of peace and quiet and are more likely to complain about farm practices” (Guide for Edge Planning, p.13).

7.1.1 Density, Design, and Lot Patterns

There are no road stubs or half roads that end at, or exist along agricultural boundaries. There are no alternative connector roads from the property out of the neighbourhood. There are no roads planned to be adjacent to agricultural boundaries. The current road design appears in line with what is recommended in the Guide for Edge Planning (2015). For an appropriate risk assessment, please consult an RPP.

CREUS Engineering Ltd (2024) has identified that there is no impact on the industrial traffic for the quarry, and that the road has adequate capacity for the proposed density. In terms of agriculture, roadways are primarily used for machine transport between agricultural properties when required. If industrial-quarry traffic is not impacted, then it is probable that there would be no impact to the free-movement of agricultural machinery due to the increased traffic.

Tension relating to slow moving agricultural machinery and the rural residents proposed in this development has not been assessed. For prescribed mitigation strategies for agricultural-social conflict, please see Section 7.6, p.33.

7.1.2 Setbacks of Urban Buildings from Agricultural boundary

Specific set-backs were established for residential development (Level 1) and non-residential development (Level 2) from agricultural area boundaries. In all instances, Level 1 set-backs were observed on the proposed development for residential buildings, and all level 2 developments (roadways) were observed to be greater than 15m from agricultural property boundaries. Within the context of the Guide to Edge Planning (2015), these set-backs are to minimize social tension between residential occupants and agricultural operations. This social tension can be the result of agricultural aerosols (manure, or chemical drift), machine noise, and or dust from cultivation.

In all instances, the prescribed 30m and 15m setbacks for level 1 and level 2 development respectively, are within the Guide for Edge Planning (2015) guidelines; however, the quality of vegetative buffer existing within these set-backs vary greatly, and are discussed in greater detail in Section 7.3.1 (pg.15).

7.1.3 Utility Extension

The Guide to Edge Planning (2015) identifies that utilities are not to be extended to facilitate development. The CREUS Engineering Ltd (2024) Report outlines that BC Hydro, Natural Gas utility lines are already present in the area, servicing this lot and neighbouring lots.

Canada Post and Solid Waste collection are already present in the area.

7.1.4 Topic Summary

Table 1
Development Type and Location Risk to Agriculture Summary

Topic	Details	Proposed Mitigation
Lot Size and Type	High expectation for peace and quiet	For other options around mitigating social-conflict, please see Section 7.6, p.33
Road Design and Traffic	May be some resident tension relation to occasional slow moving agricultural machinery	For other options around mitigating social-conflict, please see Section 7.6, p.33
Set-backs	All proposed set-backs are within proposed guidelines	NA
Utility Extension	No utility extension proposed outside of the development area.	NA

7.2 Storm and Ground Water Management

7.2.1 Stormwater and Drainage Management

The pre-existing surface drainage flows on the developed property, and the proposed drainage flows post development produced by CREUS Engineering (2024) appear to be largely unchanged, with the exception of storm-water and precipitation management from paved and developed sites.

Annual and seasonal rainfall does not increase with the proposed development, rather, the imposition of cement and development area has the capacity to hasten the rate that water is transported off the site. This has the capacity to overflow drainage networks downstream with the sudden accumulation of high volumes of water. The CREUS Engineering report (2024) describes a drainage system, on the development site, that collects surface run-off from development areas into a containment system, that releases water flows from the property at a reduced rate. If the system works as intended, there should be no additional impact to neighbouring drainage systems, and no additional risk to agricultural lands. The Environmental Impact Assessment outlines residual effects for surface water quality from storm-run off are low with no significant adverse environmental impacts; likewise, the low environmental impact translates directly to low-environmental impact in agricultural use.

7.2.2 Ground Water Management

CREUS Engineering in conjunction with Kontur Geotechnical have installed groundwater monitoring wells, to allow for effective groundwater monitoring. Effective groundwater protection from sanitation is outlined by the CREUS Engineering LTD (2024) report. Surface drainage maps before and after development were reported to have minimal impact by the AquaTerra Environmental Management (2024) report and represented in the CREUS Enigeering LTD (2024) report (drainage maps before and after development). Groundwater monitoring wells were installed by CREUS Engineering LTD. These expert reports identify low risk for the environment for groundwater contamination from this development; it can be assumed that with low environmental impact, there will be low agricultural impact.

7.2.3 Topic Summary

Table 2
Ground and Stormwater Management Risk to Agriculture Summary

Topic	Details	Proposed Mitigation
Stormwater Management	Designed to manage increased acute water discharge through holding ponds and slow release into neighbouring waterways.	NA
Debris Flows	Development would not affect current risk of debris flows through local waterways. No impact on regional flooding risk	NA
Ground Water Management	Sanitary design, property drainage design, and the use of groundwater monitoring wells effectively mitigate risk to groundwater contamination	NA

7.3 Vegetative Buffer Height and Width

The purpose of a vegetative buffers is to separate the impacts of agricultural activity on quality of life of residential development; when social imperatives of a community are impacted, such as air quality or noise, social tension and conflict becomes more likely. This conflict can impact normal agricultural operations.

7.3.1 Buffer Composition and Characteristics

The bio-geoclimatic zone of the area is Coastal Western Hemlock, indicating the dominant species in natural systems is a coniferous species; this can be verified through satellite imagery (See Figure 1, p.17). AquaTerra Environmental LTD (2024) identifies the dominant species composition of tall trees and woody shrubs in the following tables:

Table 3
Identified tree species in the proposed development area, and 30m buffer zone (AquaTerra Environmental LTD, 2024)

Common Name:	Binomial:	Native Status:	Evergreen
Big Leaf Maple	*Acer macrophyllum*	Native	No
Black Cottonwood	*Populus trichocarpa*	Native	No
Crabapple Sp.	*Malus sp.*		No
Douglas fir	*Psedotsuga menziesii*	Native	Yes
*Oregon White Oak	*Quercus garryana*	Native	No
Paper Birch	*Betula papyrifera*	Native	No
Vine Maple	*Acer circinatum*	Native	No
Western Red Cedar	*Thuja plicata*	Native	Yes
White Poplar	*Populus alba*	Native	No

**Not listed in the Edge Planning Guide, however, shares characteristics of other Oak species that are listed.*
Yellow-highlighted are idea for spray-drift listed in the Edge Planning Guide (2015)
Orange-highlighted are ideal for spray-drift listed in the Vegetative Buffers Guide (2020)

Table 4
Identified shrub species in the proposed development area, and 30m buffer zone (AquaTerra Environmental LTD, 2024)

Common Name:	Binomial:	Native Status:
Beaked hazelnut	*Corylus cornuta*	Native
Hardhack	*Spiraea douglasii*	Native
Red Huckelberry	*Vaccinium parvifolium*	Yes
Salal	*Gautheria shallon*	Native
Saskatoon serviceberry	*Amelanchier alnifolia*	Native

Orange-highlighted are ideal for spray-drift listed in the Vegetative Buffers Guide (2020)

Through road-view imagery, the height of existing mature trees appears much larger than the prescribed 6m height outlined by the Guide for Edge Planning (2015). Canopy density within the allotted 30m buffer zone appears sparse (<60% canopy coverage) along the southern perimeter (See Figure 1). Figure 1 below shows the southern portion of the proposed development property, with the property line, and a setback of 30m. This section is present with rocky-bluffs, and very sparse vegetation.

Figure 1

Map agricultural property line (orange) and 30m setback from this property line onto the proposed development parcel (yellow), and roughly overlayed proposed residential building locations (red rectangle). Map showing evergreen-vegetative cover within this prescribed 30m set-back.

Particularly the southernmost red box in Figure 1 (Lot 1) is most exposed, with almost absent vegetative buffer separation. The satellite imagery was taken over winter, when deciduous trees have dropped their leaves. There appears to be an agricultural barn approximately 50m SW from the proposed development of Lot 1. A fenced paddock can be observed around this barn, indicating active use for livestock. Figure 2 shows the proximity of this barn and the bare nature of the slope up to proposed Lot 1.

Figure 2
Road-view of an adjacent livestock barn and paddock, in close proximity to the property boundary.

With the given current use of the adjacent agricultural property in question existing as pasture land, it is unlikely that spray drift will be of concern at this time. With restrictions to liquid manure use within proximity of the property line, manure aerosols would not be of concern. What is probable with the current agricultural use is dust from occasional field cultivation, potential odour from field nutrient application, general barn odours, and noise from livestock; these air contaminants and noise are susceptible to be carried uphill. Changes to agricultural operations overtime are not improbable, with future risk of spray-drift a possibility.

Over a significant time frame, the natural establishment of pioneer species on this rock bluff have been limited. It is improbable that a vegetative buffer could be established, accomplishing 60% canopy coverage, on the current substrate of this rocky bluff.

7.3.2 Open Space and Landscape Design

Section 3.4.d of the Guide to Edge Planning (2015) outline that setbacks containing vegetative buffers are best for long-term plant maintenance when they are separate land parcels, allowing a 15m vegetative buffer section, separating agricultural land from residential yard space. The proposed development does not have this vegetative buffer as a proposed separate parcel. Guide for Edge Planning (2015) suggests an alternative where a restrictive covenant can be placed to maintain this vegetation, or the vegetative buffer can be zoned is as common property of the free land strata. These suggestions by the Guide for Edge Planning (2015) are outlined in Section 7.6.1, p. 33).

The AquaTerra Environmental LTD (2024) report identifies that habitat retention and appropriate wild-life corridors are anticipated to be achieved with the current proposed 30 m ALR offset along the western boundary.

Table 5
Table outlining Features of Buffer Vegetation and Buffer Design criteria, as outlined by the Guide for Edge Planning (2015).

Features of Buffer Vegetation			
Buffer Consideration:	Buffer Characteristics:	Reference Documents:	Risk:
Maintain or enhance views and natural landscape features	Riparian areas, predatory bird nests, and environmentally sensitive areas are either not present, or reported to have minimal impact	AquaTerra Environmental LTD (2024). Environmental Impact Assessment	Low
Retain pertinent existing tree cover in buffer in natural state	The exiting vegetation within the buffer is to remain in its natural state	AquaTerra Environmental LTD (2024). Environmental Impact Assessment	Low
Locate and choose species in the buffer which will not shade farm crops.	Existing species within the buffer will remain, no change in vegetation is expected. Successful pasture is present with existing species present. No additional shading of agricultural crops is expected.	N/A	NA
Do not plant invasive species	The original forest composition is to be	AquaTerra Environmental LTD	Low once controlled as

	retained, with invasive species (Japanese Knotweed) controlled as recommended by the Environmental Impact Assessment	(2024). Environmental Impact Assessment	prescribed by AquaTerra Environmental LTD, 2024)
Use low-maintenance, drought-tolerant plants	Existing species within the buffer will remain, no change in vegetation is expected. These plants have established themselves based on this region's climatic limitations.	N/A	Low
Select tree and shrub species which will not harbour insects or diseases harmful to nearby farm crops	The Vegetative buffer guide outlines two common native species vectors: Juniper, and Eastern Red Cedar. Neither were noted as present on the proposed development site.	BC Ministry of Agriculture (2020). Vegetative Buffers: For Intensive Agricultural Operations in British Columbia. Second Edition. AquaTerra Environmental LTD (2024). Environmental Impact Assessment	Low
Select tree and shrub species that will filter dust and spray drift from agricultural areas	The biogeoclimatic zone of the area, satellite imagery, and species inventory composed by AquaTerra Environmental LTD (2024) show the dominant large tree species to be evergreen Douglas Fir and Western Red Cedar. Both these species are identified as suitable species for dust and spray drift.	BC Ministry of Agriculture (2015) Guide to Edge Planning: Promoting Compatibility Along Agricultural – Urban Edges BC Ministry of Agriculture (2020). Vegetative Buffers: For Intensive Agricultural Operations in British Columbia. Second Edition. AquaTerra Environmental LTD	Low

		(2024). Environmental Impact Assessment	
Buffer Design Criteria:			
Mixed planting of fast-growing tree and shrub species from base to crown – long thin foliage desirable. Include at least 60% evergreen conifers to collect dust and spray drift	The biogeoclimatic zone of the area, satellite imagery, and species inventory composed by AquaTerra Environmental LTD (2024) show the dominant large tree species to be evergreen Douglas Fir and Western Red Cedar. Both these species are identified as suitable species for dust and spray drift.	BC Ministry of Agriculture (2015) Guide to Edge Planning: Promoting Compatibility Along Agricultural – Urban Edges BC Ministry of Agriculture (2020). Vegetative Buffers: For Intensive Agricultural Operations in British Columbia. Second Edition. AquaTerra Environmental LTD (2024). Environmental Impact Assessment	Low
No gaps in buffer and no tightly packed hedges; crown density of 50-75%. Design as wedge shaped if odour dilution desired	There are existing vegetative gaps between two proposed build-sites with vegetative density < 50%	See Figure 1, p.17	High
Design specifications and layout will be as per urban side Buffer A or B (p.24); or existing vegetation may be retained as part of buffer (Buffer C, p.26)	A wood or chain link fence with a height of 6ft is prescribed on the agricultural boundary.	BC Ministry of Agriculture (2015) Guide to Edge Planning: Promoting Compatibility Along Agricultural – Urban Edges (p.25, Buffer C).	Low

Leave 2 m of low growing or no vegetation from agricultural area boundary	Grass pasture exists on the agricultural area boundary	NA	Low
If paths and passive recreational uses (e.g. picnic areas) are part of the landscaped buffer…	NA	NA	NA
If community forest/gardens are an included use of the buffer then the uses should be located away from the agricultural area boundary and protected with vegetation	NA	NA	NA

Table 6 below summarizes any issues with buffer vegetation characteristics, and buffer design criteria. It omits criteria that satisfy requirement prescribed by the Guide to Edge Planning (2015), or do not apply.

Table 6
Proposed Urban-side Buffer, Effectiveness and Risk to Agriculture Summary

Topic	Perceived Risk	Details	Proposed Mitigation
Long Term Maintenance	Moderate – High	Current development plans indicate that the 30m buffer is owned and maintained by each lot owner. Over time, vegetation composition has the capacity to change at the whim and management of each property, diminishing its effect.	Sub-divide the 30m buffer into a separate parcel, to be maintained by the city; or, Designate the 30m buffer as common property under free-hold strata. Its maintenance would be governed by the strata board; or, Establish a restrictive covenant (See Section 7.6.1 p.33)
Invasive Species	High	Japanese Knot Weed was reported on the property. This species has high capacity for spreading, and is highly resilient to control. It is a noxious weed that has high potential impact on agricultural land.	This weed needs to be controlled in its entirety. It has high capacity for dispersal if left unchecked.
Gaps in Buffers, with desired canopy density 50%-75%	High	The proposed building site for Lot 1 overlooks an agricultural pasture and barn with minimal vegetative buffering. The medium between this site and the agricultural boundary does not appear to	For other options around mitigating social-conflict, please see Section 7.6, p.33.

		support vegetative growth. Risk for Rural – Agricultural tension and nuisance complaints higher	

7.4 Social Conflict Risk Summary and Prescribed Mitigation

Agricultural operation often face criticism from the general public; with the development in questions, The Guide for Edge Planning (2015) identifies that agricultural operations may face the following criticism from the new residents (See Table 7, column 1). The probability of exposure to column 1 will be assumed by the current type of agricultural operations within the proximity of the development (See Table 10, p.36). While Rural impact to rural living is specified in column 4, it is this impact that drives agricultural complaints, then impacting agricultural operation.

Table 7
Risk associated with Public Perception, outlined by the Guide for Edge Planning (2015).

	Farm Characteristics	Vegetative Buffer Characteristics /	Probable Rural Impact	Further mitigation Required
*Noise	Small scale livestock are observed adjacent to the development property, on the SW side (PID: 014-852-462). Lot 1 is closest. Livestock produce noise; however, the agricultural property size does	Vegetative buffer between Lot 1 and development boundary does not meet desired criteria under the Guide for Edge Planning (2015). The topography and land type would likely prevent the criteria from being met.	Low	For other options around mitigating social-conflict, please see Section 7.6, p.33

	not support large herd sizes.			
*Chemical Drift	Perennial crop production is observed adjacent to the development perimeter along the NW edge (PID: 003-219-461). Lot 4 and 5 are closest. Pesticide and Herbicide use are typical on these operations	Vegetative buffer between Lot 4 and Lot 5 and the property boundary appear to meet recommendations under the Guide for Edge Planning (2015).	Low	Meets Buffer criteria.
*Dust	Perennial crop production is observed adjacent to the development perimeter along the NW edge (PID: 003-219-461). Lot 4 and 5 are closest. Cultivation between rows is normal on these operations. Small scale livestock are observed adjacent to the development property, on the SW side (PID: 014-852-462). Lot 1 is closest. Field cultivation of existing perennial pasture is rare.	Vegetative buffer between Lot 4 and Lot 5 and the property boundary appear to meet recommendations under the Guide for Edge Planning (2015). Vegetative buffer between Lot 1 and development boundary does not meet desired criteria under the Guide for Edge Planning (2015). The topography and land type would likely prevent the criteria from being met.	Low	For other options around mitigating social-conflict, please see Section 7.6, p.33
*Odours and Emissions	Livestock are observed adjacent to the development property, on the SW side (PID: 014-852-462). Lot 1 is closest.	Vegetative buffer between Lot 1 and development boundary does not meet desired criteria under the Guide for Edge Planning (2015). The topography and land type would	Low	For other options around mitigating social-conflict, please see Section 7.6, p.33

	Livestock produce odours and emissions; however, the lot size is small, supporting a very small herd with odors and emissions likely marginal.	likely prevent the criteria from being met.		
Farm Traffic	Some farm traffic will be expected to continue in the area, as some parcels in the area are leased to larger farms.	NA	**	For other options around mitigating social-conflict, please see Section 7.6, p.33
*Light Pollution	No greenhouses are present within the area.	NA	NA	NA
Groundwater Safety	All agricultural properties within 100m of the proposed development are <6.7 acres in size. These are small scale operations, with minimal livestock. Intensive agriculture is present within this wider area.	NA	**	For other options around mitigating social-conflict, please see Section 7.6, p.33
Visual Impact from farming practices	All agricultural properties within 100m of the proposed development are <6.7 acres in size. These are small scale operations, with minimal livestock.	NA	**	For other options around mitigating social-conflict, please see Section 7.6, p.33

	Intensive agriculture is present within this wider area.			
Environmental Concerns (Habitat Loss and Land Clearing)	Agricultural land within a 300m perimeter of the development appears fully developed. There is no risk of further land clearing or terrestrial habitat loss on agricultural property.	NA	**	For other options around mitigating social-conflict, please see Section 7.6, p.33
Intensive Farming Operations	All agricultural properties within 100m of the proposed development are <6.7 acres in size. These are small scale operations, with minimal livestock. Intensive agriculture is present within this wider area.	NA	**	For other options around mitigating social-conflict, please see Section 7.6, p.33
*Sounds (cannons)	Restrictions imposed by the Farm-side Edge Planning Areas prohibit bird cannon use within 300m of the development perimeter (See Section 8.2.4, p. 41)	NA	NA	NA

*These items are identified in the Guide for Edge Planning (2015) as risks appropriately mitigated by vegetative buffers. These items were also identified in the Guide for Edge Planning (2015) as risks associated with residents in larger lots adjacent to agricultural boundaries.

** An agrologist cannot assume public perceived risk relating to these activities. These categories are not identified as properly mitigated by an effective vegetative buffer. Other mitigation strategies, as outlined by the Guide for Edge Planning (2015) are assumed.

Table 8
Risk associated with Agricultural Operator Perception, outlined by the Guide for Edge Planning (2015). List of topics outside the scope of practice, for a Professional Agrologist. Reference to other Professional Reports that address these topics.

Topic:	Details:	Required Professional:	Assumed to be Addressed:
Liability	Guide for Edge Planning (2015) attempts to limit public access to, and interaction with farm land. This report is prepared by a Registered Professional Planner.	Liability should be addressed by a legal professional.	No, no current farmer legal liability risk assessment available.
Economic Instability (Changing land values)	Not currently addressed.		No, no current report on economic stability available.
Theft, Vandalism, Harassment	Guide for Edge Planning (2015) attempts to limit public access to, and interaction with farm land. This report is prepared by a Registered Professional Planner.	Registered Professional Planner	Yes, Discussed in Section 7.1, p. 12
Litter	Effective buffers, outlined by the Guide for Edge Planning (2015) can limit trash from the development site, but not from additional traffic.	Registered Professional Planner	No Litter from traffic not directly addressed.
Residential pollutants and runoff	Through effective stormwater management and environmental impact assessments.	Kontur Geotechnical Consultants (2024). Geotechnical Assessment AquaTerra Environmental	Yes, Discussed in Section 7.2, p. 13

		LTD (2024). Environmental Impact Assessment	
Movement of Farm Equipment	The CREUS Engineering LTD (2024) report reports that development does not appear to restrict or industrial quarry traffic.	CREUS Engineering Ltd (2024)	Farm Equipment Transport not directly referenced.
Street Lights and Rural lighting	The Guide for Edge Planning (2015) outlines effective buffers for mitigating noise, dust, and presumably light.	Registered Professional Planner	Partially, Lot 1 lighting appears unmitigated.
Residential noises impacting livestock (nuisance dogs)	Guide for Edge Planning (2015) recommends fencing to restrict public access and nuisance dog access. The Guide for Edge Planning (2015) outlines effective buffers for mitigating noise.	Registered Professional Planner	Partially, Lot 1 residential noise appears unmitigated.
Safety relating to slow moving equipment and utility lines	Utility lines are not to be expanded	CREUS Engineering Ltd. (2024). Rezoning application Report	Yes, Discussed in Section, 7.1.3, p. 12
Drainage ditch use and Maintenance	Through effective stormwater management and environmental impact assessments.	Kontur Geotechnical Consultants (2024). Geotechnical Assessment AquaTerra Environmental	Yes, Discussed in Section 7.2, p. 13

		LTD (2024). Environmental Impact Assessment	
Groundwater contamination from other industrial practices	Through effective stormwater management and environmental impact assessments.	Kontur Geotechnical Consultants (2024). Geotechnical Assessment AquaTerra Environmental LTD (2024). Environmental Impact Assessment	Yes, Discussed in Section 7.2, p. 13
"Access to Lands Beyond"	Guide for Edge Planning (2015) attempts to limit public access to, and interaction with farm land. This report is prepared by a Registered Professional Planner.	Registered Professional Planner	Yes, Reviewed guidelines in Section 7.1, p.12

7.5 Section Summary

With all reviewed registered professional reports and informal guides, the following identified unaddressed risk to agricultural properties remains unaddressed:

Table 9

Table Summarizing unresolved Risk, identified by guidelines form the Guide for Edge Planning (2015) document

Topic:	Details:	Potential Mitigation:
The Lot sizes are large	The Guide for Edge Planning (2015) identifies that large lots tend to have residents that have greater expectation for peace and quiet.	For other options around mitigating social-conflict, please see Section 7.6, p.33
The Vegetative Buffer between Lot 1 and the adjacent agricultural property (PID: 014-852-462) is inadequate (density of 50% to 75%).	The adjacent property (PID: 014-852-462) faces risk of complaints relating to agricultural odours, dust, and noise. Lot 1 faces unmitigated risk of residential lighting illuminating agricultural property.	
Social conflicts relating to perceived agricultural operator liability	This conflict has not been specifically addressed in any Professional Report, or outlined in any provided guide. This topic is entirely outside the scope of a Professional Agrologist.	
Social conflicts relating to perceived agricultural operator economic instability	This conflict has not been specifically addressed in any Professional Report, or outlined in any provided guide. This topic is entirely outside the scope of a Professional Agrologist.	
Social conflicts relating to road traffic, and road litter, outside of the development site	This conflict has not been specifically addressed in any Professional Report, or outlined in any provided guide. This topic is entirely outside the scope of a Professional Agrologist.	
Fencing Agricultural Boundary	Fencing Specifics were not identified in any report	A wood or chain link fence with a height of 6ft is prescribed on the agricultural boundary. See Appendix C, I: Solid wood Fence (Guide for Edge Planning, 2015, pg. 68).

Long-term buffer maintenance	This was identified as at risk, as each residential property owner has the potential for improper maintenance of the buffer, leading to its gradual deterioration.	For other options around mitigating social-conflict, please see Section 7.6.1, p.33

7.6 Mitigating Social Conflicts through Enhancing Agricultural Awareness

7.6.1 Disclosure Statements Restrictive Covenants

The Guide to Edge Planning (2015) recommends disclosure statements, in the form of restrictive covenants. "*It can inform the prospective land buyer that the property is close to an agricultural area where acceptable farm practices may result in noise, dust, odour &/or other impacts during certain times of the year* (Ministry of Agriculture, 2015, p. 28)*".*

The Guide is specific that to be accepted by the Registrar of Land Titles as a covenant, there must be a restrictive aspect. As listed in the Guide to Edge Planning (2015), these restrictions could include:

- House and building restrictions
  - Certain walls/windows must have additional sound-proofing
  - Patios will not face agricultural land
- Mandating the preservation of the buffer
  - No building within the 30m vegetative boundary
  - Vegetation is to be maintained within the buffer, as per a pre-approved maintenance plan signed off by a Registered Professional Biologist

7.6.2 Signage

The following excerpt was taken from pg. 28 of the Guide to Edge Planning (2015) relating to signage:

Local governments should consider using signs along the agriculture-urban boundary that inform residents and prospective purchasers of the proximity of farm

operations within the immediate area and the possible activities associated with farm operations.

7.6.3 Information Packets

The following excerpt was taken from pg. 29 of the Guide to Edge Planning (2015) relating to Information Packets:

One final 'awareness tool' that local governments may wish to develop is an information package for new and/or existing residents located within the Edge Planning Area, 300 metres of the agricultural area boundary. This package could include:

- *information on and the benefits of the vegetative buffer (assuming one is installed);*
- *a brief overview of the Provincial Farm Practices Protection legislation and acceptable farm practices;*
- *the Ministry of Agriculture booklet The Countryside and You;*
- *contact numbers for the Ministry and the Farm Industry Review Board (which reviews complaints about farm practices).*

The information package should ensure local relevance by describing the types of farm operations commonly found in the area and use local references. The Ministry could help local government staff and the local agriculture organization or Agricultural Advisory Committee in preparing the package, if requested. This package will help to establish effective communication between farmers and their non-farm neighbours and ultimately assist in reducing potential conflict.

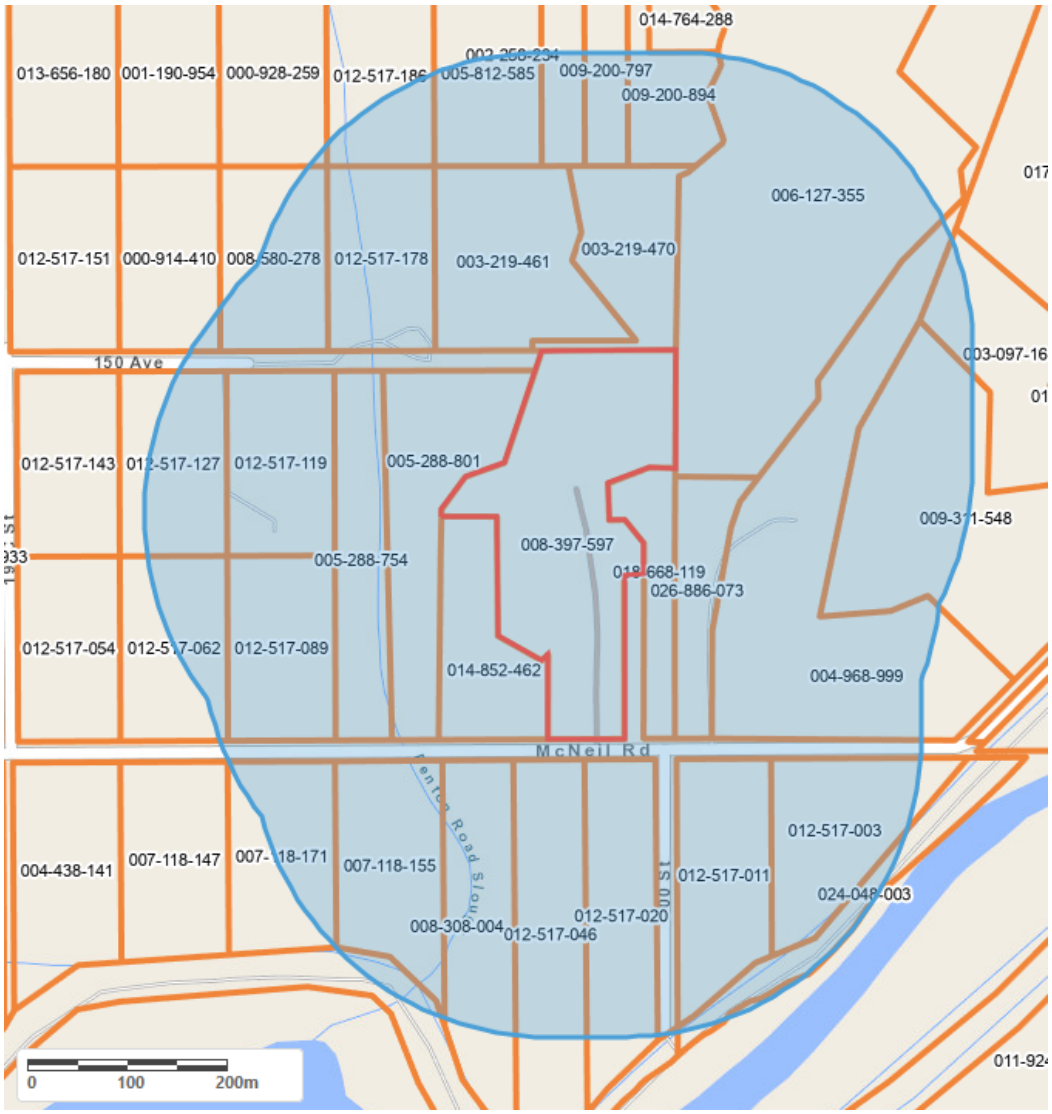
8 Farm-Side Edge Planning Areas – Agricultural Impact

8.1 Edge Planning Area (EPA) and Scale of Affected Properties

A 300m setback from the development edge is imposed on the surrounding area, referred to as the Edge Planning Area (EPA), which limits specific farming activity. These limitations are imposed if the affected farming operation exceed the small-farm category, defined by particular use and size thresholds. All affected properties are depicted in Figure 2 below.

Figure 2

Affected Properties due to a 300m set-back from the proposed development area.



Deep Roots Horticulture

The Table below identifies the properties depicted in Figure 2 above, outlining current zoning, lot size, and current agricultural use observed through satellite imagery. Further restrictions are placed on building placement on properties within 60m and 100m of the proposed development edge; the potentially affected properties are indicated in the table below.

Table 10

Properties within the prescribed 300m Edge Planning Area (EPA), along with current agricultural use.

PID:	Zoning	Lot Size	Current Use:	<60m	<100m
012-517-186	A-1	5	Soil - Based		
005-812-585	A-1	5	Non-Ag		
002-258-234	A-1	2	Soil -Based		
009-200-797	A-1	2	Non-Ag		
009-200-894	A-1/RR4	2.66	Non-Ag		
000-914-410	A-1	5	Forage - Hay		
008-580-278	A-1	5	Forage - Hay		
012-517-178	A-1	5	Pasture - Horses		
003-219-461	A-1	6.71	Soil – Based Berry	Y	Y
003-219-470	A-1	4.29	Non-Ag	Y	Y
006-127-355	Rural Residential	25.26	Non-Ag	Y	Y
026-886-073	Rural Residential	2.99	Non-Ag	Y	Y
018-668-119	Rural Residential	2.511	Non-Ag	Y	Y
004-968-999	A-1	19.39	Forage - Hay		
009-311-548	A-1	13.61	Forage - Hay		
003-097-161	A-1	6.2	Non-Ag		
012-517-127	A-1	5	Forage - Hay		
012-517-119	A-1	5	Pasture - Horses		
012-517-062	A-1	5	Forage - Hay		
012-517-089	A-1	5	Forage - Hay		
005-288-754	A-1	5.1	Forage - Hay		Y
005-288-801	A-1	6.93	Forage - Hay	Y	Y
014-852-462	A-1	4.282	Forage – Hay / Livestock	Y	Y
007-118-171	A-1	5.1	Non-Ag		
007-118-155	A-1	5.5	Forage - Hay		
008-308-004	A-1	5.8	Non-Ag		Y
012-517-046	A-1	6.7	Forage - Hay	Y	Y
012-517-020	A-1	5.6	Soil Based	Y	Y
012-517-011	A-1	5.5	Soil Based		Y
012-517-003	A-1	5	Forage - Hay		

Small farms are exempt from EPA guidelines, that fall within the following guidelines:

1. Greenhouses <1,000m^2
2. All soil-based cropping farm operations
3. Animal Operations that fall within the guidelines in Table 11 below.

Table 11

Abridged Table identifying maximum thresholds for livestock within prescribed distances

Thresholds for Specific Limitations	Maximum Agricultural Units
Minimum Thresholds for EPA Guidelines (300m)	10
Structures with Maximum Animal Housing (60-99m)	30
Structures with Maximum Animal Housing (100-300m)	50

8.1.1 Current Impacts from Imposed EPA Set-backs

Currently only two livestock operations were identified within the proposed 300m EPA set-back (See red highlighted properties in Table 10). These properties appear to have pasture for grazing horses, and paddocks. The quantity of Animal Units (AU) on either of these operations is unknown, however:

1. Pastured land for both properties was measured between 1.5 to 2.5 Acres
2. Historical satellite imagery has shown between 2 to 3 animals on each property at a given time.

With supplemental feeding, additional horses can be kept on small pieces of land; however, overstocking small pieces of land can impact animal health and welfare. It is generally recommended that 1.5 Acres is required for the first horse, and a minimum of 1 acre per additional horse thereafter.

Horses equate 1.2 AU; thus, it is improbable that these identified livestock operations would ever reasonably have the space to accommodate enough animals to surpass the small-farm-thresholds, and become restricted by EPA guidelines. The remainder of the identified properties are all soil-based agricultural operations.

8.1.2 Future Impacts from Imposed EPA Set-backs

While current Agricultural use is assessed above for impacts by EPA set-backs, future intended use may be limited for these properties.

Based on Good Pasture condition, in a high precipitation area, pasture can provide for 2.2 animal units per acre (AU/ Acre). All properties zoned for agriculture were taken from Figure 2 above to estimate AU capacity for these properties, giving their potential for future use. A very conservative 1 Acre removed from the lot-acreage to account for buildings, yard, roadways and headlands. The remaining acreage was multiplied by 2.2 AU/Acre, assuming good pasture quality without irrigation. The properties which exceed 10 AU are listed in the table below. Of these identified properties, available pasture area was measured using satellite imagery, taking into account waterways and buildings. The remaining acreage was then assessed for livestock carrying capacity; properties that remain at or above the 10 AU threshold were highlighted in red.

Table 12
Identified properties that have the capacity to support 10+ Animal Units

PID:	Lot Size	Estimated Cropped Acres	Supported Animal Units	60-100m
003-219-461	6.71	4.33	9.5	Y
004-968-999	19.39	18.39	40.5	
009-311-548	13.61	12.61	27.7	
003-097-161	6.2	5.2	11.4	
005-288-801	6.93	1.86	4.1	
008-308-004	5.8	4.0	8.8	Y
012-517-046	6.7	4.6	10.1	Y
012-517-020	5.6	3.4	7.5	Y

Buildings containing animals within 60-100m of the EPA boundary would be limited to 30 AU; however, it appears the land capacity for any of these identified areas is substantially below this threshold. Otherwise, animal housing on these properties would be limited to 50 AU. Considering the size of the properties in the surrounding area, future plans to construct livestock housing on this scale is only likely to incur on three red highlighted properties east of the proposed development area (See Figure 3).

The red highlighted properties in Table 12 above are depicted in the map below. While current use of these properties does not suggest restrictions through EPA set-backs, future indented use may be restricted. Restrictions within the EPA Guidelines can be found in the Guide to Edge Planning. The potential uses of future land use, in conjunction with other parcels, are manifold; thus, impacts to such hypothetical future scenarios will not be discussed in this report.

Figure 3
Map showing properties that may have impacted future agricultural use.

8.1.3 Impacts to properties leased-out from Imposed EPA Set-backs

Forage hay fields, while classified as soil-based crops, may include manure management practices from larger operations handling > 10 AU of manure. In these instances, activities would be restricted by appropriate EPA guidelines.

8.2 EPA Guidelines and Restrictions

Assuming agricultural properties are operating as single and independent units, it does not appear that any surrounding agricultural operations are large enough to be impacted by EPA set-back guidelines. No changes to agricultural practices are anticipated.

Multiple properties are observed within the 300m EPA set-back distance that appear to be soil-based forage fields. Animal housing and evidence of grazing does not seem apparent from satellite imagery; thus, it is probable that at least some of these properties are leased and part of larger livestock operations. Considering the presence of animals on these properties are excluded, EPA guidelines would be limited to manure handling and manure use. The implications of these restrictions will be discussed below:

8.2.1 Dry Manure Handling and Use

Limitations to dry manure application are only limited to bare soil use. For beef, hog and poultry, manure on bare soil must be incorporated within 48h of application. For all other manure sources, dry manure must be incorporated within 4h of application. Considering all observed fields are perennial forage production, bare soil application would be limited to field renovation. This is the period when a field is tilled and replanted. In these circumstances, manure is always incorporated prior to planting.

In established perennial forage crops, dry manure can continue to be spread without incorporation. No impacts from EPA guidelines are expected in this manner.

8.2.2 Liquid Manure Handling and Use

EPA guidelines limit liquid chicken manure and liquid hog manure, which are not readily available in the Fraser Valley. Applications to bare soil must be through manure injection, or incorporated after application; it is standard practice to incorporate manure into bare soil prior to planting.

Applications to existing crop, including perennial forage and pasture, must be applied using a sub-canopy application method such as manure injection. While the EPA Guidelines allow a 5-10 years phase in period for existing farms in the area, financial impact to these existing farms can be expected.

For existing farms that lease hay-properties and currently apply liquid manure, the following options are available to maintain compliance with EPA Guidelines:

1. If not already owned, purchasing a fertilizer injector. Government programs and funding is available to mitigate some of this financial burden.
2. Most dairy operations have dry manure. Changing practices to solely use dry manure within the EPA would maintain compliance, and not require the acquisition of new equipment.

Some financial burden may be expected on larger agricultural operations that may be leasing hay-fields within the EPA boundary; however, adapting nutrient resource allocation between fields can mitigate this financial burden.

8.2.3 Composting and Agricultural by-product Storage

On properties being leased out for perennial forage production, no evidence of livestock buildings is observed. These are the only circumstances when manure would be collected, stored and composed. There are two properties that house horses; however, these properties are considered small farms and are not subject to EPA guidelines.

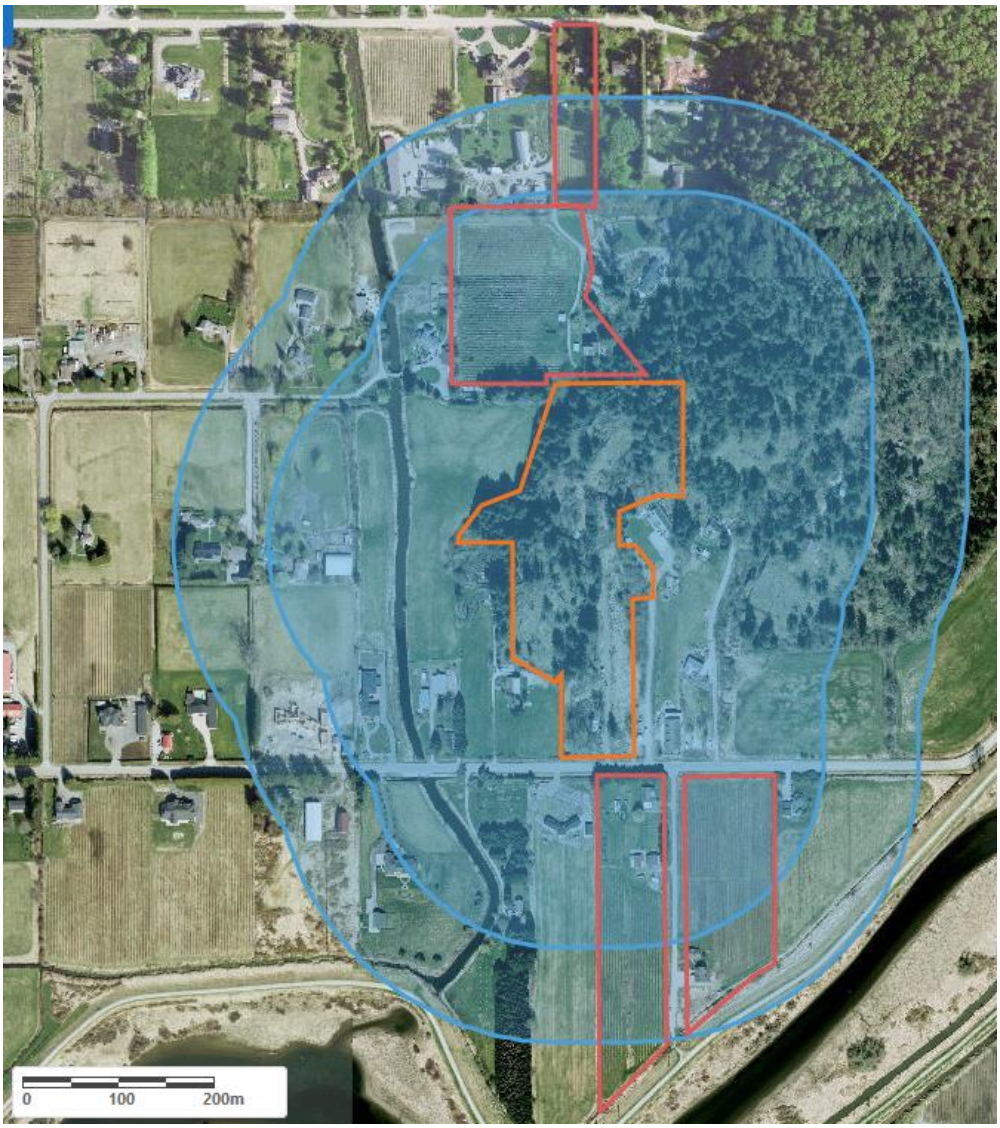
No Impact expected.

8.2.4 Noise, Odour, and Dust Management

On properties being leased out for perennial forage production, no evidence of livestock buildings is observed. Regulations under this category for livestock adjacent agriculture is limited to animal housing and feeding locations. There are two properties that house horses; however, these properties are considered small farms and are not subject to EPA guidelines.

While all soil-based operations are considered small-farms, and were precluded from EPA Guidelines, this section identifies imposed regulations and distance thresholds for specifically soil-based agriculture. For soil-based [non livestock] agriculture, propane bird scare devices (category A) are prohibited within 300m from the development perimeter, with audible bird-scare devices (category B) being prohibited within 200m of the development perimeter. A total 4 soil-based agriculture operations exist within the 300m range, all of which appear to be in berry production. Bird-scare devices are important in crop protection. Three of these farms will be prohibited from using Category ‘B’ devices in all or the majority of their field, and all farms will be prohibited from the use of Category ‘A’ devices.

Figure 4
Map showing soil-based berry farms



Effective bird control will be limited for these farms. This will result in increased crop loss from bird damage, and depending on the extent of damage, reduced grading at the processing facility. Lower graded fruit returns lower income for these farms. The following financial risks will be imposed on these soil-based agricultural sites:

1. The farms could purchase and install bird netting to exclude birds prior to harvest. This is expensive but most effective.
2. The farms could install reflective bird tape. This is very cost effective, but has limited success in preventing bird-damage.

3. The farms could not use bird deterrents and risk damaged crop and/or reduced yield quality, resulting in annually impacted profitability.

Some financial burden may be expected on soil-based berry production operations within 300m. Losses would be expected in annual agricultural losses to bird predation, or in adapting infrastructure to mitigate annual losses.

8.3 Other Considerations and Impacts

8.3.1 Safety and Security Measures

No ostrich, emu, or mink farms were observed within the EPA.

No impact expected.

8.3.2 Setbacks and Distances

Most adjacent farms to the proposed development site are classified as small-farms and exempt from EPA guidelines. Soil-based operations may have crop-storage that must be 15m from the development perimeter.

Perennial Forage- These fields are cut, baled, and hauled off site, resulting in no crop storage.

Soil Based Agriculture – The closed adjacent agriculture appears to be in berry production, which immediately ships the product to the processing facility. Crop storage does not usually occur on the property.

No impact expected.

Trespass, theft, vandalism, and litter are all an inevitable bi-product of increasing population density and traffic within an area. These issues can be mitigated on the individual basis through proper fencing, signage, and vegetative buffers for privacy. Mitigating these impacts on a regional scale are beyond the scope of a professional agrologist, and fall within the scope of development planning and design.

8.3.3 Microclimatic Shifts Relating to Development

While urban design and layout are outside the scope of practice for a Professional Agrologist, microclimatic affects from landscape features can be commented on. The distance between the proposed buildings, combined with the vegetative buffer, are likely to have no significant changes to micro-climates affecting agricultural lands, or production.

8.3.4 Crop Damage Due to Wildlife

The AquaTerra Environmental LTD (2024) report outlines the following:

1. Predatory birds were reported on the development property, but no nests were found.
2. Song-birds will be temporarily displaced, but will habituate to the noise and presence of residential development
3. Terrestrial large mammals may be displaced, but there is sufficient alternative habitat existing elsewhere in the area.
4. Small terrestrial mammals may be displaced, but there is sufficient alternative habitat existing elsewhere in the area.

With these assumptions in place: Ecosystem services from predatory birds are unlikely to be impacted in the long run. Distribution of song-bird populations are unlikely to change in the long-term. Large terrestrial mammal predation and crop damage may shift from immediately adjacent agricultural areas, to more distant agricultural areas; however, predicting population density shifts and the resulting damage are outside of scope. Small terrestrial mammal predation and crop damage may shift from immediately adjacent agricultural areas, to more distant agricultural areas; however, predicting population density shifts and the resulting damage are outside of scope.

Despite potential shifts in wild-life predation and crop damage, population pressure and resulting agricultural impact is unlikely to increase as a result of this development. Contending with predatory animals is already a consideration for agricultural operations in this area. Overall impact is likely to be low.

8.3.5 Agricultural Operation Perceived Social Conflicts

The Guide for Edge Planning (2015) outlines other perceived social conflicts that agricultural operations may have in relation to encroaching residential development. The

following topics of actual risk are within the scope of practice of a Professional Agrologist. The following topics of continued perceived risk, and conflict relating to the continuation of this perceived risk, are beyond the scope of a Professional Agrologist.

Table 13

Risk associated with Agricultural Operator Perception, outlined by the Guide for Edge Planning (2015). List of topics within the scope of practice for a Professional Agrologist.

Topic:	Details	Risk:
Spraying and Spreading Limitations	The Farm-side Edge Planning Area limits liquid manure spreading (See Section 8.2, p.40) Spraying limitations have always mandated that spray drift stays on property location. There are no additional restrictions for spray limitations.	Moderate (See Section 8.2, p.40)
Shading of crops from installed buffers	Existing vegetation is to remain in place. Current crop growth will not be impacted further.	Low, See Table 5, p.19
Microclimatic changes due to surface changes and residential buildings	Significant set-backs are prescribed between proposed buildings and agricultural boundaries. There is no expected significant shift in micro-climatic changes due to building footprint or design.	Low (See Section 8.3.3, p. 44)
Crop-damage due to wildlife	Wildlife may be marginally displaced from this area, but there appears to be other suitable habitat in this area (AquaTerra Environmental, 2024).	Low (See Section 8.3.5, p. 44).

9 Appendix

A. Qualifications

Curriculum Vitae

Personal Information

Name: Joseph Levitsky
Address: 10799 Stave Lake Road, Mission, B.C., V2V 4J1
E-mail: Josephlevitsky@gmail.com
Phone: 604-316-6521

Work Experience

Jan 2022 – Present **Claims Verification – British Columbia's Agricultural Flood Recover Program**

Working as a contracted professional by the B.C. Ministry of Agriculture, I was hired to verify losses experienced on a large variety of agricultural operations relating to acute flood damages. Total mitigative and recovery costs were weighed against observed damages as justifiable or in excess. Other chronic losses relating to farm management, or other causes of loss, were separated out as not covered by the program.

Jun 2021 – Present **Environmental Farm Plan Advisor**

Working in a confidential and cooperative capacity with agricultural producers in environmental risk management. Environmental risk is communicated with producers in terms of environmental, social, and economic impact in the short and long term. Collaborative solutions are generated with the producer on how to best mitigate these risks within the capacity of their farm operation.

Jan 2018 – Present **Sole Proprietor at Deep Roots Horticulture – Contractor Fruit, Berry, and Vegetable contract for Production Insurance B.C. Ministry of Agriculture ~ Jan 2018 to Present**

Identifying cause(s) of loss and apportioning quantity of loss to each identified peril. Evaluation of farm management practices in relation to

individual production capabilities. Identification and confirmation of declared varieties. Composing technical reports, and summarizing field evaluations. Composing secondary research summaries to clarify mechanisms behind potential cause of loss. Appearing as a witness on behalf of the BCMA during arbitration regarding field conditions and my professional opinion.

Animal Wildlife Program for Production Insurance
B.C. Ministry of Agriculture ~ Jan 2018 to Present

Apportioning loss as a result of wild-life damage, weather perils, or management practices in forage and grain production fields. Evaluating field conditions, in relation to each field's production capabilities. Composing technical reports summarizing field evaluations.

Independent Consultant ~ Jan 2018 to Present

Determining production capabilities of a field or farm, utilizing data collected along with Yield Component Analysis. Determining yield loss imposed by biotic, abiotic, chemical influence, or limitations imposed by management practices. Apportioning the observed loss, to a specific cause; then, composition of technical reports summarizing current farm conditions. Providing an opinion on the best management strategy to mitigate potential losses. Providing a timeline to recovery, and all losses incurred as a result of the loss. Reviewing and contributing to other professional reports, within a similar capacity. Reports are submitted for purposes of insurance claims, arbitrations, or litigation.

2018 – Jan 2022 **Avtar Kahlon et al vs. BC Railway Company et al**
Balbir Rai et al vs. BC Railway Company et al
Calvin Breukelman et al vs. BC Railway Company et al
Daljit Brar et al vs. BC Railway Company et al
Gurdial Gill et al vs. BC Railway Company et al
Himmat Sekhon et al vs. BC Railway Company et al
Jatt Cheema et al vs. BC Railway Company et al
Karminder Jassal et al vs. BC Railway Company et al
Karnail Sekhon et al vs. BC Railway Company et al
Pritpal Gill et al vs. BC Railway Company et al
Wayne Sandberg et al vs. BC Railway Company et al

I was a sub-contracted expert, hired through Expert Agriculture Team. My purpose was observing historical yield and assessing long term yield and financial losses incurred to a blueberry farm from off-target Garlon XRT drift. These cases were settled in mediation.

Mar 2019 – Jan 2021 **Lidder Farm vs. City of Surrey**

I was an expert retained to provide an opinion on the impact of flood water as a result of a breached dyke, both on acute and chronic damages, as well as reasonable mitigation strategies. This case was settled in mediation

Nov 2014 – 2017 **Expert Agriculture Team Ltd.**
2017 - Vice President – Human Resource Manager

Research trial design for varietal trails under Canada's Plant Breeders' Rights (PBR) Program. Inter-company coordination to facilitate international shipments of genetic material. Payroll and corporate taxes. Human resource management. Data analysis and composition of technical reports for PBR, insurance, and for purposes of litigation. Provide training and support to new employees.

2016 - Field Inspection Manager

Please see experience listed under the Fruit, Berry, and Vegetable contract for Production Insurance with the B.C. Ministry of Agriculture listed above. Provide training and support to new employees. Conduct data

collection and field evaluations for professional reports under the tutelage of Tom Baumann (MSc)

2014-2016 – Field Technician

Trial plot set-up, maintenance, and data collection for both PBR and the BCMA's Fruit, Berry, and Vegetable contract. Reviewing technical reports. Data collection for reports serving purposes of litigation.

Training and Professional Development

Sept 2021 – Ongoing **Royal Roads University**

MSc. Environmental Practice

Part-time program with estimated completion date 2026

Developing a Sustainable Perspective
Research Methods and Analysis
Environmental Analysis and Remediation
Foundations for Environmental Communication
Legal Aspects of Environmental Management
Principles of Sustainable Community Development

01 January 2024 **Nutrient Management Plan Training**

Coursework facilitated by the B.C. Ministry of Agriculture, focusing on nutrient balancing for diverse farm operations. Nutrient balancing is accomplished in accordance with specific crop requirements and a legal-framework depicting allowable nutrient thresholds and setbacks from vulnerable environmental features.

20 June 2021 **Environmental Farm Plan Advisor Training**

A weeklong presentation series covering all aspects of Environmental Farm Plans; including but not limited to: riparian health and management, nutrient management basics, manure handling and storage, pesticide handling and storage, irrigation management, drainage management, species at risk regulation, and other natural resource regulation as it applies to farmed land.

23 April 2021 **Professional Negligence Seminar**