REVISED AGRICULTURE ADVISORY COMMITTEE MEETING AGENDA

Thursday, April 3, 2025, 2:00 p.m.
Abbotsford City Hall - Room 530

***Denotes Revised/Additional Items.**

Pages

1. CALL TO ORDER

2. ADOPTION OF AGENDA

   Recommendation:
   That the April 3, 2025, Agriculture Advisory Committee Meeting agenda be adopted.

3. ADOPTION OF MINUTES 3

   Recommendation:
   That the March 6, 2025, Agriculture Advisory Committee Meeting minutes be adopted.

4. PRESENTATIONS
   None.

5. DELEGATIONS
   None.

6. REPORTS

   ***6.1 ALC Subdivision and Non-Farm Use application (34252 King Road)** *6*

   (Report No. PDS 065-2025)

   Recommendation:
   That the Agricultural Advisory Committee recommend to Council that Council (choose one):

   1. Forward the application to the ALC with support, as presented; or
   2. Forward the application to the ALC with support, with changes, or
   3. Forward the application to the ALC with no comments; or
   4. Deny and not forward the application to the ALC.

7. NEW BUSINESS

8. ADJOURNMENT

Recommendation:
That the April 3, 2025, Agriculture Advisory Committee Meeting be adjourned.

Agriculture Advisory Committee Meeting Minutes

March 6, 2025
Abbotsford City Hall - Room 530

Members Present: P. Ross (Chair), B. Driediger, M. Dykshoorn, S. Kahlon, R. Friesen

Members Absent: T. Kendrick, A. Mitchell, J. Phulka,

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1. CALL TO ORDER

Councillor Ross called the meeting to order at 2:00 p.m.

2. ADOPTION OF AGENDA

Moved by: B. Driediger
Seconded by: M. Dykshoorn

That the March 6, 2025, Agriculture Advisory Committee Meeting agenda be adopted.

In Favour (5): P. Ross, B. Driediger, M. Dykshoorn, S. Kahlon, and R. Friesen

Absent (3): T. Kendrick, A. Mitchell, and J. Phulka

Carried

3. ADOPTION OF MINUTES

Moved by: M. Dykshoorn
Seconded by: B. Driediger

That the February 6, 2025, Agriculture Advisory Committee Meeting minutes be adopted.

In Favour (5): P. Ross, B. Driediger, M. Dykshoorn, S. Kahlon, and R. Friesen

Absent (3): T. Kendrick, A. Mitchell, and J. Phulka

Carried

4. PRESENTATIONS

None.

5. DELEGATIONS

None.

6. REPORTS

6.1 Non-Farm Use Application (30120 Fraser Highway)

(Report No. PDS 032-2025)

Moved by: M. Dykshoorn
Seconded by: B. Driediger

That the Agriculture Advisory Committee recommend to Council that Council deny and not forward the application to the ALC.

In Favour (5): P. Ross, B. Driediger, M. Dykshoorn, S. Kahlon, and R. Friesen

Absent (3): T. Kendrick, A. Mitchell, and J. Phulka

Carried

6.2 Non-Adhering Residential Use (30314 Sunset Crescent)

(Report No. PDS 030-2025)

Moved by: B. Driediger
Seconded by: M. Dykshoorn

That the Agriculture Advisory Committee recommend to Council that Council forward the application to the ALC with support, as presented.

In Favour (5): P. Ross, B. Driediger, M. Dykshoorn, S. Kahlon, and R. Friesen

Absent (3): T. Kendrick, A. Mitchell, and J. Phulka

Carried

6.3 Subdivision (Boundary Realignment) in the ALR (27600/27888 King Road)

(Report No. PDS 046-2025)

Moved by: M. Dykshoorn
Seconded by: B. Driediger

That Item 6.3, Subdivision (Boundary Realignment) in the ALR (27600/27888 King Road), be deferred to a future meeting of the Agriculture Advisory Committee.

In Favour (5): P. Ross, B. Driediger, M. Dykshoorn, S. Kahlon, and R. Friesen

Absent (3): T. Kendrick, A. Mitchell, and J. Phulka

Carried

7. NEW BUSINESS

None.

8. ADJOURNMENT

Moved by: B. Driediger
Seconded by: M. Dykshoorn

That the March 6, 2025, Agriculture Advisory Committee meeting be adjourned (2:16 p.m.).

In Favour (5): P. Ross, B. Driediger, M. Dykshoorn, S. Kahlon, and R. Friesen

Absent (3): T. Kendrick, A. Mitchell, and J. Phulka

Carried

Patricia Ross	Harjit Gill
Chair	Acting City Clerk

COMMITTEE REPORT

AGRICULTURE ADVISORY COMMITTEE

Committee Report No. PDS 065-2025
Date: April 3, 2025
File No. 3100-05/PRJ25-12

To: Agriculture Advisory Committee
From: Nick Crosman, Senior Planner and Bronwen Verigan, Planner
Subject: ALC Subdivision and Non-Farm Use application (34252 King Road)

AGRICULTURAL ADVISORY COMMITTEE

As outlined within the Agriculture Advisory Committee's (AAC) Terms of Reference, the Committee's mandate is to *"…make recommendations on agriculture matters, more specifically:*

a) *provide recommendations to Council on the development of strategies, policies, plans and regulations dealing with agricultural issues, enhancing agriculture and agricultural areas of the City, such as farm 'edge' policies, farm bylaws, and environment, etc.;*
b) *review and provide recommendations to Council on development applications, referred by staff or Council, on the effect of the proposal to agriculture;*
c) *provide recommendations to Council on the operation and maintenance of the City's dyking, drainage and irrigation programs to address the needs of the agriculture industry; and*
d) *provide input on the development on the City's Agriculture Strategy."*

Staff is looking for input from the AAC regarding this application and any comments, concerns or recommendations will be included in staff's report to Council.

PURPOSE

The City received an ALC application for Subdivision and a Non-Farm Use at 34252 King Road (the property) to accommodate a new 16,500 m^2 Plant and Animal Health Centre (PAH Centre) with a crematorium.

BACKGROUND

Owner:	Athiana Acres Abbotsford Holdings Ltd.
Applicant:	Pacific Land Group Inc.
OCP Designation:	Agriculture 1 - Uplands
Existing Zoning:	Rural Residential Zone (RR)
Airport Flightpath Zoning:	Approach Surface

Site Area:	35.96 Hectares (88.85 Acres)
Legal Description:	Parcel “A” (reference Plan 5411) North East Quarter Section 10 Township 16 Except: Part Dedicated Road on Plan 44724, New Westminster District.
Current Uses:	Agriculture (grain and forge) and residential (single detached dwelling)
Surrounding Uses:	N: King Road and residential uses beyond; E: City owned greenway and industrial uses beyond; S: Active aggregate facilities; and W: McKenzie Road and the University of the Fraser Valley (UFV) beyond.
Soil Capability:	Mostly 9. – Till with some 8 – Gravel & Sand in northeast and southeast corners.

Plant and Animal Health Centre (PAH Centre) Overview

The PAH Centre is a British Columbia Provincial Government full service laboratory consisting of the Animal Health Centre (AHC) and the Plant Health Laboratory (PHL). The PAH Centre is an essential service conducting critical plant and animal testing.

- The AHC is the leading accredited full-service veterinary laboratory in western Canada which offers more than 400 laboratory diagnostic tests for agents that may be found in wild and domestic birds, mammals, fish, reptiles and amphibians. These diagnostic tests serve multi-purposes and are also vital for plans to ensure that local produce farms remain free of diseases and monitor the threats of zoonosis (diseases that can be transmitted from animals to humans).

- The PHL is an accredited diagnostic facility that provides diagnosis for plant health problems affecting crops and plants grown in B.C. including plant disease, assessment for non-pathogenic disorders, insect pests and coordination of minor use of pesticides and fungicides.

Another component of the PAH Centre is a crematorium, which is used to safely dispose of postmortem animal carcasses that have undergone diagnostic testing and includes the destroying of prions, in addition to disposing of other biological material from the PHL. The existing Abbotsford PHC facility at 1767 Angus Campbell Road contains a crematorium.

The PAH Centre was established more than 50 years ago and has been providing diagnostic testing services to detect and prevent the spread of plant and animal diseases for over 25 years at the current facility.

DISCUSSION

Site Context

1. The property is located south of Highway 1 and east of the railway tracks running parallel to Sumas Way. As shown in Figure 2, the property is surrounded by the University of the Fraser Valley (west), townhome development (north), forested parkland adjacent to industrial/commercial sites (east), and an active aggregate facility (south).

2. Most of the property is currently used for pumpkin farming with one existing residential dwelling located at the northeast corner of the property.

3. A portion of the parcel has historically been used for aggregate extraction and has since been reclaimed. Land leveling also likely occurred during aggregate extraction reclamation, minimizing topographic changes on the property.

4. The Agricultural Capability Assessment (the Assessment) prepared by McTavish Resource & Management Consultants Ltd. found:

    a. The agricultural capability of the site was not fully consistent with mapping – this finding prompted revisions relating to the limitation subclasses within the Assessment. These revisions were largely due to historical gravel mining on the property which altered local topography, soil chemical and physical properties.
    b. The published unimproved agricultural capability within the site ranges from Class 2 to Class 7 with limitations due to topography and aridity; however, the results of the detailed soil survey found the site is comprised of mineral soils ranging from Class 3 to Class 6 that are limited due to aridity issues, coarse fragment content, root restricting layers, wetness and topography.
    c. Potential management practices to improve agricultural capability based on the determined site limitations include the installation of irrigation, rock picking, deep ripping and land leveling.

Proposal

5. As shown in Figures 6 – 8, the City received an ALC application for a proposed new 16,500 m^2 Plant and Animal Health Centre with a crematorium.

    The applicants applied:

    a. to subdivide the property from one 34.96 ha (85.6 acre) lot into two lots: one 16.2 ha (40.0 acre) lot and one 18.5 ha (45.8 acre) lot; and

    b. for an approximately 6.0 ha (15 acre) non-farm use area on the proposed 16.2 ha (40 acre) subdivided lot. The remaining 10 ha is proposed to be retained as farm fields with opportunities for agriculture and future research and development.

6. The Ministry of Agriculture and Food have an agreement in place with the property owners of 34252 King Road to purchase the 16.2 ha (40 acre) lot.

7. Subdivision in the ALR and authorization for uses that do not comply with ALR Use Regulations must be approved by the Agricultural Land Commission (ALC). The proposed subdivision and 6.0 ha non-farm use area requests permission to operate the proposed Plant and Animal Health Centre and is expected to accommodate all buildings, parking, loading, and landscape areas.

8. As highlighted in greater detail within the Letter of Intent (Attachment A), the applicants' rationale for the proposal is summarized below:

a. Due to climate change events, much of the infrastructure at the existing facility has been water-damaged, creating a need for a new space. Additionally, as climate change events become more prevalent, the workload and level of operations are outgrowing the existing building and there is now a need for a bigger space to ensure the continued success of the organization and to support the agricultural community.

b. The unique characteristics of the PAH Centre's operations and the need to continue providing agriculture clients with accessible services significantly limit viable locations for this infrastructure.

c. A comprehensive multi-year land search identified the property as the ideal location; and preliminary technical work (e.g., geotechnical, environmental, site servicing, etc.) support advancing this application on the property.

d. The property's location provides unrivaled opportunities for research and collaboration between farmers, scientists technicians, and academics.

e. The proposed non-farm use area is strategically located adjacent to a parcel used as an aggregate facility ensuring no interface between the proposed non-farm use area and any parcels being farmed.

f. Locating the PAH Centre on ALR lands:
   - supports the operations of the facility as farmland is required to undertake research.
   - enables the PAH Centre to become a direct resource for the local agricultural community, fostering innovation, creating partnerships with local farms, businesses, and research institutions.
   - provides significant advantages that align with the PAH Centre's purpose and the province's agricultural priorities.
   - offers more long-term viability for the facility opposed to Non-ALR lands that may face more competing priorities such as residential, commercial, or industrial development.
   - provides an optimal site for a facility focused on plant and animal diagnostics, monitoring, surveillance, and testing as the ALR is designated to protect land for agricultural production. These services would contribute to maintaining the ecological health and long-term viability of ALR lands, integrating with local farming ecosystems and serving as a demonstration site for sustainable agricultural practices.

g. A new PAH Centre would improve testing capacity and reduce delays by eliminating the need to redirect samples to out-of-province labs, enabling farmers and community members to make immediate, informed decisions to protect their crops, livestock, and pets.

Official Community Plan

Agriculture 1 - Uplands

9. The property is designated Agriculture 1 – Uplands in the OCP which envisions a minimum lot size of 8 ha for subdivision.

Enhance Agricultural Integrity

10. Policies

    6.3 Capacity of Existing Agricultural Lands: Preserve viable agricultural land within the context of the Official Community Plan growth vision and support steps to increase the productive capacity of existing farmland. Explore and support opportunities to encourage the use of fallow or underutilized properties.

    6.6 Support Agricultural Innovation and Agri-tech: Foster agricultural innovation by exploring strategic land use opportunities for agri-industrial within the Agricultural Land Reserve to develop, demonstrate and deploy emerging agri-technologies, facilitate advanced agri-education and research, increase farm commodity processing capacity, and effectively manage agricultural by-products. Advance this policy in collaboration and coordination with the senior government agencies to identify strategic opportunities and locations for this use in Abbotsford.

    6.8 Holistic Food Systems Support: a thriving food system throughout the city, including local production, processing, distribution, celebration, consumption, nutrient recovery, and waste to energy.

    6.9 Environment: Ensure agricultural activities support and respect human health, natural environments and groundwater resources in farming areas, particularly in relation to agricultural waste management, composting, anaerobic digestion, and incineration on farms.

Special Study Area C

11. The property is also within Special Study Area C (Area C) which has been highlighted for future:
    a. Large format, city wide active park space.
    b. Agricultural related uses that are more accessible to the public, community groups, and students.
    c. Agricultural exhibition, research and development, and education.

12. Lands within Area C were highlighted because of their lot configurations, ideal topography, and proximity to existing neighbourhoods, growth areas, existing parks, and the University of the Fraser Valley (UFV). The OCP notes the ultimate plan for Study Area C is to be considered through a comprehensive planning process led by the City, taking into account existing park inventory and future needs.

Protection of Agriculture Development Permit

13. The City of Abbotsford's Protection of Agriculture Development Permit Guidelines established by the OCP require installation of landscape buffering along the ALR / Urban Development boundary to minimize conflicts between urban and agricultural activities.

OCP Compliance

14. The applicants' proposal:

a. will result in two lots greater than 8.0 ha;
b. is within OCP Special Study Area C which supports agricultural related uses that are more accessible to the public, community groups, and students as well research and development, and education uses; and,
c. aligns with OCP Enhance Agricultural Integrity policies.

15. The applicant has proactively proposed to include a 10 m landscape buffer around the 6.0 ha (15 acre) non-farm use area, while agriculture will also continue to occur on the surrounding lands, which is expected to minimize impacts to the residential, institutional (UFV) and Industrial lands near the subject property.

Zoning

16. The property is zoned Rural Residential Zone (RR) which in intended to accommodate single detached dwellings and agricultural uses on large lots in a rural setting.

17. If the proposed subdivision and non-farm use is approved by the ALC, the south portion of the proposed subdivided lot will require a rezoning application to permit the ALC approved non-farm use on the property. While the exact future zoning approach is still under discussion, staff anticipate a rezoning of the Southern 16.2 ha (40.0 acre) lot to the Agricultural One Zone (A1), with site specific text amendment for the Plant and Animal Health Centre (including the crematorium).

18. Rezoning to the standard A1 Zone (with text amendment for the PAH Centre) will bring the zoning further into alignment with the 'Agriculture 1 – Uplands' land use designation of the OCP, and is the appropriate zoning to regulate Agriculture on the lands outside the proposed ~6.0 ha non-farm use area. Further, the A1 Zone has a maximum 15.0 m building height for buildings accessory to an agricultural use, and a 35% maximum building lot coverage.

19. As the subject property is located within the Approach Surface from the Abbotsford International Airport, it contains a notation on Title regarding maximum building heights. Preliminary feedback received from NAV Canada indicates no initial concerns with the proposal, and suggests a maximum 18.0 m building height. While architectural details are still being finalized, the applicant will work within these parameters, and will work with NAV Canada for their approval in conjunction with a future Building Permit should approvals be granted. If ALC approvals are granted, the exact building height will be reviewed in greater detail in conjunction with the future rezoning application, to ensure compliance with the A1 Zone, and or present any deviations/variances to Council for consideration at that time.

ALC Act and ALR Regulations

Subdivision

20. An owner of agricultural land may apply to the Commission for permission under section 25 of the ALC Act to subdivide land in the ALR.

21. ALC Information Bulletin 9 identifies the likely factors the Commission will consider on a subdivision application. These considerations are summarized below:

a. The property's:
   - agricultural capability;
   - attempted agricultural improvements; and
   - suitability for agriculture; and

b. The types of land uses surrounding the property; and

c. Whether the proposal will:
   - encourage or enhance agriculture or agri-business in the short or long-term;
   - encourage farm use in the ALR while preserving the land base;
   - impact the size, continuity, or integrity of the ALR land base; and
   - narrow the range of agricultural options on the property, or to otherwise negatively impact the use of the property for farm use; and

d. Whether the proposal could be accommodated on lands outside of the ALR, or on an alternative site within the ALR that is less capable or suitable for agriculture.

22. The applicants' rationale (see Attachment A, and 'Proposal' section of this report) includes reasoning for locating the PAH Centre in the ALR, the anticipated impact on land uses surrounding the property, and how the proposal will encourage and enhance agriculture or agri-business in the short and long-term.

23. The Agricultural Capability Assessment found the site is comprised of mineral soils ranging from Class 3 to Class 6 that are limited due to aridity issues, coarse fragment content, root restricting layers, wetness and topography. Potential management practices to improve agricultural capability based on the determined site limitations include the installation of irrigation, rock picking, deep ripping and land leveling.

24. Further, through a long-range planning exercise, the property was included in Special Area C in the City of Abbotsford's OCP which supports this type of use in this location.

Non-farm Use Application

25. The ALR Use Regulation allows (as a permitted non-farm use) the use of agricultural land for education and conducting research respecting a farm use or a permitted non-farm use if all of the following conditions are met:

    a. The area occupied by any structures necessary for conducting education or research does not exceed 100 m^2 for each parcel.
    b. The agricultural land is not used for a school within the meaning of the *School Act.*

26. The 16,500 m^2 proposed building for the non-farm use facility exceeds the 100 m^2 threshold. In addition, the proposed crematorium is not listed as a permitted farm use or non-farm use. Therefore, a non-farm use application is required.

27. The ALC Act and ALR Use Regulation does not specifically address farm-related 'institutional' uses other than what is noted above for education and conducting research; however, ALC Policy L-24 does identify the key consideration for the development of farm structures for farm-related commercial and farm-related industrial uses in the ALR which

provides key considerations and recommended lot coverage limit for similar farm-related uses, both of which are summarized below.

Key Considerations

a. Ensure the use is appropriate for the available rural services.
b. The proposed use does not require the level of road access, water and wastewater servicing, utilities, fire protection, and other public services typically found in urban areas.
c. Locate high water use/effluent generating operations in urban areas where municipal services are available whenever possible.
d. Comply with the Ministry of Agriculture's Guide for Bylaw Development in Farming Area's (the Minister's Bylaw Standard):
    - Parking and loading areas should be permeable in nature, whenever possible, to reduce impervious cover and minimize the impacts of stormwater discharge on surrounding agricultural land; and,
    - Stormwater and agricultural liquid waste management plans should be required where the total impervious area of buildings and structures exceeds 3,700 m^2 (approximately 40,000 ft^2).

Recommended Lot Coverage Limit

a. The recommended lot coverage limit for farm-related commercial and farm-related industrial uses in the ALR on parcels greater than 4 hectares (10 acres) is 5% of the lot (parcel).

b. The lot coverage limit should be calculated based on the size of the individual lot (parcel) of land where the farm-related commercial and farm-related industrial uses are located, not the total area of a farm operation which may include several lots (parcels); however, the Commission may consider increasing the lot coverage on a single parcel where the farm operation is made up of several lots (parcels) that are actively being farmed as a single operation provided there are restrictions placed on the development of similar uses on the remaining parcels making up the farm operation.

28. The proposed non-farm use area is approximately 37% (6 ha / 16.2 ha) of the proposed 16.2 ha subdivided lot, which includes all buildings, parking, loading and landscape areas. The remaining 10 ha is proposed to be retained as farm fields with opportunities for future research and development.

29. While the proposed non-farm use area exceeds the recommended lot coverage limit of 5%, the proposed PAH Centre will become a direct resource for the local agricultural community, fostering innovation, creating partnerships with local farms, businesses, and research institutions as noted in the applicants' rationale.

30. The property is located within OCP Special Study Area C, adjacent to the Urban Growth Boundary where more urban level of servicing is available/feasible for connection. Staff are preparing Advanced Subdivision and Rezoning Works and Services requirements which will be included in staff's report to Council for this application. No initial servicing

limitations are anticipated, however the exact details including potential road dedications from the subject property will be addressed when the proposal advances to Council.

Placement of Fill or Removal of Soil

31. A Notice of Intent (NOI) for the placement of fill or removal of soil will need to be submitted to the ALC at least 60 days before engaging in the intended use.

32. In addition, the applicants will be required to apply for Soil Removal and Deposit Permit with the City of Abbotsford.

FINANCIAL PLAN IMPLICATION

No financial plan implications are anticipated.

IMPACTS ON COUNCIL POLICIES, STRATEGIC PLAN AND/OR COUNCIL DIRECTION

The proposal aligns with the goals and objectives identified in the 2016 Official Community Plan including Special Study Area C which identifies these lands for future uses such as agricultural research and education due to their lot configurations, ideal topography, and proximity to existing neighbourhoods, growth areas, existing parks, and the University of the Fraser Valley (UFV). The proposal also aligns with Council's 2022-2026 Strategic Plan, specifically Council's Strategic Plan Principle 3 which envisions the City as a regional hub of creativity, innovation where talent, investment and business thrive and sets a goal to recognize the value of innovation in our local economy, especially agriculture.

REOLUTION OPTIONS

That the Agricultural Advisory Committee recommend to Council that Council (choose one):

1. Forward the application to the ALC with support, as presented; or
2. Forward the application to the ALC with support, with changes, or
3. Forward the application to the ALC with no comments; or
4. Deny and not forward the application to the ALC.

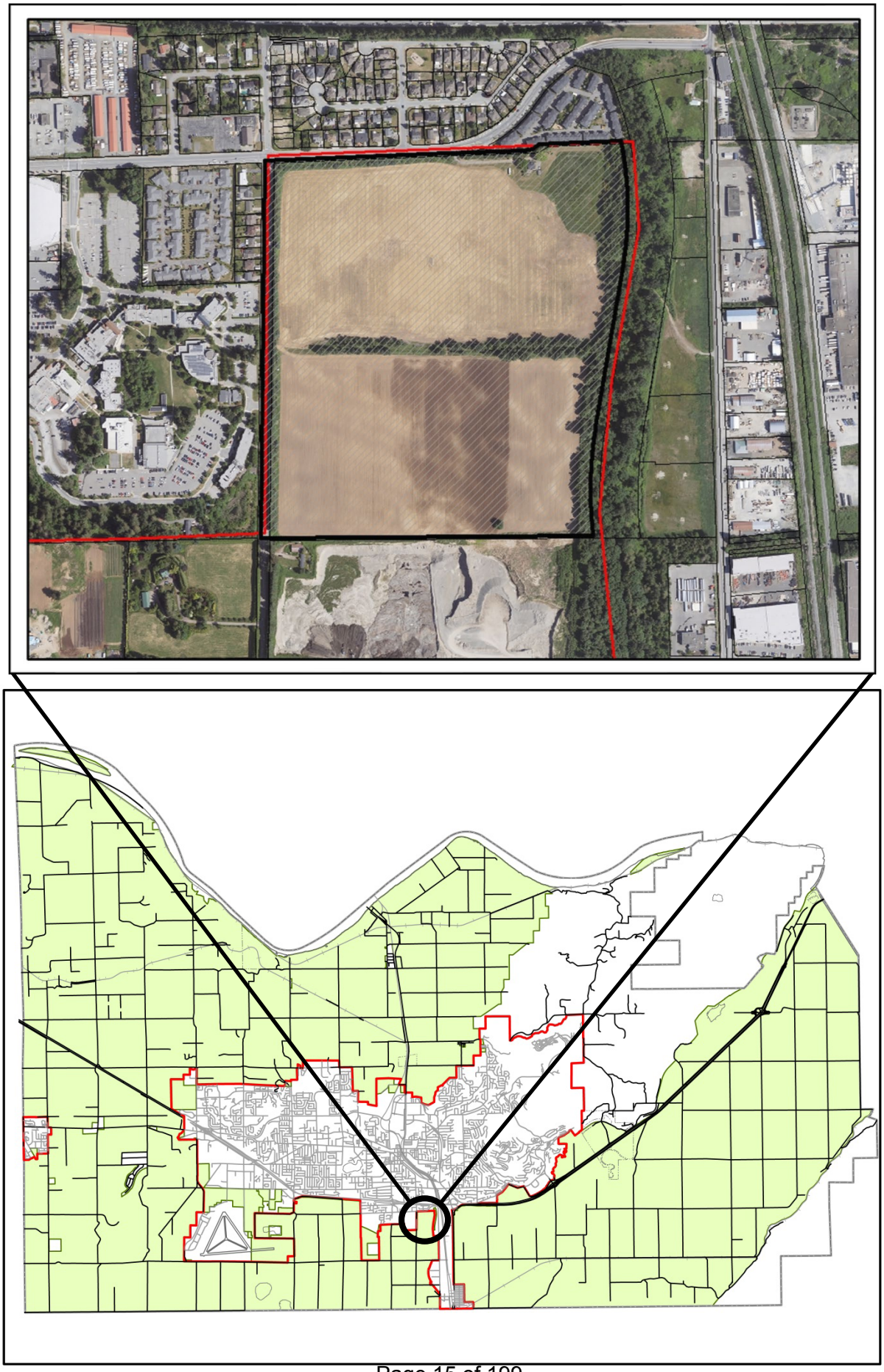
APPROVALS

Mark Neill, General Manager of Planning and Development Services
Komal Basatia, Chief Financial Officer

ATTACHMENTS

AAC Figures 0-8
Appendix A – Letter of Intent
Appendix B – Agriculture Capability Report

City Context Plan
File: PRJ25-012 Location: 34252 King Road



ABBOTSFORD
Planning and Development Services

34252 King Road

Figure 1 - Location Plan
File No.: PRJ25-012

50 0 150
Meters

N

Date
2025-03-04

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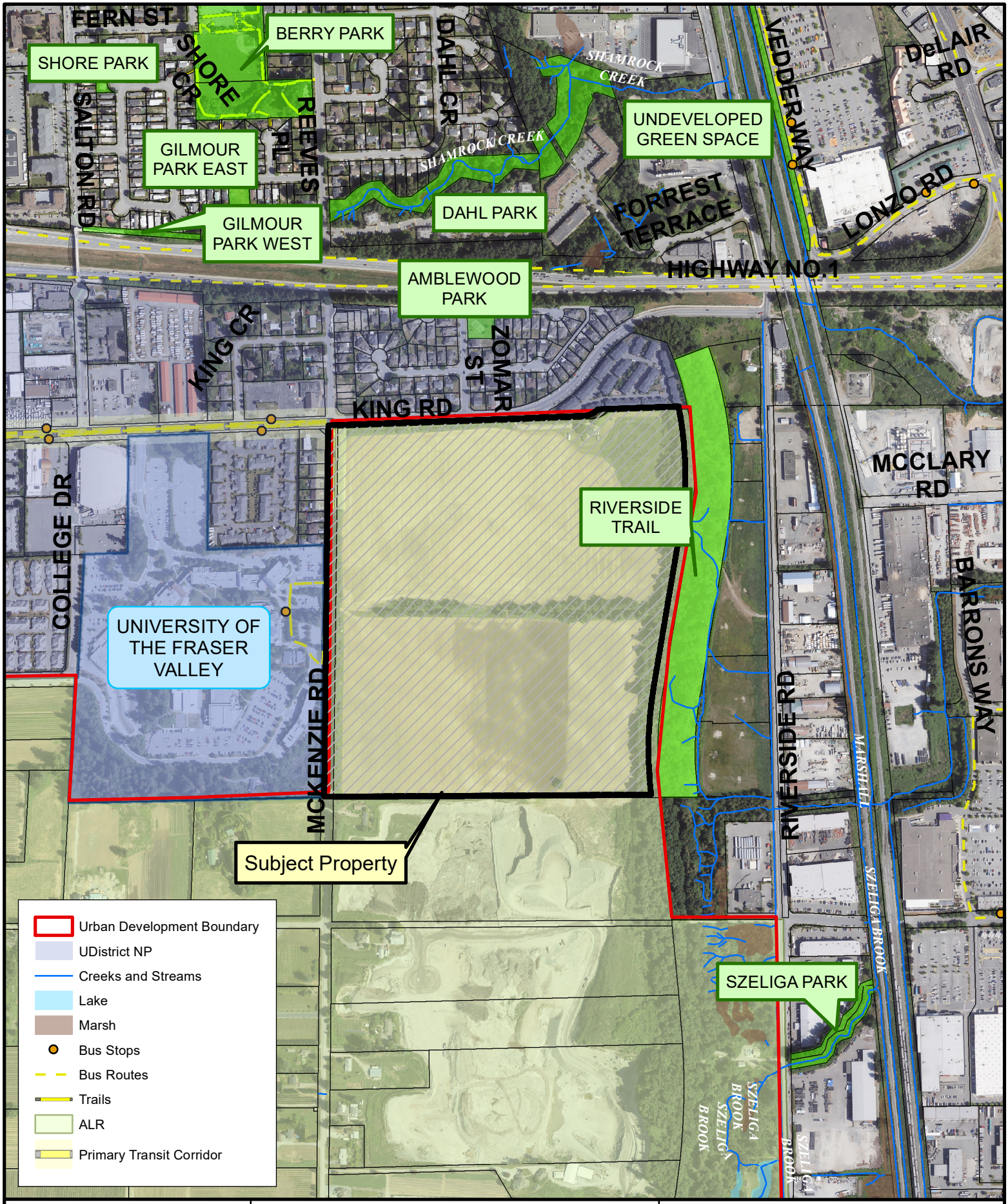


ABBOTSFORD
Planning and Development Services

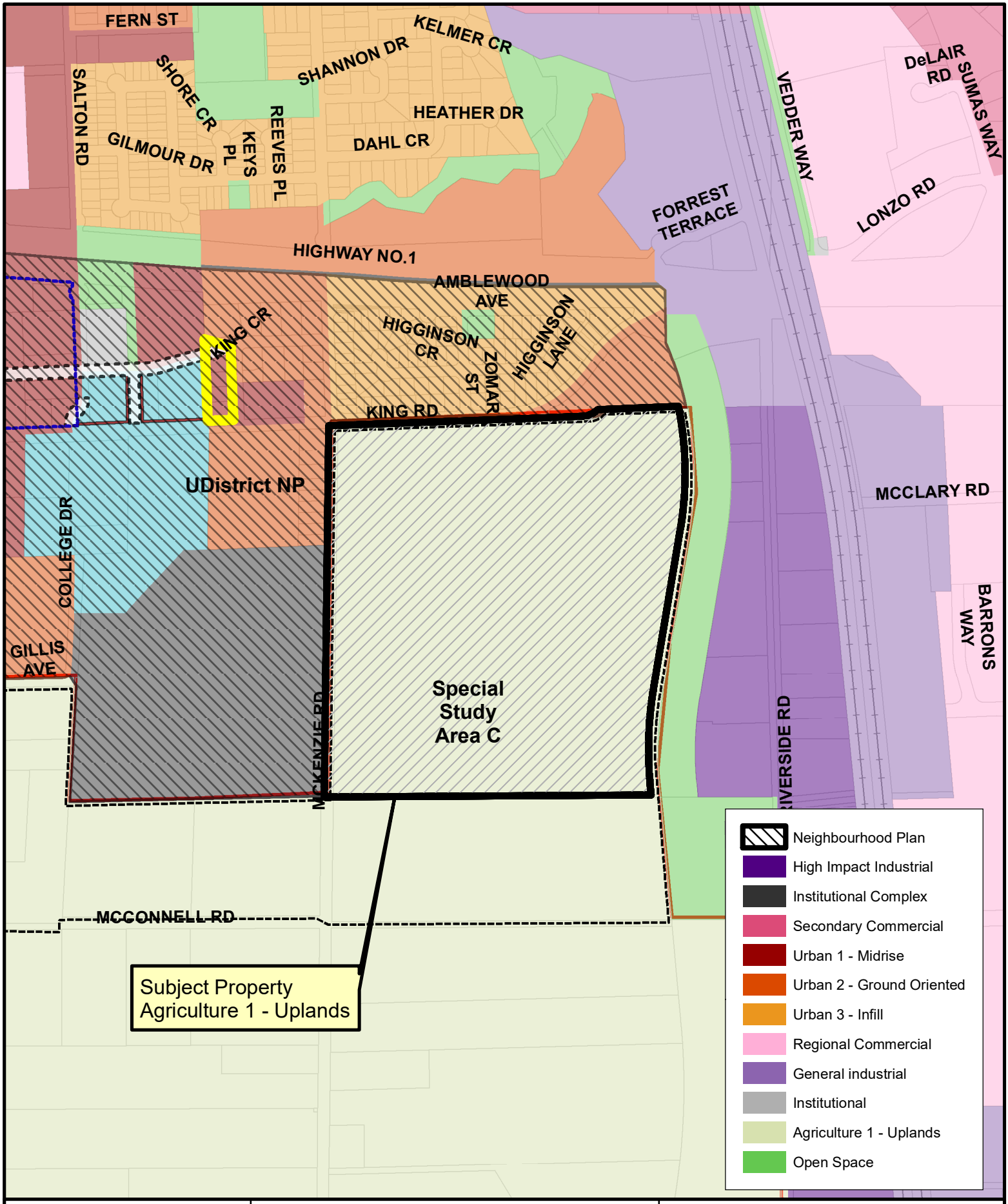
34252 King Road

Figure 2 - Context Plan
File No.: PRJ25-012

50 0 150
Meters

N

Date
2025-03-04



ABBOTSFORD
Planning and Development Services

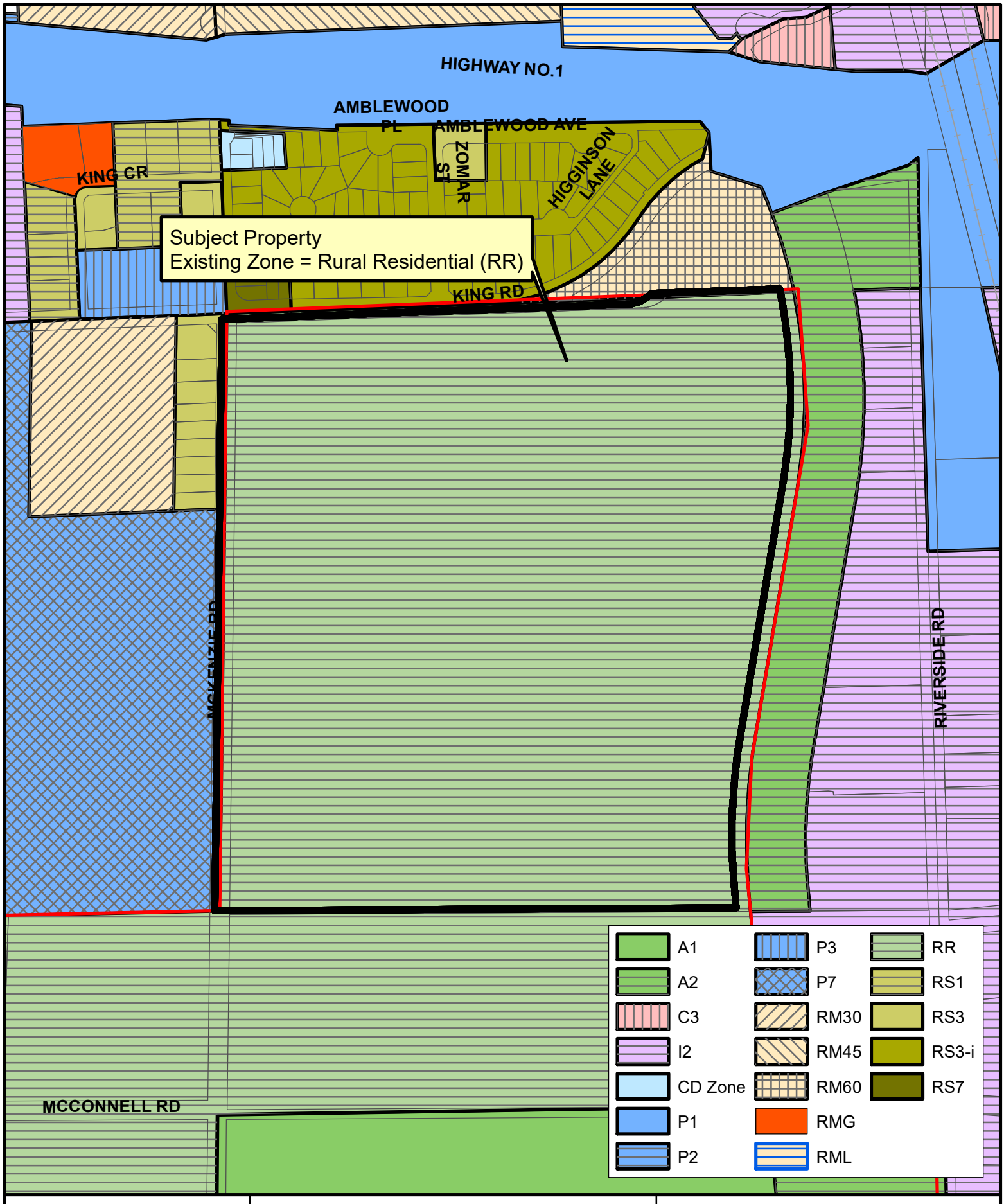
34252 King Road

Figure 3 - Official Community Plan
File No.: PRJ25-012

50 0 150
Meters

N

Date
2025-03-04



ABBOTSFORD
Planning and Development Services

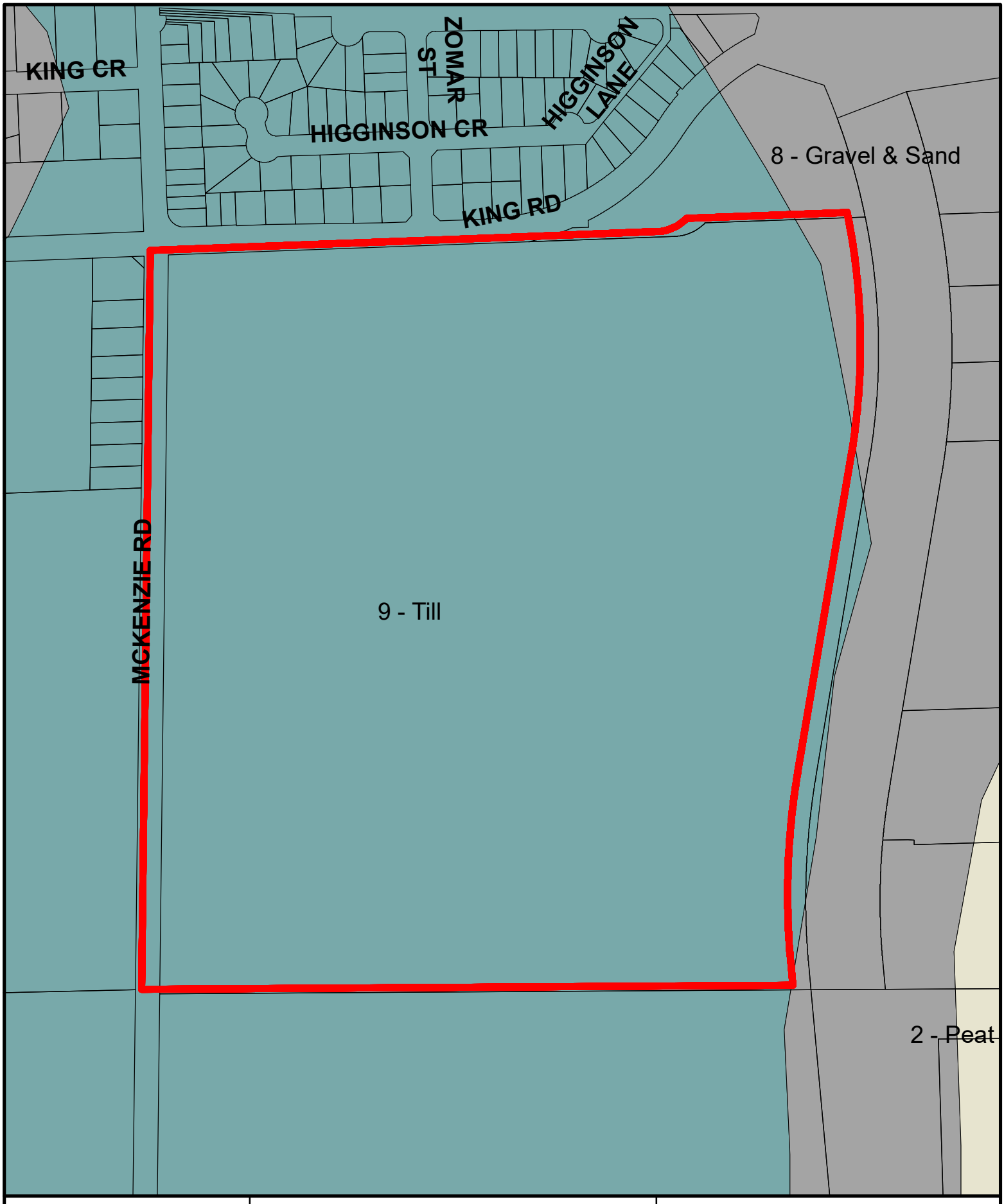
34252 King Road

Figure 4 - Existing Zoning
File No.: PRJ25-012

50 0 150
Meters

N

Date
2025-03-12



ABBOTSFORD
Planning and Development Services

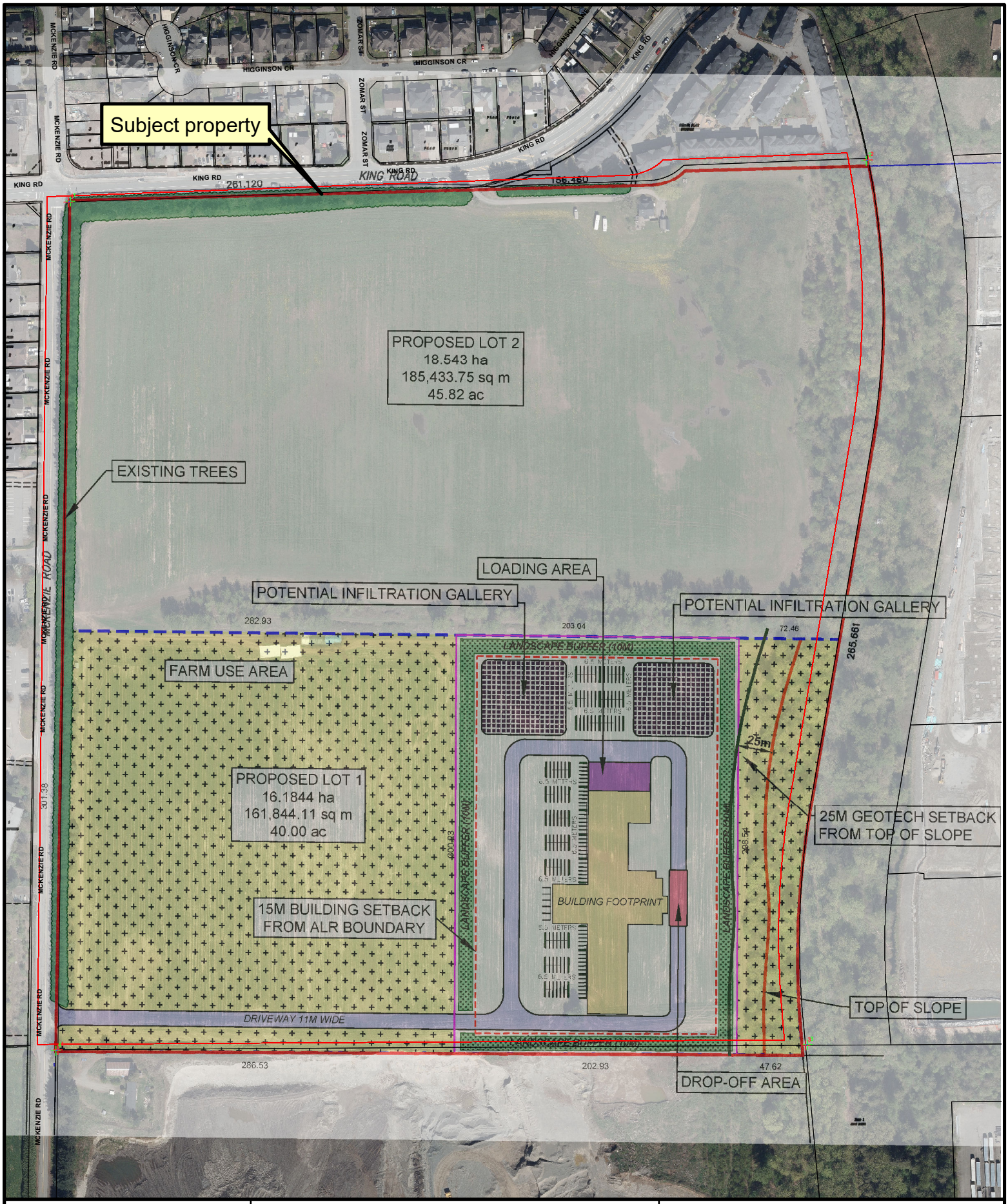
34252 King Road

Figure 5 - Soil Types
File No.: PRJ25-012

50 0 100
Meters

N

Date
2025-03-05



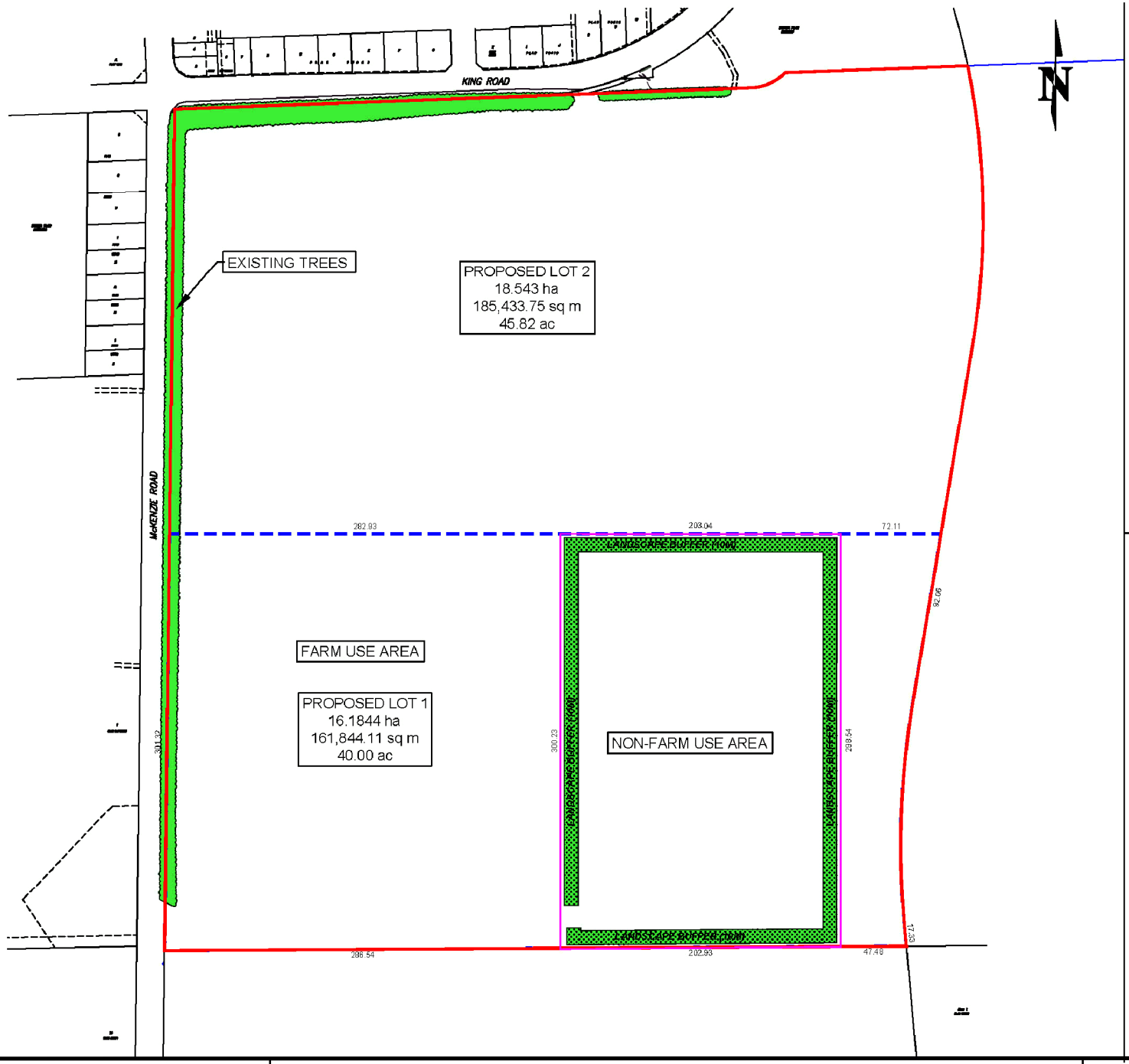
ABBOTSFORD
Planning and Development Services

34252 King Road

Figure 6 - Proposed Site Plan
File No.: PRJ25-012

N

Date
2025-03-26



LEGEND

- Surveyed Subject Property
- Proposed Lot
- Non-Farm Use Area
- 10m Landscape Buffer
- Existing Trees to be Maintained

STATISTICS

Subject Property: 34.72 ha / 85.80 ac

Proposed lot 1: 16.18 ha /40 ac

Farm Use Area: 10.11 ha / 25 ac

Non-Farm Use Area: 6.07 ha / 15 ac

Proposed Lot 2: 18.53 ha / 45.8 ac

Note:

- All Surveying done by South Fraser Land Surveying LTD. on November 04, 2024.

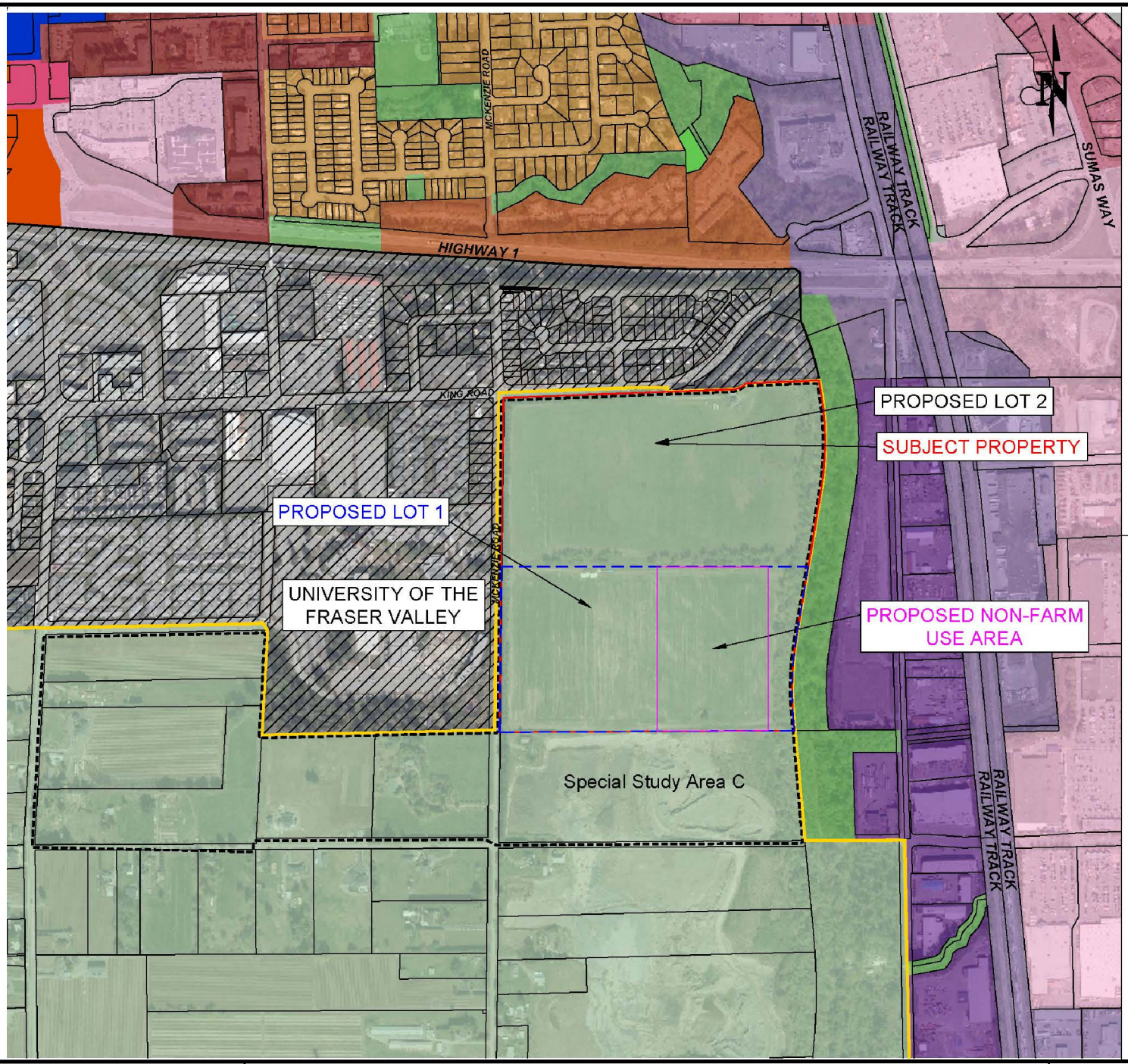
ABBOTSFORD
Planning and Development Services

34252 King Road

Figure 7 - Landscape Buffer Plan
File No.: PRJ25-012

N

Date
2025-03-24



LEGEND

- Subject Property
- Proposed Lot
- Non-Farm Use Area
- Urban Development Boundary
- Special Study Area C
- Agriculture 1- Uplands
- University District Neighborhood Plan
- Open Space
- General Industrial
- High Impact Industrial
- Regional Commercial
- Secondary Commercial
- Urban 2 - Ground Orientated
- Urban 3 - Infill
- Urban 1 - Midrise

STATISTICS

Subject Property: 34.72 ha / 85.80 ac
Proposed lot 1: 16.18 ha /40 ac
Farm Use Area: 10.11 ha / 25 ac
Non-Farm Use Area: 6.07 ha / 15 ac
Proposed Lot 2: 18.53 ha / 45.8 ac

ABBOTSFORD
Planning and Development Services

34252 King Road

Figure 8 - OCP Context Plan
File No.: PRJ25-012

N

Date
2025-03-05

PROPOSED APPLICATION FOR SUBDIVISION AND NON-FARM USE FOR:

34252 KING ROAD, ABBOTSFORD

PREPARED FOR:
THE MINISTRY OF INFRASTRUCTURE AND
THE MINISTRY OF CITIZENS' SERVICES

PREPARED BY:

PACIFIC LAND GROUP
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STATEMENT OF LIMITATIONS

This document has been prepared by Pacific Land Resource Group Inc. ("PLG") and is intended for the exclusive use of the Ministry of Infrastructure and the Ministry of Citizens' Services ("the Clients") and the representatives of the Clients to support the applications for subdivision and non-farm use in the Agricultural Land Reserve. No other party is entitled to rely on any conclusions, data, opinions, or other information contained in this document.

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EXECUTIVE SUMMARY

Pacific Land Group, on behalf of the Ministry of Infrastructure and the Ministry of Citizens' Services, is applying to the Agricultural Land Commission under s. 20(2) of the *Agriculture Land Commission Act* to use 15 acres (6.07 hectares) of a property at 34252 King Road, Abbotsford ("Subject Property") to establish a new provincial Plant and Animal Health Centre ("PAHC"), an accredited full-service plant and animal diagnostic facility focused on protection of British Columbia's plant and animal population from harm caused by pests and disease, with a specific focus on pest pathogens that negatively impact agricultural commodities, or human health. Such facility already exists at 1767 Angus Campbell Road in Abbotsford, however; a new facility is required to provide additional capacity for increased demand for the facility's services. A subdivision application under s. 21(2) of the *Agriculture Land Commission Act* is also proposed to subdivide the Subject Property into one 40 acre (16.19 hectare) lot, and one 45.69 acre (18.5 hectare) lot. The proposed 15 acre non-farm use would be located on the 40 acre (16.19 hectare) lot.

The PAHC's mission is to diagnose, monitor, and assist in the prevention and management of plant and animal pests and diseases in British Columbia, ensuring diagnostic excellence. This is coupled with a vision for a thriving, sustainable agricultural industry free from serious impacts caused by pests and diseases, for the benefit of all citizens of British Columbia. The mission and vision have direct linkages and benefits for plant and animal agricultural producers across the Lower Mainland and the province. The PAHC has been providing these essential services for over 50 years and requires replacement to meet the increasing demand for services.

Several professional reports were prepared to determine the optimal siting of the PAHC and included: an Environmental Review of wildlife and aquatic features; an Agricultural Capability Assessment based on current and improvable soil capabilities; a Geotechnical Assessment to determine the suitability of surface and subsurface conditions for a structure; and an Air Dispersion Model to determine emissions resulting from the existing crematorium, which is necessary for safe disposal of postmortem biological and infectious materials. Based on the considerations of these reports, the proposed 15 acre non-farm use is ideally sited within the 40 acre lot in order to mitigate emissions from urban uses to the north and west of the Subject Property.

From a policy perspective, the proposed non-farm use and subdivision align with policies in the City of Abbotsford Official Community Plan by supporting agricultural research and development, education, and collaboration with academic institutions. Should the non-farm use and subdivision proposals be supported by the Agriculture Land Commission, a City of Abbotsford rezoning application and development permits will be required. Consideration of the Ministry of Agriculture and Food's guide to edge planning and the City of Abbotsford's Protection of Agriculture Development Permit guidelines have been integrated into this proposal. A 10 metre wide landscape buffer is proposed along the perimeter of the 15 acre non-farm use area to screen the facility from agricultural uses to the east, south, west, and north.

The provincial PAHC provides direct benefits to the agricultural industry. The proposed location of the facility is centrally located for agricultural producers to access the facility for essential diagnostic testing for the health and wellbeing of plants and animals, corresponding to the health of British Columbians.

1.0 INTRODUCTION

Pacific Land Group ("PLG"), on behalf of the Ministry of Infrastructure and the Ministry of Citizens' Services, is applying to the Agricultural Land Commission under s. 20(2) of the *Agriculture Land Commission Act* to use 15 acres (6.07 hectares) of a property at 34252 King Road, Abbotsford ("Subject Property") to establish a new provincial PAHC. A subdivision application under s. 21(2) of the *Agriculture Land Commission Act* is also proposed to subdivide the Subject Property into one 40 acre (16.2 hectare) lot ("Proposed Lot 1") and one 45.69 acre (18.5 hectare) lot ("Proposed Lot 2"). The proposed 15 acre non-farm use would be located on the 40 acre (16.19 hectare) Proposed Lot 1.

This Report provides a comprehensive analysis of the Subject Property with a focus on Proposed Lot 1, which contains the 15-acre non-farm use area. This Report also highlights the overall benefit to agriculture in the Lower Mainland supported by the PAHC.

1.1 About the Plant and Animal Health Centre

The PAHC is a British Columbia Provincial Government full-service laboratory consisting of the Animal Health Centre (AHC), Plant Health Unit (PHU) and the Plant Health Laboratory (PHL), both of which provide essential services in B.C. conducting critical plant and animal testing. The AHC is the leading accredited full-service veterinary laboratory in western Canada which offers more than 400 laboratory diagnostic tests for agents that may be found in wild and domestic birds, mammals, fish, reptiles and amphibians. The AHC conducts diagnostic testing including bacteriology, histopathology, molecular diagnostics, pathology, serology and virology for food producing animals as well as companion animals, captive and free-ranging wildlife, zoo animals, fish, furbearers and bees. The PHL diagnostics are vital to ensure that local produce farms remain free of diseases. The PHL is an accredited diagnostic facility that provides diagnosis for plant health problem affecting crops and plant grown in B.C. including plant disease, assessment for non-pathogenic disorders, insect pests and coordination of minor use of pesticides and fungicides.

A detailed description of the various branches within the PAHC is attached in Appendix A. The PAHC Services and Fee Guide is attached in Appendix B and includes all the services offered at the facility.

The Ministry of Agriculture and Food is responsible for overseeing three main areas of work. The first is the production, marketing and processing of agriculture and seafood products. The second is the carrying out of research, climate action, food safety and plant and animal health programs, projects and undertakings relating to agriculture, seafood and food and beverage processing. The third is the collection of information and preparation and dissemination of statistics relating to agriculture, seafood and food and beverage processing.

The Plant and Animal Health Branch ("PAHB"), under which the PAHC operates, protects British Columbian's plant and animal population from harm caused by pests and disease, with a specific focus on pest pathogens that negatively impact agricultural commodities,

or human health due to zoonosis.[1] The PAHB encompasses a diagnostic testing facility, a focused research portfolio, and a regulatory compliance and management best-practices team. The PAHB supports the Province's adoption of innovative, sustainable management technologies and practices that helps to improve quality, consumer confidence, food safety and food security, and global competitiveness.

The PAHC was established more than 50 years ago and has been providing diagnostic testing services to detect and prevent the spread of plant and animal diseases for over 25 years at the current facility. Due to climate change events, much of the infrastructure at the existing facility has been water-damaged, creating a need for a new space. Additionally, as climate change events become more prevalent, the workload and level of operations are outgrowing the existing building, and there is now a need for a bigger space to ensure the continued success of the organization and to support the agricultural community.

One of the components of the PAHC facility is the crematorium, which is used to safely dispose of postmortem animal carcasses that have undergone diagnostic testing and includes the destruction of prions,[2] in addition to disposing of other biological material from the PHL. The existing PAHC facility at 1767 Angus Campbell Road contains a crematorium and the proposed facility will also include a crematorium.

[1] Zoonotic diseases (also known as zoonoses) are caused by germs that spread between animals and people.

[2] Prion diseases or transmissible spongiform encephalopathies ("TSEs") are a family of rare progressive neurodegenerative disorders that affect both humans and animals. They are distinguished by long incubation periods, characteristic spongiform changes associated with neuronal loss, and a failure to induce inflammatory response.
"Prion Diseases," Centers for Disease Control and Prevention, https://www.cdc.gov/prions/index.html#:~:text=The%20term%20%E2%80%9Cprions%E2%80%9D%20refers%20to,are%20still%20not%20completely%20understood

2.0 PROPERTY LOCATION AND SITE DESCRIPTION

The Subject Property is located in the South Poplar community in the City of Abbotsford and measures approximately 85.69 acres (36.68 hectares) in size. The Subject Property is bounded by King Road to the north, McKenzie Road to the west, an aggregate storage site to the south and a municipal owned green way and industrial properties to the east. The Parent Parcel is entirely located within the Agricultural Land Reserve (the "ALR"), as are the parcels to the south and to the east, as shown in Figure 1 (also attached in Appendix C).

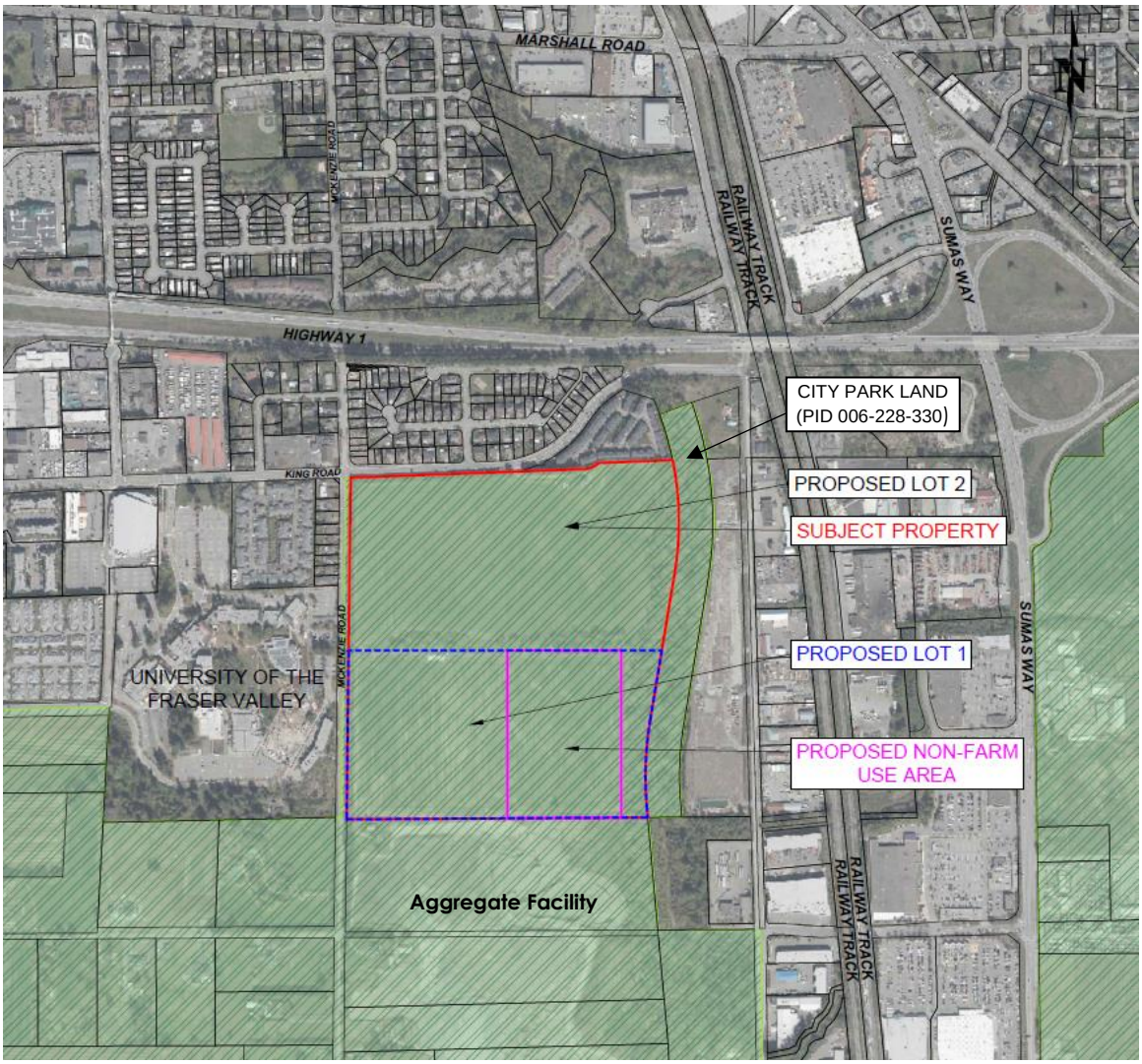


Figure 1 – Subject Property within ALR Designated Lands (see Appendix C)

The Subject Property is described by the following property details:

Civic Address:	34252 King Road, Abbotsford, BC V2S 7N2
PID:	013-380-508
Legal Description:	PARCEL "A" (REFERENCE PLAN 5411) NORTH EAST QUARTER SECTION 10 TOWNSHIP 16 EXCEPT: PART DEDICATED ROAD ON PLAN 44724, NEW WESTMINSTER DISTRICT
Existing Zoning:	Rural Residential Zone (RR)
OCP Designation:	Agricultural 1 – Uplands

2.1 Environmental Considerations

PLG's team of Qualified Environmental Professionals ("QEPs") conducted a site visit to assess any onsite watercourses, document existing biological conditions, and identify any environmental sensitivities which could pose constraints to future development (e.g., species at risk and/or migratory birds, streamside protection). The majority of the Subject Property was comprised of open active farm fields with a current crop of pumpkins and vegetated perimeters. Some key elements confirmed by the QEP's site visit are as follows:

- The siting of the proposed PAHC facility is unlikely to pose any risk to aquatic and riparian resources as it is sited outside of the 30-meter setback area from the top-of-bank of the watercourse along the eastern perimeter of the Parent Parcel. Detailed protection requirements will be included in subsequent versions of the Environmental report as final development plans come available.
- Two invasive species were noted within the Subject Property in relation to the northern tree line (i.e., Himalayan Blackberry and Giant Knotweed). These invasive plants must be removed and/or controlled to prevent their spread in accordance with the Best Management Practices and Invasive Species Management Plan outlined in the Preliminary Environmental Assessment Report.
- The Townsend Mole's critical habitat overlaps with the entire Subject Property as the Subject Property falls within their known 13km^2 range within B.C. Best management practices and guidelines have been included in the preliminary Environmental Assessment Report to mitigate potential risk to Townsend's Mole and general species at risk.
- A Barn Owl critical habitat polygon is within a 1km buffer of the approximate center of the Subject Property. Due to the minimal mature tree canopy, and farm buildings within the Subject Property it is unlikely that development would affect nesting or roosting sites of the Barn Owl.
- Given the historic site clearing and agricultural operations at the Subject Property, nesting habitat suitable for songbirds and corvids are limited within the tree and shrub layers along the west side of the Subject Property. Nesting habitat may be available to the east within the City's Park lands (see Figure 1) and best management practices (i.e., pre-clearing bird nest surveys, timing windows, etc.) have been included in the preliminary Environmental Assessment report to mitigate risk to breeding birds during construction. Based on the limited vegetation cover

within the Subject Property, future site activities are not expected to pose a risk of contravention to Section 34 of the *Wildlife Act*.

- There are two historically observed Red-tailed Hawks nests observed within the Subject Property, which reinforces the requirement for pre-clearing nest surveys and consideration of noise buffers for raptor conversation in relation to construction activities.

Several other findings are noted in the Preliminary Environmental Assessment report included in the application package. Overall, the site's current biological conditions indicate that proper management of invasive species and adherence to wildlife protection measures will be required for any future development on the property.

2.2 Agricultural Capability

McTavish Resource and Management Consultants ("McTavish") conducted an agricultural assessment of the Subject Property to document the existing conditions and determine the agricultural capability of the Subject Property. Seven soil pits were installed and analyzed. McTavish's agricultural assessment is included in the submission package as a separate report.

The results of the soil testing and additional assessments indicated that the actual soil quality onsite was not consistent with published soil mapping; therefore, McTavish has revised the agricultural capability of the Subject Property. The inconsistencies were largely due to the historical gravel mining on the property which has altered local topography, soil chemical and physical properties.

The soils on the Subject Property range from Class 3 to Class 6 and are limited due to aridity issues, coarse fragment content, root restricting layers, wetness and topography. McTavish identifies several management practices that would improve agricultural capability including installing irrigation, rock picking, deep ripping and land leveling.

Within the 40-acre Proposed Lot 1, the soils have an agricultural capability of 3AT (with an improvable agricultural capability of 2T) and an agricultural capability of 4AD (with an improvable agricultural capability of 3DP).

T = topography limitation A = soil moisture deficiency P = stoniness D = undesirable soil structure / low permeability

2.3 Soil Classification

Valley Geotechnical has conducted a geotechnical investigation and provided preliminary geotechnical recommendations for the proposed PAHC facility. In their report, Valley Geotechnical detail the soil conditions, seismic considerations, and slope stability of the Subject Property. The geotechnical investigation pertains to Proposed Lot 1 (40-acre parcel). Valley Geotechnical conducted an auger hole investigation consisting of 7 holes the results of are as follows:

- 0.6m to 2.1m of silt to silty sand with some organics (topsoil).
- Sand and Gravel or Silty sand with some gravel (GM-SM) [Till like] ranging from dense to very dense was encountered from depths ranging from 0.6m to 12.1m.
- An exception to the above was in test hole AH2 (located in the northeast portion of Proposed Lot 1) where a 3.4m layer of firm silt (SM) was encountered beneath the topsoil.
- The groundwater table or water seepage was not observed in any of the drilled holes. The groundwater table is estimated at approximately 20m to 25m below the existing grade (as per the BC Water Resource Atlas).

With respect to seismic considerations, Proposed Lot 1 is classified as Site Class D due to the fact that the subsurface conditions are considered non-liquifiable as they consist of dense to very dense sand and gravel. Valley Geotechnical's slope stability analysis indicated that a 25m geotechnical setback line from the top of bank to any proposed buildings will be required to achieve the minimum factors of safety for static and seismic conditions. Overall, Valley Geotechnical's report confirms that the proposed PAHC facility is feasible from a geotechnical engineering standpoint. Valley Geotechnical's geotechnical investigation is included in the submission package as a separate report.

3.0 BACKGROUND AND LAND USE

3.1 City of Abbotsford Official Community Plan

The Subject Property is designated as "Agriculture 1 – Uplands" in the Official Community Plan (the "OCP") (Figure 2 and attached in Appendix D). The "Agricultural 1 – Uplands" designation is intended for large lots with rural character and active agricultural activity. Properties in this designation may also be considered for unique uses that support and enhance the agriculture industry and/or agricultural innovation. Permitted uses in the "Agricultural 1 – Uplands" designation include agriculture, residential with accessory units, and non-farm uses approved by the Agriculture Land Commission (ALC). The applicable supported building type in this designation is farming with rural residential. The PAHC facility supports the agricultural industry and is a suitable non-farm use within the "Agriculture 1 – Uplands" designation.

Subdivision in the Agriculture 1 – Uplands designation

The density restrictions associated with the "Agricultural 1 – Uplands" designation require that any land created through subdivision must be a minimum of 8 hectares in size. The parcel sizes of Proposed Lot 1 and Proposed Lot 2 meet the minimum 8-hectare requirement in the "Agriculture 1 – Uplands" designation.

Special Study Area C

Included in the City's OCP are several special study areas. These special study areas are located within ALR-designated lands and any proposed development on these lands will be considered through a comprehensive planning process led by the City as well as final approval by the ALC. The Subject Property is located within Special Study Area C, which is

intended for future large format parks and/or agricultural related uses that are more accessible to the public, community groups and students, for agricultural exhibition, research and development, and education. Parcels within Special Study Area C are characterized by their lot configurations, ideal topography and proximity to neighborhoods, growth areas, parks and the University of the Fraser Valley.

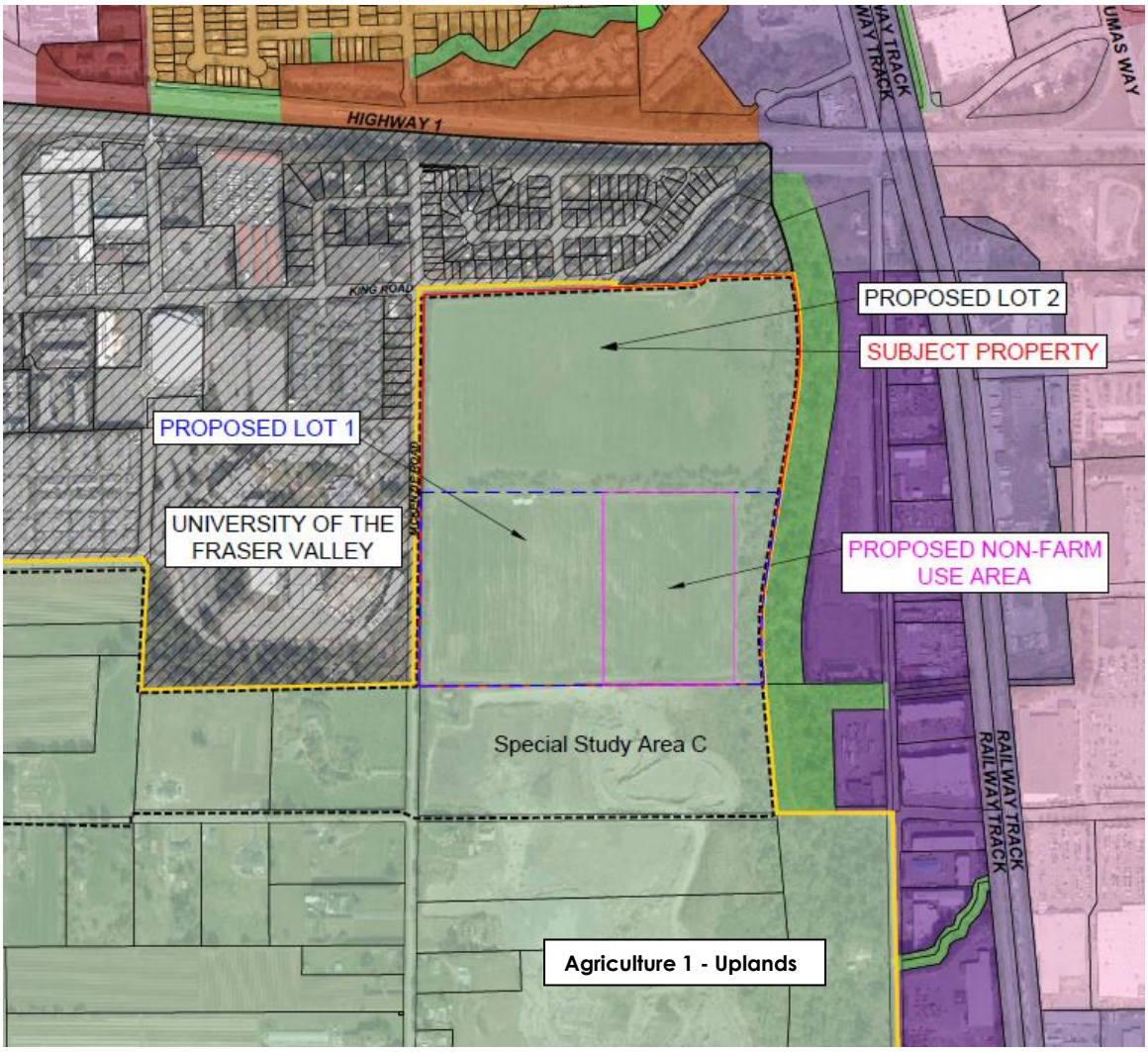


Figure 2 – OCP designation for Subject Property (see Appendix D)

Development Permit Areas

The eastern bound of the Subject Property is identified within the City's Natural Environment Development Permit ("NEDP") Area and Steep Slopes Development Permit ("SSDP") Area. The application details pertaining to the NEDP and SSDP for Proposed Lot 1 will be provided as part of the rezoning process, following the ALC's consideration of the non-farm use and subdivision applications.

The City's Protection of Agriculture Development Permit Guidelines will apply to the proposal in order to screen the PAHC within the 15-acre non-farm use area from adjacent

properties in the ALR. Landscape buffering will be proposed along the boundary of the 15-acre non-farm use area, including the interface between the PAHC and the agricultural lands on the Subject Property. Section 4.2 of this Report further details the proposed landscape buffering.

3.2 Zoning Considerations

Zoning Bylaw

The Subject Property is currently zoned Rural Residential (RR). The RR Zone is intended to accommodate single detached dwellings and agricultural uses on large lots in a rural setting. The permitted uses in the RR Zone are identified in Table 1 below. As the proposed institutional use is not identified as a permitted use in the RR Zone, a rezoning will be proposed if the non-farm use and subdivision applications are approved.

Table 1 – Permitted Uses in the RR Zone

Permitted Uses Table for RR Zone
Principal Uses 1. Agricultural Use 2. Residential Care 3. Resource Processing 4. Single Detached Dwelling 5. Supported Housing
Accessory to an Agricultural Use 6. Farm Retail Sales **Accessory to a Single Detached Dwelling** 7. Bed and Breakfast 8. Boarding 9. Coach House 10. Home Occupation – Level 3, on a lot outside of the ALR 11. Home Occupation – Level 4, on a lot outside of the ALR 12. Breeding and Boarding Kennel 13. Secondary Suite

Airport Flightpath Zoning

The Subject Property is located within the Abbotsford Airport Flightpath approach surface. Any development in this area is required to follow the Airport Zoning Regulations, the Development Guidelines for Federal Approvals and Land Use in the Vicinity of the Abbotsford International Airport, as well as Transport Canada and NAV Canada regulations. A preliminary submission has been made to Transport Canada and Nav Canada, with both agencies indicating that there are no concerns at this time with the proposed use or anticipated building height. Should the proposed non-farm use and subdivision applications be approved by ALC, the necessary applications to the City, Transport Canada and NAV Canada will be submitted as part of the rezoning process.

4.0 VISION PROPOSAL AND RATIONALE

4.1 Required Applications

In order to locate the proposed institutional use on the Subject Property, the following applications are anticipated:

- Non-Farm Use Application;
- Subdivision Application;
- Rezoning Application;
- Transport Canada and NAV Canada Applications;
- Development Permit Application; and
- Building Permit Application.

At this stage, subdivision and non-farm use applications will be submitted for the consideration by the City of Abbotsford and the ALC. A description of the proposed subdivision and non-farm use applications are below.

Subdivision Application

The Subject Property is approximately 85.69 acres (36.68 hectares) in size. The proposal is to subdivide the existing 85.69-acre parcel to create one 40-acre (16.2-hectare) parcel for a future PAHC, and one remaining 45.69-acre (18.5-hectare) parcel (see Figure 3 and Appendix E). The proposed PAHC facility would be located on the newly created 40-acre Proposed Lot 1, and the remaining lot would have a different owner and remain the ALR.

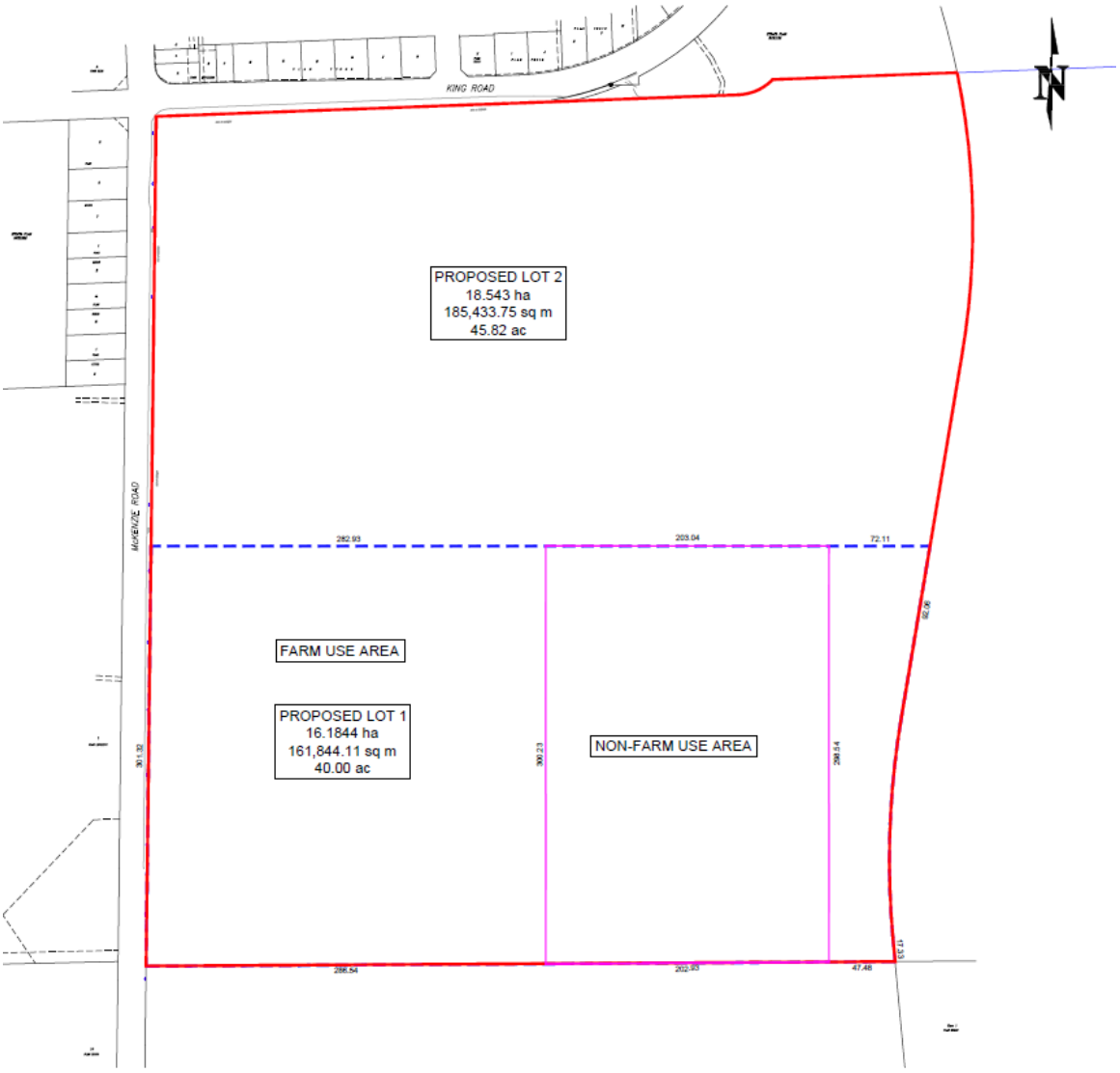


Figure 3 - Proposed subdivision configuration (see Appendix E)

Non-Farm Use Application

The proposed non-farm use application is to allow the PAHC institutional use within a 15-acre portion of Proposed Lot 1. The remaining 25-acres within Proposed Lot 1 provides future opportunities for farming research and development and does not require a non-farm use. The future PAHC building will also include a crematorium use in order to safely dispose of postmortem animal carcases, other biological and infectious materials. Further information on the crematorium use is provided in section 4.3 below.

4.2 Guide to Edge Planning Policy Considerations

As part of the proposal for a PAHC, relevant Ministry of Agriculture and Food policies were reviewed. As the proposed non-farm use area abuts agricultural uses along its perimeter, edge planning guidelines have been reviewed. Please note that the City of Abbotsford's Protection of Agriculture Development Permit are consistent with edge planning guidelines

and will further regulate the edge conditions during the rezoning application process. A detailed landscape plan will be provided as part of the Protection of Agriculture Development Permit.

Figure 4 below (attached in Appendix F) shows a proposed 10-metre landscape buffer along the perimeter of the 15-acre non-farm use area. The buffer aims to minimize land use impacts from the proposed institutional use and the surrounding lands to the north, west, south (an active aggregate facility), and east that remain in the ALR. The 10 metre landscape buffer exceeds the 8-metre wide buffer specified in the Urban-Side Buffer D as outlined in section 3.8(d) of the Ministry of Agriculture and Food's edge planning guidelines. The 10 metre landscape buffer has been proposed in consideration of policy AG9 (Interior Lot Line Interface Buffer) per the City of Abbotsford's Protection of Agriculture Development Permit Guidelines. The siting of the PAHC building will also exceed the 15 metre building setback from the edge of agricultural uses (see Section 4.3 below).

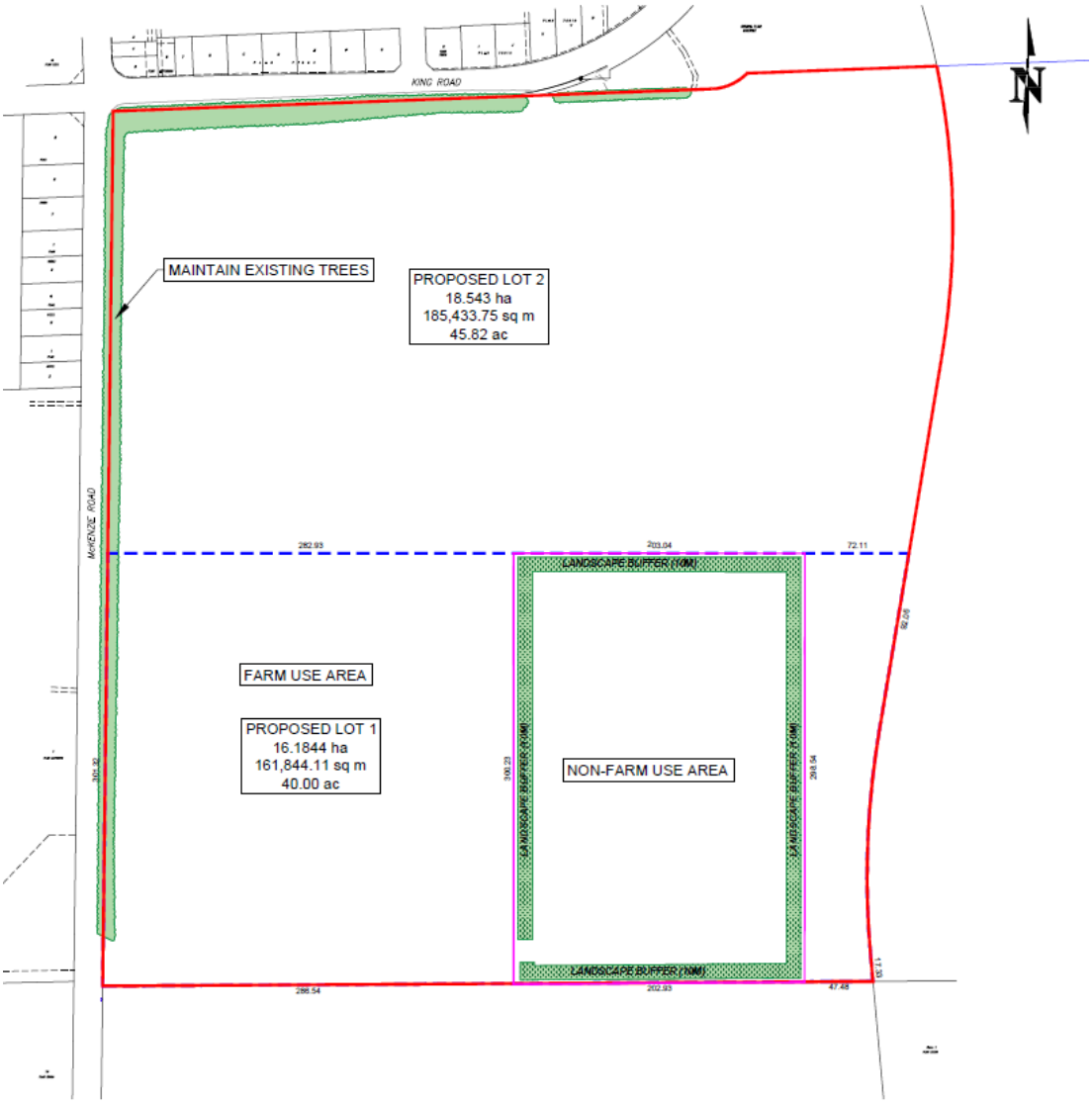


Figure 4 - Proposed landscape buffer for 15-acre non-farm use area (see Appendix F)

4.3 Siting Proposal and Air Dispersion Model

Several professionals were retained to identify the optimal placement of the PAHC facility within the 40-acres of Proposed Lot 1. The 40-acres were separated into four quadrants (i.e., Northwest, Northeast, Southwest and Southeast) to provide a basis for determining which quadrant would be best suited for the facility based on all the professionals' assessments and reports. The professional assessment and reports include the environmental, agrology, and geotechnical reviews as summarized in Section 2 of this Report.

As previously mentioned in this Report, the PAHC facility requires a crematorium to safely dispose of postmortem animal carcasses, other biological and infectious materials. An Air Dispersion Model was prepared by a Hazardous Waste Specialist/QEP from Weaver Technical to identify the possible emission levels and emission plume movements for the PAHC within each quadrant of the Subject Property. The Air Dispersion Model identified that the Southeastern quadrant of the Subject Property would be the optimal location for the PAHC as this location would not create any air quality exceedances outside of Proposed Lot 1's boundary. This is based on a 16-hour exposure model which takes into consideration the nearby uses.

A stack for emission expulsion from cremations will be included in the future building design. Cremating and disposing of animals, biological and infectious materials is an integral part of the work at the PAHC as farmers rely on the testing of their plants and animals along with the safe and respectful disposal of the remains. Safe disposal of biological and infectious materials is also required by the regulators as the PAHC is a permitted and heavily regulated facility by the Canadian Food Inspection Agency (CFIA) and Public Health Agency of Canada.

All professional reports were taken into account in determining the location for the PAHC; however, the Air Dispersion Modelling was the key deciding factor in identifying the optimal placement for the facility to ensure the proposed use would not negatively affect the surrounding parcels and could also achieve permitting via the Ministry of Environment and Parks.

Figure 5 below (attached in Appendix G) shows a conceptual site plan based on the siting analysis. The 15-acre non-farm use area contains a 10-metre-wide landscape buffer along its perimeter. It is noted that the design of the facility will be modified through future design development processes, and may result in a different footprint than what is currently pictured.

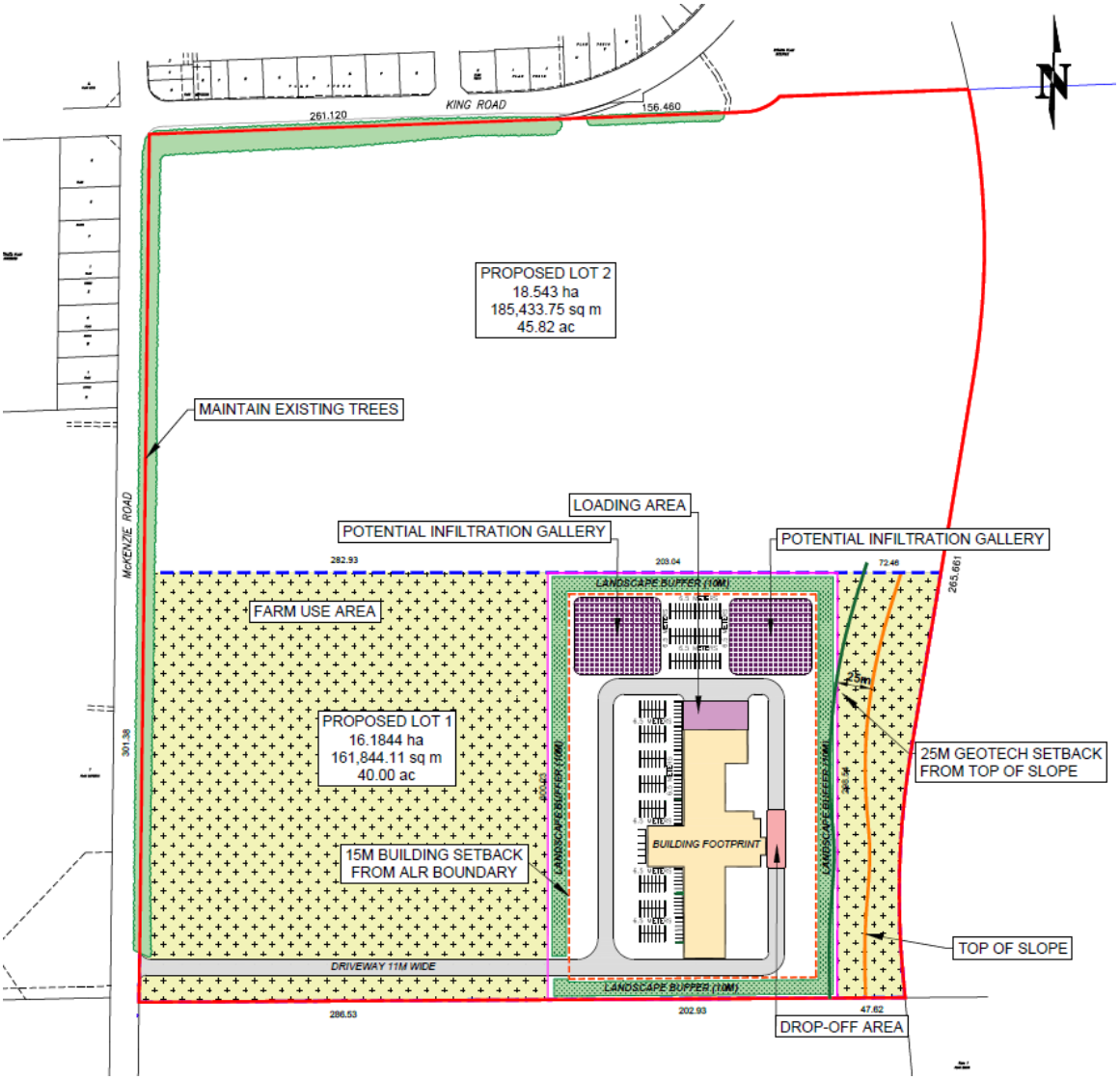


*Figure 5 - Proposed Conceptual Site Plan for PAHC Facility (see Appendix G)**

**Please note that the above site plan is conceptual, and further changes to the design within the 15-acre non-farm use area may occur as the project progresses.*

5.0 NET BENEFIT TO AGRICULTURE

The delivery of services at the PAHC is administered by the PAHB, which is under the Ministry of Agriculture and Food. The vision is to administer a thriving, sustainable agricultural industry free from serious impacts caused by pests and diseases, for the benefit of all people in B.C.. The mission is to diagnose, monitor, and assist in the prevention, control and management of plant and animal pests and diseases, ensuring diagnostic excellence in B.C..

The PAHC supports the Ministry of Agriculture and Food's mandate by mitigating impacts resulting from climate change, supply chain issues and policy changes. It is the Ministry's job to support farmers, ranchers, and seafood producers in the critical work they do for all of us, to ensure food security for British Columbians by establishing policies to use agricultural land wisely, increase production, and add processing capacity. Its role also involves building on the province's strong export sector by promoting the clean, safe, high-quality food produced in B.C., creating jobs and growing our economy sustainably while supporting our communities and our neighbours. By acting as the province's response facility to threats against food supply and zoonotic diseases (which can threaten human health), the PAHC demonstrates its importance to the agriculture industry and British Columbians.

The proposed PAHC directly supports agriculture by helping to address the fundamental challenges faced by the agricultural sector. The PAHC provides critical diagnostics for managing outbreaks of diseases in plants and animals, enabling rapid containment and preventing their spread on farms and across the province. It also allows farms to identify issues before they become an even bigger problem via the ongoing surveillance and monitoring that the Centre offers by providing diagnostic services. This not only protects agricultural producers but also ensures the stability of the local food supply chain and restores producer confidence in the quality and safety of their outputs.

The PAHC also includes Ministry of Agriculture and Food services supporting broader agriculture practices and initiatives, including:

- Office of the Chief Veterinarian, which supports the sustainability of animal welfare, while serving to protect the well-being of the people of the province through surveillance, regulatory compliance, risk assessment, and the development of strategies to mitigate identified risks.

- Business Unit, which operates PAHB serves as a cornerstone of operational efficiency and client-focused service. Its primary responsibility involves developing, implementing, and evaluating effective business models for both the PAHB and the Office of the Chief Veterinarian frameworks. With a strong commitment to client service, the Business Unit facilitates seamless support for client needs across multiple communication channels, including walk-ins, phone inquiries, and emails. Additionally, the unit extends its expertise and support to internal staff, offering a wide range of administrative services encompassing facilities, finance

management, human resources, occupational health and safety, procurement and contracts, records management, and technology support.

- Laboratory Operations and Quality Assurance Unit, within the PAHB supports the delivery of services by the animal and plant health groups. The Unit assists with the functions of the PAHB through operational management and oversight of quality assurance, facilities, biosafety, biosecurity, training, policy, and genomics strategy. In addition, the Unit supports initiatives related to modernization, acquisition of resources and technology, and updating of techniques. Through leadership on core items, the Unit supports the PAHB in seeking and maintaining licenses and accreditations, responding to surges in priority work items, updating operational logistics, coordinating facility-related issues, implementing strategies for data management and storage, and developing a collaborative genomics group with interested stakeholders.

- The PHU in B.C. plays a vital role in supporting the crop production industry and fostering the bioeconomy. Comprised of professionals skilled in plant pathology, entomology, and pesticide science, the PHU leads the implementation of integrated pest management strategies. These strategies not only bolster consumer confidence but also drive economic growth within B.C.'s thriving agriculture sector, which contributes over $2.24 billion to the economy. The PHU is tasked with diagnosing plant health issues, monitoring and mitigating pest outbreaks, offering policy recommendations, and administering the provincial *Plant Protection Act* and regulations. Additionally, it provides guidance on safe pesticide usage, facilitates the expansion of registered pesticides, and oversees the registration of new products. With a diverse team including plant pathologists, entomologists, pesticide specialists, and technical staff specializing in molecular diagnostics, microbiology, and biotechnology, the PHU ensures a comprehensive approach to plant health.

- Business Risk Management (BRM) Branch, which helps farmers manage risks by delivering of BRM programs to farmers including: AgriInsurance (also known as Crop Insurance or Production Insurance); AgriStability; AgriInvest, AgriRecovery, and Agricultural Wildlife Damage Compensation. The suite of programs helps viable farming operations protect themselves from severe financial losses due to weather perils and market conditions.

- Extension and Support Service Branch, which identifies and promotes agriculture and food production / processing systems that are sustainable and enhance the economic benefits to the Province. The Extension and Support Service Branch also leads the Ministry of Agriculture and Food's agriculture business, agroforestry and youth development initiatives and maintains operations in all major agriculture regions of B.C.

- Food and Beverage Branch, which has a lead role in interacting with the B.C. Agrifoods Sector to enhance the sector's growth, competitiveness, and

sustainability. It provides ongoing expertise and support for domestic and international marketing, production strategies and innovation.

- Corporate Policy and Priorities Branch, which provides corporate leadership, coordination and analysis of policy, legislative and data issues related to the ministry's mandate.

- Food Safety Inspection Branch, which is responsible for administration, compliance, and enforcement of provincial legislation for food safety of meat and seafood products. The Branch also delivers food safety programs for farmers, ranchers and food processors under the federal/provincial/territorial Sustainable Agricultural Partnership Agreement. In addition, the Food Safety Inspection Branch provides expert advice and policy support to the Ministry of Agriculture and Food for meat and seafood processing, food safety, and agri-food compliance and enforcement matters.

By locating the proposed PAHC on the Subject Property, the Centre becomes a direct resource for the local agricultural community, fostering innovation, creating partnerships with local farms, businesses, and research institutions. The proposed location for the PAHC also guarantees that local farmers are better equipped to drop off their samples, and correspondingly receive their test results quickly, ensuring that any diseases or pests can be treated in a timely manner and spreading is mitigated faster.

A new PAHC facility would improve testing capacity and reduce delays by eliminating the need to redirect samples to out-of-province labs, enabling farmers and community members to make immediate, informed decisions to protect their crops, livestock, and pets. Larger samples, such as those from cattle, are not easily or economically transported to other provinces. This creates a strain on local producers and increases the risk of diseases, such as mad cow disease, being missed and going unreported. Further, the PAHC is the only sentinel laboratory in the province of its kind and provides surveillance for other agencies for reportable and non-reportable disease (e.g., CFIA – Avian Influenza (AI) testing). The PAHC also helps foster research and innovation to enhance agricultural productivity and resilience. The proposed new PAHC's central location within the Fraser Valley is essential and creates opportunities for collaboration with academic institutions, leveraging shared resources to advance agricultural research and education.

5.1 Examples of the importance of PAHC for the Agricultural Sector in B.C.

There are several examples that demonstrate the importance of the PAHC for the prosperity of the agricultural industry in B.C., a few of which are detailed below.

Avian Influenza

The PAHC is the only laboratory in B. C. certified by both the CFIA and the Public Health Agency of Canada to perform AI testing. It also possesses the necessary containment facilities to conduct these tests safely. Since 2004, PAHC has been the sole facility in the

province responding to AI outbreaks. The most recent outbreak, ongoing since April 2022, has led to an increased demand for testing.

Notably, AI has begun to cross species barriers, with a recent human case detected in British Columbia's Fraser Valley – the first such case in Canada. The highly pathogenic AI virus has also affected various mammalian species (e.g., racoons, seals, etc.), including dairy cattle in the United States. In response, PAHC is conducting surveillance in dairy cattle, including milk sampling and testing, to monitor potential transmission (note that the AI virus can be found in unpasteurized milk).

This ongoing outbreak is the longest-lasting in Canada's history, straining PAHC's resources to full capacity. Due to limitations in staffing, equipment, and space, some samples have been redirected to out-of-province laboratories, causing delays in detection and resulting in economic losses and animal distress. These capacity shortfalls in provincial disease testing could be substantially mitigated by establishing a new, larger-capacity PAHC. The PAHC plays a crucial role in supporting the B.C. poultry industry. With enhanced capacity and a proposed location near poultry farms in the Fraser Valley, the PAHC could provide rapid response testing, delivering results within 3 to 4 hours. This prompt turnaround would enable federal regulators to swiftly impose quarantines on infected premises, effectively reducing the spread of disease to nearby properties saving producers money and allowing for swift culling of infected animals. The longer AI positive farms are undetected, the faster the virus can be spread which puts animals and human health at risk.

Blueberry Scorch Virus and Little Cherry Disease

The PAHC was the first laboratory to identify and document Blueberry Scorch Virus using electron microscopy in 2000. With approximately 11,500 hectares of farmland dedicated to blueberry production across the province, the PAHC's ongoing monitoring of this virus is critical. The proposed new location for the PAHC facility is strategically positioned within a hub of blueberry farms, enabling timely testing and rapid containment of the disease.

Another key diagnostic service provided by the PAHC Plant Health Laboratory is the detection of Little Cherry Disease (LCD). LCD is a federally and provincially regulated disease affecting sweet cherries, caused by Little cherry virus 1 (LChV1), Little cherry virus 2 (LChV2), and Western-X phytoplasma (Western-X). Although LCD is not a new issue in the Pacific Northwest—first causing a major epidemic in the Kootenay region in 1938 and devastating B.C.'s cherry industry over the following 40 years—the disease remains a significant threat.

In 2022, PAHC detected LChV2 and Western-X in B.C. for the first time. Western-X, the most aggressive subtype, poses a serious concern for cherry producers. As a national leader in cherry production, B.C. produced 15.6 tons of cherries in 2021, valued at $64.8 million. Recognizing the severity of the threat, a Little Cherry Disease Task Force was established by the Ministry of Agriculture and Food in 2020, comprising members from industry, federal and provincial governments, and consultants.

PAHC scientists have played a pivotal role in combating LCD by developing the first diagnostic test for Western-X, which was previously only available in Washington State laboratories. This advancement significantly enhances local capacity to detect and manage the disease. The PAHC now offers accredited LCD tests (for all 3 subtypes) for clients across the province.

In addition to these specialized diagnostics, the PAHC provides a wide range of testing services to B.C.'s agricultural community. The Centre offers access to plant and animal pathologists who work closely with farmers, delivering safe, timely, and customized advice on diagnostic tests and disease detection. The PAHC also collaborates with clients to develop new diagnostic tests tailored to their specific needs, reinforcing its vital role in supporting B.C.'s agricultural sector.

6.0 CONCLUSION

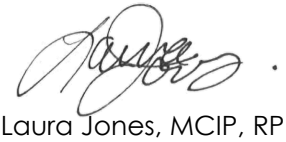
The proposed subdivision and non-farm use application at 34252 King Road, Abbotsford is a unique proposal as the result of the future development will directly benefit the province's agricultural sector.

The PAHC directly supports the agricultural industry in mitigating the spread of diseases and pests through extensive diagnostic testing, monitoring and surveillance services. The PAHC further contributes to the sustainability of agricultural lands, food safety, and the growth of a resilient food system in the province. The proposed new PAHC facility will assist in the long-term viability and sustainability for local agriculture, positioning farmers, community members, and decision makers to make informed decisions and adapt to future challenges and opportunities in the agricultural sector.

We trust that the provided information clearly addresses the merits of this subdivision and non-farm use proposal. We look forward to working with City of Abbotsford staff to advance the application for Council's endorsement to refer the subdivision and non-farm use applications for the ALC's consideration.

Sincere regards,

Pacific Land Resource Group Inc.



Laura Jones, MCIP, RPP
Senior Development Planner

Appendix A

PAHC Non-Laboratory Services Guide

Plant and Animal Health Centre (“PAHC”) Replacement Project

Non-Laboratory Department Services

Date: April 2024

Business Unit

The Business Unit within the PAHB serves as a cornerstone of operational efficiency and client-focused service. Operating as the Business Operations Unit (“BU”), its primary responsibility involves developing, implementing, and evaluating effective business models for both the PAHB and the OCV frameworks. With a strong commitment to client service, the BU facilitates seamless support for client needs across multiple communication channels, including walk-ins, phone inquiries, and emails. Additionally, the unit extends its expertise and support to internal staff, offering a wide range of administrative services encompassing facilities, finance management, human resources, occupational health and safety, procurement and contracts, records management, and technology support.

Driven by a commitment to optimize resources and ensure long-term sustainability, the BU collaborates with the Branch to address provincial priorities. Serving as the link between operational efficiency, client service, and strategic alignment, the BU plays a key role in advancing PAHB's goals while maintaining service excellence.

Laboratory Operations and Quality Assurance Unit

The Laboratory Operations and Quality Assurance (“LOQAU”) Unit within the PAHB supports the delivery of services by the animal and plant health groups. The Unit assists with the functions of the Branch through operational management and oversight of quality assurance, facilities, biosafety, biosecurity, training, policy, and genomics strategy. In addition, the Unit supports initiatives related to modernization, acquisition of resources and technology, and updating of techniques. Through leadership on core items, the Unit supports the Branch in seeking and maintaining licenses and accreditations, responding to surges in priority work items, updating operational logistics, coordinating facility-related issues, implementing strategies for data management and storage, and developing a collaborative genomics group with interested stakeholders.

Through collaborative work, the LOQAU delivers consistent, high-quality laboratory operations, quality assurance, and biosafety programming while supporting the PAHB in maintaining reliable and effective animal and plant health services. Through dedicated efforts in coordination and communication, LOQAU strives to contribute meaningfully to the overall success and resilience of PAHB.

Business Risk Management Branch

The Business Risk Management (“BRM”) branch serves to achieve the policy objectives of MAF and the Province of B.C. (the “Province”). Its purpose is to help farmers manage risks through an organization where service, results and teamwork drive the delivery of BRM programs to farmers. These programs are funded through the Growing Forward multi-lateral framework agreement between the provinces and Canada. This agreement obligates the provinces to fund and deliver the suite of BRM programs which include: AgriInsurance (also known as Crop Insurance or Production Insurance); AgriStability; AgriInvest, AgriRecovery, and Agricultural Wildlife Damage Compensation. The suite of programs helps viable farming operations protect themselves from severe financial losses due to weather perils and market conditions.

The BRM branch has a powerful vision to modernize its business to create shifts towards citizen participation, self-service and business innovation and to continually invest in people.

Extension and Support Service Branch

The Extension and Support Service ("ESS") branch identifies and promotes agriculture and food production / processing systems that are sustainable and enhance the economic benefits to the Province. ESS also leads MAF's agriculture business, agroforestry and youth development initiatives and maintains operations in all major agriculture regions of B.C. A network of professional agrologists and industry specialists fosters the effective delivery of MAF programs and promotes their optimal use by the Agrifood sector. ESS is the primary point of contact for MAF's agriculture clients, both businesses and associations. ESS also provides professional agrologist support to local government planning, emergency management and other agricultural issues.

The ESS branch consists of the following areas:

- Emergency Management: the agriculture industry is protected internally with the AGRI Emergency Response plan, and externally with the Emergency Management website.
- Business Management and First Nations Agriculture: Farm Business Management and First National Agriculture are supported through the Business Development Network with printed and online materials.
- Regional Agrologist Network: a network of professional agrologists fosters the effective delivery of MAF programs and promotes their optimal use by the Agrifood sector. The unit is the primary point of contact for MAF's agriculture clients, both businesses and associations.
- Industry Specialists: agriculture throughout the Province is supported through industry specialists who: providing technical expertise for industry initiatives, and facilitating resolution to industry issues; assisting development and implementation of strategic plans, research projects, and funding opportunities; and support industry councils and administer industry trusts.
- Youth Capacity Building Units: the branch supports youth development through the 4H program.
- Website Administration: MAF uses websites to provide information to the public (internet) and its staff (intranet). This information is edited by administrators and alternates, with the layout and content determined by content managers.

Food and Beverage Branch

The Food and Beverage branch has a lead role in interacting with the B.C. Agrifoods Sector to enhance the sector's growth, competitiveness, and sustainability. It provides ongoing expertise and support for domestic and international marketing, production strategies and innovation. Programs and initiatives are informed by strong industry expertise, rigorous statistical analysis and market intelligence and promotion. The Innovation and Adaptation Services branch consists of the following program units:

- Innovation: Accelerating the pace of innovation in B.C.'s agrifoods sector is the mandate of the program. The program will encourage research and pilot projects that lead to commercialization or adoption of innovative products, processes, practices and technologies. Efforts will be focused primarily on new developments in plant, animal and food science; advancements in waste and energy management practices; new product development and commercialization; improvements in soil, water and air quality, and climate adaptation.

- Market Development and Promotion: the unit delivers programs to expand domestic and international markets. The goal is to provide market intelligence and market development services that contribute to reaching $15 billion in agrifood and seafood revenue by 2020. The unit strives to strengthen industries' ability to meet challenges and embrace new sales and marketing opportunities created by changing market conditions, regulations and policy requirements. Some of the key initiatives include:

    - Overseeing the Buy Local Program to build consumer demand and increase sales of B.C. Agrifoods;

    - Managing Growing Forward 2 Market Intelligence & Advisory Services and Market Development programs including:

        - The B.C. Agrifood and Seafood Export Program

        - The B.C. Agrifood and Seafood Market Development Preparedness Program

    - Participating in international tradeshows, trade missions, buyers missions and table-top expositions

    - Organizing domestic and export marketing workshops and seminars

    - Performing market research and intelligence activities

- Resource Management: this unit of the branch identifies and promotes agrifood systems that are environmentally sustainable. The goal is to encourage agriculture and food producers to incorporate beneficial management practices to protect soil, water, air and biodiversity resources. The unit also monitors environmental indicators to anticipate and respond to future threats to the environment from current agriculture practices and threats to agriculture from environmental and climate changes.

- Strengthening Farming: through the leadership of the Strengthening Farming Program, and in support of the Farm Practices Protection Act, the Innovation and Adaptation Services Branch also promotes strong working relationships between the Province, agricultural industry and local governments. Program staff provide provincial legislation guidance, land use inventory services and bylaw review, working together with MAF agrologists and the Agriculture Land Commission to strengthen farming across B.C.

Corporate Policy and Priorities Branch

Corporate Policy and Priorities Branch (“CPPB”) provides corporate leadership, coordination and analysis.

CPPB is comprised of five units: Corporate Planning and Intergovernmental Relations, Land Use and Geospatial, Legislation, Policy, and Sector Insights and Corporate Initiatives.

Our staff are intelligent, collaborative, and resilient, which is handy because we rely on our ministry colleagues and sector partners to flesh out our research and challenge the strength of our analysis and recommendations.

Our goal is to provide corporate leadership, coordination and analysis of policy, legislative and data issues related to the ministry’s mandate. It is something we cannot do alone and we remain committed to exploring and using strategies to ensure the ministry has access robust, evidence-based research and analysis that accurately reflects the perspectives and impacts to internal and external stakeholders.

Food Safety Inspection Branch

The Food Safety Inspection Branch (“FSIB””) is responsible for administration, compliance, and enforcement of provincial legislation for food safety of meat and seafood products. The Branch also delivers food safety programs for farmers, ranchers and food processors under the federal/provincial/territorial Sustainable Agricultural Partnership Agreement (“SCAP”). In addition, FSIB provides expert advice and policy support to the Ministry of Agriculture and Food for meat and seafood processing, food safety, and agri-food compliance and enforcement matters.

The Branch’s Seafood Inspection Program has staff in Courtenay, Abbotsford, and Prince Rupert, a province-wide presence for the Meat Inspection Program and the Agri-food Compliance and Enforcement Program, and SCAP food safety staff in Abbotsford. A Victoria-based business administration team provides support for the Branch.

Appendix B

PAHC Services and Fee Guide

ANIMAL HEALTH CENTRE

Services and Fee Guide

BRITISH COLUMBIA

October 2024

Table of Contents

General Information

The Animal Health Centre works to diagnose disease and monitor animal health which is essential to British Columbia's agri-food industry. Laboratory findings are used to monitor the status of animal health in British Columbia. Ongoing surveillance and reporting of listed diseases to appropriate agencies is a crucial role of the Animal Health Centre and has important implications for product export certification. In addition, the diagnosis of diseases that may be transmitted from animals to people is important to health authorities.

Staff veterinarians and laboratory scientists investigate and identify major livestock and companion animal diseases that could have potentially devastating effects on the food supply or pose a threat to public health. Up to 70% of all diseases affecting people come from animals. An even larger percentage of newly emerging diseases originate with animals (UNFAO, 2013).

Animal Health Centre

The Animal Health Centre provides world-class veterinary diagnostic services that protect the health of all animals in B.C. by supporting disease prevention, control and eradication. The Animal Health Centre protects human health, with the timely and accurate diagnosis of zoonotic diseases that transmit from animals to humans, in the public health and food safety sectors. The Animal Health Centre is an accredited full-service veterinary laboratory in western Canada, offering more than 400 laboratory diagnostic tests for agents that may be found in wild and domestic birds, mammals, fish, reptiles and amphibians.

Mission

The mission of the Animal Health Centre is to diagnose, monitor and assist in controlling and preventing animal disease in British Columbia.

Vision

Our vision is a thriving, sustainable agricultural industry free from serious impacts caused by pests and diseases, for the benefit of all citizens of British Columbia.

Diagnostic Testing and Services

The Animal Health Centre full range of fee-for-service diagnostic testing, including Bacteriology, Histopathology, Molecular Diagnostics, Necropsy, Serology and Virology are accepted from veterinarians, livestock producers, the general public and other government agencies.

While primarily concerned with food-producing animals, the Animal Health Centre also provides diagnostic services for companion animals, captive and free-ranging wildlife, zoo animals, fish and bees.

Billing

- Accepted Methods of Payment: VISA, MasterCard, American Express, Debit, Cheque (payable to “Minister of Finance”) or Electronic Fund Transfer.
- Fees listed do not include applicable taxes.
- Out of province submissions will be charged at the fee plus 50%.
- In accordance with the *Animal Health Act*, the Lieutenant Governor in Council may make regulations designating laboratories as provincial laboratories, and respecting fees that may be charged by provincial laboratories, including fees for diagnostic examinations and post-mortem services, services performed for the purpose of gathering evidence for a legal proceeding and providing analytical or interpretive reports.
- Section 5 of the Laboratory Fees Regulation states, “a provincial laboratory may charge the fees set out in the [Fee] Schedule in respect of services performed or laboratory reports provided under the *Animal Health Act* or the *Ministry of Agriculture and Food Act*”.
- Note that all charges are payable at the time of submission. Results will not be released until payment has been received.

Disclosure of Results

- The veterinary professional responsible for your case will report their findings, diagnoses and recommendations for control (if applicable), in a written report.
- Whenever possible, it is preferable for our veterinary professionals to report directly to a veterinarian. The veterinarian has an established relationship with the animal and client and can help interpret the client’s results.
- If results are urgently required, contact the Animal Health Centre directly at 604-556-3003 before submitting the specimen.
- Reports are sent primarily to the submitting client. Reports will only be sent to third parties if indicated on the sample submission form.
- **Exceptions will only be made in the instance that a notifiable or reportable disease is suspected. In this case both the Chief Veterinarian of British Columbia and the Canadian Food Inspection Agency (CFIA) must be notified. Cases of suspected animal abuse will also be reported to the Society for the Prevention of Cruelty to Animals (SPCA).**

Contact Information

Local phone: 604-556-3003
Toll free: 1-800-661-9903
Front office email: PAHB@gov.bc.ca
Website: www.gov.bc.ca/animalhealthcentre
Hours of operation: Monday to Friday from 8:30 A.M. until 4:30 P.M. Closed on Statutory Holidays.

Accreditations

The Animal Health Centre is accredited by:
The American Association of Veterinary Laboratory Diagnosticians (AALVD) - full accreditation: https://www.aavld.org/accredited-labs

The Standards Council of Canada (SCC) for ISO/IEC 17025:2017 - standard for accredited techniques and specific tests listed on our scope of accreditation: https://www.scc.ca/en/accreditation/laboratories/british-columbia-ministry-agriculture-plant-and-animal-health-laboratories

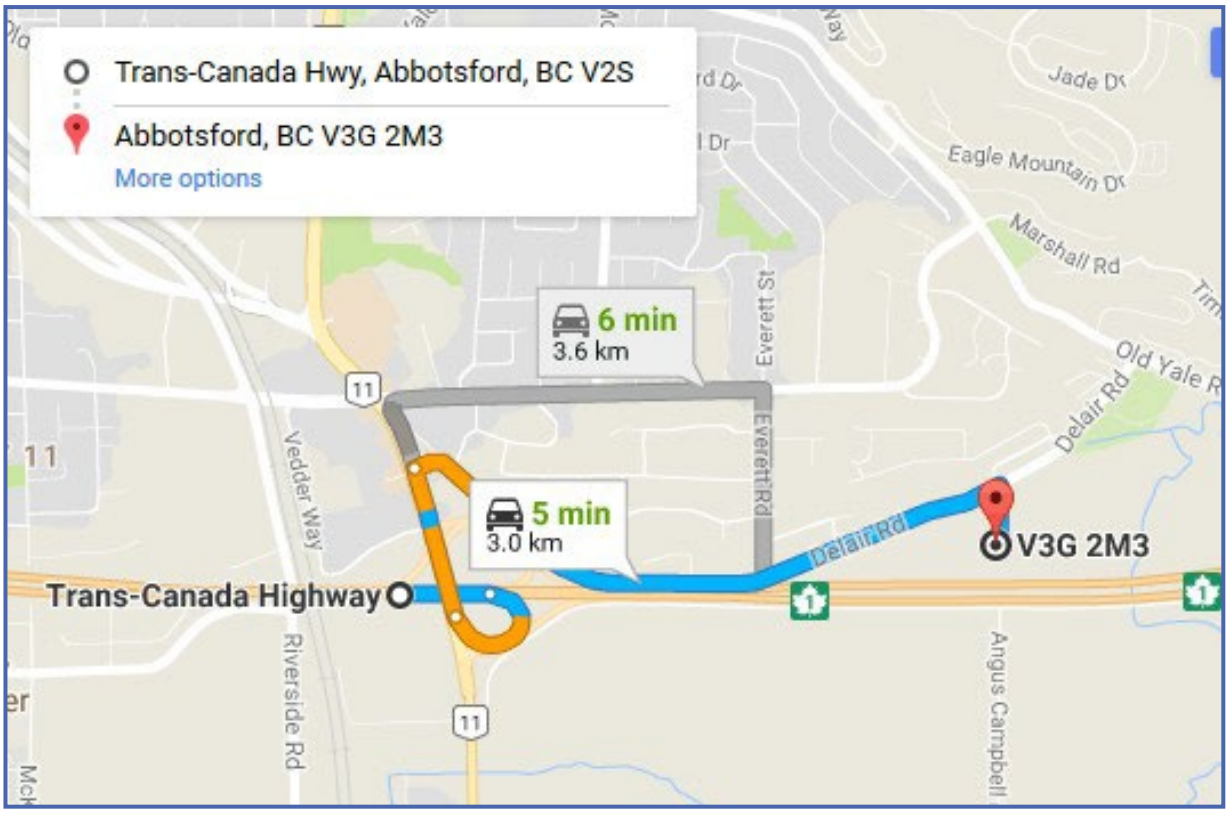
Location

The Ministry of Agriculture's Animal Health Centre is located in the Abbotsford Agricultural Centre. Our mailing address is:

Animal Health Centre
1767 Angus Campbell Road
Abbotsford, BC V3G 2M3

From Highway 1

- Take exit 92 toward Mission
- Merge onto BC-11 N
- Turn **Right** onto Delair Road
- Turn **Right** onto Angus Campbell Road



A-Z of Tests Offered at the AHC

Test Key: *AGID* – Agar Gel Immunodiffusion; *ELISA* – Enzyme Linked Immunosorbent Assay; *HI* – Hemagglutination Assay; *PCR* – Polymerase Chain Reaction; *RID* – Radial Immunodiffusion; *VI* – Virus Isolation; *VN* – Virus Neutralization.

Test Name	Preferred Specimen(s)	Lab Section	Price (before tax)
A			
Actinobacillus pleuropneumoniae *PCR*	Lung, tonsils	**Molecular Diagnostics**	$35.00
Actinobacillus spp. *PCR* (including Actinobacillus suis detection)	Lung, tonsils	**Molecular Diagnostics**	$35.00
Additional time required to conduct examination (in excess of 1 hour)	N/A	**Pathology (Necropsy)**	$150.00 per hour
Additional time required to interpret/respond to client (in excess of 1 hour)	N/A	**Pathology (Necropsy)**	$150.00 per hour
Adenovirus Hemorrhagic Disease *PCR*	Liver, lung, spleen	**Molecular Diagnostics**	$35.00
Adenovirus spp. *PCR*	Please contact the AHC	**Molecular Diagnostics**	$35.00
Aerobic Bacteria Culture and Sensitivity	2-5cm piece fresh tissue, swab	**Bacteriology**	Production Animals $40 All Other Animals $60
Aeromonas spp. *PCR*	Skin, gill, kidney	**Molecular Diagnostics**	$35.00
Aeromonas salmonicida *PCR* (Furunculosis)	Skin, gill, kidney	**Molecular Diagnostics**	$35.00
African swine fever virus *PCR*	Tonsils, lymph nodes, spleen, kidney, liver	**Molecular Diagnostics**	$35.00
Aleutian Disease *PCR*	Whole blood	**Molecular Diagnostics**	$35.00
Anaerobic Bacteria Culture	2-5cm piece fresh tissue, swab	**Bacteriology**	Production Animals $40 All Other Animals $60
Anaplasma marginale *PCR*	Whole blood	**Molecular Diagnostics**	$35.00
Arthrobacter davidanieli *PCR* (Renibacterium Vaccine)	Please contact the AHC	**Molecular Diagnostics**	$35.00
Avian Adenovirus *PCR* (Inclusion Body Hepatitis)	Liver, spleen	**Molecular Diagnostics**	$35.00
Avian Adenovirus Group 1 *AGID*	≥0.5ml serum per bird	**Serology**	$10.00
Avian Adenovirus *VI*	Liver, spleen	**Virology**	$40.00
Avian Astrovirus *PCR* (Chicken Astrovirus)	Kidney, liver, proventriculus, intestine/cecum	**Molecular Diagnostics**	$35.00
Avian Encephalomyelitis *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*

Avian Encephalomyelitis Virus *PCR*	Brain, pancreas, gizzard	**Molecular Diagnostics**	$35.00
Avian Hemorrhagic Enteritis Virus *PCR*	See Avian Adenovirus	**Molecular Diagnostics**	$35.00
Avian Herpes Virus (other) *VI*	Please contact the AHC	**Virology**	$40.00
Avian Infectious Bronchitis Virus *PCR*	Trachea/bronchus, tracheal swab, lungs, kidney, fecal swab, cecal tonsil	**Molecular Diagnostics**	$35.00
Avian Infectious Laryngotracheitis Virus *PCR*	Trachea, tracheal swab, lungs, eyelid	**Molecular Diagnostics**	$35.00
Avian Influenza Virus *PCR*	Oropharyngeal swab, cloacal swab, trachea, spleen, lungs, kidney, brain, cecal tonsil	**Molecular Diagnostics**	$35.00
Avian Influenza *AGID*	≥0.5ml serum per bird	**Serology**	$10.00
Avian Influenza *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Avian Metapneumovirus *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Avian Metapneumovirus (A, B, C) *PCR*	Trachea, nares, tracheal or oropharyngeal swab (Dacron or polyester) in transport media	**Molecular Diagnostics**	$35.00
Avian Nephritis Virus *PCR*	Kidney	**Molecular Diagnostics**	$35.00
Avian Paramyxovirus 3 *HI*	≥0.5ml serum per bird	**Serology**	$10.00
Avian Paramyxovirus-1 *PCR*	Trachea, oropharyngeal swab, lungs, brain, proventriculus, cecal tonsil, cloacal swab, spleen, kidney	**Molecular Diagnostics**	$35.00
Avian Polyoma Virus *PCR*	Feather pulp, skin, lung, liver, kidney, whole blood, feces, cloacal swab	**Molecular Diagnostics**	$35.00
Avian Reovirus *PCR*	Enteric and respiratory - Intestine, pancreas, feces, trachea, lung Viral arthritis - Joint swab, tendons, heart (chicks)	**Molecular Diagnostics**	$35.00
Avian Reovirus *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Avian Reovirus *VI*	Enteric and respiratory - Intestine, pancreas, feces, trachea, lung Viral arthritis - Joint swab, tendons, heart (chicks)	**Virology**	$40.00
Avibacterium paragallinarum *PCR* (Infectious Coryza)	Trachea, lungs, tracheal swabs, sinus, eyelid	**Molecular Diagnostics**	$35.00
Avibacterium spp. *Culture*	2-5cm piece fresh tissue, swab	**Bacteriology**	Production Animals $40 All Other Animals $60
Avipoxvirus *PCR* (Fowl/Avian Pox, Raptor Poxvirus)	Skin lesions	**Molecular Diagnostics**	$35.00
Avipoxivirus *VI* (Fowl/Avian Pox)	Skin lesions	**Virology**	$40.00
B			
Bacterial Identification by MADLI-ToF	Pure bacterial isolate in blood agar plate **NOTE:**	**Bacteriology**	$12.00 per isolate

	Unfit - If bacterial colonies are mixed (more than one isolate), overly grown with contaminants, or old, we will not be able to perform MALDI-ToF testing and report out the results as unfit.		
Baermann examination for lungworm	10g feces	**Parasitology**	$27.00
Bartonella henselae *PCR*	Whole blood	**Molecular Diagnostics**	$35.00
Batrachochytrium dendrobatidis *PCR*	Skin, digit, tadpoles, whole body rinse, cutaneous swab *dry swabs, do not submit in media*	**Molecular Diagnostics**	$35.00
Batrachochytrium salamandrivorans *PCR*	Skin, cutaneous swab	**Molecular Diagnostics**	$35.00
Bearded Dragon Adenovirus *PCR*	Liver, feces	**Molecular Diagnostics**	$35.00
Blue Tongue Virus *PCR*	Nasal swabs, lesions, whole blood, spleen, lymph nodes or bone marrow	**Molecular Diagnostics**	$35.00
Blue Tongue Virus *ELISA*	≥2 ml serum per animal	**Serology**	$10.00
Bonamia ostreae *PCR*	Live or freshly dead oyster, gills and/or heart	**Molecular Diagnostics**	$35.00
Border Disease Virus *PCR*	Buffy coat (whole blood), lymphoid tissue, brain	**Molecular Diagnostics**	$35.00
Bordetella avium *PCR*	Tracheal swab, trachea	**Molecular Diagnostics**	$35.00
Bovine Adenovirus Type 3, 4-8 *PCR*	Nasal swab, feces	**Molecular Diagnostics**	$35.00
Bovine Adenovirus *VI*	Nasal swab, feces	**Virology**	$40.00
Bovine Coronavirus *PCR*	Nasal swab, lung, trachea, feces	**Molecular Diagnostics**	$35.00
Bovine Herpesvirus-1 *PCR*	Nasal swab, conjunctival swab vaginal swab, trachea Fetus: lung, liver, kidney, adrenal gland, placenta	**Molecular Diagnostics**	$35.00
Bovine Herpesvirus- 4 *PCR*	Lesions (scrapings, scabs), respiratory tissues, nasal swabs, secretions, whole blood	**Molecular Diagnostics**	$35.00
Bovine Leukemia Virus (BLV) *ELISA*	≥2 ml serum per animal	**Serology**	$10.00
Bovine Papillomavirus *PCR*	Lesions	**Molecular Diagnostics**	$35.00
Bovine Papular Stomatitis Virus – *VI*	Lesions	**Virology**	$40.00
Bovine Parainfluenza 3 Virus *PCR*	Nasal swab, lung	**Molecular Diagnostics**	$35.00
Bovine Parainfluenza Virus Type-3 *VN*	≥2 ml serum per animal	**Serology**	$10.00
Bovine Parvovirus *PCR*	Feces, intestine	**Molecular Diagnostics**	$35.00
Bovine Respiratory Coronavirus *VN*	≥2 ml serum per animal	**Serology**	$10.00
Bovine Respiratory Syncytial Virus *PCR*	Nasal-pharyngeal washings, deep nasal swab, lung	**Molecular Diagnostics**	$35.00
Bovine Respiratory Syncytial Virus *VI*	Nasal-pharyngeal washings, deep nasal swab, lung	**Virology**	$40.00

Bovine Respiratory Syncytial Virus *VN*	≥2 ml serum per animal	**Serology**	$10.00
Bovine Viral Diarrhea *VI*	Buffy coat (10 ml whole blood), serum, feces, intestine, Peyer's patches, spleen, mesenteric lymph node, lung, milk; Fetus: lung, liver, spleen, thymus, thyroid, placenta, fetal fluids	**Virology**	$40.00
Bovine Viral Diarrhea Virus Type 1&2 *VN*	≥2 ml serum per animal	**Serology**	$10.00
Bovine Viral Diarrhea Virus (BVDV) Type 1&2 *ELISA*	≥2 ml serum per animal	**Serology**	$10.00
Bovine Viral Diarrhea Virus Types 1 & 2 *PCR*	Buffy coat (10 ml whole blood), serum, feces, intestine, Peyer's patches, spleen, mesenteric lymph node, lung, milk; Fetus: lung, liver, spleen, thymus, thyroid, placenta, fetal fluids	**Molecular Diagnostics**	$35.00
Brachyspira hyodysenteriae *PCR*	Large intestine, feces	**Molecular Diagnostics**	$35.00
Brachyspira pilosicoli *PCR*	Large intestine, feces	**Molecular Diagnostics**	$35.00
Brucella *BPAT* CFIA form 5473 required	≥2 ml serum per animal	**Serology**	$10.00
Brucella spp. *PCR*	Please contact the AHC	**Molecular Diagnostics**	$35.00
C			
C.chauvoei, novyi, septicum, sordellii , Clostridial FAT *Fluorescent antibody detection*	Affected tissue, swab of infected lesions	**Bacteriology**	$40.00
Calf Scours Package for calves <2 weeks of age	10g Feces, +/- 2 fecal swabs (no culture media)	**Multiple**	$110.00
Campylobacter spp.	Feces	**Bacteriology**	$40.00
Canine Adenovirus Type 1 & 2 *PCR*	Type 1 - Liver, feces Type 2 - Nasal swab, conjunctival or pharyngeal swab	**Molecular Diagnostics**	$35.00
Canine Adenovirus Type-2 *VI*	Nasal swab, conjunctival or pharyngeal swab	**Virology**	$50.00
Canine Coronavirus *PCR*	Feces, fecal swab	**Molecular Diagnostics**	$35.00
Canine Coronavirus *VI*	Feces, fecal swab	**Virology**	$60.00
Canine Distemper Virus *PCR*	Buffy coat (whole blood), lung, kidney, liver	**Molecular Diagnostics**	$35.00
Canine Distemper Virus *VI*	Buffy coat (whole blood), lung, kidney, liver	**Virology**	$50.00
Canine Distemper Virus *VN*	≥2 ml serum per animal	**Serology**	$10.00
Canine Herpes Virus *VI*	Lung, liver	**Virology**	$50.00
Canine Herpesvirus *PCR*	Lung, liver	**Molecular Diagnostics**	$35.00
Canine Influenza Virus *PCR*	Nasal swab, lung	**Molecular Diagnostics**	$35.00
Canine Parainfluenza Virus *PCR*	Nasal swab, tracheal swab, trachea	**Molecular Diagnostics**	$35.00

Canine Parainfluenza Virus *VI*	Nasal swab, tracheal swab, trachea	**Virology**	$50.00
Canine Parvovirus 2 *PCR*	Fecal swab, feces, intestine	**Molecular Diagnostics**	$35.00
Caprine Arthritis Encephalitis *PCR*	Joint swab, buffy coat (whole blood), brain	**Molecular Diagnostics**	$35.00
Caprine Arthritis Encephalitis *ELISA* animals should be ≥6mos old	≥2 ml serum per animal	**Serology**	$10.00
Caprine Herpesvirus 2	Buffy coat (whole blood), tonsil, lymph node	**Molecular Diagnostics**	$35.00
Ceratonova shasta *PCR* (formerly Ceratomyxa shasta)	Tissue lesions, intestinal scrapes	**Molecular Diagnostics**	$35.00
Chick Anemia Virus *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Chicken Anemia Virus *PCR*	Bursa, thymus, bone marrow, feces	**Molecular Diagnostics**	$35.00
Chlamydia felis *PCR*	Conjunctiva swab, lung	**Molecular Diagnostics**	$35.00
Chlamydophila abortus *PCR*	Fetus: placental cotyledons, lung	**Molecular Diagnostics**	$35.00
Chlamydophila psittaci *PCR*	Lung, liver, spleen, feces	**Molecular Diagnostics**	$35.00
Classical Swine Fever Virus *PCR*	Tonsils, lymph node (mandibular, retropharyngeal, gastrohepatic and mesenteric), spleen, kidney, ileum	**Molecular Diagnostics**	$35.00
Clostridium difficile Toxin A&B *ELISA*	≥2 ml serum per animal	**Serology**	$30.00
Clostridium perfringens Toxin Typing	Bacterial isolate	**Bacteriology**	$35.00
Clostridium piliforme *PCR* (Tyzzer's Diesase)	Intestine	**Molecular Diagnostics**	$35.00
Coxiella burnetii *PCR*	Placenta, milk, fetal lung, whole blood	**Molecular Diagnostics**	$35.00
Coxiella burnetii *ELISA* (Q Fever)	≥2 ml serum per animal	**Serology**	$10.00
Creation of documentation or photographs	N/A	**Pathology (Necropsy)**	$150.00
Cryptococcus neoformans *PCR*	Brain, lung, lymph node, lesions	**Molecular Diagnostics**	$35.00
Cryptosporidium spp. *PCR*	Small intestine, feces, fecal swabs	**Molecular Diagnostics**	$35.00
Cryptosporidium spp. *Direct smear*	Feces	**Bacteriology**	$27.00
D			
Dichelobacter nodosus *PCR* (Sheep Footrot)	Hoof trimmings, hoof swab	**Molecular Diagnostics**	$35.00
DNA Sequencing *Bacterial Strain*	Pure colonies or bacterial isolate	**Bacteriology**	$103.00
DNA Sequencing *Fungal Strain*	Fungal colonies	**Bacteriology**	$103.00
Duck Viral Enteritis *PCR*	Liver, spleen, intestine, cecal tonsil	**Molecular Diagnostics**	$35.00

Duck Viral Enteritis *VI*	Liver, spleen, intestine, cecal tonsil	**Virology**	$40.00
Duck Viral Hepatitis *VI*	Liver, spleen, intestine, cecal, tonsil	**Virology**	$40.00
E			
Encephalitozoon cuniculi *PCR* (rabbits and birds)	Kidney, urine	**Molecular Diagnostics**	$35.00
Epizootic Haematopoietic Necrosis Virus *PCR*	Kidney, spleen, liver	**Molecular Diagnostics**	$35.00
Epizootic Hemorrhagic Disease *PCR*	Whole blood (cattle & deer) spleen, lymph node, lung, liver	**Molecular Diagnostics**	$35.00
Equine Adenovirus (Respiratory Disease) *VI*	Nasal swab, Lung	**Virology**	$50.00
Equine Coronavirus *PCR*	Feces	**Molecular Diagnostics**	$35.00
Equine Herpes Virus 1 *PCR*	Adult: Deep nasal swabs, conjunctival swab, whole blood (buffy coat), lung, spinal cord, brain Fetus: Liver, lung	**Molecular Diagnostics**	$35.00
Equine Herpes Virus 1 *PCR* (Neuropathogenic)	Adult: Deep nasal swabs, conjunctival swab, whole blood (buffy coat), lung, spinal cord, brain; Fetus: Liver, lung	**Molecular Diagnostics**	$35.00
Equine Herpes Virus 1 *VI*	Adult: Deep nasal swabs, conjunctival swab, whole blood (buffy coat), lung, spinal cord, brain; Fetus: Liver, lung	**Virology**	$50.00
Equine Herpes Virus 1 *VN*	≥2 ml serum per animal	**Serology**	$10.00
Equine Herpes Virus 2 *PCR*	Nasal swabs, buffy coat (whole blood)	**Molecular Diagnostics**	$35.00
Equine Herpes Virus 3 *PCR*	Swabs from genital/oral lesions	**Molecular Diagnostics**	$35.00
Equine Herpes Virus 4 *PCR*	Nasal swabs, conjunctival swab	**Molecular Diagnostics**	$35.00
Equine Herpes Virus 4 *VI*	Nasal swabs, conjunctival swab	**Virology**	$50.00
Equine Infectious Anemia – CFIA form 3937 required or CFIA approved electronic submission	≥2 ml serum per animal	**Serology**	$12.00
Equine Influenza Virus *PCR*	Nasal swab, tracheal wash, lung	**Molecular Diagnostics**	$35.00
Equine Influenza Virus *VI*	Nasal swab, tracheal wash, lung	**Virology**	$50.00
Equine Influenza Virus *HI*	≥2 ml serum per animal	**Serology**	$10.00
Equine rhinitis A Virus *PCR* (formerly Equine Rhinovirus-1)	Nasal swab, tracheal wash, lung	**Molecular Diagnostics**	$35.00
Equine Viral Arteritis *PCR*	Adult: lung, thymus, whole blood (buffy coat), mesentery lymph node, liver, spleen Fetus: lung, spleen, thymus, placenta, liver	**Molecular Diagnostics**	$35.00
Equine Viral Arteritis *VI*	Adult: lung, thymus, whole blood (buffy coat), mesentery lymph node, liver, spleen; Fetus: lung, spleen, thymus, placenta, liver	**Virology**	$50.00

Equine Viral Arteritis *VN*	≥2 ml serum per animal	**Serology**	$10.00
Erysipelothrix rhusiopathiae *PCR*	Tonsils, heart, joint swab, feces, spleen, lymph nodes	**Molecular Diagnostics**	$35.00
Escherichia coli Toxin Typing	Bacterial isolate	**Bacteriology**	$35.00
F			
Fecal Egg Count (Strongyle spp only)	10g feces	**Parasitology**	$27.00
Fecal Flotation	10g feces	**Parasitology**	$27.00
Feline Calicivirus *PCR*	Nasal swab, pharyngeal swab, lung	**Molecular Diagnostics**	$35.00
Feline Calicivirus *VI*	Nasal swab, pharyngeal swab, lung	**Virology**	$50.00
Feline Coronavirus *PCR* (Feline Infectious Peritonitis)	Peritoneal fluid spleen, kidney, lung	**Molecular Diagnostics**	$35.00
Feline Herpesvirus *PCR*	Pharyngeal swab, nasal swab, lung, conjunctival swab	**Molecular Diagnostics**	$35.00
Feline Immunodeficiency Virus *PCR*	Whole blood	**Molecular Diagnostics**	$35.00
Feline Leukemia Virus *PCR*	Whole blood (1 ml)	**Molecular Diagnostics**	$35.00
Feline Panleukopenia Virus *VI* (Feline Parvovirus)	Small intestine, kidney, liver	**Virology**	$50.00
Feline Panleukopenia Virus *PCR* (Feline Parvovirus)	Small intestine, kidney, liver	**Molecular Diagnostics**	$35.00
Feline Viral Rhinotracheitis *VI* (Feline Herpesvirus)	Pharyngeal swab, nasal swab, lung, conjunctival swab	**Virology**	$50.00
Flavobacterium columnare *PCR*	Gills, lesions from mouth and skin	**Molecular Diagnostics**	$35.00
Foot & Mouth Disease Virus *PCR*	Vesicular epithelium or fluid	**Molecular Diagnostics**	$35.00
Fowl Pox Virus *PCR*	Skin lesions	**Molecular Diagnostics**	$35.00
Francisella tularensis *PCR*	Oropharyngeal swab, whole blood, liver, spleen	**Molecular Diagnostics**	$35.00
Frog Ranavirus (formerly Frog Iridovirus) *VI*	Kidney, digestive tract, liver, oral swab, cloacal swab *dry swabs, do not submit in media*	**Virology**	$40.00
Frog Ranavirus *PCR* (formerly Frog Iridovirus)	Kidney, digestive tract, liver, oral swab, cloacal swab, *dry swabs, do not submit in media*	**Molecular Diagnostics**	$35.00
Fungal Culture and Identification	2-5cm piece fresh tissue	**Bacteriology**	$40.00
Fusobacterium spp. *PCR*	Please contact the AHC	**Molecular Diagnostics**	$35.00
G			
Glasserella parsuis *PCR* (formerly Haemophilus parasuis)	Brain, visceral pleura and other serosal exudates	**Molecular Diagnostics**	$35.00
H			

Haemophilus spp. *Culture*	2-5cm piece fresh tissue, swab	**Bacteriology**	Production Animals $40 All Other Animals $60
Helicobacter *PCR* (including H. hepaticus)	Liver	**Molecular Diagnostics**	$35.00
Hemagglutinating Encephalomyelitis Virus *VI*	Brain, Upper spinal cord	**Virology**	$40.00
Hemorrhagic Enteritis Virus *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Herpesvirus Consensus *PCR*	Please contact the AHC	**Molecular Diagnostics**	$35.00
Histopathology	Fixed tissue	**Histology**	Production Animals $62 All Other Animals $95
I			
Immunoglobulin-Bovine IgG, IgM *RID*	≥2 ml serum per animal	**Serology**	$10.00
Immunoglobulin-Equine IgG, IgM *RID*	≥2 ml serum per animal	**Serology**	$10.00
Immunoglobulin-Porcine IgG *RID*	≥2 ml serum per animal	**Serology**	$10.00
Immunohistochemistry (1st sample)	Fixed tissue	**Histology**	Production Animals $62 All Other Animals $95
Immunohistochemisty (additional samples up to 10)	Fixed tissue	**Histology**	$25.00
Inclusion Body Hepatitis (Adenovirus) *VI*	Liver, spleen	**Virology**	$40.00
Infectious Bovine Rhinotracheitis *PCR*	see Bovine Herpesvirus 1	**Molecular Diagnostics**	$35.00
Infectious Bovine Rhinotracheitis *VI*	Nasal swab, conjunctival swab vaginal swab, trachea	**Virology**	$40.00
Infectious Bovine Rhinotracheitis Virus *VN*	≥2 ml serum per animal	**Serology**	$10.00
Infectious Bovine Rhinotracheitis Virus *ELISA*	≥2 ml serum per animal	**Serology**	$10.00
Infectious Bronchitis *VI*	Trachea/bronchus, tracheal swab, lungs, kidney, cecal tonsil	**Virology**	$40.00
Infectious Bronchitis Virus *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Infectious Bursal Disease *PCR*	Bursa	**Molecular Diagnostics**	$35.00
Infectious Bursal Disease *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Infectious Bursal Disease *VI*	Bursa	**Virology**	$40.00
Infectious Canine Hepatitis (Canine Adenovirus Type 1)	Liver, feces	**Molecular Diagnostics**	$35.00
Infectious Canine Hepatitis *VI*	Liver, feces	**Virology**	$50.00
Infectious Hematopoietic Necrosis Virus *PCR*	Kidney, spleen, liver, gills, mucus, whole fish	**Molecular Diagnostics**	$35.00
Infectious Hematopoietic Necrosis Virus *VI*	Kidney, spleen, liver, gills, mucus, whole fish	**Virology**	$40.00
Infectious Laryngotracheitis *VI*	Trachea, lung	**Virology**	$40.00

Infectious Laryngotracheitis *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Infectious Pancreatic Necrosis Virus *PCR*	Pyloric caecum, spleen, kidney, brain	**Molecular Diagnostics**	$35.00
Infectious Pancreatic Necrosis Virus *VI*	Pyloric caecum, spleen, kidney, brain	**Virology**	$40.00
Infectious Salmon Anemia *VI*	Gills, heart, liver, kidney, spleen	**Virology**	$40.00
Infectious Salmon Anemia Virus *PCR*	Gills, heart, liver, kidney, spleen	**Molecular Diagnostics**	$35.00
Influenza A Virus Consensus *PCR*	Oropharyngeal swab, trachea, lungs, nasal swab	**Molecular Diagnostics**	$35.00
J			
Johne's Disease *PCR* (Mycobacterium paratuberculosis)	Feces, rectal scrapping, ileum, mesenteric lymph nodes	**Molecular Diagnostics**	$35.00
Johne's Disease *ELISA* (Mycobacterium paratuberculosis) ≥18mos for bovine testing ≥12mos for caprine testing	≥2 ml serum per animal	**Serology**	$10.00
K			
Klebsiella Culture of Sawdust or Environmental Sample	Environmental sample of interest	**Bacteriology**	$40.00
Koi Herpes Virus *PCR* (Cyprinid herpesvirus 3) (KHV**)**	Gill, kidney	**Molecular Diagnostics**	$35.00
Kudoa thyrsites *PCR*	Muscle tissue	**Molecular Diagnostics**	$35.00
L			
Lawsonia intracellularis *PCR*	Ileum, feces	**Molecular Diagnostics**	$35.00
Leptospira ssp. *PCR*	Urine, whole blood	**Molecular Diagnostics**	$35.00
Listeria monocytogenes *PCR*	Brain, abscess, liver, lesions, placenta, spleen	**Molecular Diagnostics**	$35.00
Listeria Monocytogenes *Enrichment and Isolation*	Brain tissue sample	**Bacteriology**	$40.00
Loma salmonae *PCR*	Gills	**Molecular Diagnostics**	$35.00
M			
Malignant Catarrhal Fever *PCR* Sheep (Ovineheprpesvirus-2)	Buffy coat (whole blood), tonsil, lymph node	**Molecular Diagnostics**	$35.00
Malignant Catarrhal Fever *PCR* Wildebeest (Alcelaphine herpesvirus-1)	Buffy coat (whole blood), tonsil, lymph node, kidney, liver, brain	**Molecular Diagnostics**	$35.00
Milk Culture and Sensitivity (up to 4 samples)	Milk 1-2ml per teat	**Bacteriology**	$33.00
Milk Culture and Sensitivity (additional samples >4)	Milk 1-2ml per teat	**Bacteriology**	$8.25 per sample
Mink Distemper Virus *VI*	Lung, kidney, intestine, trachea	**Virology**	$40.00
Mink Distemper Virus *VN*	≥2 ml serum per animal	**Serology**	$10.00
Mink Enteritis Virus *PCR* (Mink Parvovirus)	Intestine, liver, lung kidney	**Molecular Diagnostics**	$35.00

Mollicutes *PCR*	Lung, trachea, bronchial lymph nodes, tonsils, nasal swabs	**Molecular Diagnostics**	$35.00
Morbillivirus consensus *PCR*	Please contact the AHC	**Molecular Diagnostics**	$35.00
Moritella viscosa *PCR* (Winter Ulcer Disease)	Kidney, gill, surface ulcers or abscesses	**Molecular Diagnostics**	$35.00
Mycobacterium avium *PCR*	Feces, intestine, liver, spleen, kidney	**Molecular Diagnostics**	$35.00
Mycobacterium bovis *PCR*	Abscesses, granulomas, lung, or affected lymph nodes	**Molecular Diagnostics**	$35.00
Mycobacterium paratuberculosis *PCR* (Johne's Disease)	Feces, rectal scrapping, ileum, mesenteric lymph nodes	**Molecular Diagnostics**	$35.00
Mycobacterium paratuberculosis (Johne's Disease) *ELISA* ≥18mos for bovine testing ≥12mos for caprine testing	≥2 ml serum per animal	**Serology**	$10.00
Mycoplasma bovis *PCR*	Lung, synovium, joint fluid	**Molecular Diagnostics**	$35.00
Mycoplasma gallisepticum *PCR*	Tracheal swab, sinus, lung, air sac, joint swab, fertile eggs, tendon	**Molecular Diagnostics**	$35.00
Mycoplasma gallisepticum *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Mycoplasma gallisepticum *HI*	≥0.5ml serum per bird	**Serology**	$10.00
Mycoplasma hyopneumoniae *PCR*	Lung, bronchoalveolar lavage	**Molecular Diagnostics**	$35.00
Mycoplasma iowae *PCR*	Tracheal swab, sinus, lung, air sac, joint swab, fertile eggs, tendons	**Molecular Diagnostics**	$35.00
Mycoplasma meleagridis *PCR*	Tracheal swab, sinus, lung, air sac, joint swab, fertile eggs, tendon	**Molecular Diagnostics**	$35.00
Mycoplasam ovipneumoniae *PCR*	Nasal swabs **dry swabs, do not submit in media**	**Molecular Diagnostics**	$35.00
Mycoplasma synoviae *PCR*	Tracheal swab, sinus, lung, air sac, joint swab, fertile eggs, tendon	**Molecular Diagnostics**	$35.00
Mycoplasma synoviae *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*
Mycoplasma synoviae *HI*	≥0.5ml serum per bird	**Serology**	$10.00
Myxobolus cerebralis *PCR*	Lesions, brain/cranium	**Molecular Diagnostics**	$35.00
N			
Necropsy Post Mortem Diagnostic Package	Tissue from necropsy performed outside of the AHC	**Pathology (Necropsy)**	Production Animals $110 All Other Animals $250
Neorickettsia risticii *PCR* (Potomac horse fever)	Buffy coat (whole blood)	**Molecular Diagnostics**	$35.00
Neospora caninum *PCR*	Brain, heart, lung, placenta, skeletal muscle, tongue	**Molecular Diagnostics**	$35.00
Neospora caninum *ELISA*	≥2 ml serum per animal	**Serology**	$10.00
Neurological Spinal Cord Add On	Add-on to post mortem examination	**Pathology (Necropsy)**	$100.00
Newcastle Disease Virus *ELISA*	≥0.5ml serum per bird	**Serology**	$10.00*

Newcastle Disease Virus *HI*	≥0.5ml serum per bird	**Serology**	$10.00
Nocardia seriolae *PCR*	Spleen, kidney, liver, or brain displaying granulomatous lesions	**Molecular Diagnostics**	$35.00
Non-commercial poultry (flock size <100) first submission (per client on an annual basis)	Whole bird	**Pathology (Necropsy)**	$25.00
Non-commercial poultry (flock size <100) subsequent submissions (beyond the first submission)	Whole bird	**Pathology (Necropsy)**	$140.00
Nucleospora salmonis *PCR*	Kidney, blood , feces	**Molecular Diagnostics**	$35.00
O			
Ornithobacterium rhinotracheale *PCR*	Tracheal swab, trachea, lung	**Molecular Diagnostics**	$35.00
Ornithobacterium rhinotracheale *Culture*	2-5cm piece fresh tissue, swab	**Bacteriology**	Production Animals $40 All Other Animals $60
Ovine Herpes 2 Virus *PCR* (MCF - Sheep)	Buffy coat (whole blood), tonsil, lymph node	**Molecular Diagnostics**	$35.00
Ovine Progressive Pneumonia *ELISA*	≥2 ml serum per animal	**Serology**	$10.00
Ovine Progressive Pneumonia Virus *PCR* (Maedi-visna Virus)	Buffy coat (whole blood)	**Molecular Diagnostics**	$35.00
Ovine Respiratory Syncytial Virus *PCR*	Nasal swab, lung	**Molecular Diagnostics**	$35.00
P			
Pacheco's Disease (Herpes) Virus *VI*	Lung, liver, spleen, feces, whole blood	**Virology**	$50.00
Parameoba perurans *PCR*	Gills, gill swabs	**Molecular Diagnostics**	$35.00
Parapoxvirus *PCR*	Lesions	**Molecular Diagnostics**	$35.00
Phocid Morbillivirus *VI*	Nasal, pharyngeal, or ocular swabs, trachea, lung	**Virology**	$40.00
Phocine Distemper Virus *PCR*	Whole blood, nasal, pharyngeal or ocular swabs, trachea-bronchial lymph nodes, spleen, liver, kidney, lung and brain	**Molecular Diagnostics**	$35.00
Pigeon Circovirus *PCR*	Feces, bursa	**Molecular Diagnostics**	$35.00
Piscine myocarditis virus *PCR* (Salmon Totivirus)	Heart	**Molecular Diagnostics**	$35.00
Piscirickettsia salmonis *PCR*	Kidney, liver, spleen	**Molecular Diagnostics**	$35.00
Porcine Circovirus *PCR*	Feces, nasal secretions, lung, oropharyngeal swab, buffy coat	**Molecular Diagnostics**	$35.00
Porcine Delta Coronavirus *PCR*	Feces, intestinal contents, intestine	**Molecular Diagnostics**	$35.00
Porcine Epidemic Diarrhea Virus *PCR*	Feces, intestinal contents, intestine	**Molecular Diagnostics**	$35.00
Porcine Parvovirus *PCR*	Fetus: lung, liver, kidney, spleen, placenta	**Molecular Diagnostics**	$35.00

Porcine Parvovirus *VI*	Fetus: lung, liver, kidney, spleen, placenta	**Virology**	$40.00
Porcine Reproductive & Respiratory Syndrome Virus *PCR*	Adult: Serum, blood swab in saline, lung, tonsil Fetus: lung, spleen, thymus, thoracic fluid	**Molecular Diagnostics**	$35.00
Post Mortem Examination	Whole animal	**Pathology (Necropsy)**	Production Animals $140 All Other Animals $250
Post Mortem Examination – Fetus	Fetus *and* placenta	**Pathology (Necropsy)**	Production Animals $80 All Other Animals $250
Private Cremation – preparation and packaging of remains (<40 kg)	N/A	**Pathology (Necropsy)**	$250.00
Proventricular Dilatation Disease *PCR* (Avian Borna Virus)	Crop, proventriculus, brain	**Molecular Diagnostics**	$35.00
Pseudogymnoascus destructans *PCR* (Bat white-nose syndrome)	Skin and mucocutaneous swabs: wing webbing, snout,conjunctiva *dry swabs, do not submit in media*	**Molecular Diagnostics**	$35.00
Psittacine Beak & Feather Disease *PCR* (Psittacine Circovirus)	Feather pulp, skin, bursa, thymus, feces, whole blood	**Molecular Diagnostics**	$35.00
Psittacine Herpes Virus *PCR* (Pacheco's Disease)	Lung, liver, spleen, feces, whole blood	**Molecular Diagnostics**	$35.00
Python Endogenous Retrovirus *PCR*	Lung, liver, kidney, brain, blood (buffy coat)	**Molecular Diagnostics**	$35.00
R			
Rabbit Hemorrhagic Disease *PCR*	Liver, spleen, whole blood	**Molecular Diagnostics**	$35.00
Rabbit Herpes Virus *VI*	Skin lesions	**Virology**	$40.00
Renibacterium salmoninarum *PCR* (Bacterial Kidney Disease)	Kidney	**Molecular Diagnostics**	$35.00
Reovirus – Avian *PCR*	Enteric and respiratory - Intestine, pancreas, feces, trachea, lung Viral arthritis - Joint swab, tendon, heart (chicks)	**Molecular Diagnostics**	$35.00
Reticuloendothelosis Virus *PCR*	Buffy coat (whole blood), tumor tissues, spleen	**Molecular Diagnostics**	$35.00
Rotavirus *PCR*	Feces, intestinal contents, gastrointestinal tissue	**Molecular Diagnostics**	$35.00
S			
Salmon Alphavirus *PCR*	Organs, viremic serum	**Molecular Diagnostics**	$35.00
Salmonella culture *Enrichment, isolation, identification and serotyping* (PHAC)- Diagnostic Specimen	2-5cm piece fresh tissue, swab	**Bacteriology**	$40.00
Salmonella culture *Enrichment, isolation, identification and serotyping* (PHAC)-analysis of environmental samples (fluff or sponge, environmental monitoring)	Fluff, environmental sponge/drag swab/booties	**Bacteriology**	$40.00
Salmonella Dublin *ELISA*	≥2 ml serum per animal	**Serology**	$10.00

Salmonid Herpes virus *PCR*	Liver, kidney, spleen	**Molecular Diagnostics**	$35.00
Sarcocystis neurona *PCR*	Brain	**Molecular Diagnostics**	$35.00
Seal Herpes Virus *PCR*	Whole blood, nasal, pharyngeal or ocular swabs, trachea, bronchial lymph nodes, spleen, liver, kidney, lung and brain	**Molecular Diagnostics**	$35.00
Seneca Valley Virus *PCR*	Intact vesicles, vesicular fluid, scrapings of vesicular lesions, serum	**Molecular Diagnostics**	$35.00
Snake Paramyxovirus *PCR*	Oral and cloacal swabs	**Molecular Diagnostics**	$35.00
Spring Viremia of Carp Virus *PCR*	Whole fish (small fish - less than 4 cm), viscera including the kidney and encephalon from fish 4 to 6 cm long, kidney, spleen, PCR 8 liver, gills and encephalon from larger fish	**Molecular Diagnostics**	$35.00
Streptococcus equi equi *culture/PCR combined*	Nasopharyngeal wash, nasal swab	**Multiple**	Equines $95.00
Streptococcus iniae *PCR*	Brain	**Molecular Diagnostics**	$35.00
Streptococcus spp. *PCR*	Please contact the AHC	**Molecular Diagnostics**	$35.00
Streptococcus suis *PCR*	Please contact the AHC	**Molecular Diagnostics**	$35.00
Streptococcus suis *Culture*	2-5cm piece fresh tissue, swab	**Bacteriology**	Production Animals $40 All Other Animals $60
Swine Influenza Virus *VI*	Nasal swab, trachea, lung	**Virology**	$40.00
Swine Influenza Virus *PCR*	Nasal swab, trachea, lung	**Molecular Diagnostics**	$35.00
Swine Influenza Virus *HI*	≥2 ml serum per animal	**Serology**	$10.00
Strongyle Parasite Package	10g feces	**Parasitology**	$27.00
T			
Taura Syndrome Virus *PCR*	Haemolymph, pleopods, whole small shrimp	**Molecular Diagnostics**	$35.00
Tenacibaculum maritimum *PCR* (formerly F. maritimus)	Lesions from mouth	**Molecular Diagnostics**	$35.00
Torovirus (Breda) *VI*	Feces	**Virology**	$40.00
Torovirus – Bovine *PCR*	Feces	**Molecular Diagnostics**	$35.00
Torovirus – Porcine *PCR*	Feces	**Molecular Diagnostics**	$35.00
Toxoplasma gondii *PCR*	Fetus: brain, CSF, placenta	**Molecular Diagnostics**	$35.00
Transmissible Gastroenteritis (TGE) Virus *VN*	≥2 ml serum per animal	**Serology**	$10.00
Transmissible Gastroenteritis Virus *PCR*	Feces, small intestine (Jejunum)	**Molecular Diagnostics**	$35.00
Trichomonas gallinae *PCR*	Oral mucosa, esophagus	**Molecular Diagnostics**	$35.00

Tritrichomonas foetus *PCR*	Vaginal swab, preputial washings	**Molecular Diagnostics**	$35.00
Turkey Coronavirus *PCR*	Feces, intestine, bursa	**Molecular Diagnostics**	$35.00
U			
Ureaplasma diversum *PCR*	Vaginal swab, placenta	**Molecular Diagnostics**	$35.00
V			
Viral Hemorraghic Septicemia Virus *PCR*	Kidney, spleen, liver, brain, whole fish	**Molecular Diagnostics**	$35.00
Viral Hemorraghic Septicemia Virus *VI*	Kidney, spleen, liver, brain, whole fish	**Virology**	$40.00
W			
West Nile Virus *PCR*	Brain, cloacal swab, choanal swab, liver, kidney, spleen	**Molecular Diagnostics**	$35.00
Western Equine Encephalomyelitis *PCR*	Whole blood, cerebrospinal fluid, cerebrum, brain stem, lung, liver, kidney, spleen, visceral lymph nodes	**Molecular Diagnostics**	$35.00
White Spot Syndrome Virus *PCR*	Samples of or from the pleopods, gills, haemolymph, stomach or abdominal muscle	**Molecular Diagnostics**	$35.00
White Sturgeon Herpesvirus 1&2 *PCR* (Acipenserid herpesvirus 1&2)	Skin lesions	**Molecular Diagnostics**	$35.00
White Sturgeon Iridovirus *PCR*	Gill	**Molecular Diagnostics**	$35.00
Y			
Yellow Head Virus *PCR*	Lymphoid organ, gill	**Molecular Diagnostics**	$35.00
Yersinia ruckeri *PCR* (Enteric Redmouth Disease)	Internal organs	**Molecular Diagnostics**	$35.00

*Avian tests by ELISA have a $10.00 charge for the first sample for each test. Additional samples for the same test will be charged at 3 samples for $10.00. After the first sample, it is most cost effective to submit subsequent samples in groups of 3.

For toxicology testing please see note on next page

Toxicology

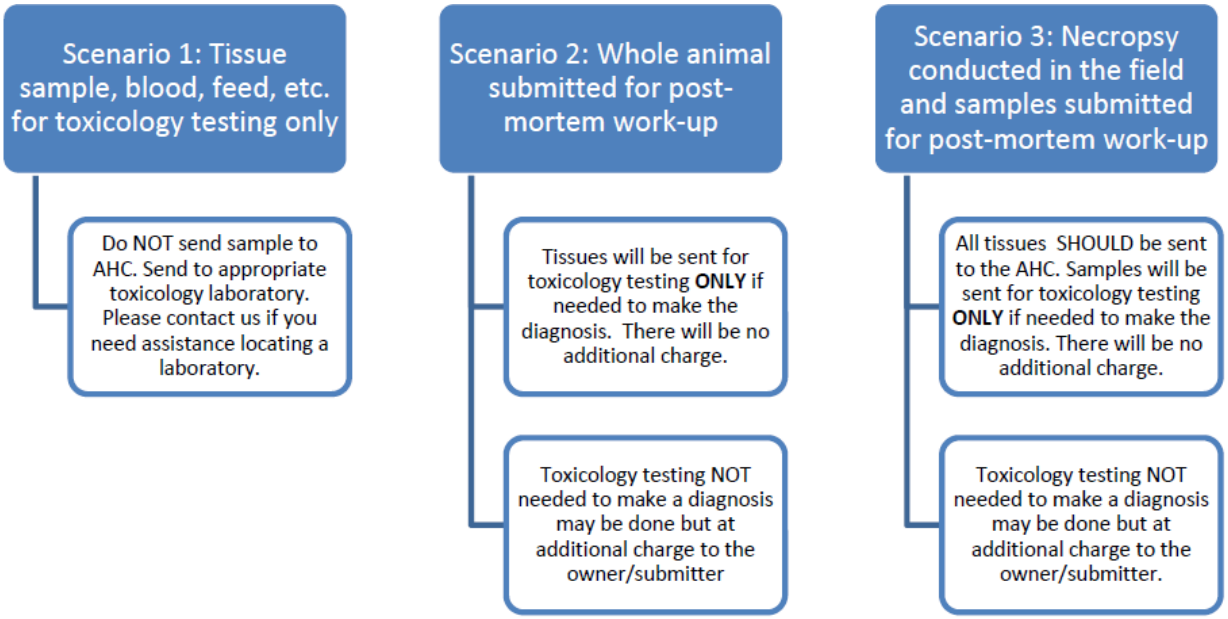
The toxicology laboratory at the Animal Health Centre is now closed. This means that toxicology testing previously conducted by the Animal Health Centre must now be undertaken elsewhere.

The Animal Health Centre is still committed to excellence in disease diagnostics and recognize that toxicology can play a vital role in reaching a diagnosis or understanding an animal health issue. For this reason, our pathologists have the option on necropsy-type cases to send samples for toxicology testing to outside laboratories.

Toxicology Testing

The primary goal of the pathologist is to arrive at a diagnosis. When the pathologist decides that toxicology testing is necessary as part of the case work-up, there is no extra charge to the client. When this testing is not part of the pathologist's regular work-up on the case (i.e., the pathologist does not deem it necessary to achieve a diagnosis) then the client will be charged for all outside toxicology tests.

The following flow chart provides guidance as to which samples can be submitted to the Animal Health Centre and how toxicology charges will be handled. Please contact the lab directly should you have any questions.



Tests by Department

If you are unsure of the testing you require, see our Common Disease Conditions and Suggested Testing section on page 60 or contact the Animal Health Centre at 1-800-661-9903 or 604-556-3003, or email PAHB@gov.bc.ca.

Pathology (Necropsy)

All samples, whether an entire animal, tissues, blood samples or swabs are received first by the Pathology section of the Animal Health Centre for evaluation by a veterinary pathologist. Veterinary pathologists are veterinarians with specialty training in the diagnosis of animal disease. Their diagnosis is based on macroscopic and microscopic tissue examination, as well as the use of diagnostic tests.

The Pathology section of the Animal Health Centre is a fully equipped, computerized, environmentally safe, 320 square metre area capable of handling both large and small animals. Accompanying the main Necropsy suite are five rooms for sample processing, photography, and histology preparation. There are an additional two rooms with HEPA-filtered safety cabinets that are used to examine samples with potential zoonotic or foreign animal disease agents.

Post Mortem Examination

Every post mortem examination (necropsy) is conducted at the discretion of the pathologist who will determine what, if any, procedures, and tests are necessary to complete the case following the gross examination. The pathologist may include up to 5 under the post mortem examination fee. Tests included in the fee: up to 10 histopathology slides, routine bacterial culture of up to 5 tissues, fecal floatation and PCR analysis or viral culture of single or pooled tissues.

If the pathologist determines that additional testing is necessary beyond the 5 included tests, the submitter will be contacted, and the case discussed. If further tests are approved by the submitter, additional charges will apply. Once all tests are complete, the pathologist will prepare the final case report, including the results of all tests conducted. This report is emailed, faxed, or mailed to the owner and/or the referring veterinarian.

Our target turnaround time, from submission to final reporting, is 10 business days. You may receive information about your case during this period at the discretion of the case coordinator. Some cases may take more than 10 business days to complete (for example, complex cases, neurological cases, cases requiring testing by external laboratories, etc.).

Submitters are welcome to discuss, over a reasonable time period, the final case results with the pathologist. Tests deemed unnecessary for case completion by the pathologist can be requested by submitters for their interest at an additional charge for each test.

Pathology (Necropsy): Tests and Fees

Test	Fee	
Additional time required to conduct examination (in excess of 1 hour)	$150.00 per hour	
Additional time required to interpret/respond to client (in excess of 1 hour)	$150.00 per hour	
Creation of documentation or photographs	$150.00	
Necropsy Post Mortem Diagnostic Package	***Production Animals*** $110.00	***All Other Animals*** $250.00
Neurological Spinal Cord Add On	$100.00	
Non-commercial poultry (flock size <100) first submission (per client on an annual basis)	$25.00	
Non-commercial poultry (flock size <100) subsequent submissions (beyond the first submission)	$140.00	
Post Mortem Examination	***Production Animals*** $140.00	***All Other Animals*** $250.00
Post Mortem Examination – Fetus	***Production Animals*** $80.00	***All Other Animals*** $250.00
Private Cremation – preparation of remains for release to crematorium (<40 kg)	$250.00	

Production animals. Animals kept or dealt with primarily for their products or by-products. Examples include alpaca, cattle, goats, llama, sheep, swine, fur bearing animals, game farm animals, rabbits, poultry, fish, and public display animals (e.g., zoos and aquariums).

Necropsy Post Mortem Diagnostic Package. For tissues submitted from necropsies conducted outside of the Animal Health Centre. Up to five tests are included (e.g., histopathology, bacteriology, virology, and molecular diagnostics). Tests will be selected at the discretion of the duty pathologist. Specific test requests may be subject to additional charges.

Neurological Spinal Cord Add On. Extraction and examination of the spinal cord of animals submitted for post mortem examination. May be indicated in cases where the animal has suffered from hind-limb weakness. The added cost reflects the extra time and work it takes staff to remove and examine the entire spinal cord. Samples should be less than 24 hours old. Please note examination of the brain is included in the regular post mortem price if deemed appropriate by the case pathologist.

Post mortem examination includes necropsy with gross (macroscopic) examination and up to five tests (e.g., histopathology, bacteriology, virology, and molecular diagnostics). Tests will be selected at the discretion of the duty pathologist. Specific test requests may be subject to additional charges.

Private Cremation and the Release of Remains

- Animals weighing less than 40kg may be released to a *licensed pet crematorium* for private cremation.
- The cremation service with the cremation company of choice must be arranged by the submitter (owner or vet clinic) *before* the post mortem procedure and the Animal Health Centre must be notified at the time the animal arrives.
- The submitter must sign page one of the ***Private Cremation Release Form*** agreeing to the conditions for the release of the remains. Please ensure to check off "*Private Cremation Requested*" under "*Services*" on the second page of the submission form.

- When the post mortem examination is complete and the case pathologist has approved the release, we will contact the cremation company to arrange pick up. Animals will only be released once the case is completed by the pathologist.
- Animals cannot be released if a public health risk has been identified and deemed a risk to humans or other domestic animals (i.e., those with serious infectious diseases).

Specimens for Pathology (Necropsy) – Submission Requirements

Whole animals

Please see our detailed submission guide on page 54.

Tissue Specimens for Diagnostic Package

- Samples for should be sent fresh or frozen. For packaging and shipping instructions please see page 54**.**
- When requesting histopathology, please try to submit formalin-fixed tissues. This will prevent rotting while in transit.
    - For proper fixation, tissues should be no more than 0.5 cm thick at the thickest point. Please use 10% neutral buffered formalin to fix tissues and ensure that a ratio of one part tissue to 10 parts formalin (by volume) is used for initial fixation.
    - Note that formalin fixed tissues do not need to be placed in individually labelled bags. Simply mark the bag with the words “Fixed” and “Histology” and mark off fixed tissues on the submission form.
    - **Do not** freeze samples for which you may require histopathology.

Abortion Specimens

- Please detail all relevant clinical history on the submission form. For example, parity of the dam, signs of illness, nutritional status, previous illnesses or stresses, vaccination history, general level of management and herd health status, recent additions to herd, previous abortions, or indications of infertility.
- If possible, please submit the *entire fetus and placenta*. If that is not possible, please submit the following tissues:
    - **Frozen or refrigerated**: placenta, stomach contents, fetal heart blood, lung, liver, kidney and spleen, brain.
    - **Fixed**: lung, liver, kidney, spleen, brain, heart, adrenal gland, ileum, thymus, thyroid, eyelid, skeletal muscle.

Fish Pathology and Diagnostic Testing

The Animal Health Centre provides fish pathology services including high quality gross and histopathological interpretation and diagnostic testing for marine and freshwater fish throughout British Columbia, Canada, and internationally. The Animal Health Centre is fully accredited by the AAVLD (American Association of Veterinary Laboratory Diagnosticians) and is one of the few diagnostic laboratories in Canada that can offer full-service fish health testing including pathology, virology, bacteriology, and molecular diagnostic testing. Submissions from any species of farm-reared, hatchery, wild, or aquarium fish are accepted. Submissions of fish from outside of the Pacific Ocean watershed require extra care, please see this notice for more information.

A. History:

With each submission, please provide a complete description of the fish management system, including group size, general level of management and fish health status, number of fish affected, onset/duration of problem, clinical signs, vaccination history, prior disease, and any treatment administered. Our fish submission forms provide a valuable template for compiling this information and can be found on our website http://www.gov.bc.ca/animalhealthcentre.

B. Selecting and Submitting Samples:

- Acutely affected and untreated fish are the preferred individuals for sampling.
- Fish tissues rapidly decay (autolyze) after death - e.g., the lining of the gill (lamellar epithelium) will begin to detach within about 5 minutes of death - the best tissue quality is obtained by sampling and preserving anesthetized fish that are submitted live.
- If dead fish are the only specimens available, tissue samples for histopathological evaluation should be collected and preserved in 10% neutral buffered formalin as soon as possible after death.
- Sampled tissues, tissues in histocassettes, or whole formalin fixed fish can be submitted for histopathological evaluation.
- When whole formalin fixed fish are submitted ensure adequate penetration of fixative to internal organs, tissues, and structures by:
    - Cutting a wedge section of the coelomic wall to expose the coelomic cavity and organs.
    - Removing the operculum to expose the gill arches.
    - Removing the dorsal surface of the head to expose the brain.
- For adequate fixation:
    - Ensure that the volume of fixative is at least 10 × tissue volume of the container.
    - Ensure tissues are no more than 1cm thick.
    - When using histocassettes, ensure that tissues occupy no more than 50% of the cassette. Please avoid squishing tissues into the cassette.
- As bile will digest tissues before fixative penetration, ensure that bile does not touch tissues to be examined by histopathology. Bile can also be aspirated from the gallbladder using a small needle and syringe.
- Samples for molecular diagnostic testing (PCR) can be kept chilled or frozen and should be shipped on ice - ideally frozen samples should always stay frozen (e.g., shipped on dry ice).
- Bacterial culture swabs or tissues destined for bacteriology should be kept chilled on ice or refrigerated and shipped chilled on ice (do not freeze swabs or tissues destined for bacterial culture).
- When specific tests are requested, submit replicate tissue samples, in separate labelled Whirl-Pak

bags for each lab section and test requested. Alternatively, submit representative portions of tissues or entire organs and indicate on the submission form, for the pathologist to select tests at their discretion.

C. Samples required:

- **Bacteriology**: kidney swab (kidney for larger fish or if no swabs are available), coelomic fluid/swab, organ swabs or tissue samples from organs/tissues with gross lesions (aerobic culture).
- **Histology:** gill, liver, spleen, heart, head kidney, trunk kidney, stomach, intestinal ceca and mesentery, distal intestine and mesentery, gonad, brain, eye, and skin/skeletal muscle (include a transverse section of the lateral line). Also include specific lesions and margins if they are identified.
    - In-house immunohistochemistry for *Piscirickettsia salmonis* is available on formalin-fixed tissues.
- **PCR/Virology**: for routine diagnostics include pooled samples of spleen, kidney, liver, heart, and gill (tissues from up to a maximum of five fish can be pooled for molecular diagnostic testing).

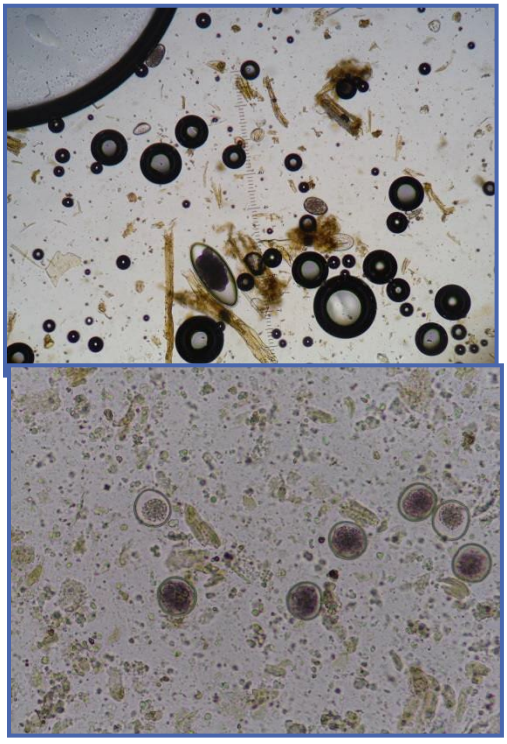
Parasitology

Parasitology: Tests, Specimens and Fees

Test	Specimen	Fee
Baermann examination for lungworm	10g feces	$27.00
Cryptosporidium spp.- direct smear *please request test under Bacteriology section of submission form	10g feces	$27.00
Fecal Flotation	10g feces	$27.00
Fecal Egg Count (Strongyle spp only)	10g feces	$27.00
Strongyle Parasite Package	10g feces	$27.00

Specimens for Parasitology – Submission Requirements

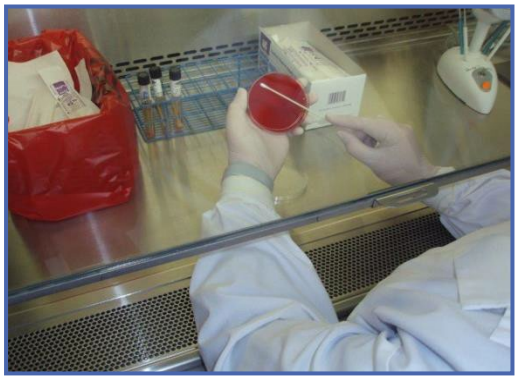
Feces: Submit approximately 10gm (10 – 20ml volume) in a securely closed sterile container. Outer surfaces of the container must be clean and dry. Do not submit feces in plastic bags or gloves. Label samples with animal name/ID and date collected. For packaging and shipping instructions please see page 54**.**

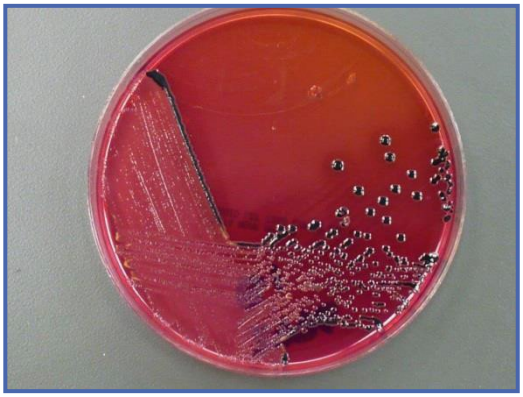


Bacteriology

The Bacteriology section of the Animal Health Centre offers extensive microbiological services for the isolation and identification of a wide range of bacterial and fungal pathogens from avian, mammalian, aquatic, reptile, feed, and environmental specimens.

The laboratory workup may include aerobic, anaerobic, and microaerophilic culture, as well as enrichment culture for many specific pathogens including *Salmonella, Campylobacter* and *Listeria*. Identification of bacterial and fungal organisms is performed using standard microbiological culturing techniques, various biochemical testing methods and DNA sequencing in some cases.





Bacteriology: Tests, Specimens and Fees

Test	Preferred Specimen(s)	Fee	
Aerobic Bacteria Culture and Sensitivity	2-5cm piece fresh tissue, swab	***Production Animals*** $40.00	***All Other Animals*** $60.00
Anaerobic Bacteria Culture	2-5cm piece fresh tissue, swab	***Production Animals*** $40.00	***All Other Animals*** $60.00
Avibacterium spp. *Culture*	2-5cm piece fresh tissue, swab	***Production Animals*** $40.00	
Bacterial Identification by MALDI-ToF	Pure bacterial isolate in blood agar plate **NOTE:** Unfit - If bacterial colonies are mixed (more than one isolate), overly grown with contaminants, or old, we will not be able to perform MALDI-ToF testing and report out the results as unfit.	$12.00 per isolate	***All Other Animals*** $60.00
C.chauvoei, novyi, septicum, sordellii, clostridial FAT *Fluorescent antibody detection*	Affected tissue, swab of affected lesions	$40.00	
Campylobacter spp.	Feces	$40.00	
Clostridium Toxin Typing	Bacterial isolate	$35.00 per isolate	
Cryptosporidium spp. *Direct smear*	Feces	$27.00	
DNA Sequencing *Bacterial Strain*	Pure colonies or bacterial isolate	$103.00	
DNA Sequencing *Fungal Strain*	Fungal colonies	$103.00	
Escherichia coli Toxin Typing	Bacterial isolate	$35.00 per isolate	
Fungal Culture and Identification	2-5cm piece fresh tissue	$40.00	
Haemophilus spp. *Culture*	2-5cm piece fresh tissue, swab	***Production Animals*** $40.00	
Klebsiella Culture of Sawdust or Environmental Sample	Environmental sample of interest	$40.00	***All Other Animals*** $60.00
Listeria Monocytogenes *Enrichment and Isolation*	Brain tissue sample	$40.00	
Milk Culture and Sensitivity (up to 4 samples)	Milk 1-2ml per teat	$33.00	
Milk Culture and Sensitivity (additional samples >4)	Milk 1-2ml per teat	$8.25 per sample	
Ornithobacterium rhinotracheale *Culture*	2-5cm piece fresh tissue, swab	***Production Animals*** $40.00	
Salmonella culture *enrichment, isolation, identification, and serotyping* (PHAC)-analysis of environmental samples (fluff or sponge, environmental monitoring)	Fluff, environmental sponge/drag swab/booties	$40.00	***All Other Animals*** $60.00
Salmonella culture *enrichment, isolation, identification, and serotyping* (PHAC)- Diagnostic Specimen	2-5cm piece fresh tissue, swab	$40.00	
Streptococcus equi	Nasopharyngeal wash, nasal swab	***Production Animals***	

Culture/PCR combined			$75.00
Streptococcus suis *Culture*	2-5cm piece fresh tissue, swab	***Production Animals*** $40.00	***All Other Animals*** $95.00

Antimicrobial Susceptibility Testing

Antimicrobial susceptibility testing (AST) is performed using the Kirby-Bauer disk diffusion assay and follows Clinical and Laboratory Standards Institute (CLSI) guidelines. AST testing is performed on organisms that are deemed clinically significant. We may not perform AST testing in cases where organisms are recovered from environmental sources, are common contaminants or are considered normal flora as these do not provide useful information and may promote unnecessary antibiotic usage.

Specimens for Bacteriology - Submission Requirements

Proper collection and handling of samples are critical for the success of bacterial and fungal culture. Samples should be collected immediately after the animal first develops symptoms and before any antimicrobial treatment. Collection of samples must be performed aseptically to prevent microbial contamination and overgrowth of primary pathogens. Improper handling and transport of samples will limit the recovery and identification of bacterial or fungal pathogens. Samples should be sealed and transported in a secure container to prevent leakage during shipment. For packaging and shipping instructions please see page 54**.**

Collection and Storage

Samples must be aseptically collected, individually labelled, and refrigerated immediately after collection. Samples that cannot be shipped the same day to the Animal Health Centre should be stored at 4°C for a maximum of two days. Depending on type of submission, samples must be kept chilled or frozen. The use of ice pack refrigerants to keep specimens chilled during transit is extremely important. If specimens are frozen, they must remain frozen in transport and not allowed to thaw.

Environmental samples (dust, sawdust, bedding material). For culture of environmental samples please submit approximately 100gm (about 1 cup) of a representative sample in a securely sealed container or Ziploc bag. Do not submit environmental samples in specimen gloves. *Please note that environmental samples submitted to the Animal Health Centre are for culture only. No antibiotic sensitivities will be performed on environmental samples.*

Environmental sponges/drag swabs/booties. Environmental sponges, drag swabs, or booties may be submitted for *Salmonella* spp. culture. *Please ensure specimens are double bagged and clearly identified using permanent marker on each specimen bag. The exterior of the bag must be clean and dry. Please follow ALL manufacturer's instructions on how to use both swabs and Whirl Pak bags.*

- Commercially available environmental sponges may be utilized for environmental Salmonella testing. Sponges should be submitted in a Whirl-Pak bag with the top tightly rolled over 3 times and the metal tabs folded over to ensure no leakage of specimen. Do not close the top metal tabs in a twist tie fashion as it does not create a proper seal. DO NOT submit more than 2 sponges per specimen bag.
- Drag swabs (or gauze swabs) may be used for environmental *Salmonella* testing. The swabs must be submitted in a Whirl-Pak bag with the top tightly rolled over 3 times and the metal tabs folded over to ensure no leakage of specimen. DO NOT submit more than 4-5 pieces of gauze per specimen bag. If using a liquid (such as buffered peptone water) to moisten swab then use only

enough liquid to moisten the swab, do not saturate it. Do not close the top metal tabs in a twist tie fashion as it does not create a proper seal.

- Booties may be used for environmental Salmonella testing. Submit booties in a sealed and labelled bag (large Whirl-Pak or Ziploc bag).

Feed (fresh or dry). For feed testing submit approximately 50-100 gm (about 1 cup) of a representative sample. For dry samples submit in a securely closed container or Ziploc bag. For moist or liquid feed samples submit in a securely closed container. Do not use Whirl-Pak or other bags for moist or liquid specimens. *Please note that feed samples submitted to the Animal Health Centre are for culture only. No antibiotic sensitivities will be performed on feed samples.*

Fluff. Fluff samples may be submitted for the detection of *Salmonella* spp. Please submit fluff in a securely closed specimen cup or Whirl-Pak bag. Do not overfill the specimen cup or bag; the fluff samples should fill no more than ¼ of the specimen cup or bag.

PLEASE NOTE: Antibiotic sensitivity panels will never be performed on environmental samples.

Fresh tissues. Whenever possible, submit fresh tissues in a sterile, leak proof container for bacterial and fungal culture. Tissue samples should be kept separate and if possible, the ends of intestinal specimens should be ligated (tied off), and intestinal samples separated from other tissues. Whenever possible, submit a 2-5cm piece of tissue with any lesions present. Autolyzed tissues are not suitable for culture.

Feces. Submit approximately 10gm (10-20ml volume) in a securely sealed sterile container. Outer surfaces of the container must be clean and dry. Do not submit feces in plastic bags or gloves.

Fluids (aspirates, pus, exudate etc.). All fluid or semi-fluid specimens should be collected aseptically in a sterile, leak-proof specimen container or vial. DO NOT submit syringes with needles attached.

Swabs. When fresh tissues, fluids or feces are not available, specimen swabs may be submitted for bacterial and/or fungal culture. Only use swabs with appropriate bacterial (aerobic or anaerobic) transport media for collection and shipment to the laboratory.

PLEASE NOTE not all testing requested may be completed in the event of a swab only submission. When requesting more than one test please submit tissue and/or multiple swabs to ensure there is enough material to perform all tests.

***DO NOT* submit dry swabs** to the Bacteriology laboratory. Swabs for anaerobic culture must be submitted in an **anaerobic culture transport media** to ensure recovery of anaerobic organisms. Commercial transport media swabs are readily available

***DO NOT* freeze transport swabs** for bacterial culture.

Milk. Proper collection of milk samples is essential for identification of mastitis associated pathogens. Aseptic technique is necessary to prevent contamination by commensal organisms found on the cow's' skin, udder, and teats; hands of the sampler; and in the barn environment. Contaminated samples result in misdiagnosis, increased work, and expenses. Contamination can be avoided by following the procedures below.

Materials for Sampling Milk:

- Sterile vials or tubes – do not use plastic or Whirl-Pak bags for milk sampling.
- 70% alcohol (ethyl or isopropyl).

- Cotton balls or gauze soaked in 70% alcohol, or commercially prepared, individually packaged alcohol swabs.
- Examination gloves.
- Cooler with ice or freezer packs for storing samples.
- Racks for holding sample tubes or vials while sampling cows, and for cooler storage.
- Disinfectant for cleaning teats (effective germicidal products used for pre-milking teat disinfection are recommended).
- Paper towels or individual cloth towels.
- Labelling supplies: permanent ink pen (with ink that is stable in both water and alcohol) or typed labels.

Sampling Technique:

- Label tubes before sampling (date, farm, cow, quarter)
- Brush loose dirt, bedding, and hair from the udder and teats. Thoroughly wash with germicidal product and towel dry dirty teats and udders before sample collection. Udders should be wash as a last resort.
- Discard several streams of milk from the teat (strict foremilk) and observe milk and mammary quarters for changes in consistency or appearance of milk that may indicate clinical mastitis. Record all observations of clinical signs.
- Dip all quarters in an effective pre-milking teat disinfectant and allow at least 30 seconds contact time.
- Dry teats thoroughly with an individual paper or cloth towel.
- Beginning with teats on the far side of the udder, scrub teat ends vigorously (10 to 15 seconds) with cotton balls or gauze moistened (not dripping wet) with 70% alcohol. Teat ends should be scrubbed until no more dirt appears on the swab or is visible on the teat end. A single cotton ball or alcohol swab should not be used on more than one teat. Take care not to touch clean teat ends. Avoid clean teats coming into contact with dirty tail switches, feet, and legs. In herds where cows are not cooperative, begin by scrubbing the nearest teat until clean, obtain the sample, and move to the next teat.
- Begin sample collection from the closest teat and move to teats on the far side of the udder. Remove the cap from the tube or vial but do not set the cap down or touch the inner surface of the cap. Always keep the open end of the cap facing downward. Maintain the tube or vial at approximately a 45-degree angle while taking the sample. Do not allow the lip of the sample tube to touch the teat end. Collect one to three streams of milk and immediately replace and tightly secure the cap. Do not overfill tubes, especially if samples are to be frozen.
- To collect a composite sample (milk from all four quarters in the same tube), begin sample collection with the nearest teats and progress to the teats on the far side of the udder. 1-2 ml of milk should be collected from each quarter of the udder.
- When samples are taken at the end of or between milkings, teats should be dipped in a germicidal teat disinfectant after sampling.
- Store samples immediately on ice or in some form of refrigeration. Samples to be cultured at a later date (more than 48 hours) should be frozen immediately.

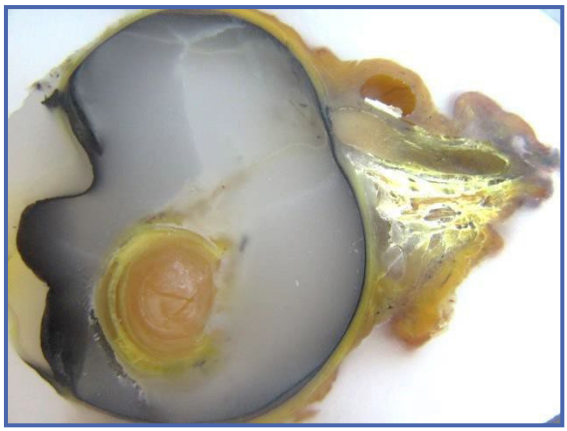
Reference: Microbiological Procedures for the Diagnosis of Bovine Udder Infection and Determination of Milk Quality. [NMC publication, 2004]

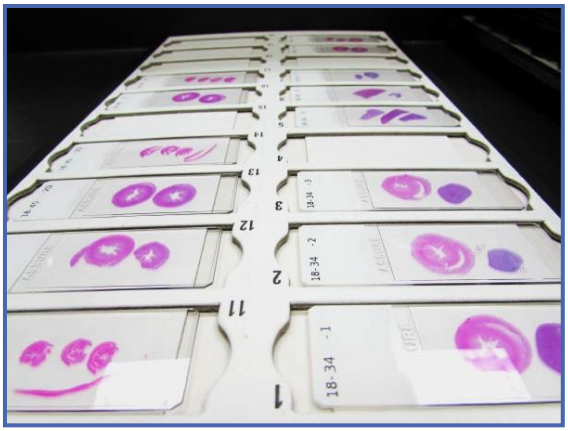
Histopathology

The histopathology section of the Animal Health Centre handles routine preparation of stained tissue sections mounted on glass microscope slides. Prepared tissue sections encompass all varieties of animal species, including fetal tissues.

Tissues are trimmed from samples fixed in 10% neutral buffered formalin. Overnight, automated tissue processors take the tissues through increasing concentrations of ethanol followed by xylene and, finally, into molten paraffin wax. Tissues are then embedded into molds and cooled in the freezer. The resulting blocks are sectioned at 3-6um thick using a manual microtome and mounted onto glass microscope slides. After spending 35 minutes in a 65°C oven, they are placed onto the automated stainer.

Sections are stained with hematoxylin and eosin (H&E) before microscope examination. Stained tissue sections are ready for examination by the pathologist approximately twenty-four hours after fixed tissues are forwarded to the Histopathology section. Specific diagnostic tests using special stains may also be used, if required. Immuno-histochemistry staining for specific pathogens (disease-causing agents) has been introduced to assist the pathologist by directly identifying these pathogens in tissue sections.





Histopathology: Tests and Fees

Test	Fee *Production Animals*	Fee *All Other Animals*
Histopathology	$62.00	$95.00
Immunohistochemistry (1st sample)	$62.00	$95.00
Immunohistochemistry (additional samples up to 10)	$25.00	$25.00

Specimens for Histopathology - Submission Requirements

If histopathology is required, please fix samples in formalin at the time they are taken. Shipping samples fresh will result in rotting during transit, which will hinder microscopic tissue examination. Please also avoid freezing samples as it damages the tissue. For packaging and shipping instructions please see page 54.

Preparation of Fixed Tissue with Formalin

Specimens should be no thicker than 5 mm at the thickest point. Other dimensions (e.g., length) are not critical; however, the sample should be large enough to provide an adequate field of study. For larger tissues that must be submitted intact (e.g., brain), it is best to make several deep cuts into the tissue so that the formalin can penetrate more quickly.

A 10 to 1 ratio of formalin to tissue (by volume) is essential for adequate fixation. Samples should be allowed to fix in 10% neutral buffered formalin for at least 24 hours.

Once the sample is fixed, it can be transported using just enough formalin to cover the tissue. Alternatively, the tissue can be wrapped in formalin-soaked paper towel.

Recipe for 10% Neutral Buffered Formalin

- Formaldehyde 35-40% strength - 10 ml
- ($Na\ H_2\ PO_4\ H_2O$) Sodium phosphate monobasic monohydrate - 0.4 gm
- ($Na_2\ H\ PO_4$) Sodium phosphate dibasic anhydrous - 0.65 gm
- Water - to 100 ml

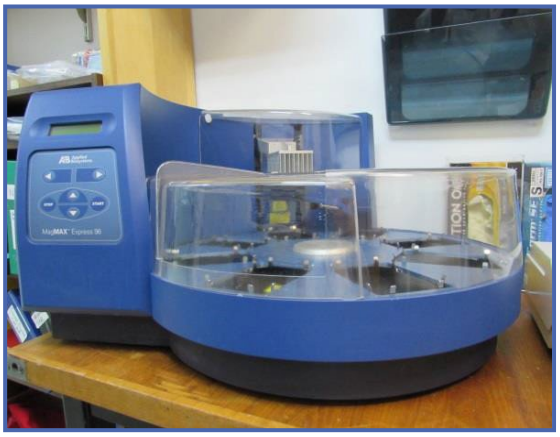
Molecular Diagnostics

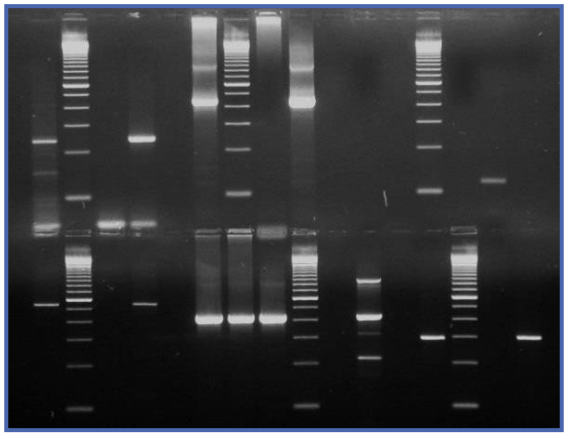
The Molecular Diagnostics section of the Animal Health Centre offers diagnostic testing for a wide range of animal pathogens using molecular biology-based methods such as conventional and real-time PCR tests and DNA sequencing.

Diagnostic and Proficiency Testing

This section develops and validates Polymerase Chain Reaction (PCR) methods for detection and typing of pathogens important to domestic poultry, wild and exotic birds, food and fur bearing animals, companion animals, wild and zoological species, marine mammals and aquaculture salmonids.

In addition to routine diagnostic testing, the Molecular Diagnostics section undergoes proficiency testing conducted by the National Centre for Foreign Animal Disease and USDA's National Veterinary Services Laboratory.





Molecular Diagnostics: Tests, Specimens and Fees

Each PCR test from the Molecular Diagnostics lab costs **$35.00** + tax unless otherwise indicated.

Test	Specimen
Actinobacillus pleuropneumoniae	Lung, tonsils
Actinobacillus spp. (including Actinobacillus suis detection)	Lung, tonsils
Adenovirus Hemorrhagic Disease	Lung, liver, spleen
Adenovirus spp.	Please contact the AHC
Aeromonas spp.	Skin, gill, kidney
Aeromonas salmonicida (Furunculosis)	Skin, gill, kidney
African swine fever virus	Tonsils, lymph nodes, spleen, kidney, liver
Aleutian Disease	Whole blood
Anaplasma marginale	Whole blood
Arthrobacter davidanieli (Renibacterium Vaccine)	Please contact the AHC
Avian Adenovirus (Inclusion Body Hepatitis)	Liver, spleen
Avian Astrovirus (Chicken Astrovirus)	Kidney, liver, proventriculus, intestine/cecum
Avian Encephalomyelitis Virus	Brain, pancreas, gizzard
Avian Hemorrhagic Enteritis Virus	See Avian Adenovirus
Avian Infectious Bronchitis Virus	Trachea/bronchus, tracheal swab, lungs, kidney, fecal swab, cecal tonsil
Avian Infectious Laryngotracheitis Virus	Trachea, tracheal swab, lungs, eyelid
Avian Influenza A Virus	Oropharyngeal swab, cloacal swab, trachea, spleen, lungs, kidney, brain, cecal tonsil
Avian Metapneumovirus (A, B, C)	Trachea, nares, tracheal or oropharyngeal swab (Dacron or polyester) in transport media
Avian Nephritis Virus	Kidney
Avian Paramyxovirus-1 (APMV-1)	Trachea, oropharyngeal swab, lungs, brain, proventriculus, cecal tonsil, cloacal swab, spleen, kidney
Avian Polyoma Virus	Feather pulp, skin , lung, liver, kidney, whole blood, feces, cloacal swab
Avian Reovirus	Enteric and respiratory - Intestine, pancreas, feces, trachea, lung Viral arthritis - Joint swab, tendons, heart (chicks)
Avibacterium paragallinarum (Infectious Coryza)	Trachea, lungs, tracheal swabs, sinus, eyelid
Avipoxvirus (Fowl/Avian Pox, Raptor Poxvirus)	Skin lesions
Bartonella henselae	Whole blood
Batrachochytrium dendrobatidis	Skin, digit, tadpoles, whole body rinse, cutaneous swab *dry swabs, do not submit in media*
Batrachochytrium salamandrivorans	Skin, cutaneous swab
Bearded Dragon Adenovirus	Liver, feces

Blue Tongue Virus	Nasal swabs, lesions, whole blood, spleen, lymph nodes or bone marrow
Bonamia ostreae	Live or freshly dead oyster, gills and/or heart
Border Disease Virus	Buffy coat (whole blood), lymphoid tissue, brain
Bordetella avium	Tracheal swab, trachea
Bovine Adenovirus Type 3, 4-8	Nasal swab, feces
Bovine Coronavirus	Nasal swab, lung, trachea, feces
Bovine Herpesvirus-1	Nasal swab, conjunctival swab vaginal swab, trachea Fetus: lung, liver, kidney, adrenal gland, placenta
Bovine Herpesvirus- 4	Lesions (scrapings, scabs), respiratory tissues, nasal swabs, secretions, whole blood
Bovine Papillomavirus	Lesions
Bovine Parainfluenza 3 Virus	Nasal swab, lung
Bovine Parvovirus	Feces, intestine
Bovine Respiratory Syncytial Virus	Nasal-pharyngeal washings, deep nasal swab, lung
Bovine Viral Diarrhea Virus Types 1 & 2	Buffy coat (10 ml whole blood), serum, feces, intestine, Peyer's patches, spleen, mesenteric lymph node, lung, milk. Fetus: lung, liver, spleen, thymus, thyroid, placenta, fetal fluids
Brachyspira hyodysenteriae	Large intestine, feces
Brachyspira pilosicoli	Large intestine, feces
Brucella spp.	Please contact the AHC
Canine Adenovirus Type 1 & 2	Type 1 - Liver, feces Type 2 - Nasal swab, conjunctival or pharyngeal swab
Canine Coronavirus	Feces, fecal swab
Canine Distemper Virus	Buffy coat (whole blood), lung, kidney, liver
Canine Herpesvirus	Lung, liver
Canine Influenza Virus	Nasal swab, lung
Canine Parainfluenza Virus	Nasal swab, tracheal swab, trachea
Canine Parvovirus 2	Fecal swab, feces, intestine
Canine Parvovirus 2	Fecal swab, feces, intestine
Caprine Arthritis Encephalitis	Joint swab, buffy coat (whole blood), brain
Caprine Herpesvirus 2	Buffy coat (whole blood), tonsil, lymph node
Ceratonova shasta (formerly Ceratomyxa shasta)	Tissue lesions, intestinal scrapes
Chicken Anemia Virus	Bursa, thymus, bone marrow, feces
Chlamydia felis	Conjunctiva swab, lung
Chlamydophila abortus	Fetus: placental cotyledons, lung
Chlamydophila psittaci	Lung, liver, spleen, feces
Classical Swine Fever Virus (Hog Cholera)	Tonsil, lymph nodes (mandibular, retropharyngeal, gastrohepatic, and mesenteric), spleen, kidney, ileum
Clostridium piliforme (Tyzzer's Disease)	Intestine
Coxiella burnetii	Placenta, milk, fetal lung, whole blood
Cryptococcus neoformans	Brain, lung, lymph node, lesions
Cryptosporidium spp.	Small intestine, feces, fecal swabs
Dichelobacter nodosus	Hoof trimmings, hoof swab

(Sheep Footrot)	
Duck Viral Enteritis	Liver, spleen, intestine, cecal tonsil
Encephalitozoon cuniculi (rabbits and birds)	Kidney, urine
Epizootic Haematopoietic Necrosis Virus	Kidney, spleen, liver
Epizootic Hemorrhagic Disease	Whole blood (cattle & deer) spleen, lymph node, lung, liver
Equine Coronavirus	Feces
Equine Herpes Virus 1	Adult: Deep nasal swabs, conjunctival swab, whole blood (buffy coat), lung, spinal cord, brain Fetus: Liver, lung
Equine Herpesvirus 1-neuropathogenic	Adult: Deep nasal swabs, conjunctival swab, whole blood (buffy coat), lung, spinal cord, brain Fetus: Liver, lung
Equine Herpes Virus 2	Nasal swabs, buffy coat (whole blood)
Equine Herpes Virus 3	Swabs from genital/oral lesions
Equine Herpes Virus 4	Nasal swabs, conjunctival swab
Equine Influenza Virus	Nasal swab, tracheal wash, lung
Equine rhinitis A Virus (formerly Equine Rhinovirus-1)	Nasal swab, tracheal wash, lung
Equine Viral Arteritis	Adult: lung, thymus, whole blood (buffy coat), mesentery lymph node, liver, spleen Fetus: lung, spleen, thymus, placenta, liver
Erysipelothrix rhusiopathiae	Tonsils, heart, joint swab, feces, spleen, lymph nodes
Feline Calicivirus	Nasal swab, pharyngeal swab, lung
Feline Coronavirus (Feline Infectious Peritonitis)	Peritoneal fluid spleen, kidney, lung
Feline Herpesvirus	Pharyngeal swab, nasal swab, lung, conjunctival swab
Feline Immunodeficiency Virus	Whole blood
Feline Leukemia Virus	Whole blood (1 ml)
Feline Panleukopenia Virus (Feline Parvovirus)	Small intestine, kidney, liver
Flavobacterium columnare	Gills, lesions from mouth and skin
Foot & Mouth Disease Virus	Vesicular epithelium or fluid
Fowl Pox Virus	Skin lesions
Francisella tularensis	Oropharyngeal swab, whole blood, liver, spleen
Frog Ranavirus (formerly Frog Iridovirus)	Kidney, digestive tract, liver, oral swab, cloacal swab *dry swabs, do not submit in media*
Fusobacterium spp.	Please contact the AHC
Glasserella parasuis (formerly Haemophilus parasuis)	Brain, visceral pleura and other serosal exudates
Herpesvirus Consensus	Please contact the AHC
Helicobacter (including H. hepaticus)	Liver
Infectious Bovine Rhinotracheitis (Bovine Herpes Virus Type 1)	see Bovine Herpesvirus 1
Infectious Bursal Disease	Bursa
Infectious Canine Hepatitis (Canine Adenovirus Type 1)	Liver, feces

Infectious Hematopoietic Necrosis Virus	Kidney, spleen, liver, gills, mucus, whole fish
Infectious Pancreatic Necrosis Virus	Pyloric caecum, spleen, kidney, brain
Infectious Salmon Anemia Virus	Gills, heart, liver, kidney, spleen
Influenza A Virus Consensus	Oropharyngeal swabs, cloacal swab, trachea, lung, nasal swab
Johne's Disease (Mycobacterium paratuberculosis)	Feces, rectal scrapping, ileum, mesenteric lymph nodes
Koi Herpes Virus (Cyprinid herpesvirus 3)	Gill, kidney
Kudoa thyrsites	Muscle tissue
Lawsonia intracellularis	Ileum, feces
Leptospira ssp.	Urine, whole blood
Listeria monocytogenes	Brain, abscess, liver, lesions, placenta, spleen
Loma salmonae	Gills
Malignant Catarrhal Fever Sheep (Ovineheprpesvirus-2)	Buffy coat (whole blood), tonsil, lymph node
Malignant Catarrhal Fever Wildebeest (Alcelaphine herpesvirus-1)	Buffy coat, tonsil, lymph node, kidney, liver, brain
Mink Enteritis Virus (Mink Parvovirus)	Intestine, liver, lung kidney
Mollicutes	Lung, trachea, bronchial lymph nodes, tonsils, nasal swab
Morbillivirus consensus	Please contact the AHC
Moritella viscosa (Winter Ulcer Disease)	Kidney, gills, surface ulcers or abscesses
Mycobacterium avium	Feces, intestine, liver, spleen, kidney
Mycobacterium bovis	Abscesses, granulomas, lung, affected lymph nodes
Mycobacterium paratuberculosis (Johne's Disease)	Feces, rectal scrapping, ileum, mesenteric lymph nodes
Mycoplasma bovis	Lung, synovium, joint fluid
Mycoplasma gallisepticum	Tracheal swab, sinus, lung, air sac, joint swab, fertile eggs, tendons
Mycoplasma hyopneumoniae	Lung, bronchoalveolar lavage
Mycoplasma iowae	Tracheal swab, sinus, lung, air sac, joint swab, fertile eggs, tendons
Mycoplasma meleagridis	Tracheal swab, sinus, lung, air sac, joint swab, fertile eggs, tendons
Mycoplasam ovipneumoniae	Nasal swabs *dry swabs, do not submit in media*
Mycoplasma synoviae	Tracheal swab, sinus, lung, air sac, joint swab, fertile eggs, tendons
Myxobolus cerebralis (Whirling Disease)	Lesions, brain/cranium
Neorickettsia risticii (Potomac Horse Fever)	Buffy coat (whole blood)
Neospora caninum	Brain, heart, lung, placenta, skeletal muscle, tongue
Nocardia seriolae	Spleen, kidney, liver, or brain displaying granulomatous lesions
Nucleospora salmonis	Kidney, blood , feces
Ornithobacterium rhinotracheale	Tracheal swab, trachea, lung

Ovine Herpes 2 Virus (Malignant Catarrhal Fever - Sheep)	Buffy coat (whole blood), tonsil, lymph node
Ovine Progressive Pneumonia Virus (Maedi-visna Virus)	Buffy coat (whole blood)
Ovine Respiratory Syncytial Virus	Nasal swab, lung
Parameoba perurans	Gills, gill swabs
Phocine Distemper Virus	Whole blood, nasal, pharyngeal or ocular swabs, trachea-bronchial lymph nodes, spleen, liver, kidney, lung and brain
Pigeon Circovirus	Feces, bursa
Piscine myocarditis virus (Salmon Totivirus)	Heart
Piscirickettsia salmonis	Kidney, liver, spleen
Porcine Circovirus	Feces, nasal secretions, lung, oropharyngeal swab, buffy coat
Porcine Delta Coronavirus	Feces, intestinal contents, intestine
Porcine Epidemic Diarrhea Virus	Feces, intestinal contents, intestine
Porcine Parvovirus	Fetus: lung, liver, kidney, spleen, placenta
Porcine Reproductive & Respiratory Syndrome Virus	Adult: Serum, blood swab in saline, lung, tonsil Fetus: lung, spleen, thymus, thoracic fluid
Proventricular Dilatation Disease (Avian Borna Virus)	Crop, proventriculus, brain
Pseudogymnoascus destructans (Bat white-nose syndrome)	Skin and mucocutaneous swabs: wing webbing, snout, conjunctiva *dry swabs, do not submit in media*
Psittacine Beak & Feather Disease (Psittacine Circovirus)	Feather pulp, skin, bursa, thymus, feces, whole blood
Psittacine Herpes Virus (Pacheco's Disease)	Lung, liver, spleen, feces, whole blood
Python Endogenous Retrovirus	Lung, liver, kidney, brain, blood (buffy coat)
Rabbit Hemorrhagic Disease Virus	Liver, spleen, whole blood
Renibacterium salmoninarum (Bacterial Kidney Disease)	Kidney
Reovirus – Avian	Enteric and respiratory - Intestine, pancreas, feces, trachea, lung Viral arthritis - Joint swab, tendons, heart (chicks)
Reticuloendothelosis Virus	Buffy coat (whole blood), tumor tissues, spleen
Rotavirus	Feces, intestinal contents, gastrointestinal tissue
Salmon Alphavirus	Organs, viremic serum
Salmonid Herpes Virus	Liver, kidney, spleen
Sarcocystis neurona (Equine protozoal myeloencephalitis)	Brain
Seal Herpes Virus	Whole blood, nasal, pharyngeal or ocular swabs, trachea, bronchial lymph nodes, spleen, liver, kidney, lung and brain
Seneca Valley Virus	Intact vesicles, vesicular fluid, scrapings of vesicular lesions, serum
Snake Paramyxovirus	Oral and cloacal swabs
Spring Viremia of Carp Virus	Whole fish (small fish - less than 4 cm), viscera including the kidney and encephalon from fish 4 to 6 cm long,

	kidney, spleen, PCR 8 liver, gills and encephalon from larger fish
Streptococcus equi equi *Culture/PCR combined* Equines $95.00	Nasopharyngeal wash, nasal swab
Streptococcus iniae	Brain
Streptococcus spp.	Please contact the AHC
Streptococcus suis	Please contact the AHC
Swine Influenza Virus	Nasal swab, trachea, lung
Taura Syndrome Virus	Haemolymph, pleopods, whole small shrimp
Tenacibaculum maritimum (formerly Flexibacter maritimus)	Lesions from mouth
Torovirus – Bovine	Feces
Torovirus – Porcine	Feces
Toxoplasma gondii	Fetus: brain, CSF, placenta
Transmissible Gastroenteritis Virus	Feces, small intestine (Jejunum)
Trichomonas gallinae	Oral mucosa, esophagus
Tritrichomonas foetus	Vaginal swab, preputial washings
Turkey Coronavirus	Feces, intestine, bursa
Ureaplasma diversum	Vaginal swab, placenta
Viral Hemorraghic Septicemia Virus	Kidney, spleen, liver, brain, whole fish
West Nile Virus	Brain, cloacal swab, choanal swab, liver, kidney, spleen
Western Equine Encephalomyelitis	Whole blood, cerebrospinal fluid, cerebrum, brain stem, lung, liver, kidney, spleen, visceral lymph nodes
White Spot Syndrome Virus	Samples of or from the pleopods, gills, haemolymph, stomach or abdominal muscle
White Sturgeon Herpesvirus 1&2 (Acipenserid herpesvirus 1&2)	Skin lesions
White Sturgeon Iridovirus	Gill
Yellow Head Virus	Lymphoid organ, gill
Yersinia ruckeri (Enteric Redmouth Disease)	Internal organs

Specimens for Molecular Diagnostics - Submission Requirements

Proper collection and handling of samples are critical for the success of virus detection and isolation. As peak virus titers are usually present at the onset of clinical signs, samples should be collected immediately after the animal first develops clinical signs. Collection of samples during the acute phase of viral infection usually provides sufficient amount of virus for detection. Samples collected later in the course of infection may lead to false negative results or misdiagnosis when secondary bacterial infection is involved. For packaging and shipping instructions please see page 54.

Collection and Storage

Samples must be aseptically collected and kept refrigerated immediately after collection. Samples that cannot immediately be transported to the laboratory should be stored at 4°C for a maximum of two days. Samples must be kept frozen at –70°C or lower for long term storage. The use of ice pack refrigerants to keep the specimens cold while in transit is extremely important for virus detection. If specimens are frozen, they must remain frozen in transit and not be allowed to thaw out.

Swabs for PCR testing. Viral swabs can be submitted in virus transport medium (VTM) or Universal Transport Medium (UTM) or Brain Heart Infusion broth (BHI).

- Use only dry polyester or Dacron swabs on plastic handles for collection and submission of swab samples for PCR tests.
- Do not use any liquid when submitting dry swabs for *Batrachochytrium dendrobatidis*, bat white-nose syndrome, *Mycoplasma ovipneumoniae*, frog iridovirus or turtle iridovirus.
- After thoroughly swabbing the area of interest, place the swab in the collection tube containing 3-5 ml of VTM or UTM or BHI and swirl vigorously.
- Squeeze the liquid off the swab (press and roll) along the inside wall of the tube and discard swab into a disinfectant solution.
- Securely close the cap and clean the outside of each tube and seal the tubes in plastic zip lock bags.
- Store swabs at 4°C and transport immediately to the Animal Health Centre.

DO NOT use *cotton-tipped or calcium alginate swabs, swabs with wood or paper handles or swabs in bacterial transport media and agar. Residual bleach and other chemicals in these items can be inhibitory to PCR and may inactivate viruses.*

Swabs for <u>bacterial</u> PCR tests: Swabs can be submitted in sterile saline or PBS. Swabs submitted in bacterial transport media are not suitable for PCR testing.

Fresh tissues: Whenever possible, submit fresh tissues in a sterile, leak proof container for PCR assays. Autolyzed (decayed) tissues are not suitable for testing.

Whole blood: Use tubes containing anti-coagulants such as citrate (blue stopper), EDTA (purple stopper) or heparin (green stopper) and submit a *minimum of 5 ml*.

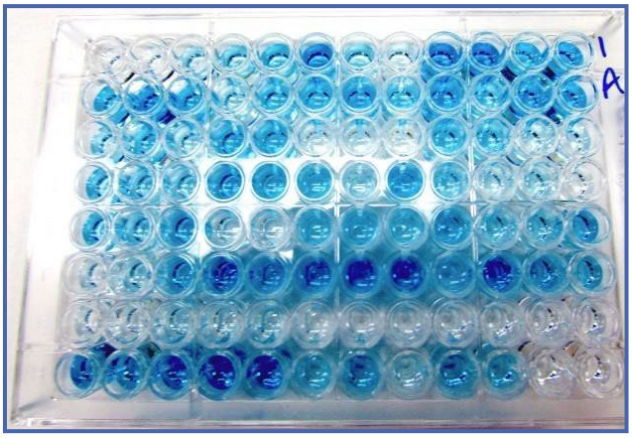
Feces: Submit approximately *10gm* (10 – 20ml volume) in securely closed sterile container. The outer surface must be clean and dry. Do not submit feces in plastic bags or gloves.

Serology

The Serology section of the Animal Health Centre offers serological testing for a wide range of avian and mammalian pathogens. Enzyme linked immunosorbent assay (ELISA), Agar Gel Immunodiffusion (AGID), hemagglutination inhibition (HI) and virus neutralization (VN) are the major serological assays performed at the Animal Health Centre. Additionally, the Animal Health Centre performs radial immunodiffusion (RID) assay for total antibody quantification in cattle and horses.

In addition to routine diagnostic testing, the Serology section undergoes proficiency testing conducted by the Canadian Food Inspection Agency, National Centre for Foreign Animal Disease and the USDA's National Veterinary Services Lab.

The Serology section is accredited by the CFIA for Equine Infectious Anemia and *Brucellosis* (BPAT*)* testing. This lab is also an approved Johne's disease *(M. avium subsp. paratuberculosis)* testing lab, having successfully passed NVSL serology panels since 1999.



Serological tests can be used to determine:

1. If an animal has been infected by a particular pathogen
2. If a specific pathogen is linked to a clinical disease
3. If an animal has elicited an antibody response following vaccination

A single serum sample from an animal provides some indication of exposure to a pathogen at a point in time. However, paired serology on 5-10 age matched cohorts including clinically affected and apparently healthy animals is necessary to assess the potential disease dynamics within a group of animals. Acute and convalescent-phase sera collected from the same animal constitute paired sera. The acute-phase serum is taken as soon as the animal first develops clinical signs and the convalescent-phase samples usually at least 2 weeks later. Paired sera should be submitted together.

Serology: Tests, Specimens and Fees

Test Key: *AGID* – Agar Gel Immunodiffusion; *ELISA* – Enzyme Linked Immunosorbent Assay; *HI* – Hemagglutination Assay; *RID* – Radial Immunodiffusion; VN – Virus Neutralization.

Test	Specimen	Fee
Avian Adenovirus Group 1 *AGID*	≥0.5ml serum per bird	$10.00
Avian Encephalomyelitis (AE) *ELISA**	≥0.5ml serum per bird	$10.00*
Avian Influenza (AI) *AGID*	≥0.5ml serum per bird	$10.00
Avian Influenza (AI) *ELISA**	≥0.5ml serum per bird	$10.00*
Avian Metapneumovirus *ELISA**	≥0.5ml serum per bird	$10.00*
Avian Paramyxovirus 3 (PMV3) *HI*	≥0.5ml serum per bird	$10.00
Avian Reovirus (REO) *ELISA**	≥0.5ml serum per bird	$10.00*
Blue Tongue Virus (BTV) *ELISA*	≥2 ml serum per animal	$10.00
Bovine Leukemia Virus (BLV) *ELISA*	≥2 ml serum per animal	$10.00
Bovine Parainfluenza Virus Type-3 *VN*	≥2 ml serum per animal	$10.00
Bovine Respiratory Coronavirus *VN*	≥2 ml serum per animal	$10.00
Bovine Respiratory Syncytial Virus (BRSV) *VN*	≥2 ml serum per animal	$10.00
Bovine Viral Diarrhea Virus (BVDV) Type 1&2 *VN*	≥2 ml serum per animal	$10.00
Bovine Viral Diarrhea Virus (BVDV) Type 1&2 *ELISA*[#]	≥1 ml serum per animal	$10.00
Brucella *BPAT* CFIA form 5473 required	≥2 ml serum per animal	$10.00
Canine Distemper Virus (CDV) *VN*	≥2 ml serum per animal	$10.00
Caprine Arthritis Encephalitis (CAE) *ELISA* animal should be ≥6mos old	≥2 ml serum per animal	$10.00
Chick Anemia Virus (CAV) *ELISA**	≥0.5ml serum per bird	$10.00*
Clostridium difficile Toxin A&B *ELISA*	≥2 ml serum per animal	$30.00
Coxiella burnetti (Q fever) *ELISA*	≥2 ml serum per animal	$10.00
Equine Herpes Virus 1 (EHV-1) *VN*	≥2 ml serum per animal	$10.00
Equine Infectious Anemia (EIA) – CFIA form 3937 required or CFIA approved electronic submission	≥2 ml serum per animal	$12.00
Equine Influenza Virus *HI*	≥2 ml serum per animal	$10.00
Equine Viral Arteritis (EVA) *VN*	≥2 ml serum per animal	$10.00
Hemorrhagic Enteritis Virus (HEV) *ELISA**	≥0.5ml serum per bird	$10.00*

Immunoglobulin-Bovine IgG, IgM *RID*	≥2 ml serum per animal	$10.00
Immunoglobulin-Equine IgG, IgM *RID*	≥2 ml serum per animal	$10.00
Immunoglobulin-Porcine IgG *RID*	≥2 ml serum per animal	$10.00
Infectious Bovine Rhinotracheitis (IBR) Virus *VN*	≥2 ml serum per animal	$10.00
Infectious Bovine Rhinotracheitis (IBR) Virus *ELISA#*	≥1 ml serum per animal	$10.00
Infectious Bronchitis Virus (IBV) *ELISA**	≥0.5ml serum per bird	$10.00*
Infectious Bursal Disease (IBD) *ELISA**	≥0.5ml serum per bird	$10.00*
Infectious Laryngotracheitis (ILT) *ELISA**	≥0.5ml serum per bird	$10.00*
Mink Distemper Virus (CDV) *VN*	≥2 ml serum per animal	$10.00
Mycobacterium paratuberculosis (Johne's) *ELISA* - ≥18mos old for bovine testing - ≥12mos old for caprine testing	≥2 ml serum per animal	$10.00
Mycoplasma gallisepticum (MG) *ELISA**	≥0.5ml serum per bird	$10.00*
Mycoplasma gallisepticum (MG) *HI*	≥0.5ml serum per bird	$10.00
Mycoplasma synoviae (MS) *ELISA**	≥0.5ml serum per bird	$10.00*
Mycoplasma synoviae (MS) *HI*	≥0.5ml serum per bird	$10.00
Neospora caninum *ELISA*	≥2 ml serum per animal	$10.00
Newcastle Disease Virus (NDV) *ELISA**	≥0.5ml serum per bird	$10.00*
Newcastle Disease Virus (NDV) *HI*	≥0.5ml serum per bird	$10.00
Ovine Progressive Pneumonia (OPP) *ELISA*	≥2 ml serum per animal	$10.00
Salmonella Dublin *ELISA*	≥2 ml serum per animal	$10.00
Swine Influenza Virus *HI*	≥2 ml serum per animal	$10.00
Transmissible Gastroenteritis (TGE) Virus *VN*	≥2 ml serum per animal	$10.00

***Please note that Avian tests by ELISA have a $10.00 charge for the first sample for each test. Additional samples for the same test will be charged at 3 samples for $10.00. After the first sample, it is most cost effective to submit subsequent samples in groups of 3.**

#If ELISA or VN tests are not specified by the client, then lab will add ELISA tests for IBR and BVDV.

For example, the per test charge for 10 blood samples would be as follows: $10.00 for the first sample and 9 samples at $30.00 ($10.00 per 3 samples) = $40.00 per test. Multiply this by the number of tests requested for your total charge.

Specimens for Serology – Submission Requirements

Quality of serum samples submitted for serological assays can have a significant impact on final assay results. For example, hemolyzed or lipemic serum can lead to unreliable test results. Please use the following guidelines to submit serum samples to ensure timely service and accurate test results:

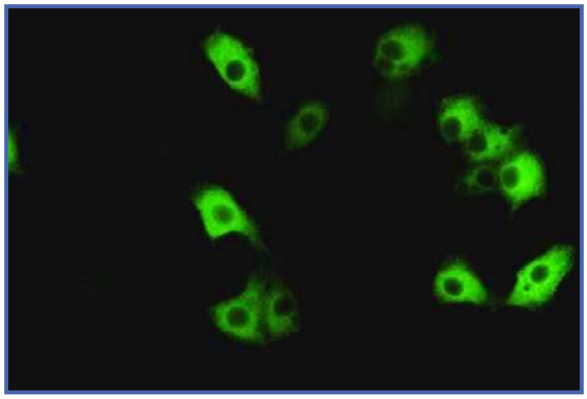
- Use only untreated serum tubes or serum separation tubes for collection.
- After collection keep the blood samples at room temperature until serum has separated from the clot (30-60 minutes). Centrifuge tubes to separate the serum from the clot. Pour or draw off serum into clean tubes.
- Submit serum only. Freeze and thaw cycles during shipping and/or storage can lead to hemolysis if serum is not separated from the clot. Do not submit serum samples that are grossly hemolyzed (dark red) or lipemic (milky appearance).
- Ship samples to the Animal Health Centre with ice packs to keep sera cold while in transit. If samples cannot immediately be transported to the Animal Health Centre, refrigerate the serum at 2–7°C for up to 5 days or freeze at 20°C for long-term storage. **DO NOT** freeze blood.
- Submit a minimum of 2 ml serum per animal for large animals and 0.5ml serum per bird for avian submissions. Outside of the tubes must be clean and dry to avoid contamination. Label large animal tubes with ID numbers using permanent marking pen on the side of the tube.
- Place the serum tubes in Styrofoam or cardboard boxes designed to hold the tubes. Do not submit in bags.
- When submitting more than 20 large animal samples at a time, please send an MS Excel file of the Animal IDs by e-mail to PAHB@gov.bc.ca. To do this, simply enter the animal IDs in a single column identified as “Animal ID”. The Animal Health Centre report will contain the IDs as entered in the file. Please place sample tubes in the same order in the rack/box as in the MS Excel file.

For more packaging and shipping instructions please see page 54.

Virology

The Virology section of the Animal Health Centre offers an extensive and complete laboratory service for the detection of viral infections in domestic poultry, wild and exotic birds, food and fur bearing animals, companion animals, wild and zoological species, marine mammals and aquaculture salmonids.

The Virology section performs virus isolation in cell culture and embryonated chicken eggs and uses techniques such as Fluorescent Antibody Test (FAT), Virus Neutralization (VN), Hemagglutination (HA) and Hemagglutination Inhibition (HI) for the detection of viruses, viral antigens and antibodies produced in response to viral infections.



Virology: Tests, Specimens and Fees

Test	Specimen	Fee
Avian Adenovirus	Liver, spleen	$40.00
Avian Herpes Virus	Please contact the AHC	$40.00
Avian Pox Virus	Skin lesions	$40.00
Avian Reovirus	Enteric and respiratory - Intestine, pancreas, feces, trachea, lung Viral arthritis - Joint swab, tendons, heart (chicks)	$40.00
Bovine Adenovirus	Nasal swab, feces	$40.00
Bovine Papular Stomatitis Virus	Lesions	$40.00
Bovine Respiratory Syncytial Virus	Nasal-pharyngeal washings, deep nasal swab, lung	$40.00
Bovine Viral Diarrhea	Buffy coat (10 ml whole blood), serum, feces, intestine, Peyer's patches, spleen, mesenteric lymph node, lung, milk. Fetus: lung, liver, spleen, thymus, thyroid, placenta, fetal fluids	$40.00
Canine Adenovirus Type-2	Nasal swab, conjunctival or pharyngeal swab	$50.00
Canine Coronavirus	Feces, fecal swab	$60.00
Canine Distemper Virus	Buffy coat (whole blood), lung, kidney, liver	$50.00
Canine Herpes Virus	Lung, liver	$50.00
Canine Parainfluenza Virus	Nasal swab, tracheal swab, trachea	$50.00
Duck Viral Enteritis	Liver, spleen, intestine, cecal tonsil	$40.00
Duck Viral Hepatitis	Liver, spleen, intestine, cecal tonsil	$40.00
Equine Adenovirus (Respiratory Disease)	Nasal swab, Lung	$50.00
Equine Herpes Virus 1	Adult: Deep nasal swabs, conjunctival swab, whole blood (buffy coat), lung, spinal cord, brain Fetus: Liver, lung	$50.00
Equine Herpes Virus 4	Nasal swabs, conjunctival swab	$50.00
Equine Influenza Virus	Nasal swab, tracheal wash, lung	$50.00
Equine Viral Arteritis	Adult: lung, thymus, whole blood (buffy coat), mesentery lymph node, liver, spleen Fetus: lung, spleen, thymus, placenta, liver	$50.00
Feline Calicivirus	Nasal swab, pharyngeal swab, lung	$50.00
Feline Panleukopenia Virus (Feline Parvovirus)	Small intestine, kidney, liver	$50.00
Feline Viral Rhinotracheitis (Feline Herpesvirus)	Pharyngeal swab, nasal swab, lung, conjunctival swab	$50.00
Frog Iridovirus	Kidney, digestive tract, liver, oral swab, cloacal swab *dry swabs, do not submit in media*	$40.00
Hemagglutinating Encephalomyelitis Virus	Brain, Upper spinal cord	$40.00
Inclusion Body Hepatitis (Adenovirus)	Liver, spleen	$40.00
Infectious Bovine Rhinotracheitis	Nasal swab, conjunctival swab vaginal swab, trachea	$40.00
Infectious Bronchitis	Trachea/bronchus, tracheal swab, lung, kidney, cecal tonsil	$40.00
Infectious Bursal Disease	Bursa	$40.00
Infectious Canine Hepatitis	Liver, feces	$50.00
Infectious Hematopoietic Necrosis	Kidney, spleen, liver, gills, mucus, whole fish	$40.00

Virus		
Infectious Laryngotracheitis	Trachea, lung	$40.00
Infectious Pancreatic Necrosis Virus	Pyloric caecum, spleen, kidney, brain	$40.00
Infectious Salmon Anemia	Gills, heart, liver, kidney, spleen	$40.00
Mink Distemper Virus	Buffy coat (whole blood), lung, kidney, liver, nasopharyngeal swab, conjunctival swab	$40.00
Pacheco's Disease (Herpes) Virus	Lung, liver, spleen, feces, whole blood	$50.00
Phocid Morbillivirus	Nasal, pharyngeal or ocular swabs, trachea, lung	$40.00
Porcine Parvovirus	Fetus: lung, liver, kidney, spleen, placenta	$40.00
Rabbit Herpes Virus	Skin lesions	$40.00
Swine Influenza Virus	Nasal swab, trachea, lung	$40.00
Torovirus (Breda)	Feces	$40.00
Viral Hemorraghic Septicemia Virus	Kidney, spleen, liver, brain, whole fish	$40.00
*Where applicable, each test includes cell culture, egg inoculation, and florescent antibody testing.		

Specimens for Virology – Submission Requirements

Proper collection and handling of diagnostic specimens are critical for the success of virus detection and virus isolation techniques. As peak virus titers are usually present at the onset of clinical signs, diagnostic specimens for virus detection and virus isolation should be collected immediately after the animal first develops clinical signs. Collection of samples during the acute phase of viral infection usually provides sufficient amount of virus for detection by various assays. Samples collected later in the course of infection may lead to false negative results or misdiagnosis when secondary bacterial infection is involved. For packaging and shipping instructions please see page 54.

Collection and storage

Samples must be aseptically collected and refrigerated immediately after collection. Samples can be stored short term (<48hrs) at 4°C. Long term storage temperature should be ≤ –70°C. Use ice pack refrigerants and insulated containers to keep samples at an appropriate temperature in transit. If specimens are frozen, they must remain frozen in transit.

Swabs for virus isolation testing: Viral swabs can be submitted in virus transport medium (VTM) or Universal Transport Medium (UTM) or Brain Heart Infusion broth (BHI).

- Use only dry polyester or Dacron swabs on plastic handles for collection and submission of swab samples for virus isolation.
- Do not use any liquid when submitting dry swabs for *Batrachochytrium dendrobatidis*, bat white-nose syndrome, *Mycoplasma ovipneumoniae*, frog iridovirus or turtle iridovirus.
- After thoroughly swabbing the area of interest, place the swab in the collection tube containing 3-5 ml of VTM or UTM or BHI and swirl vigorously.
- Squeeze the liquid off the swab (press and roll) along the inside wall of the tube and discard swab into a disinfectant solution.
- Securely close the cap and clean the outside of each tube and seal the tubes in plastic zip lock bags.
- Store swabs at 4°C and transport immediately to the Animal Health Centre.

DO NOT use: *Cotton-tipped or calcium alginate swabs, swabs with wood or paper handles or swabs in bacterial transport media and agar may not be used. Residual bleach and other chemicals in cotton swabs and wooden handles and agar in the bacterial transport media can be inhibitory to PCR and may inactivate viruses.*

Fresh tissues: Whenever possible, submit fresh tissues in a sterile, leak proof container for virus isolation. Autolyzed tissues are not suitable for virus isolation.

Whole blood: Use tubes containing anti-coagulants such as citrate (blue stopper), EDTA (purple stopper) or heparin (green stopper) and submit a minimum of 5 ml.

Feces: Submit approximately 10gm (10 – 20ml volume) in securely closed, puncture-resistant sterile container. Outer surfaces of the container must be clean and dry. Do not submit feces in plastic bags or gloves.

Test Panels

The following testing panels are offered by the Animal Health Centre to address common disease processes of concern. Panels are not customizable. Please be sure to meet the minimum specimen amount requested to ensure the entire panel can be completed.

Panel	Specimen	Fee
Calf Scours Package ^ *for calves <2 weeks of age* culture and sensitivity, which includes enriched *Salmonella sp.* culture, polymerase chain reaction (PCR)-based typing of *E. coli* to detect enterotoxigenic and enteropathogenic strains, direct fecal smear for *Cryptosporidium spp.*, and PCR testing for rotavirus and coronavirus	10g Feces, +/- 2 fecal swabs (no culture media)	$110.00 36% savings

^The Calf Scours Package is for fecal samples from scouring calves affected during the first 2 weeks of life (excluding necropsy cases). Sample eligibility includes scouring claves that are 0-2 weeks old as well as calves that are > 2 weeks of age where scours originally developed during the first 2 weeks of life. This package represents a 36% savings over ordering these tests individually.

For packaging and shipping instructions please see page 54.

Electron Microscopy

Service	Specimen	Fee
Production Animal		$47.00
Companion Animal		$60.00

Electron Microscopy may be included at no additional cost at the pathologist's discretion as part of the Post Mortem Examination or Post Mortem Diagnostic Package.

External Testing and Fees

While the Animal Health Centre is the leading accredited full-service veterinary laboratory in Western Canada, some tests are not available at this facility. For external testing and shipping please see the following fees.

External Lab Testing - Client Requested

Administrative fee for forwarding specimens	Within British Columbia	$7.00/pkg of samples
	To other provinces	$30.00/pkg of samples
	Outside of Canada	$49.00/pkg of samples
Courier fees		At cost
External lab to bill client directly for testing fees.		

General Submission Procedures

All submissions must have a completed submission form accompanying them. If you have any questions regarding submissions, please call 1-800-661-9903 or 604-556-3003, or email PAHB@gov.bc.ca.

The lab will only pool samples if requested by the client, and if the test has been validated for pooled samples.

Submission Forms

We will only accession animals and samples submitted with the current official Animal Health Centre submission forms, which can be accessed via our website www.gov.bc.ca/animalhealthcentre. Outdated forms and inappropriate species forms (e.g., bird submitted with a fish form) will not be accepted. Non-official (i.e., clinic-specific forms) will not be accepted. If the correct submission form is not received within 24 hours for whole fish, horses, and cattle, the animal will be disposed of without necropsy or testing. All other animals and samples will be held for 5 business days before disposal. Please understand that any delay may compromise the diagnostic integrity of the specimen.

A completed submission form must be received with every submission. Samples with incomplete submission forms will not be processed. Please note that samples submitted without a submission form will not be accepted. Submission forms should include:

- Completely fill all required fields on submission forms. These are indicated in red and with a *.
- Testing request and number of samples submitted.
- A complete history of affected animal(s) indicating symptoms, vaccine status, treatment given and suspected disease(s) if possible.
- Medical records or other laboratory results (e.g., bloodwork) can be included with the submission form if relevant. Please do not attach medical records instead of writing out a complete history.

If the submission form received is incomplete or incorrect, your sample will be placed on hold while our accessioning staff contact you. No testing will be done on your sample until all required information is received. It is the responsibility of the submitter to ensure that the correct paperwork is submitted to the Animal Health Centre in a timely manner.

Whole Animal Submissions

Up to 3 animals, 8 birds or 5 fish can be submitted within a single submission so long as the animals show similar clinical signs of disease. If separate tests on individual animals are required, then those animals should be submitted separately.

Samples from animals included in a single submission will be pooled and a single report will be issued. If samples are to be tested separately, it should be clearly indicated on the submission form (extra charges will apply) or separate forms should be used.

Poultry <8 kg and fish of any size may be submitted alive for euthanasia (live fish must be submitted in water).

All other animals must be submitted dead. The Animal Health Centre will not euthanize live animals other than poultry or fish.

Submission Methods

In Person Delivery

- Weekday delivery between 8:30 a.m. and 4:30 p.m., deliver as early in the day as possible.
- Please check in with the front office before unloading whole animals.
- Live animal submissions must arrive in a disposable container. Once a container enters the post mortem room it will be destroyed.

Mail or Courier

- Samples must be well preserved so that they arrive in suitable condition for examination.
- Samples must be packed so they do not leak per TDG guidelines.
- Separately labelled samples are required for each test (e.g., bacteriology, virology, etc.) as they are sent to different sections of the Animal Health Centre for processing.
- Pack completed submission form and other paperwork inside a separate plastic bag.
- Clearly state the total number of items submitted for each submission, on the submission form.

How to Package Your Samples for Submission

Before collecting specimen(s), check the sample requirements for the test you require. You can find this in the appropriate section of this fee guide or online at: www.gov.bc.ca/animalhealthcentre.

Ensure that containers used to transport and ship specimens meet the requirements of the Transportation of Dangerous Goods Act (TDG). **For cases where there may be a zoonotic pathogen present, ensure that samples are transported and labelled accordingly.** For more information about TDG visit their website at: www.tc.gc.ca/eng/tdg/act-menu-130.html

Submission Forms

When shipping any samples to the Animal Health Centre, please follow these guidelines to avoid testing delays:

1. Completely fill all required fields on submission forms. These are indicated in red and with a *.
2. An emailed or faxed copy of the submission form may be sent in advance to PAHB@gov.bc.ca, along with an original hard copy with the shipped submissions.
3. Place submission forms inside a closed Ziploc style bag to prevent condensation from ice packs or accidental leaks from ruining the submission form.
4. Place submission forms near the top of the packed submissions so it can be accessed before opening the rest of the package.
5. Do not attach the submission form on the outside of shipping container packaging.

General Shipping

1. If sending samples that required cold or stable temperatures, please use a Styrofoam container with a well-fitting exterior cardboard box.
    a. This outer pack will help to maintain the integrity of your parcel, and ensure it makes it to the animal health centre in one piece.
        i. Styrofoam alone can break in transit, leading to lost samples or delays in transport.
    b. If your box does not fit your Styrofoam container well, add additional packing material to ensure the container does not move in transit.
2. When adding refrigerants (ice packs, dry ice, wet ice) to your packages
    a. Avoid the use of wet ice/frozen water unless double or triple bagged in a watertight bag, with absorbent material in packaging.
    b. Ensure dry ice is shipped according to TDG standards
    c. Ensure any ice pack is not in direct contact with samples that cannot be frozen (formalin, swabs with bacterial media, whole blood, etc.)

Submission of Whole Animals

1. When submitting whole animals to the Animal Health Centre, please ensure that a hard copy of your submission form accompanies the submission (please see submission form submission).
2. If submitting multiple animals on the same case, please label individuals clearly.
    a. Please note that any extra animals over the limit for the species submitted will not be tested unless requested and will be a second charge for necropsy.

3. If whole animals are small enough to fit in bags, please double bag. Contractors' bags are preferable to regular garbage bags to prevent leaking.
4. Please ensure that CCIA Tag numbers are on submission forms, as well as any other information used for tracing animal movement such as Pig Trace numbers or other.

Carcasses Shipped via Courier

1. When in doubt, ship whole animals frozen. This prevents decay of the animal in case of shipping delays and hot weather.
    a. Ship animal with ice packs – especially important for small animals as they can thaw quickly in transit.
    b. Bear in mind most courier companies do not have refrigerated trucks.
2. Please double bag the animal. Contractors' bags are preferable to regular garbage bags to prevent leaking.
3. Place ample absorbent material in shipping container to absorb any leaks or condensation.
4. Animals should be shipped early or midweek when possible. Avoid shipping over weekends or holidays.

Submission of Feti

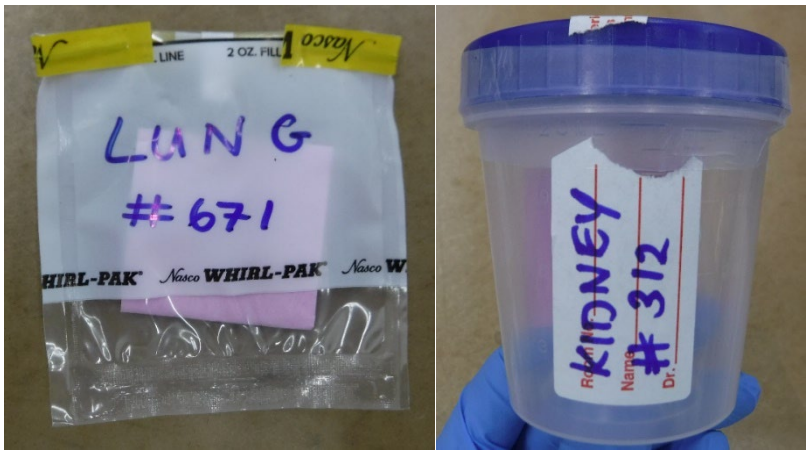
1. When in doubt, ship the fetus frozen. This prevents decay of the fetus in case of shipping delays and hot weather.
2. Please double bag the fetus. Contractor bags are preferable to regular garbage bags to prevent leaking.
3. Place ample absorbent material in shipping container to absorb any leaks or condensation.
4. Ship the package early or midweek when possible. Avoid shipping over weekends or holidays.
5. Send the placenta if available.
    a. Whole placenta is preferable, send as large a sample as possible to allow thorough assessment and sampling at the lab.

Shipping Fresh Tissues

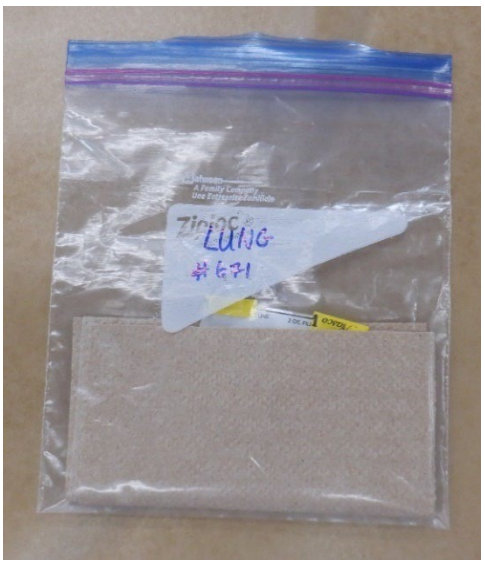
Equipment required:

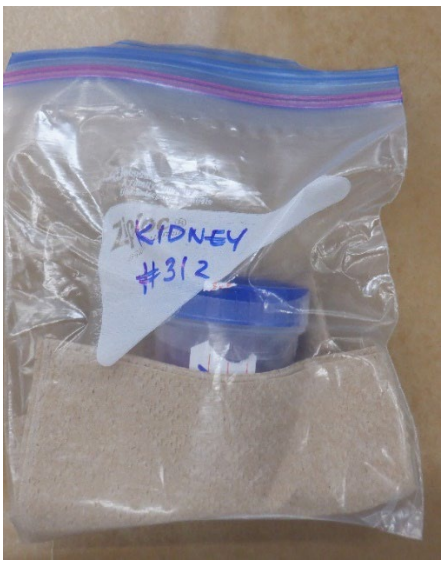
- Primary container – watertight twist top containers or whirl top bags preferred – avoid using pill containers
- Secondary container – additional whirl top bag or Ziploc bag
- Absorbent material – paper towel
- Sturdy tape – glass tape, electrical tape, duct tape or parafilm if using twist top containers

1) The sample should be placed in the primary leakproof container.
    a. Label tissue type(s) on the primary container.
    b. Avoid overfilling whirl top bags as this will prevent them from sealing properly – they must be folded over 3 times to completely a seal (down to “FILL LINE”).
    c. Fully tighten the lid of twist top containers and tape around the seal.



2) Place the primary container inside the secondary container along with the absorbent material. Label tissue type(s) on outside of secondary container.





3) Once placed in the final shipping container, ensure directional arrows are used to mark the upright direction of the package during shipment.
    a. Send the sample with ice packs to prevent it from degrading in transit. Place ice packs in Ziploc bags to prevent leaking – especially important if using frozen water bottles.
    b. Consider shipping the sample in a cooler during particularly hot weather or when shipping over long distances.
    c. Bear in mind most courier companies do not have refrigerated trucks.

4) If there is extra space inside the shipping container, add bubble wrap or newspaper to protect the sample and prevent it from moving around in transit.

Shipping Formalized Tissue

Any samples being sent should follow a triple packaging system:
Equipment Required:

- Twist top container

- Sturdy tape such a glass tape, electrical tape, duct tape or parafilm
- Absorbent material such as paper towel
- Two zip lock bags

1) The sample should be placed in a leakproof primary container such as a twist top container along with enough formalin to adequately fix the sample (10:1 formalin to tissue ratio). Make sure that the container is clearly marked with what percentage of formalin it contains.

2) Ensure to tape around the lid of the twist top container to prevent it from coming loose or leaking. Use tape such as glass tape, electrical tape or duct tape for maximum adhesion. Parafilm works well for this as well.

3) The twist top container is then placed inside a secondary layer of packaging. A sturdy Ziplock bag may be used for this. Ensure to include within this layer enough material to absorb all the formalin, should the primary receptacle crack or leak. Paper towel or absorbent pads may be used for this.

4) Place this package inside of another zip lock bag and seal before placing into a box or other suitable shipping container.

5) Once placed in the final shipping container, ensure directional arrows are used to mark the upright direction of the package during shipment. If there is extra space in the shipping container, add something such as bubble wrap or newspaper to take up the extra space, protect the sample and prevent it from moving around during transport.

Shipping Multiple Tissues

- Ensure animal ID and tissue type(s) are clearly labelled on each primary container.
- Unless submitting a pooled sample, separate primary and secondary containers should be used for each tissue to prevent cross contamination in case of a leak.
- When shipping fresh and formalized tissues together, ensure formalized tissues are tripled bagged and placed upright in the shipping container. Place formalized and fresh tissues on opposite sides of the shipping container. Put newspaper or bubble wrap between to keep them upright and apart from one another.

If you have any questions about sample packaging, please call 1-800-661-9903 or 604-556-3003, or email PAHB@gov.bc.ca.

Common Disease Conditions and Suggested Testing

If in doubt about test selection or how to proceed with a submission, please contact the Animal Health Centre at 1-800-661-9903 or 604-556-3003 during regular office hours.

Abortion

A. History:

Please provide as complete information as possible on the dam, herd, or management system:e.g., herd size, general level of management and herd health status, recent additions to herd, numbers of pregnant animals in herd, previous abortions or indications of infertility, number of abortions/stillbirths/weak neonates in herd, parity of the dam, stage of gestation, nutritional status of dam, previous illnesses or stresses, vaccination status of the dam and any signs of illness. The Mammalian Submission Form provides a valuable template for gathering this information.

B. Selecting and Submitting Samples:

- Based on the degree of autolysis, maceration and possible scavenging, the placenta and fetal remains should be submitted for post mortem examination. Submission of a fetus, placenta and if possible, a serum sample from the dam afford the best likelihood of rendering a diagnosis.
- As an agent and/or lesions may not be present in all fetuses, if possible, please submit multiple fetuses (up to 3 fetuses may be presented in a single submission).
- If submitting the entire fetus is not possible, please submit as complete a set as possible of tissues as listed below. A serum or milk sample from the dam may also be provided.

C. Samples Required:

- Frozen or refrigerated: for routine bacteriology, virology, molecular studies, trace mineral analysis and ancillary diagnostic studies, fresh tissues, including placenta, stomach contents (1-2 ml), fetal heart blood (1-2 ml), heart, lung, spleen, liver, kidney, and brain should be collected. Antibiotic resistance profiles may also be requested (Kirby Bauer disc diffusion).
- Formalin fixed: placenta, lung, liver, kidney, spleen, heart, adrenal gland, thymus, thyroid, small intestine (2 pieces), large intestine with meconium (2 pieces including meconium), brain, eyelid, and skeletal muscle.

Bovine Abortion

- **Bacteriology:** placenta, lung, and stomach content (1-2 ml).
- **Histology:** placenta (cotyledon and intercotelydonary regions), lung, liver, kidney, spleen, heart, adrenal gland, thymus, thyroid, small intestine (2 pieces), large intestine with meconium (2 pieces including cecum and spiral colon), brain, eyelid, and skeletal muscle.
    - In-house immunohistochemistry is available on formalin-fixed tissues for Bovine Viral Diarrhea Virus (BVDV), Bovine Herpesvirus-1/ Infectious Bovine Rhinotracheitis (BHV-1/IBR), *Leptospira* spp., and *Neospora caninum.*
- **PCR/Virology:** heart, lung, spleen, liver, kidney, and brain.
- **Radioimmunodiffusion/Ig Quantification/Serology:** heart blood (1-2 ml).
- **Serology/Trace Mineral/Vitamin:** dam serum submission.

Ovine/Caprine Abortion

Note: all small ruminant abortions should be considered a potential zoonotic risk due to *Coxiella burnetii* infection and should be handled with appropriate precautions, including use of personal protective gear and thorough hand washing and disinfection of fomites.

- **Bacteriology:** placenta, lung, and stomach content (1-2 ml).
- **Histology:** placenta (cotyledon and intercotelydonary regions), lung, liver, kidney, spleen, **heart**, adrenal gland, ileum, thymus, thyroid, small intestine (2 pieces), large intestine with meconium (2 pieces including cecum and spiral colon), brain, eyelid, and skeletal muscle.
    - In-house immunohistochemistry is available on formalin-fixed tissues for *Toxoplasma gondii* and *Neospora caninum* and tissue blocks can be sent to a reference laboratory for *Coxiella burnetii*
- **PCR/Virology:** heart blood (1-2 ml), heart, lung, spleen, liver, kidney, and brain.
- **Serology/Trace Mineral/Vitamin:** dam serum submission**.**

Equine Abortion

- **Bacteriology:** placenta, lung, stomach content (1-2 ml).
- **Histology:** placenta (including samples of cervical star), lung, liver, kidney, spleen, heart, adrenal gland, ileum, thymus, thyroid, small intestine (2 pieces), large intestine with meconium (2 pieces including cecum and colon), brain, eyelid, and skeletal muscle.
    - In-house immunohistochemistry for Equine Herpes Virus 1 (EHV-1) is available on formalin-fixed tissues.
- **PCR/Virology:** heart blood (1-2 ml), heart, lung, spleen, liver, kidney, and brain.
- **Serology/Trace Mineral/Vitamin:** dam serum submission.

Porcine Abortion

- **Bacteriology:** placenta, lung, stomach content (1-2 ml).
- **Histology:** placenta (including samples of cervical star), lung, liver, kidney, spleen, heart, adrenal gland, ileum, thymus, thyroid, small intestine (2 pieces), large intestine with meconium (2 pieces including cecum and colon), brain, eyelid, and skeletal muscle.
    - In-house immunohistochemistry is available on formalin-fixed tissues for Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) and Porcine Circovirus 2 (PCV-2).
- **PCR/Virology:** heart blood (1-2 ml), heart, lung, spleen, liver, kidney, and brain.
- **Serology/Trace Mineral/Vitamin:** dam serum submission.

Diarrhea

A. History:

Please provide pertinent information on the herd and management system: e.g., herd size, prior episodes of clinical disease, general level of management and herd health status, animal age, numbers of animals affected, onset/duration of problem, vaccination history, and any administered treatments. The Mammalian Submission Form provides a valuable template for gathering this information.

B. Selecting and Submitting Samples:

- Acutely affected and untreated animals are the preferred individuals for sampling.
- Appropriately fixed gut sections are critical for effective histological analysis of enteric diseases. To ensure rapid tissue fixation, gut sections should be collected and preserved as soon as possible following death (preferably <10 minutes post mortem).
- To further aid fixation, the margins of sampled bowel may be cut or incised, then gently rinsed in fresh water to expose the mucosa prior to immersion in formalin.
- When specific tests are requested, please submit replicate tissue samples, in separate labelled Whirl-Pak bags for each lab section and test requested. Alternatively, submit representative portions of tissues or entire organs and indicate on the submission form, for the pathologist to select tests at their discretion.

C. Samples Required

- As intestinal lesions may be multifocal to segmental, always collect multiple intestinal samples for histology (preferably three segments each of ileum and jejunum, and at least one each of duodenum, cecum, colon and stomach). Include any abnormal areas and margins of intestinal segments with gross lesions.
- For all submissions, please include routine histological and fresh or frozen tissues outside of the gastrointestinal tract, such as liver, kidney, spleen, and lung.

Bovine/Ovine/Caprine Enteritis

Note: for testing of scouring calves < 2 weeks of age please see Calf Scours Package in our Test Panels section on page 50.

- **Bacteriology:** feces, ligated small and large intestine segments, and mesenteric lymph nodes (aerobic and anaerobic culture).
    - Special culture for *Salmonella* spp, *Yersinia* spp. and *Campylobacter* spp. available.
    - PCR toxin genotyping (virulence factors) is available for *Clostridium perfringens* and *Escherichia coli* isolates.
- **Histology:** esophagus, forestomachs (rumen, rumen pillars, reticulum, omasum), abomasum, mesenteric lymph node, duodenum, jejunum, ileum with Peyer's patch, spiral colon, cecum, and any area of the gastrointestinal tract with gross lesions.
    - In-house immunohistochemistry is available on formalin-fixed tissues for Bovine Viral Diarrhea Virus (BVDV) and Bovine Coronavirus (BCV). Ear notch submission for BVDV immunohistochemistry may also be submitted.

- **Parasitology:** feces (*Cryptosporidium* wet mount, fecal flotation or sedimentation, Modified McMaster quantitative fecal egg count).
  - Unless otherwise requested the Modified McMaster quantitative fecal egg count will be performed on all sheep and goat fecal samples while routine fecal flotation will be performed on cow fecal samples.
- **PCR/Virology:** feces, ligated segments of small and large intestine, and mesenteric lymph node.
  - PCR for *Mycobacterium paratuberculosis* is available.
- **Serology/Radioimmunodiffusion (Bovine):** antemortem serum or post mortem heart blood sample (colostral IgG).

Equine Enteritis

- **Bacteriology:** feces, ligated segments of small and large intestine, and mesenteric lymph nodes (aerobic and anaerobic culture).
  - Special culture for *Salmonella* spp, *Yersinia* spp. and *Campylobacter* spp. available.
  - PCR toxin genotyping (virulence factors) is available for *Clostridium perfringens* and *Escherichia coli* isolates.
- **Histology:** esophagus, stomach, mesenteric lymph node, duodenum, jejunum, ileum with Peyer's patch, cecum, colon, and any area of the gastrointestinal tract with gross lesions.
  - In-house immunohistochemistry is available for *Lawsonia intracellularis*.
- **Parasitology:** feces (fecal flotation or sedimentation).
- **PCR/Virology:** feces, small intestine, large intestine, and mesenteric lymph node.
- **Serology:** liquid feces (*Clostridium difficile* Toxin A & B ELISA).

Porcine Enteritis

- **Bacteriology:** feces, small intestine, large intestine, mesenteric lymph node (aerobic and anaerobic culture).
  - Special culture for *Salmonella* spp., *Yersinia* spp. and *Campylobacter* spp. available.
  - PCR toxin genotyping (virulence factors) is available for *Clostridium perfringens* and *Escherichia coli* isolates.
- **Histology:** esophagus, stomach, mesenteric lymph node, duodenum, jejunum, ileum with Peyer's patch, cecum, colon, and any area of the gastrointestinal tract with gross lesions.
  - In-house immunohistochemistry is available on formalin-fixed tissues for Transmissible Gastroenteritis Virus (TGEV), Porcine Circovirus 2 (PCV-2), and *Lawsonia intracellularis*.
- **Parasitology:** feces (fecal flotation or sedimentation).
- **PCR/Virology:** feces, small intestine, large intestine, and mesenteric lymph node.
  - PCR available for Porcine Parvovirus.
- **Serology:** liquid feces (*Clostridium difficile* Toxin A & B ELISA).

Canine/Feline Enteritis

- **Bacteriology:** feces, ligated segments of small and large intestine, and mesenteric lymph nodes (aerobic and anaerobic culture).
    - Special culture for *Salmonella* spp., *Yersinia* spp. and *Campylobacter* spp. available.
    - PCR toxin genotyping is available for *Clostridium perfringens* and *Escherichia coli* isolates.
- **Histology:** esophagus, stomach, mesenteric lymph node, duodenum, jejunum, ileum with Peyer's patch, cecum, colon, and any area of the gastrointestinal tract with gross lesions.
    - In-house immunohistochemistry is available on formalin-fixed tissues for canine parvovirus (CPV), canine distemper virus (CDV), feline coronavirus (FIP).
- **Parasitology:** feces (fecal flotation).
- **PCR/Virology:** feces, small intestine, large intestine, and mesenteric lymph node.
- **Serology:** liquid feces (*Clostridium difficile* Toxin A & B ELISA).

Pneumonia

A. History:

Please provide a complete description of the herd and management system, including herd size, general level of management and herd health status, animal age, numbers of animals affected, onset/duration of problem, vaccination history, and any treatment administered. The Mammalian Submission Form provides a valuable template for gathering this information.

B. Selecting and Submitting Carcasses and Tissue Samples:

- Tissues from acutely affected and untreated animals are preferred samples.
- When specific tests are requested, please submit replicate tissue samples, in separate labelled Whirl-Pak bags for each lab section and test requested. Alternatively, submit representative portions of tissues or entire organs and indicate on the submission form, for the pathologist to select tests at their discretion.

C. Samples Required:

- Histology samples from several areas of affected and unaffected lung should be taken, including samples along the junction of affected and unaffected lung as well as the pleural surface. Regional lymph nodes, thymus, tonsils and a sample of trachea should also be submitted if gross lesions are observed.
- Submission of additional tissues, including liver, kidney, spleen and heart for routine histology and bacteriology is recommended.

Bovine Pneumonia

- **Bacteriology:** affected areas of lung, pleural fluid/swab, tracheobronchial aspirate, or broncho-alveolar lavage fluid, and bronchial or other reactive thoracic lymph nodes (aerobic culture and *Histophilus somni* enriched culture).
- **Histology:** multiple lung samples from cranial and caudal lobes from both left and right lungs, include borders of affected and unaffected areas, trachea, bronchial lymph nodes, thymus, and tonsils.
    - In-house immunohistochemistry is available on formalin-fixed tissues for Bovine Viral Diarrhea Virus (BVDV), Bovine Respiratory Syncytial Virus (BRSV), and Bovine Herpesvirus-1/ Infectious Bovine Rhinotracheitis (BHV-1/IBR).
- **Parasitology:** feces (fecal flotation and Baermann for larvae of lungworm).
- **PCR/Virology:** lung, trachea, bronchial lymph nodes, tonsils, and nasal swabs.
    - PCR available for BRSV, BHV-1, BHV-2, BHV-4, bovine adenovirus, bovine coronavirus, bovine parainfluenza-3 and *Mycoplasma bovis*.

Ovine/Caprine Pneumonia

- **Bacteriology:** affected areas of lung, pleural fluid/swab, bronchial or other reactive thoracic lymph nodes (aerobic culture).
- **Histology:** multiple lung samples from cranial and caudal lobes from both left and right lungs, include borders of affected and unaffected areas, trachea, bronchial lymph nodes, thymus, and tonsils.
- **Parasitology:** feces (fecal flotation and Baermann for larvae of lungworm).
- **PCR/Virology:** lung, trachea, bronchial lymph nodes, tonsils nasal swabs.
    - PCR available for caprine arthritis and encephalitis (CAE) and *Mycoplasma* spp.

Equine Pneumonia

- **Bacteriology:** affected areas of lung, pleural fluid/swab, tracheobronchial aspirate, or broncho-alveolar lavage fluid, guttural pouch, and bronchial or other reactive thoracic lymph nodes (aerobic culture).
- **Histology:** multiple lung samples from cranial and caudal lobes from both left and right lobes, include borders of affected and unaffected areas, trachea, bronchial lymph nodes, thymus, and tonsils.
    - In-house immunohistochemistry is available on formalin-fixed tissues for Equine Herpes Virus 1 (EHV-1).
- **PCR/Virology:** lung, trachea, bronchial lymph nodes, and nasal/pharyngeal swabs.

Porcine Pneumonia

- **Bacteriology:** affected areas of lung, pleural fluid/swab, tracheobronchial aspirate, or broncho-alveolar lavage fluid, bronchial or other reactive thoracic lymph nodes (aerobic culture and *Hemophilus parasuis* enriched culture).
    - Please note that *Streptococcus suis* type II has been recovered from pig submissions and appropriate caution should be exercised with pneumonic lungs.
- **Histology:** multiple pieces of lung from cranial and caudal lobes from both left and right lungs, include borders of affected and unaffected areas, trachea, bronchial lymph nodes, thymus, and tonsils.
    - In-house immunohistochemistry is available on formalin-fixed tissues for Porcine Reproductive and Respiratory Syndrome Virus (PRRSV), Porcine Circovirus 2 (PCV-2), Influenza A Virus.
- **Parasitology:** feces (fecal flotation and Baermann for larvae of lungworm).
- **PCR/Virology:** lung, trachea, bronchial lymph nodes, pleural fluid/swab, tonsil, and nasal swabs.

Canine/Feline Pneumonia

- **Bacteriology:** affected areas of lung, pleural fluid/swab, tracheobronchial aspirate, or broncho-alveolar lavage fluid, bronchial or other reactive thoracic lymph nodes, and tonsils (aerobic and fungal culture).
- **Histology:** multiple pieces of lung from cranial and caudal lobes from both left and right lungs, include borders of affected and unaffected areas, trachea, bronchial lymph nodes, thymus, and tonsils.
    - In-house immunohistochemistry is available on formalin-fixed tissues for Canine Distemper Virus (CDV), Feline Coronavirus (FIP), Influenza A Virus.
- **Parasitology:** feces (fecal flotation and Baermann for larvae of lungworm).
- **PCR/Virology:** lung, trachea, bronchial lymph nodes, tonsil, nasal swabs.
    - Note: for CDV PCR please also include samples of kidney, bladder, brain, tonsillar or conjunctival scrapings.

Frequently Asked Questions

Q. What does the Animal Health Centre do?
A. The Animal Health Centre is a diagnostic laboratory that examines samples to discern cause of death or determine the nature of an ailment that may be present in the sample.

Q. What are the hours of operation?
The Animal Health Centre office is open to receive lab submissions Monday to Friday from 8:30 AM to 4:30 PM. We cannot accept lab submissions outside of office hours. Lab submissions received after 3:30 PM may be processed the following day.

Q. Do you accept walk-in clients?
A. Yes, the Animal Health Centre is happy to accept walk-in clients both new and existing, no appointment is required. However, to ensure efficient service, we ask that clients call or email the Animal Health Centre office before submitting a whole animal for post-mortem examination.

Q. Can I ship my samples to you?
A. Yes, the Animal Health Centre is happy to accept samples via mail or courier. Please refer to our shipping guide on page 54 for more information.

Q. Do you only examine animals that are part of the agricultural industry?
A. No, the Animal Health Centre is happy to examine companion animals such as cats or dogs, zoo or aquarium species, as well as wildlife.

Q. Do you spay or neuter animals?
A. No, the Animal Health Centre is a diagnostic facility. We do not provide medical services to live animals.

Q. Can you euthanize my animal?
A. The Animal Health Centre can euthanize fish and poultry weighing less than 8kg for testing purposes only. All other animals must be submitted deceased for testing.

Q. Can I get my animal's cremains (ashes) back after the post mortem?
A. Animals weighing less than 40kg may be released to a licensed pet crematorium for private cremation and have their cremains (ashes) returned to their owner(s). Please see page 22 for more information about private cremation, additional fees apply. All other animals will be cremated communally, and cremains (ashes) will not be returned.

Q. Can you expedite my requested testing and results?
A. No, depending on the nature of your requested test proper time must be allocated to ensure the integrity of the test and its results are as accurate as possible.

Q. Can I use the same submission form for multiple animals?

A. One submission form may be used if submitting lab samples from multiple animals of the **same species**. If you are submitting samples from multiple species, even for the same testing you must use separate submission forms.

For example, when submitting serum samples for Johne's testing of goats and sheep, please use one submission form for goats, and a second one for sheep. Be sure to indicate the **number of tests requested** and provide the **species, age, sex, and ID for each animal** and clearly label each sample. If submitting more than 20 samples, please create and email a MS Excel list of animal IDs to PAHB@gov.bc.ca and include a printed copy with your submission.

Q. Do you perform toxicology testing?

A. No, our toxicology laboratory is now closed. Please send tissue for toxicology testing to an alternate diagnostic laboratory such as Prairie Diagnostic Services in Saskatoon, SK or the Animal Health Lab in Guelph, ON. See page 19 for more information.

If your question was not answered here, please call us at 1-800-661-9903 or 604-556-3003, or email PAHB@gov.bc.ca.

ANIMAL HEALTH CENTRE

1767 Angus Campbell Road Abbotsford, B.C. V3G 2M3

Phone: 604-556-3003

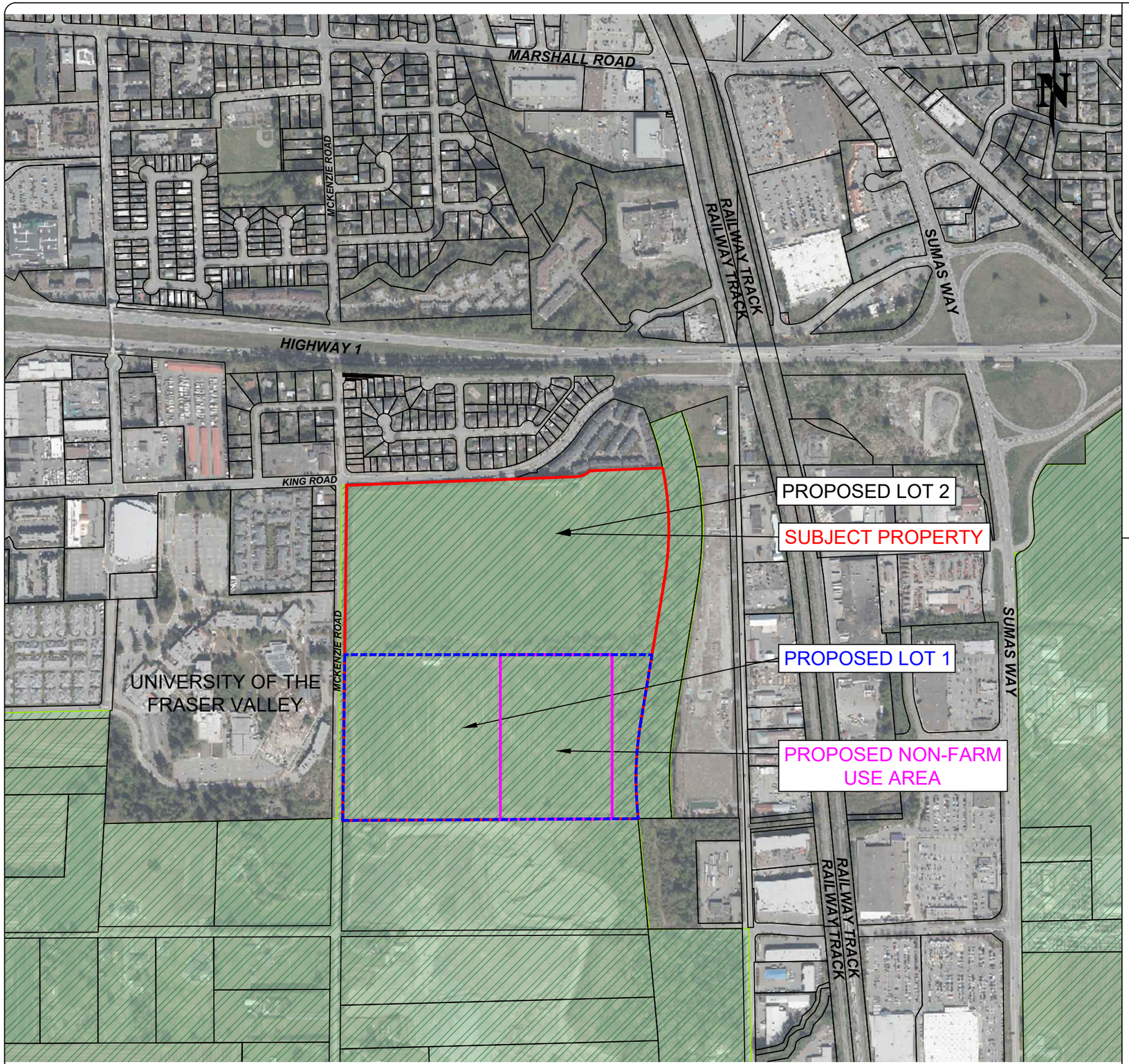
Toll Free: 1 (800) 661-9903

www.gov.bc.ca/animalhealthcentre

BRITISH COLUMBIA

Appendix C

Context Map of Subject Property in the ALR



LEGEND

- Subject Property
- Proposed Lot
- Non-Farm Use Area
- Agricultural Land Reserve Area

STATISTICS

Subject Property: 34.72 ha / 85.80 ac

Proposed lot 1: 16.18 ha /40 ac

Farm Use Area: 10.11 ha / 25 ac

Non-Farm Use Area: 6.07 ha / 15 ac

Proposed Lot 2: 18.53 ha / 45.8 ac

PACIFIC LAND GROUP
Land Use, Development & Environmental Strategists

Pacific Land Resource Group Inc.

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Fax: 604-501-1625

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PROJECT:

34252 King Road, Abbotsford

DRAWING TITLE:

ALR Context Plan

PRELIMINARY PLAN - SUBJECT TO APPROVAL(S) FROM FEDERAL, PROVINCIAL AND LOCAL AUTHORITIES

CLIENT:

Ministry of Citizens' Services

SCALE:

1:7,500

DATE:

February 13, 2025

PROJECT No:

23-2676

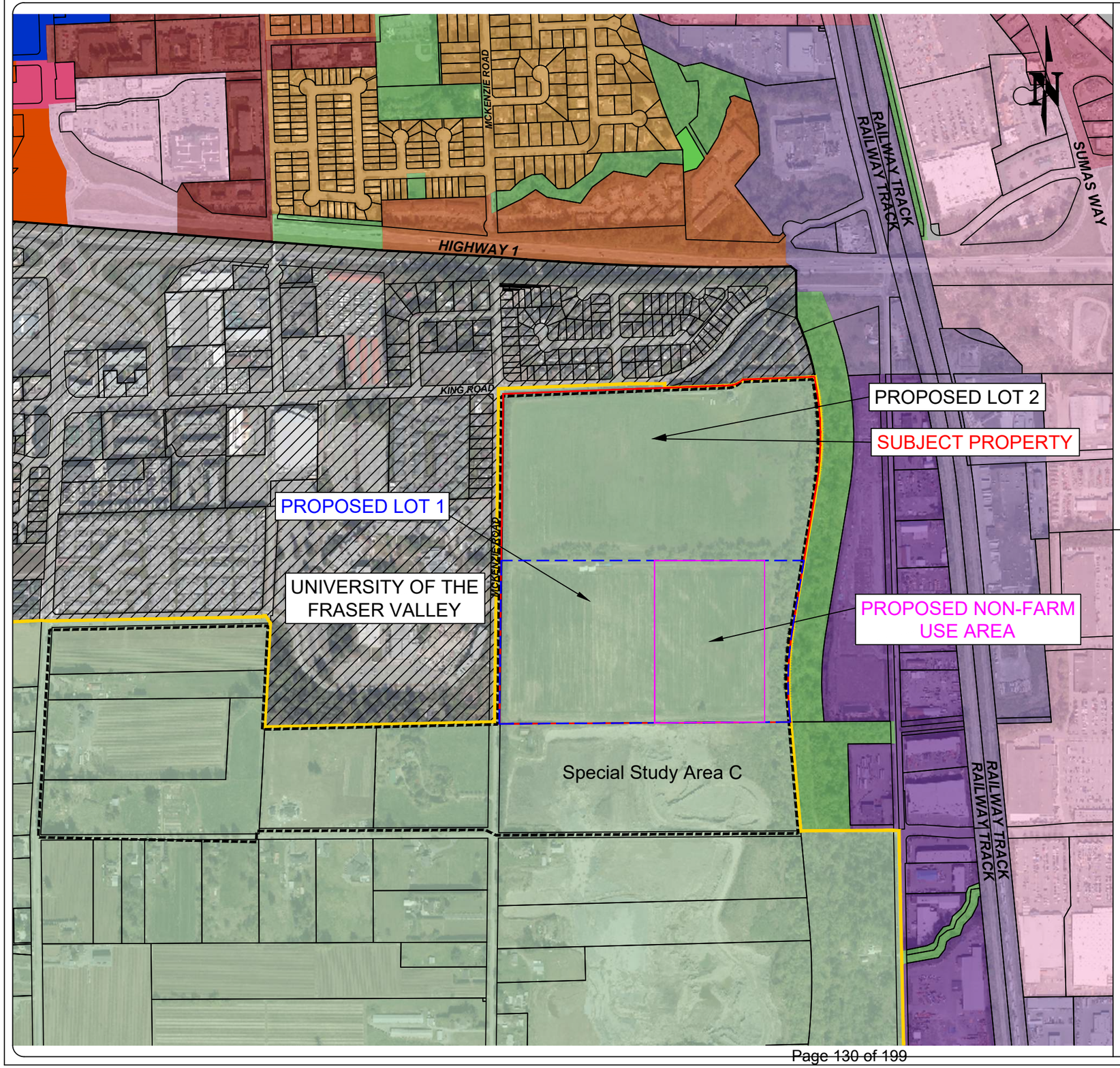
DRAWING No:

01-2

DESIGNED BY:	CHECKED BY:
JS	**LJ**

Appendix D

OCP Map of Subject Property



LEGEND

- Subject Property
- Proposed Lot
- Non-Farm Use Area
- Urban Development Boundary
- Special Study Area C
- Agriculture 1- Uplands
- University District Neighborhood Plan
- Open Space
- General Industrial
- High Impact Industrial
- Regional Commercial
- Secondary Commercial
- Urban 2 - Ground Orientated
- Urban 3 - Infill
- Urban 1 - Midrise

STATISTICS

Subject Property: 34.72 ha / 85.80 ac

Proposed lot 1: 16.18 ha /40 ac

Farm Use Area: 10.11 ha / 25 ac

Non-Farm Use Area: 6.07 ha / 15 ac

Proposed Lot 2: 18.53 ha / 45.8 ac

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PROJECT:

34252 King Road, Abbotsford

DRAWING TITLE:

OCP Plan

PRELIMINARY PLAN - SUBJECT TO APPROVAL(S) FROM FEDERAL, PROVINCIAL AND LOCAL AUTHORITIES

CLIENT:

Ministry of Citizens' Services

SCALE:

1:7,500

DATE:

February 13, 2025

PROJECT No:

23-2676

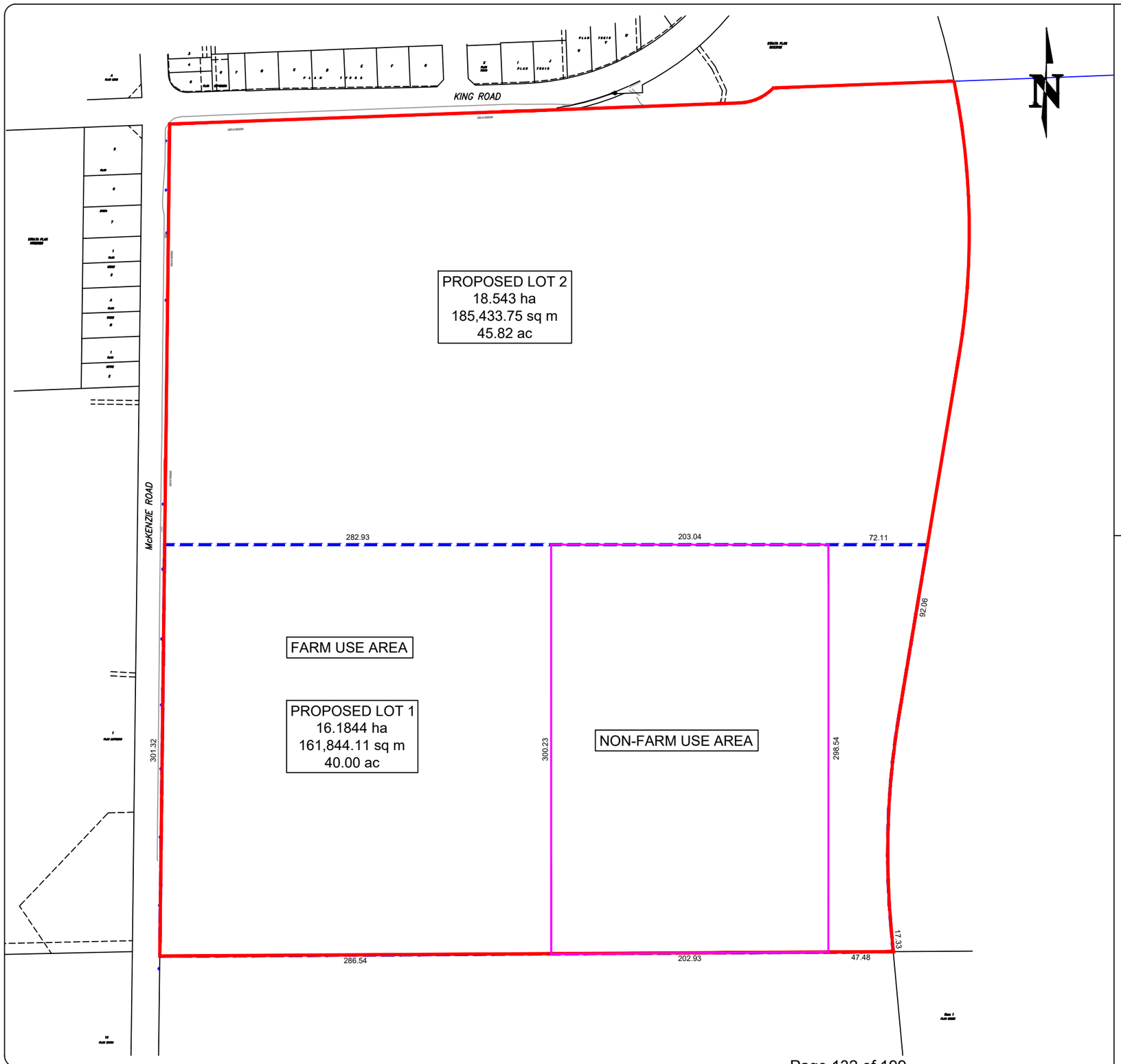
DRAWING No:

01-2

DESIGNED BY:	CHECKED BY:
JS	**LJ**

Appendix E

Proposed Subdivision Configuration



LEGEND

- Surveyed Subject Property
- Proposed Lot Line
- Non-Farm Use Area

STATISTICS

Subject Property: 34.72 ha / 85.80 ac

Proposed lot 1: 16.18 ha /40 ac

Farm Use Area: 10.11 ha / 25 ac

Non-Farm Use Area: 6.07 ha / 15 ac

Proposed Lot 2: 18.53 ha / 45.8 ac

Note:

- All Surveying done by South Fraser Land Surveying LTD. on November 04, 2024.

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PROJECT:

34252 King Road, Abbotsford

DRAWING TITLE:

Subdivision Plan

PRELIMINARY PLAN - SUBJECT TO APPROVAL(S) FROM FEDERAL, PROVINCIAL AND LOCAL AUTHORITIES

CLIENT:

Ministry of Citizens' Services

SCALE:

1:3,000

DATE:

February 13, 2025

PROJECT No:

23-2676

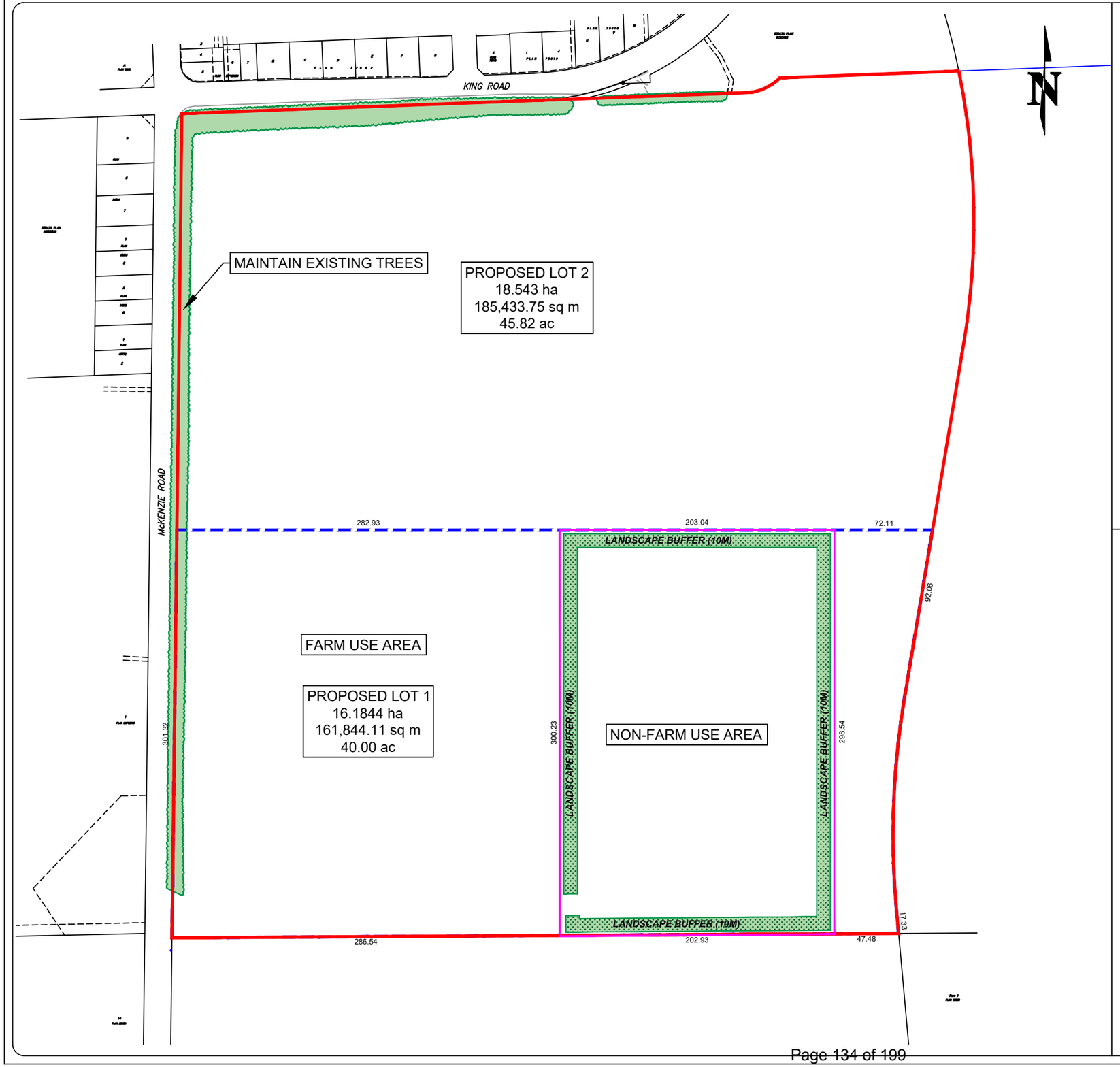
DRAWING No:

01-2

DESIGNED BY:	CHECKED BY:
JS	**LJ**

Appendix F

Proposed Landscape Buffer for 15-acre Non-Farm Use Area



LEGEND

- Surveyed Subject Property
- Proposed Lot
- Non-Farm Use Area
- 10m Landscape Buffer
- Existing Trees to be Maintained

STATISTICS

Subject Property: 34.72 ha / 85.80 ac

Proposed lot 1: 16.18 ha /40 ac

Farm Use Area: 10.11 ha / 25 ac

Non-Farm Use Area: 6.07 ha / 15 ac

Proposed Lot 2: 18.53 ha / 45.8 ac

Note:

- All Surveying done by South Fraser Land Surveying LTD. on November 04, 2024.

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PROJECT:

34252 King Road, Abbotsford

DRAWING TITLE:

Landscaping Buffer Plan

PRELIMINARY PLAN - SUBJECT TO APPROVAL(S) FROM FEDERAL, PROVINCIAL AND LOCAL AUTHORITIES

CLIENT:

Ministry of Citizens' Services

SCALE:

1:3,000

DATE:

February 13, 2025

PROJECT No:

23-2676

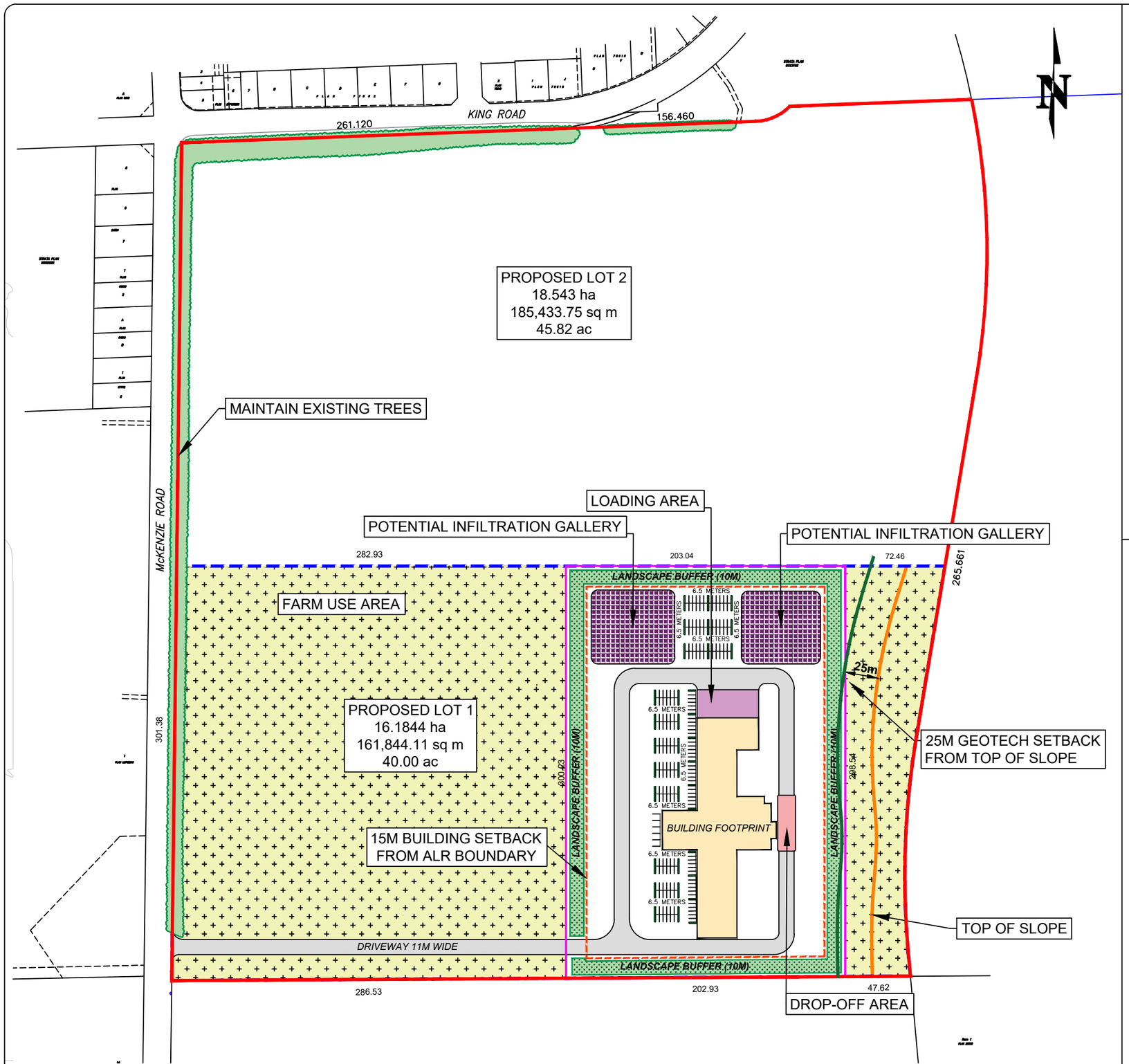
DRAWING No:

01-2

DESIGNED BY:	CHECKED BY:
JS	LJ

Appendix G

Proposed Conceptual Site Plan for PAHC Facility



LEGEND

- Surveyed Subject Property
- Proposed Lot
- Non-Farm Use Area
- 15m Building Setback (ALR Setback)
- Top of Slope
- 25m Geotech Setback from Top of Slope
- Farm Use Area
- 10m Landscape Buffer
- Potential Infiltration Gallery
- Existing Trees to be Maintained
- Mapped Contours (1 m Intervals)

STATISTICS

Subject Property: 34.72 ha / 85.80 ac

Proposed lot 1: 16.18 ha /40 ac

Farm Use Area: 10.11 ha / 25 ac

Non-Farm Use Area: 6.07 ha / 15 ac

Proposed Lot 2: 18.53 ha / 45.8 ac

1. Farm Use Driveway area: 3,165.17 sq m
2. Non-Farm Use Driveway area: 46,770.74 sq m

Proposed Parking Stalls: 221

Note:

- All Surveying done by South Fraser Land Surveying LTD. on November 04, 2024.
- Building Designs to be Confirmed.

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PROJECT:

34252 King Road, Abbotsford

DRAWING TITLE:

Conceptual Site Plan

PRELIMINARY PLAN - SUBJECT TO APPROVAL(S) FROM FEDERAL, PROVINCIAL AND LOCAL AUTHORITIES

CLIENT:

Ministry of Citizens' Services

SCALE:

1:3,000

DATE:

February 11, 2025

PROJECT No:

23-2676

DRAWING No:

01-2

DESIGNED BY:	CHECKED BY:
JS	LJ

McTAVISH
RESOURCE & MANAGEMENT
CONSULTANTS LTD.

Agricultural Capability Report 34252 King Road, Abbotsford

Prepared for: Pacific Land Group

REV A.2

February 2025

Document title	McTavish Agricultural Capability Report 34252 King Road, Abbotsford
Document subtitle	Prepared for: Pacific Land Group
Date	January 2025
Version	A.2

Document History

Version	Date	Author	Comments
0.1	31 October 2024	Max Hoyer, A.Ag	Initial draft
0.2	1 November 2024	Theresa Loewen P.Ag	Draft 2
0.3	4 November 2024	Justin McTavish P.Ag	Draft 3
0.4	7 November 2024	Max Hoyer, A.Ag	Issue for Review (Internal)
0.5	11 November 2024	Geoff Hughes-Games, PAg	Internal Review
0.6	12 November 2024	Justin McTavish PAg	Issued for client review (Draft)
A.1	20 November 2024	Justin McTavish PAg	Issued for client (Draft)
A.2	18 February 2025	Justin McTavish PAg	Issued for client

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1. INTRODUCTION

McTavish Resource & Management Consultants Ltd. (McTavish) was retained by Pacific Land Group (the "Client") to conduct an agricultural capability assessment of a property located at 34252 King Road, Abbotsford, BC (the "Site"). The purpose of the assessment was to document existing conditions and determine the agricultural capability of the Site (the "Project") as supporting information for a non-farm use and subdivision application from the Agricultural Land Reserve. The Project involved a desktop review to provide context to historic and on-going land use, a field assessment, and the collection of soil samples for laboratory analysis and photographic images.

The Site assessed is an approximately 34.7 ha parcel (PID 013-380-508) that is located within the BC Agricultural Land Reserve (ALR) and is therefore subject to the *Agricultural Land Commission Act* (2002) and its associated regulations.

This report summarizes the methodology, desktop and field assessments, laboratory analysis, agricultural capability revisions, crop suitability comments, and recommendations related to the subdivision of the Site.

2. METHODOLOGY

To determine agricultural capability and document existing conditions on the Site, McTavish reviewed the following information:

- Site elevations, topography, drainage, surrounding land use and agricultural activities from available aerial imagery and mapping (Google Earth, 2024; City of Abbotsford Map Viewer, 2024).
- British Columbia Biogeoclimatic Ecosystem Classification (BEC) Zones (BC MOF 2023).
- Published soils and agricultural capability from BC Soil Information Finder Tool (SIFT) (Province of BC 2018).
- Agricultural Capability Mapping and Classifications (Province of BC 2018).
- Climate and moisture data (Government of Canada 2022).
- Client correspondence for land use history and prospective plan for the Site.

The field assessment was conducted on October 17, 2024, by Justin McTavish, P.Ag, and Max Hoyer, A.Ag. The assessment comprised:

- Recording observations of conditions on the Site that may promote or limit agriculture (e.g., existing farm infrastructure, environmental conditions, drainage, topography, debris content). Topography was assessed based on the definitions provided by Luttmerding (1981).
- Conducting a detailed soil survey following the requirements of the ALC Policy P-10 (BC ALC 2017). ALC Policy P-10 requires that the soil survey meet the Survey Intensity Level 1 (SIL1), as outlined in the *Soil Inventory Methods for British Columbia* (Resources Inventory Committee, 1995). SIL1 requires one detailed soil pit per 1 to 5 ha.
- Collection of soil samples for chemical analysis.

A total of eight detailed soil pits were installed across the Site. Each soil pit was hand dug to the C horizon, or until shovel refusal. The detailed soil survey included the documentation of soil characteristics based on *Soils Illustrated – Field Descriptions, 1st Edition* (Watson 2007).

Based on the desktop and field results the agricultural capability was confirmed or revised. The Project adhered to BC Agricultural Land Commission (ALC) Criteria for Agricultural Capability Assessments Policy P-10 (BC ALC 2024).

Soil samples were collected from the topsoil (A) and subsurface (B) horizons of representative soil pits during the field assessment. Pits that did not share similar characteristics were sampled individually.

Soil samples were analyzed to determine soil physical and chemical properties that may promote or limit agriculture. The samples were analyzed at Element Materials Testing Laboratory accredited by the Standards Council of Canada (SCC) to ISO17025.

Topsoil samples were analyzed to determine particle-size analysis (PSA), soil macro[1]- and micro[2]- nutrient content, pH, electrical conductivity (EC), base saturation (BS), organic matter (OM) content, and cation exchange capacity (CEC). Subsurface soil samples were analyzed to determine particle-size analysis (PSA), soil nitrogen (as Nitrate-N), soil sulfur (as sulfate-S), pH, and electrical conductivity (EC).

3. RESULTS

The following provides the results from the desktop assessment, field assessment and soil laboratory analysis.

3.1 Site Location and Historical Use

Located in Abbotsford, the Site is bordered to the north by residential developments, to the east by forested parkland adjacent to industrial/commercial sites, to the south by a gravel pit and to the west by the University of the Fraser Valley campus (**Appendix I**). The 34.7 ha parcel is zoned Rural Residential and lies with the ALR (City of Abbotsford, 2024). The site has two existing access roads, one along the north of the Site which connects to King Road and one along the west of the Site which connects to McKenzie Road. A single residential dwelling is located in the northeast corner of the Site. The Site is divided centrally by an east-to-west treed buffer which separates the property into two fields each approximately 12.5 ha in size.

Historical aerial and satellite imagery dating back to 1940 was reviewed to assess historical land use within the Site. Aerial imagery dated from 1940 shows the Site as predominately forested (Government of B.C., 2024). Subsequent aerial imagery from 1966 indicates that Site had been cleared, with imagery from 1974 depicting the Site as cultivated for agricultural production. Imagery dated from 1982 and 1983 depicts agricultural production consistent with the 1974 imagery.

Significant changes in land use within the Site are observed in the mid-1980's, with aerial imagery dated from 1986 depicting the northern half of the Site as disturbed and actively being used for gravel extraction. The southern half of the Site appears undisturbed in the 1986 imagery, with this portion of the Site still vegetated.

Aerial imagery dated from 1988 depicts disturbance consistent with the 1986 imagery. By 1990, the gravel extraction had been completed and soil appears to have been replaced. Additional disturbance is observed in the northeastern 3.8 ha of Site during the period of 2004 – 2007, with satellite imagery indicating that topsoil has been excavated and gravel extraction was taking place. Subsequent satellite imagery from 2008 indicates that topsoil had been replaced in the disturbed area and it had been returned to cultivation along with the remainder of the parcel.

[1] Plant macronutrients are essential nutrients required in relatively large amounts and include nitrogen (N), potassium (K), calcium (Ca), Magnesium (Mg), phosphorus (P), and sulfur (S).

[2] Plant micronutrients are essential nutrients used in smaller amounts (when compared to macronutrients) and include chlorine (Cl), iron (Fe), boron (B), manganese (Mn), zinc (Zn), copper (Cu), molybdenum (Mo), and nickel (Ni). However, Mo and Ni were excluded from laboratory analysis.

No other major land use changes were observed within the Site. Adjacent land use to the Site includes the University of the Fraser Valley to the west, residential properties to the north, industrial properties to the east, and an active gravel pit to the south.

Table 3-1 provides a brief summary of historical land uses within the Site.

Table 3-1 Summary of Historical Land Use

Date Range:	1940 – 1966	1974 - 1983	1986 – 1988	1990 – 2024
Land Use:	Forest in 1940. Cleared prior to 1966.	Agricultural cultivation.	Northern field disturbed by gravel mining activities.	Agricultural cultivation. Some localized gravel mining activities in northeastern corner of the Site.

3.2 Site Observations

The field assessment verified the access/egress points of the Site on King Road and McKenzie Road and confirmed Site characteristics described in the desktop review. Topsoil throughout the Site had been shaped in to raised (poly covered) beds and planted to pumpkins, which were partially harvested at the time of the field assessment. A ~1.0 ha area along the southern edge of the northern field had not been planted with pumpkins and featured well established weeds including clover (*Trifolium spp.*), orchard grass (*Dactylis spp.*) and pigweed (*Amaranthus spp.)*.

Mapping indicates that the topography of the Site varies from 47 – 64 meters above sea level (masl; City of Abbotsford, 2024). The cultivated portion of the northern field features a relatively low relief, with a general eastern aspect and slopes generally ranging from 2 - 8%. The southern field features a complex relief with slopes generally ranging from 4 – 9%. Stronger relief is observed along the eastern edge of the parcel with slopes in excess of 28%. Land use along the strongly sloping area at the eastern edge of the parcel is not cultivated and therefore this area was excluded from the assessment.

The topography observed within the Site is consistent with mapping. The northern field is generally level with a moderate eastern aspect slope along the western boundary of the parcel. The southern field features a moderately complex topography with multiple gentle to moderately rolling hills.

Site photographs from the field assessment are provided in **Appendix II.**

3.3 Climate

Biogeoclimatic Ecosystem Classification (BEC) mapping provides an indication of the overall anticipated moisture and temperature conditions. The Site is within the Coastal Western Hemlock, Very Dry Maritime (CWHxm) BEC zone (MOF, 2023). This BEC zone is found on BC's lower mainland along the south side of the Fraser River at elevations ranging from sea level to approximately 700 meters above sea level. The Coastal Western Hemlock, Very Dry Maritime BEC zone is characterized by warm, dry summers and moist, mild winters with relatively little snowfall (Green and Klinka 1994).

The Site is located approximately 6.0 km northwest of the "ABBOTSFORD A" weather station (Climate ID 1100030). Climate Normals from 1991 to 2020 indicate that the climate of the Site is characteristic of the CWHxm BEC Zone (Government of Canada, 2022). The station data indicates mean daily temperature in

December of 3.5°C and mean daily temperature in August of 18.7°C. The mean annual precipitation is 1504.6 mm, with most of the precipitation occurring as rainfall from October to March, including a mean annual snowfall of 56.4 cm. There were on average (and with 90% probability) 224 frost-free days per year with the first fall frost falling on average on November 1st, and the last spring frost of April 7th. There were on average 2288.3 growing degree days above 5°C and 1074.0 growing degree days above 10°C.

Figure 3-1 shows the monthly normal (30-year-average) precipitation compared to the estimated potential evapotranspiration (PET) as estimated from local meteorological data using the Priestley-Taylor equation (Shuttleworth 1993). Between May and September, the Abbotsford region experiences a soil moisture deficit and some crops need to be irrigated to offset the deficit.

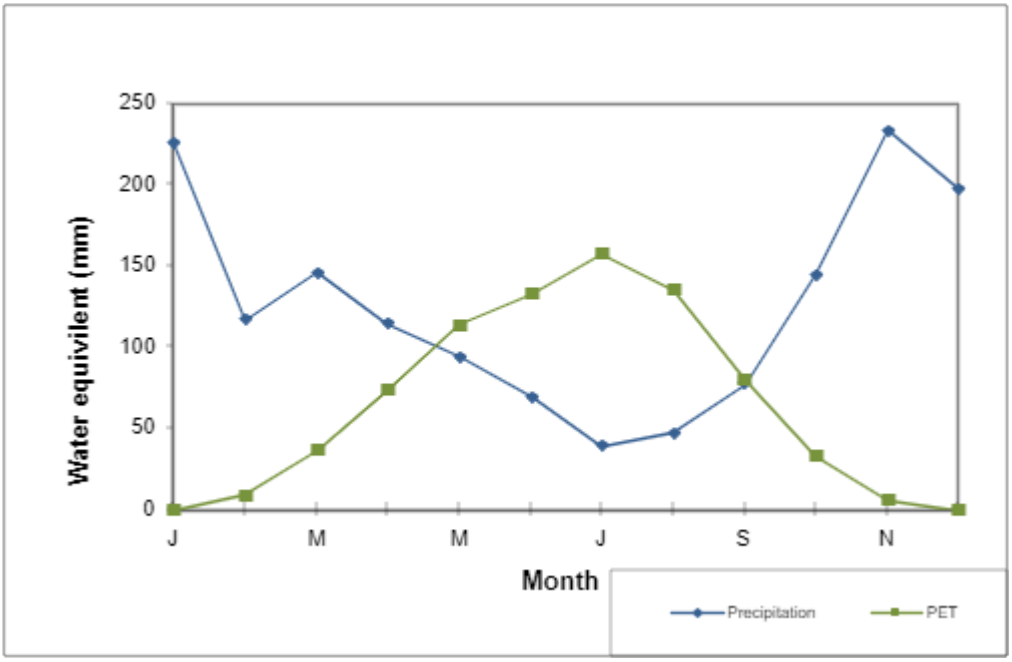

Figure 3-2 Precipitation and Potential Evapotranspiration at the Abbotsford A Climate Station

3.3.1 Climate Change Impacts

With the onset of climate change, the impacts of soil moisture regimes and air temperature will affect crop production. Within the Fraser Valley Regional District, annual temperatures are expected to rise by an average of 2.5°C (+2.1°C to +4.2°C) and summer precipitation is expected to decrease by 17.0% (-26.8% to -2.7%) over the period of 2041-2070 (PCIC 2020). This may exacerbate drought and the demand for irrigation. Overall precipitation events are expected to be more severe resulting in the increased incidents of flooding or flashy stream flows resulting in the need for improved drainage infrastructure. In addition, growing degree days and frost-free days are both expected to increase by 580 and 36 days respectively. Based on these predictions, higher crop productivity and a greater range of crops may be possible; however, agricultural challenges related to increased flooding, summer droughts, and demand for heat-tolerant plants are also likely to occur.

3.4 Soils

3.4.1 Mapped Soils Series

Three soil polygons, which include four soil series, are documented on the Site (**Table 3-2**; Province of BC 2018). The polygons in the Site occur in both pure map units (single soil series per polygon) and complexes (i.e., multiple soil series per polygon) consisting of mineral soil parent materials. The mineral soils have developed from morainal, glaciofluvial and eolian deposits (Luttmerding 1981).

An overview map indicating the published soil series and their respective descriptions is provided in **Appendix III** and descriptions of the soil series present on the site is provided in **Appendix IV**.

Figure 3-3 Summary of Published Soil Series

Mapped Soil Series 1	Soil Series 1 Classification	%	Mapped Soil Series 2	Soil Series 2 Classification	%	Mapped Soil Series 3	Soil Series 3 Classification	%	Area (ha)
Abbotsford	Orthic Humo-Ferric Podzol	100							0.3
Ryder	Orthic Humo-Ferric Podzol	80	Lonzo Creek	Orthic Humo-Ferric Podzol	20				29.4
Ryder	Orthic Humo-Ferric Podzol	60	Lonzo Creek	Orthic Humo-Ferric Podzol	20	Marble Hill	Orthic Humo-Ferric Podzol	20	4.9

3.4.2 Soil Observations

The detailed soil survey comprised the excavation of seven soil pits across the Site. Detailed soil cards for each soil pit excavated on the Site are provided in **Appendix V** and soil pit locations are shown in **Appendix VI**.

Soil pits were installed in two of the three soil polygons mapped within the Site. The polygon containing the Abbotsford soil series occupies a small (<0.5 ha) uncultivated and tree covered area along the eastern boundary of the parcel and was not accessible therefore not included in the assessment. Based on the results of the detailed soil survey, the soil series present on the Site are inconsistent with published soil mapping (**Table 3-3**).

Figure 3-4 Soil Pit Summary

Soil Pit Number	Published Soil Classification	Assessed Soil Classification	Topsoil Depth (cm)	Topography	Drainage Class
1	Orthic Humo-Ferric Podzol	Orthic Melanic Brunisol	13	Gentle (5 – 10% slopes)	Well drained
2	Orthic Humo-Ferric Podzol	Orthic Melanic Brunisol	14	Gently sloping (2 – 5% slopes)	Moderately well drained
3	Orthic Humo-Ferric Podzol	Orthic Melanic Brunisol	18	Gently sloping (2 – 5% slopes)	Moderately well drained
4	Orthic Humo-Ferric Podzol	Orthic Humic Regosol	13	Gently rolling (5 – 9%)	Well drained
5	Orthic Humo-Ferric Podzol	Orthic Humo-Ferric Podzol	34	Gentle (5 – 10% slopes)	Moderately well drained
6	Orthic Humo-Ferric Podzol	Orthic Humo-Ferric Podzol	28	Gently rolling (5 – 9%)	Moderately well drained
7	Orthic Humo-Ferric Podzol	Orthic Humo-Ferric Podzol	27	Gently rolling (5 – 9%)	Moderately well drained

Soil pits 1, 2 and 3 were installed on a gently sloping to level area of the field on the north side of the Site. Soil pits 1, 2 and 3 showed a topsoil horizon ranging between 13 – 18 cm, underlain by either a sandy loam or silt loam textured Bm horizon. Coarse fragment content increased with depth in soil pits 1, 2 and 3 with 5 % gravel content in the topsoil, 20-25% gravel content in the subsurface Bm or BC horizons and 35 – 50% gravel and cobble in the Bm 2 or C horizon. Rooting depth in soil pits 1, 2 and 3 ranged from 18 – 25 cm.

Soil pit 4 was installed along an elevated ridge within the southern field. Soil pit 4 showed a topsoil horizon of 13 cm, underlain by a sandy textured C horizon to a depth of 39 cm and a sand textured C2 horizon to a depth 47 cm. Topsoil contained 30% coarse fragments, including gravels and cobbles, with surface stones observed within the immediate vicinity of soil pit 4. The C horizon featured 85% coarse fragment content including cobbles and gravels. The C2 subsoil horizon featured 60% coarse fragment content comprised of gravel. Rooting depth was observed at 23 cm.

Soil pits 5, 6, and 7 were installed in the gently to moderately rolling slopes of the southern field. Topsoil depths in soils pits 5, 6 and 7 ranged from 24 – 34 cm, underlain by silt loam textured Bf subsurface horizons, and followed by either a silt loam textured BC or sandy loam textured C horizon. Rooting depth in soil pits 5, 6 and 7 ranged from 27 – 52 cm.

Soil pits 8 and 9 were installed within the northern field. Topsoil depth in soils pits 8 and 9 was 30cm and was underlain by a BC or C horizon. Coarse fragment content increased with depth in soil pits 8 and 9, ranging from 15 – 30% in the topsoil and 50 - 55% in the subsurface BC and C horizons. Surface water was observed in the area surrounding soil pit 9.

Soil pit 10 was installed in the uncultivated treed area along the eastern edge of the Site. No topsoil was observed in soil pit 10 and surficial soil featured 15% gravels and cobbles. No evidence of soil horizonation was observed in soil pit 10.

Due to the sand to sandy loam textures and lack of mottling, drainage class in soil pits 1, 4 and 8 were determined to be well drained. Soil pits 2, 3, 5, 6 and 7 were classified as moderately well drained based on silt loam textures and lack of mottling. Due to the presence of standing water during the field assessment, soil pit 9 was classified as imperfectly drained. Soil pit 10 was classified as well drained due to topography, soil texture and a lack of mottling.

3.5 Agricultural Land Capability

Three agricultural capability polygons from five capability classes are documented on the Site (**Table 3-4**; Province of BC 2018). The published unimproved agricultural capability within the Site ranges from Class 2 to Class 7 with limitations due to topography (T) and aridity (A). The published improved ratings range from Class 2 to Class 7 with limitations due to topography. An overview map delineating the published agricultural capability polygons is provided in **Appendix VII**. Descriptions of the limitations affecting the soils on the Site are provided in **Appendix VIII.**

The detailed soil survey and site assessment indicated that the agricultural capability of the Site is not fully consistent with mapping, and revisions relating to the limitation subclasses have been made as shown in **Table 3-5**. Note that only dominant limitations are identified in Table 3-3. An overview map delineating the revised agricultural capability polygons is provided in **Appendix VI**.

The A subclass is used where crops are adversely affected by droughtiness either through insufficient precipitation or low water holding capacity of the soil (Kenk and Cotic 1983). To determine limitations relative to drought and water holding capacity, potential evapotranspiration (PET) on the property was estimated using a version of the Priestley-Taylor equation (Shuttleworth 1993) and the available climate data and using the albedo value for cultivated fields (0.23).

The estimated potential evapotranspiration (PET) values were used to determine the Climate Moisture Deficit (CMD) and the Soil Moisture Deficiency (SMD) following methods in MOE/MOF (1983). The PET was estimated using the Priestly-Taylor equation (Shuttleworth 1993) using the climate normal data. Soil conditions observed in the majority of the soil pits installed throughout the Site were consistent with the A subclass. In soil pit 1, 2, 3, 8 and 9 an SMD range of 201 - 249 was consistent with the criteria for class 4A. In soil pit 4, an SMD of 269 was consistent with the criteria for class 5A. In soil pits 5, 6 and 7, a soil moisture deficit (SMD) of 174 was consistent with the criteria for class 3A. Based on the results of the field assessment, the A subclass ratings have been updated for soils within the Site.

The P subclass describes soils with sufficient coarse fragments to significantly hinder tillage, planting, and/or harvesting operations (Kenk and Cotic 1983). Soil conditions observed in soil pits 1 – 3 and 9 were consistent with the criteria for class 4P in which total coarse fragment content is 21 to 40%. Soil pit 4 also featured a high composition of coarse fragments both within the soil profile and in the area surrounding the soil. Observations of the area surrounding pit 4 indicated that the coarse fragments were limited to the area immediately surrounding pit 4 and therefore the P subclass was not attributed to the southern field.

The D subclass is used where crops are adversely affected by undesirable soil structure and/or low perviousness (Kenk and Cotic 1983). Soil conditions observed in soil pits 2 and 3 were consistent with the criteria for class 4D in which a root restricting layer is present within 25 cm of the soil surface. Due to the presence of compacted Bm 2 horizons within 25 cm of the soil surface, the subclass 4D has been added to this area. Soil pits 2 and 3 are located within close proximately (~30 meters) to a farm access road that runs east-to-west through the parcel. Compaction in these soil pits may be attributed to vehicle and farm equipment traffic on the nearby access road.

The T subclass applies to soils for which topography limits agricultural use by affecting the use of farm machinery, decreasing the uniformity of growth and maturity of crops, and increasing the potential for water erosion. The topography in the area surrounding pits 4, 5, 6 and 7 were consistent with the 3T subclassification. Based on the results of the field assessment, the subclass ratings have been updated for soils within the Site.

The W subclass applies to soils for which excess free water limits agricultural use. A review of historical imagery in addition to soil conditions during the field assessment in the area surrounding soil pit 9 was consistent with the 4 W subclassification.

Figure 3-5 Summary of Published Agricultural Capability

Polygon	Mapped Soil Series	Slope Class	Mapped Agricultural Capability	Improvable Agricultural Capability	Area (ha)
1	Ryder (80%) / Lonzo Creek (20%)	Gently sloping to very steep slopes (CG) (80%) / Gently to Strongly Rolling (20%) (df)	^{7}3TA ^{3}4T	^{7}3T ^{3}4T	29.5
2	Ryder (60%) / Lonzo Creek (20%) / Marble Hill (20%)	Gently sloping to very steep slopes (CG) (80%) / Gently to Strongly Rolling (20%) (df)	^{6}3TA ^{4}2AT	^{6}3T ^{4}2T	4.9
3	Abbotsford	Gently sloping to gently undulating (Cb)	^{7}7T ^{3}5T	^{7}7T ^{3}5T	3.0

Note: Superscript numbers represent proportion of polygon out of 10. Published ratings are from BC SIFT (Province of BC 2018).

Figure 3-6 Field Assessed Soils Series and Agricultural Capability

Published					Revised					
Soil Pits	Soil Classification	Unimproved Capability Rating (CC)	Improved Capability Rating (IC)	Area (ha)	Soil Pits	Soil Classification	Unimproved Capability Rating (CC)	Improved Capability Rating (IC)	Area (ha)	Capability Rating Revision*
1, 2, 3, 4, 7, 8, 9	Orthic Humo-Ferric Podzol	[7]3TA [3]4T	[7]3T [3]4T	29.5	1, 8, 9	Orthic Melanic Brunisol / Orthic Humic Regosol	[9]4AP [1]4WP	[9]2AP [1]2WP	11.6	-Change in polygon area -Revised from 3A to 4A based on soil moisture deficit (SMD) -Addition of P subclass due to coarse fragments -Addition of W subclass
					2, 3	Orthic Melanic Brunisol	4AD	3DP	2.7	-Revised polygon area -Revised from 3A to 4A based on soil moisture deficit (SMD) -Addition of D subclass due to compaction -Addition of P subclass due to coarse fragments

	Published					Revised				
5, 6	Orthic Humo-Ferric Podzol	^{6}3TA ^{4}2AT	^{6}3T ^{4}2T	4.9	4, 5, 6, 7	Orthic Humic Regosol / Orthic Humo-Ferric Podzol	3TA	2T	13.6	-Revised polygon area -Revised from 40% 2AT to 100% 3TA
10	Orthic Humo-Ferric Podzol	^{7}7T ^{3}2AT	^{7}7T ^{3}2AT	0.3	10	NA	6TP	6TP	3.0	-Revised from 7T to 6T -Addition of P subclass

Note: Source of published unimproved and improved ratings area from BC SIFT (Province of BC 2018). Superscript numbers represent proportion of polygon out of 10. Published ratings are from BC SIFT (Province of BC 2018).

*Discussion of justification for revisions can be found in Section 5.1.

3.6 Laboratory Results

Soil nutrient analysis results of the topsoil samples indicated variable levels of macronutrients. On average, nitrate-N and sulfate-S levels were low while phosphorus and potassium levels were high. Organic matter content (%) in the topsoil ranged from 3.9 – 8.8%.

All samples displayed neutral pH and electrical conductivity of <1 dS/m indicating no issues with acidity or salinity.

A summary of laboratory results is provided in **Table 3-6**. Full laboratory results are provided in **Appendix IX**.

Figure 3-7 Nutrient Test Results

Sample	pH[1]	EC[2]	Total OM[3]	Available[4]			
				N (as NO_3-N)	P	K	S (as SO_4-S)
		dS/m	%	ppm	ppm	ppm	ppm
Topsoil of Pit 1 (0-13 cm)	6.5^{A}	0.31^{G}	8.8^{SH}	6^{VL}	130^{H}	198^{A}	7^{L}
Topsoil of Pit 2 (0-14 cm)	6.5^{A}	0.29^{G}	8.2^{SH}	17^{VL}	140^{H}	307^{A}	3^{L}
Subsoil of Pit 2 (14-25 cm)	6.5^{A}	0.20^{G}	-	4^{VL}	-	-	3^{L}
Topsoil of Pit 4 (0-13 cm)	6.4^{A}	0.22^{G}	3.9^{A}	3^{VL}	130^{H}	232^{A}	4^{A}
Topsoil of Pit 6 (0-28 cm)	6.2^{A}	0.33^{G}	8.7^{SH}	12^{VL}	180^{H}	183^{A}	5^{L}
Subsoil of Pit 6 (28-62 cm)	6.9^{A}	0.10^{G}	-	2^{VL}	-	-	4^{L}

Notes:

[1] pH ranges are classified as follows: B = Alkaline, N = Neutral, Acidic = A, Very Acidic = VA

[2] Salinity values are categorized according to general crop requirements and are classified as follows: E = Extreme, VH = Very High, H = High, G = Good

[3] Organic matter percentages are categorized according to general crop requirements and are classified as follows: H = High, N = Normal. L = Low, VL = Very Low

[4] Available nutrient levels are categorized according to general crop requirements are classified as follows: E = Excess, O = Optimal, M = Marginal, D = Deficient

4. DISCUSSION AND RECOMMENDATIONS

4.1 Current Land Use & Crop Suitability

The ability of the Site to support a wide range of crops is limited by soil and climatic moisture deficits, coarse fragments, root restricting layers and topography. Based on current soil conditions and a review of past crops cultivated on the Site. Crops suited to the current site conditions include annual legumes, blueberries, cereals, cole crops, corn, nursery and Christmas trees, perennial forage crops, root crops, shallow rooted annual vegetables, strawberries and tree fruits (Bertrand et al. 1991). However, the moderate slopes present on the Site may favor perennial crops such as forage, crops berry and fruit crops.

4.2 Land Improvements

Given the current agricultural ratings of 4AP, 4WP, 3AT, 4AD and 6TP the main limitations to agriculture on the Site are soil moisture deficits, coarse fragments, root restricting layers and topography.

Limitations of soil moisture can typically be mitigated via the installation of an irrigation system. Depending on soil characteristics such as texture and coarse fragment composition, soil moisture deficits may not be improvable due to inherently low soil water holding capacities. PET values for the soils encountered on the Site indicate that the soil moisture limitation is generally improvable to classes 1 – 2.

Coarse fragment limitations can typically be improved by manually or mechanically removing cobbles and stones; however, the removal of gravels is generally considered impractical and therefore limitations of classes 3 - 4 would likely remain regardless of attempted improvements. The presence of coarse fragments within the soil profile can have adverse effects on mitigation measures aimed at improving other limitations.

Limitations of root restricting layers encountered in soil pits 2 and 3 could potentially be alleviated via deep ploughing or ripping to break up compacted layers. While improvements to root restricting limitations may be expected through such practices, the frequent presence of coarse fragments within the soil profile will likely impede any potential improvements. Furthermore, limitations of adverse topography may be alleviated via land leveling, however, the frequent presence of coarse fragments in the subsoil may also make this impractical. The presence of coarse fragments and rolling topography has not restricted the use of the land for annual non root crop vegetable production.

Limitations associated with topography and stoniness encountered in soil pit 10 are generally considered unimprovable. Due to the topography and poor quality soils observed along the uncultivated eastern edge of the Site, cultivated agricultural uses are limited to natural grazing for livestock.

5. SUMMARY AND CONCLUSIONS

McTavish conducted this agricultural capability assessment based on existing information a detailed soil survey with the goals of determining agricultural capability, documenting the existing condition of the Site, and developing recommendations for the subdivision and non-farm use of the Site.

The findings from the soil survey were inconsistent with existing soil and agricultural capability mapping, and therefore, agricultural capability of the Site was revised. Revisions to the agricultural land capability and soil classification is largely due to historical gravel mining on the property which has altered local topography, soil chemical and physical properties. According to the results of the soil survey, the Site comprises mineral soils of Class 3 to Class 6 that are limited due to aridity issues, coarse fragment content, root restricting layers, wetness and topography. Potential management practices that would improve agricultural capability based on the determined site limitations include the installation of irrigation, rock picking, deep ripping and land leveling.

6. CLOSING

This report has been prepared for the exclusive use of the Client with the understanding that all available information of the Site has been disclosed. The Client has acknowledged that in order for McTavish to properly provide professional service, McTavish is relying upon full disclosure and accuracy of this information. McTavish is not liable for information that has not been provided or has been misrepresented.

We trust this is the information that you require at this time. Should you have any questions regarding this report please contact the undersigned.

Sincerely,

MCTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.

Per

Max Hoyer

Max Hoyer A.Ag

Soils Technician

Justin McTavish

Justin McTavish P.Ag

Senior Project Agrologist

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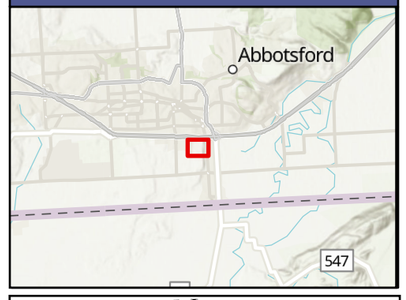
APPENDIX I. AREA OVERVIEW MAP

McTAVISH
RESOURCE & MANAGEMENT CONSULTANTS LTD.

LEGEND

- 34252 King Road Parcel
- Agricultural Land Reserve

LOCATION OVERVIEW



N

0 40 80 160
Meters

Scale: 1:3,000
Projection: NAD 1983 BC Environment Albers

Project ID: 2024-0020-AG
Project Description: King Road Agricultural Capability Assessment
Created By: MH
Date Exported: 10/30/2024

34252 King Road: Overview Map

APPENDIX II. SITE PHOTOGRAPHS

Photo 1 - Landscape of the north field looking south from soil pit 2. Weed pressure in uncultivated area is visible in foreground.

Photo 2 - Landscape of the north field looking west from soil pit 2. Slight change in elevation visible at western edge of field.

Photo 3 – Landscape of the south field looking south from soil pit 4. Partially harvested pumpkin crop visible as well as undulating topography.

Photo 4 – Landscape of the south field looking west from soil pit 4. Undulating topography visible

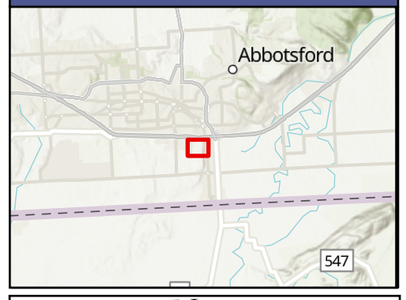
APPENDIX III. PUBLISHED SOIL SERIES MAP

McTAVISH
RESOURCE & MANAGEMENT CONSULTANTS LTD.

LEGEND

- 34252 King Road Parcel
- Agricultural Land Reserve
- BC Soil Survey Polygons

LOCATION OVERVIEW



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Scale: 1:3,000
Projection: NAD 1983 BC Environment Albers

Project ID: 2024-0020-AG
Project Description: King Road Agricultural Capability Assessment
Created By: MH
Date Exported: 10/30/2024

34252 King Road: Published Soil Polygons

APPENDIX IV. DESCRIPTION OF SOIL SERIES PRESENT ON THE SITE

Soil series descriptions have been retrieved from Luttmerding (1981).

Abbotsford Soils (AD)

Abbotsford soils are found as pure map units to the south and east of the airport and as a dominant component of soils complexes throughout the area. These soils normally have a 20 to 50 cm of eolian deposited surface layer the overlays stratified gravelly outwash. They tend to be gently sloping to gently undulating with slopes less than 5%. The soils are well drained and moisture deficiency can be restricting to crop production and irrigation is normally required. These soils usually have an agricultural capability rating of class 1 or 2 with limitation due to moisture deficiency. With irrigation much of the class 2 can be improved to class 1.

Abbotsford soils are well suited for most agricultural crops. Annual legumes, blueberries, cereals, cole crops, corn, nursery and Christmas trees, perennial forage crops, root crops, shallow rooted annual vegetables, strawberries, and tree fruits are suitable, but may require erosion control practices for steeper grades, irrigation in shallower soils, or water management where soils with a compacted subsoil exist (Lonzo creek). Where slopes are greater than 10% an exceptional level of soil conservation management practices are required as the growth of annual crops will cause soil loss by water erosion. Instead perennial forage crops, and berry and fruit crops where a complete grass cover is maintained are recommended.

Ryder (RD)

Ryder soils are common on the uplands and lower mountain slopes to the east of Abbotsford and in the southern part of Mission Municipality. These soils have developed from medium-textured, stone-free eolian deposits that overly moderately coarse textured glacial till. Surface and subsurface textures are mostly silt loam, varying sometimes to loam or fine sandy loam. The moderately stony underlying compact glacial till is sandy loam or gravelly sandy loam, sometimes containing lenses of gravel or sand. Ryder soils vary from gently sloping to very steep slopes, with gradients between 5 and 50%. These soils are well drained. They are moderately pervious, have high water holding capacity, and slow to moderate surface runoff. Nutrient holding capacity is moderate to high.

Ryder soils are suitable for most crops but topography generally limits their agricultural use. Irrigation may be required in dry years.

Lonzo Creek Soils (LZ)

Lonzo Creek soils occupy substantial upland areas in the eastern part of the map area. Lonzo Creek soils have developed from shallow (20 to 50 cm thick), medium-textured, stone-free eolian deposits that overlie moderately coarse textured, compact glacial till. Lonzo Creek soils, in uncleared areas, generally have 5 cm of variably decomposed; organic forest litter on the soil surface. This organic material is underlain by between 20 and 50 cm of reddish-brown to yellow-ish brown, friable, silty material. The soil classification of Lonzo Creek soils is Orthic Humo-Ferric Podzol.
Lonzo soils are well to moderately well drained and have moderate water holding capacity and slow to moderate surface runoff. Lonzo Creek soils are mostly gently to strongly rolling although undulating or hilly areas also occur. Substantial areas of Lonzo Creek soils are currently cleared and cultivated for agriculture. The soils are suited to most agricultural crops although adverse topography is limiting in some areas.

Marble Hill Soils (MH)

Marble Hill soils occur as pure map units and complexes near Abbotsford and Mission. These soils have developed from medium-textured, stone-free, eolian deposits (mostly silt-loam, sometimes varying to loam or fine sandy loam), greater than 50 cm thick, which overlie glaciofluvial deposits (either sandy gravel or gravely sand). These are generally found in upland areas and can vary from gently sloping to steep slopes (between 4 and 15%). These soils are well drained with moderate perviousness, high water holding capacity, and slow surface runoff.

Marble Hill Soils are limited for agricultural use by moisture deficiency. Many climatically adapted crops are suitable. Irrigation is required for good productivity during dry growing season.

APPENDIX V. SOIL CARDS

Soil Pit 1

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Melanic Brunisol

General Observations

Rooting Depth	18 cm
Water Table	Not encountered
Drainage Class	Well drained
Topography	Gentle (5 - 10% slopes)
Vegetation	Pumpkins
Comments:	Pit located in area historically disturbed for gravel extraction.

Figure 1. Pit 1 representative landscape.

Figure 2. Pit 1 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 13 cm	5%	Gravels	Silt loam	Medium subangular blocky	Firm	10YR 3/3	
Bm	13 - 23 cm	20%	Gravels	Sandy loam	Very fine subangular blocky	Loose	2.5Y 4/4	
C	23 - 47 cm	50%	Gravels	Loamy sand	Very fine subangular blocky	Loose	5Y 3/2	

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: October 17, 2024. Completed by: Max Hoyer, A.Ag.	PID: 013-380-508	Soil Pit ID: 1
		Latitude: 49°01'46.45"N	Longitude: 122°16'52.34"W

Soil Pit 1

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Melanic Brunisol

General Observations

Rooting Depth	18 cm
Water Table	Not encountered
Drainage Class	Well drained
Topography	Gentle (5 - 10% slopes)
Vegetation	Pumpkins
Comments:	Pit located in area historically disturbed for gravel extraction.

Figure 1. Pit 1 representative landscape.

Figure 2. Pit 1 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 13 cm	5%	Gravels	Silt loam	Medium subangular blocky	Firm	10YR 3/3	
Bm	13 - 23 cm	20%	Gravels	Sandy loam	Very fine subangular blocky	Loose	2.5Y 4/4	
C	23 - 47 cm	50%	Gravels	Loamy sand	Very fine subangular blocky	Loose	5Y 3/2	

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: October 17, 2024. Completed by: Max Hoyer, A.Ag.	PID: 013-380-508	Soil Pit ID: 1
		Latitude: 49°01'46.45"N	Longitude: 122°16'52.34"W

Soil Pit 2

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Melanic Brunisol

General Observations

Rooting Depth	22 cm
Water Table	Not encountered
Drainage Class	Moderately well drained
Topography	Gently sloping (2 - 5% slopes)
Vegetation	Uncultivated, clover, pigweed, and orchard grass dominate
Comments:	Pit located in area historically disturbed for gravel extraction.

Figure 3. Pit 2 representative landscape.

Figure 4. Pit 2 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 14 cm	5%	Gravels	Silt loam	Fine subangular blocky	Friable	10YR 3/2	
Bm	14 - 25 cm	25%	Gravels	Silt loam	Medium subangular blocky	Friable	10YR 4/3	
BC	25 - 61 cm	35%	Gravels with some cobbles	Silt loam	Fine subangular blocky	Very firm	10YR 4/4	Compaction encountered in BC. Unable to hand excavate deeper due to compaction.

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: October 17, 2024. Completed by: Max Hoyer, A.Ag	PID: 013-380-508	Soil Pit ID: 2
		Latitude: 49°01'44.13"N	Longitude: 122°16'43.76"W

Soil Pit 3

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Melanic Brunisol

General Observations

Rooting Depth	25 cm
Water Table	Not encountered
Drainage Class	Moderately well drained
Topography	Gently sloping (2 - 5% slopes)
Vegetation	Pumpkins
Comments:	Pit located in area historically disturbed for gravel extraction.

Figure 5. Pit 3 representative landscape.

Figure 6. Pit 3 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 18 cm	5%	Gravels	Silt loam	Fine subangular blocky	Friable	10YR 3/3	
Bm	18 - 31 cm	25%	Gravels	Silt loam	Fine subangular blocky	Firm	10YR ¾	
BC	31 - 55 cm	35%	Gravels	Silt loam	Fine subangular blocky	Firm	10YR 4/3	Compaction encountered in BC horizon. Unable to hand excavate deeper due to compaction.

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: October 17, 2024. Completed by: Max Hoyer, A.Ag	PID: 013-380-508	Soil Pit ID: 3
		Latitude: 49°01'44.41"N	Longitude: 122°16'35.68"W

Soil Pit 4

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Humic Regosol

General Observations

Rooting Depth	23 cm
Water Table	Not encountered
Drainage Class	Well drained
Topography	Steeply sloping (15 - 30% slopes)
Vegetation	Pumpkins
Comments:	Numerous surficial coarse fragments including stones and cobbles in area surrounding pit.

Figure 7. Pit 4 representative landscape.

Figure 8. Pit 4 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 13 cm	30%	Gravels, cobbles, and some stones on surface	Sandy loam	Fine subangular blocky	Friable	10YR 4/2	
C	13 - 39 cm	85%	Cobbles and gravels, primarily fine gravels	Sand	Single grained	Loose	10YR 5/3	
C 2	39 - 47 cm	60%	Gravels	Sand	Single grained	Loose	10YR 5/2	

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: October 17, 2024. Completed by: Max Hoyer, A.Ag	PID: 013-380-508	Soil Pit ID: 4
		Latitude: 49°01'40.57"N	Longitude: 122°16'38.14"W

Soil Pit 5

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (60%) / Lonzo Creek (20%) / Marble Hill (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Humo-Ferric Podzol

General Observations

Rooting Depth	52 cm
Water Table	Not encountered
Drainage Class	Moderately well drained
Topography	Gentle (5 - 10% slopes)
Vegetation	Pumpkins
Comments:	

Figure 9. Pit 5 representative landscape.

Figure 10. Pit 5 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 34 cm	2%	Gravel	Silt loam	Medium subangular blocky	Friable	10YR 3/3	
Bf	34 - 64 cm	0%		Silt loam	Fine subangular blocky	Friable	7.5YR 4/6	Podzolic Bf modified via cultivation at surface.
BC	64 - 86 cm	0%		Silt loam	Fine subangular blocky	Loose	10YR 4/3	

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: October 17, 2024. Completed by: Max Hoyer, A.Ag.	PID: 013-380-508	Soil Pit ID: 5
		Latitude: 49°01'39.36"N	Longitude: 122°16'52.74"W

Soil Pit 6

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (60%) / Lonzo Creek (20%) / Marble Hill (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Humo-Ferric Podzol

General Observations

Rooting Depth	28 cm
Water Table	Not encountered
Drainage Class	Moderately well drained
Topography	Moderately rolling (9 - 15% slopes)
Vegetation	Pumpkins
Comments:	

Figure 11. Pit 6 representative landscape.

Figure 12. Pit 6 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 28 cm	2%	Gravel	Silt loam	Medium subangular blocky	Friable	10YR 3/1	
Bf	28 - 62 cm	2%	Gravel	Silt loam	Fine subangular blocky	Friable	7.5YR 5/6	Podzolic Bf modified via cultivation at surface.
C	62 - 75 cm	25%	Fine gravel	Sandy loam	Very fine subangular blocky	Loose	10YR 5/4	

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: October 17,, 2024. Completed by: Max Hoyer, A.Ag	PID: 013-380-508	Soil Pit ID: 6
		Latitude: 49°01'34.86"N	Longitude: 122°16'46.89"W

Soil Pit 7

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Humo-Ferric Podzol

General Observations

Rooting Depth	27 cm
Water Table	Not encountered
Drainage Class	Moderately well drained
Topography	Gently rolling (5 - 9% slopes)
Vegetation	Pumpkins
Comments:	Excavated to 42 cm to confirm similarity to pits 5 and 6.

Figure 11. Pit 7 representative landscape.

Figure 12. Pit 7 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 24 cm	2%	Gravel	Silt loam	Fine subangular blocky	Friable	10YR 3/1	
Bf	24 - 42 cm	2%	Gravel	Silt loam	Fine subangular blocky	Loose	10YR 5/6	Podzolic Bf modified via cultivation at surface.

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: October 17, 2024. Completed by: Max Hoyer, A.Ag	PID: 013-380-508	Soil Pit ID: 7
		Latitude: 49°01'35.04"N	Longitude: 122°16'39.60"W

Soil Pit 8

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Humic Regosol

General Observations

Rooting Depth	35 cm
Water Table	Not encountered
Drainage Class	Well drained
Topography	Nearly level (<5% slopes)
Vegetation	Pumpkins
Comments:	Coarse fragments on surface and throughout soil profile. Likely disturbance from historic mining operations. Shovel refusal at 65cm.

Figure 13. Pit 8 representative landscape.

Figure 14. Pit 8 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 30 cm	15%	Gravel and cobbles	Silt loam	Fine subangular blocky	Friable	10YR 3/2	
BC	30 - 65 cm	55%	Gravel	Sandy loam	Granular	Loose	10YR 4/3	

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: November 12, 2024. Completed by: Justin McTavish, P.Ag	PID: 013-380-508	Soil Pit ID: 7
		Latitude: 49°01'35.04"N	Longitude: 122°16'39.60"W

Soil Pit 9

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Orthic Humic Regosol

General Observations

Rooting Depth	30+ cm
Water Table	Not encountered
Drainage Class	Imperfectly drained
Topography	Nearly level (<5% slopes)
Vegetation	Pumpkins
Comments:	Standing water at surface.

Figure 15. Pit 9 representative landscape.

Figure 16. Pit 9 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
Ap	0 – 30 cm	30%	Gravel and cobbles	Silt loam	Fine subangular blocky	Friable	10YR 3/2	
C	30+ cm	50%	Gravel and cobbles	Sandy loam	Granular	Loose	10YR 4/3	

Field Baseline Assessment – Soil Sampling		Site Information	
McTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.	Date of field assessment: November 12, 2024. Completed by: Justin McTavish P.Ag	PID: 013-380-508	Soil Pit ID: 7
		Latitude: 49°01'35.04"N	Longitude: 122°16'39.60"W

Soil Pit 10

Location: PID 013-380-508

General Description

Land Use	Agriculture – Pumpkin Field
Mapped Soil Series	Ryder (80%) / Lonzo Creek (20%)
Mapped Soil Classification	Orthic Humo-Ferric Podzol (100%)
Assessed Soil Classification	Fill

General Observations

Rooting Depth	NA
Water Table	Not encountered
Drainage Class	Well drained
Topography	Strongly sloping (15 - 30% slopes)
Vegetation	Uncultivated forest.
Comments:	Pit installed in strongly sloping treed area along eastern edge of parcel. No evidence of soil horizonation.

Figure 17. Pit 10 representative landscape. Pit installed along slope in treed area.

Figure 18. Pit 10 soil profile.

Horizon	Depth	Coarse Fragments (%)		Texture	Structure	Consistence	Colour	Comments (Von post scale, mottling, admixing, etc.)
C	0 – 25 cm	15%	Gravel and cobbles	Silt loam	Fine subangular blocky	Friable	NA	

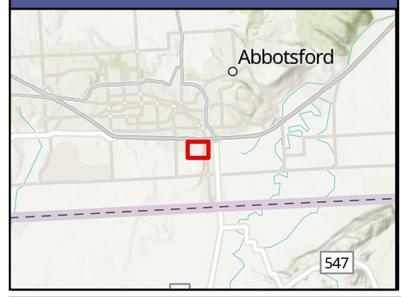
APPENDIX VI. REVISED AGRICULTURAL CAPABILITY MAP

McTAVISH
RESOURCE & MANAGEMENT CONSULTANTS LTD.

LEGEND

- 34252 King Road Parcel
- Field Assessed Agricultural Capability Polygons
- Soil Pit Location
- Not Field Assessed (Roads and Buildings)
- Proposed Subdivision Area

LOCATION OVERVIEW



N

0 40 80 160
Meters

Scale: 1:3,000
Projection: NAD 1983 BC Environment Albers

Project ID: 2024-0020-AG
Project Description: King Road Agricultural Capability Assessment
Created By: MH
Date Exported: 2/18/2025

34252 King Road: Field Assessed Agricultural Capability Polygons

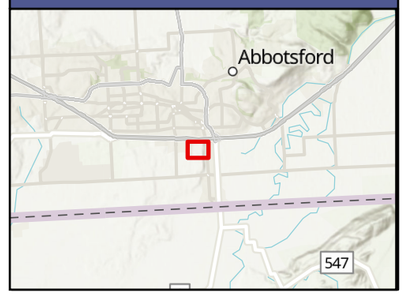
APPENDIX VII. PUBLISHED AGRICULTURAL CAPABILITY MAP

McTAVISH
RESOURCE & MANAGEMENT CONSULTANTS LTD.

LEGEND

- 34252 King Road Parcel
- Agricultural Land Reserve
- BC Agricultural Capability Polygons

LOCATION OVERVIEW



N

0 40 80 160
Meters

Scale: 1:3,000
Projection: NAD 1983 BC Environment Albers

Project ID: 2024-0020-AG
Project Description: King Road Agricultural Capability Assessment
Created By: MH
Date Exported: 10/30/2024

34252 King Road: Published Agricultural Capability Polygons

APPENDIX VIII. AGRICULTURAL CAPABILITY DESCRIPTIONS

In BC, land is rated for its agricultural capability through a classification system known as *The Land Capability Classification for Agriculture in British Columbia* by Kenk and Cotic (1983). Using this system, land in BC is rated between Class 1 to 7, where Class 1 is land best suited for agriculture and Class 7 is non-arable land (**Table AII-1**). For organic soils (not including peaty phases of mineral soils), the capability classes are designated as Class O1 to O7. Various subclasses describe the factor(s) that limit agriculture (**Table AII-2**).

The agricultural capability classification indicates the range of crops that can be grown and/or the management inputs required based on soil and climate parameters. The ratings can be "unimproved" based on the conditions that exist at the time of the survey without any management inputs or "improved" based on the rating after the limitations have been alleviated through improvements.

Table AII - 1 Descriptions of BC Land Capability Classes for Agriculture

Class	Description
1	Land has little or no limitations, is level or nearly level, and is easily maintained for a wide range of field crops. Soils are deep, hold moisture well, and can be managed without difficulty.
2	Land has minor limitations that either require good ongoing management practices or may restrict the range of crops (or both). Soils are deep, hold moisture well, and can be managed with little difficulty.
3	Land has limitations that require moderately intensive management practices, or may moderately restrict the range of crops, or both. Limitations may restrict choice of crop, timing and ease of tillage, planting and harvesting, and methods of soil conservation.
4	Land may only be suitable for a few crops, or a wide range of crops with low yield. Risk of crop failure is high. Soil conditions are such that special development and management practices are required. Limitations may restrict choice of crop, timing and ease of tillage, planting and harvesting, and methods of soil conservation.
5	Land has limitations that make it suitable for perennial forage or other specially adapted crops. Crops such as cranberries may be appropriate, or fruit trees or grapes if area is climatically suitable (stoniness and/or topography are not significant limitations to these crops). Productivity of these suited crops may be high. Class 5 lands may be used to cultivate field crops, provided intensive management is employed. If adverse climate is the main limitation, cultivated crops may be grown, however crop failure is expected under average conditions.
6	Land in class is non-arable but is capable of growing native and/or uncultivated forage crops. Land may be placed in this class because the terrain is unsuitable for cultivation or the use of farm machinery, the soils may not respond to intensive improvement practices, or in a region with severe climate. Diking, draining, and/or irrigation may improve Class 6 lands.

Table AIII – 2 Descriptions of BC Land Capability Subclasses for Agriculture

Subclass	Description
A Soil Moisture Deficits	The A subclass is used where crops are adversely affected by drought either through insufficient precipitation or low water holding capability in the soil. This limitation is determined for all lands subject to soil moisture deficits (SMD) during the growing season for the upper 50 cm of mineral soil. Class ratings are differentiated by the SMD: **Class 1** land, SMD occurs within 40 mm; **Class 2A**, between 40 and 115 mm; **Class 3A**, between 116 and 190 mm; **Class 4A**, between 191 and 265 mm; **Class 5A**, between 266 to 340 mm; and **Class 6A**, 341 to 415 mm and the land in present condition provides sustained natural grazing for domestic livestock.
D Undesirable soil structure and/or low perviousness	The D subclass is used when soil may be difficult to till, may pose problems for farm equipment operation and movement, and require special management for seedbed preparation. Land may have insufficient aeration, absorb, and distribute water slowly, have consolidated bedrock or permafrost, or have the depth of rooting zone restricted by conditions other than wetness such as a high-water table. In **Class 1** land, no root restricting layer is present in the upper 75 cm of the mineral soil surface and the upper 25 cm has a texture coarser than silty loam that is non-sticky. **Class 2D** has a root restricting layer that occurs from 50 to 75 cm of the mineral soil surface; or the upper 25 cm has a texture of silty loam, clay loam, or sandy clay that is slightly sticky-wet. **Class 3D** has a root restricting layer that occurs within 25 to 50 cm of the mineral soil surface, or the upper 25 cm has a texture of silty clay or clay that is sticky-wet. **Class 4D** has a root restricting layer that occurs within 25 cm of the soil surface, or the upper 25 cm has a texture of heavy clay that is very sticky-wet. **There are no subclasses 5D, 6D, or 7D.**
P Stoniness	The P subclass describes the presence of coarse fragments such as gravels (0.2 cm to 7.5 cm diameter), cobbles (7.5 cm to 25 cm diameter), stones (25 cm to 60 cm diameter), and boulders (>60 cm diameter). Coarse fragments may hinder tillage, planting, and/or harvesting. On **Class 1** land, the total coarse fragments is less than 5 percent and offers no, or very slight hindrance to cultivation. **Class 2P** has between 6 and 10% coarse fragments and less than 1 percent cobbles or stones resulting in a very slight hindrance to cultivation. **Class 3P** has between 11 and 20 % coarse fragments with cobbles and stones occupying 2 to 5% volume leading to a significant hindrance to cultivation. **Class 4P** has between 21 and 40% coarse fragments with cobbles and stones occupying 16 to 30% volume. In areas that are climatically suitable for growing tree fruits and grapes, Class 4P may not be significantly limiting. **Class 5P** has 41 to 60% of coarse fragments, or cobbles and stones occupying 6 to 15% volume, which prevents sustained cultivation unless considerable picking has taken place. **Class 6P** has 41 to 60% coarse fragments, or cobbles and stones occupying 61 to 90% volume, which prevents sustained cultivation and are impractical to pick to improve agricultural capability.
Subclass	**Description**
T Topography	The T subclass describes how topography may limit agriculture. Adverse topography may prevent the use of farm machinery, limit the types and uniformity of growth of crops, and increase the potential for water erosion. Depending on the region and crop type, topography may not be a significant limiting factor (e.g., tree fruits or grapes). Classification is based on the slope and complexity of slopes. **Class 1** land has simple slopes of 5% or less or complex slopes 2% or less. **Class 2T** has simple slopes between 6 and 10% or complex slopes between 3 and 5%; **Class 3T** has simple slopes between 11 and 15% or complex slopes between 6 and 10%; **Class 4T** has simple slopes between 16 and 20% or complex slopes between 11 and 15%; **Class 5T** has simple slopes between 21 to 30% or complex slopes between 16 to 30%; **Class 6T** has either simple or complex slopes, range from 31 to 60% and the land in its present condition provides sustained natural grazing for domestic livestock.

W Excess Water	The W subclass describes how imperfect or poor drainage due to high water tables, seepage, or runoff may limit or prevent agriculture. On **Class 1** land, excess water is not a limiting factor. **Class 2W** land may have occasional excess water during the growing season and without other contribution limiting factors, is not likely to significantly impact agriculture or the range of crops that can be grown. **Class 3W** has occasional occurrences of excess water during the growing season and the occurrence of excess soil water during the winter months that would adversely affect perennial crops. **Class 4W** has frequent or continues excess water during the growing season and the water level is at the surface most of the winter and into mid spring. This may force late seeding and/or restrict the crop type or production in a moderate way.

APPENDIX IX. LABORATORY RESULTS

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Farm Soil Analysis

Bill To:	McTavish Resource &	Grower Name:	King Rd PLC	Lot ID:	1769021
Address:		Site ID:		Report Number:	3062202
	203-19292 60 Ave.	Field Name:	King Rd SPS,6 Sub	Report Type:	Final Report
	Surrey, BC., Canada	Acres:		Date Received:	Oct 18, 2024
	V3S 3M2	Legal Location:		Date Reported:	Oct 22, 2024
Agreement:	36394	Previous Crop:	Crop not provided	Event Code:	

Nutrient analysis (ppm)

Depth	N*	P	K	S**	Ca	Mg	Fe	Cu	Zn	B	Mn	Cl	Na
0" - 6"	2			4									
Total lbs/acre	5			8									
Estimated lbs/acre	9			16									

*Nitrate-N **Sulfate-S n/a = not analysed

Soil Quality

pH	EC(dS/m)	OM(%)	Lot Ref #
6.9	0.1		7695

Alkaline	*Extreme*	*High*
Neutral	*Very High*	*Normal*
Acidic	*High*	*Low*
Very Acidic	*Good*	*Very Low*

Texture *Silt Loam* Hand Texture *n/a*

Sand 32.0 % Silt 61.0 % Clay 7.2 %

Ammonium n/a

BS n/a CEC n/a

Ca n/a Mg n/a Na n/a K n/a

TEC n/a

Lime n/a Buffer pH n/a K/Mg Ratio n/a

RECOMMENDATIONS FOR BALANCED CROP NUTRITION

	Crop not provided					Crop not provided				
Macro-nutrients	**Yield**	**N**	**P_2O_5**	**K_2O**	**S**	**Yield**	**N**	**P_2O_5**	**K_2O**	**S**
Growing Condition		To be added (lbs/acre)					To be added (lbs/acre)			
Excellent										
Average										
Your Goal										
Removal Rate (Seed/Total)										
Micro-nutrients	Iron	Copper	Zinc	Boron	Manganese	Iron	Copper	Zinc	Boron	Manganese
To be added (lbs/ac)										

Comments:

Element uses nutrient extraction and analytical methods specifically developed for western Canadian soils.

The modified Kelowna extractant used to analyze key nutrients in this Farm Soil Analysis report is the standard method used in soil fertility research in western Canada. It is used in developing crop response curves to fertilizer in the prairies. The Element "RECOMMENDATIONS FOR BALANCED CROP NUTRITION" are based on those research data. Element recommendations are accurate but should not replace responsible judgement.

Element
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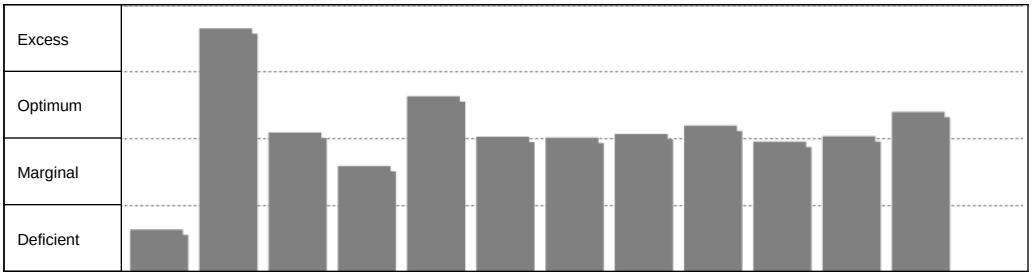
W: www.element.com

Farm Soil Analysis

Bill To:	McTavish Resource &	Grower Name:	King Rd PLC	Lot ID:	1769021
Address:		Site ID:		Report Number:	3062203
	203-19292 60 Ave.	Field Name:	King Rd SPS,6 A	Report Type:	Final Report
	Surrey, BC., Canada	Acres:		Date Received:	Oct 18, 2024
	V3S 3M2	Legal Location:		Date Reported:	Oct 23, 2024
Agreement:	36394	Previous Crop:	Crop not provided	Event Code:	

Nutrient analysis (ppm)

Depth	N*	P	K	S**	Ca	Mg	Fe	Cu	Zn	B	Mn	Cl	Na
0" - 6"	12	180	183	5	709	56	26.1	1.1	4.7	0.8	3.8	45	<30



Soil Quality

pH	EC(dS/m)	OM(%)	Lot Ref #
6.2	0.33	8.7	7696

Alkaline	*Extreme*	*High*
Neutral	*Very High*	*Normal*
Acidic	*High*	*Low*
Very Acidic	*Good*	*Very Low*

Total lbs/acre	25	369	365	11
Estimated lbs/acre	51	369	365	21

Texture *Silt Loam* Hand Texture *n/a*

Sand 33.6 % Silt 54.0 % Clay 12.1 %

Ammonium n/a

BS 61 % CEC 7.4 meq/100 g

Ca 48 % Mg 6.2 % Na <1.8 % K 6.4 %

TEC 7.4 meq/100 g

Lime n/a Buffer pH n/a K/Mg Ratio n/a

*Nitrate-N **Sulfate-S n/a = not analysed

RECOMMENDATIONS FOR BALANCED CROP NUTRITION

	Crop not provided					Crop not provided				
Macro-nutrients	**Yield**	**N**	**P2O5**	**K2O**	**S**	**Yield**	**N**	**P2O5**	**K2O**	**S**
Growing Condition		To be added (lbs/acre)					To be added (lbs/acre)			
Excellent										
Average										
Your Goal										
Removal Rate (Seed/Total)										
Micro-nutrients	Iron	Copper	Zinc	Boron	Manganese	Iron	Copper	Zinc	Boron	Manganese
To be added (lbs/ac)										

Comments:

Element uses nutrient extraction and analytical methods specifically developed for western Canadian soils.

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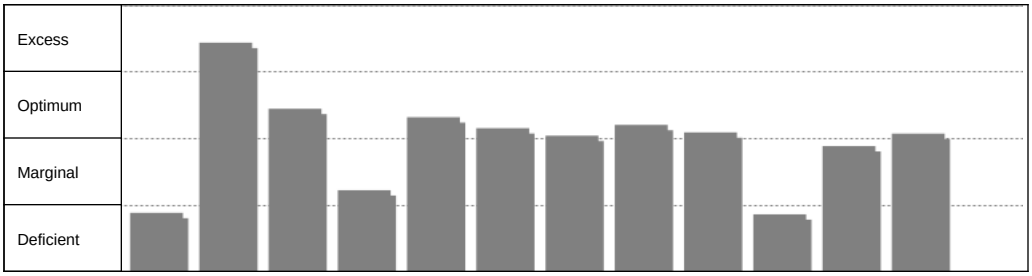
Farm Soil Analysis

Bill To:	McTavish Resource &	Grower Name:	King Rd PLC	Lot ID:	1769021
Address:		Site ID:		Report Number:	3062204
	203-19292 60 Ave.	Field Name:	King Rd SP2 A	Report Type:	Final Report
	Surrey, BC., Canada	Acres:		Date Received:	Oct 18, 2024
	V3S 3M2	Legal Location:		Date Reported:	Oct 23, 2024
Agreement:	36394	Previous Crop:	Crop not provided	Event Code:	

Nutrient analysis (ppm)

Depth	N*	P	K	S**	Ca	Mg	Fe	Cu	Zn	B	Mn	Cl	Na
0" - 6"	17	140	307	3	457	82	54.3	1.7	2.8	0.3	1.9	15	41



Soil Quality

pH	EC(dS/m)	OM(%)	Lot Ref #
6.5	0.29	8.2	7697

Alkaline	*Extreme*	*High*	
Neutral	*Very High*	*Normal*	
Acidic	*High*	*Low*	
Very Acidic	*Good*	*Very Low*	

Total lbs/acre	35	287	614	7
Estimated lbs/acre	71	287	614	13

Texture *Loam* Hand Texture *n/a*

Sand 49.0 % Silt 42.0 % Clay 8.6 %

Ammonium n/a

BS 95 % CEC 4.1 meq/100 g

Ca 55 % Mg 16 % Na 4.3 % K 19 %

TEC 4.1 meq/100 g

Lime n/a Buffer pH n/a K/Mg Ratio n/a

*Nitrate-N **Sulfate-S n/a = not analysed

RECOMMENDATIONS FOR BALANCED CROP NUTRITION

	Crop not provided					Crop not provided				
Macro-nutrients	**Yield**	**N**	**P2O5**	**K2O**	**S**	**Yield**	**N**	**P2O5**	**K2O**	**S**
Growing Condition		To be added (lbs/acre)					To be added (lbs/acre)			
Excellent										
Average										
Your Goal										
Removal Rate (Seed/Total)										
Micro-nutrients	Iron	Copper	Zinc	Boron	Manganese	Iron	Copper	Zinc	Boron	Manganese
To be added (lbs/ac)										

Comments:

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The modified Kelowna extractant used to analyze key nutrients in this Farm Soil Analysis report is the standard method used in soil fertility research in western Canada. It is used in developing crop response curves to fertilizer in the prairies. The Element "RECOMMENDATIONS FOR BALANCED CROP NUTRITION" are based on those research data. Element recommendations are accurate but should not replace responsible judgement.

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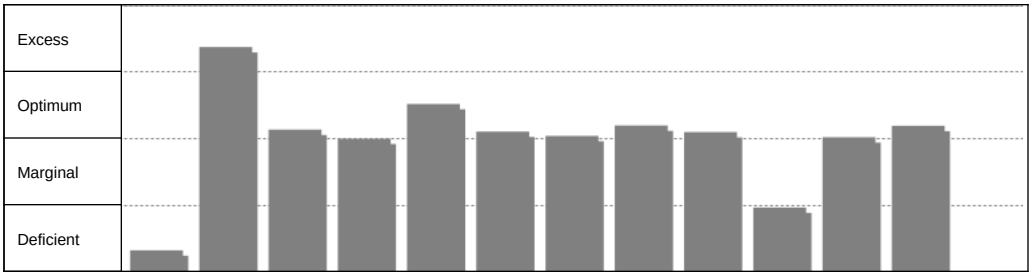
Farm Soil Analysis

Bill To:	McTavish Resource &	Grower Name:	King Rd PLC	Lot ID:	1769021
Address:		Site ID:		Report Number:	3062205
	203-19292 60 Ave.	Field Name:	King Rd SP1 Ap	Report Type:	Final Report
	Surrey, BC., Canada	Acres:		Date Received:	Oct 18, 2024
	V3S 3M2	Legal Location:		Date Reported:	Oct 23, 2024
Agreement:	36394	Previous Crop:	Crop not provided	Event Code:	

Nutrient analysis (ppm)

Depth	N*	P	K	S**	Ca	Mg	Fe	Cu	Zn	B	Mn	Cl	Na
0" - 6"	6	130	198	7	616	71	50.8	1.6	2.9	0.4	3.0	26	39



Soil Quality

pH	EC(dS/m)	OM(%)	Lot Ref #
6.5	0.31	8.8	7698

Alkaline	*Extreme*	*High*
Neutral	*Very High*	*Normal*
Acidic	*High*	*Low*
Very Acidic	*Good*	*Very Low*

Total lbs/acre	13	262	395	15
Estimated lbs/acre	26	262	395	30

Texture *Loam* Hand Texture *n/a*

Sand 44.0 % Silt 46.0 % Clay 10.3 %

Ammonium n/a

BS 100 % CEC 4.3 meq/100 g

Ca 70.9 % Mg 13 % Na 3.9 % K 11.7 %

TEC 4.3 meq/100 g

Lime n/a Buffer pH n/a K/Mg Ratio n/a

*Nitrate-N **Sulfate-S n/a = not analysed

RECOMMENDATIONS FOR BALANCED CROP NUTRITION

	Crop not provided					Crop not provided				
Macro-nutrients	**Yield**	**N**	**P2O5**	**K2O**	**S**	**Yield**	**N**	**P2O5**	**K2O**	**S**
Growing Condition		To be added (lbs/acre)					To be added (lbs/acre)			
Excellent										
Average										
Your Goal										
Removal Rate (Seed/Total)										
Micro-nutrients	Iron	Copper	Zinc	Boron	Manganese	Iron	Copper	Zinc	Boron	Manganese
To be added (lbs/ac)										

Comments:

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Farm Soil Analysis

Bill To:	McTavish Resource &	Grower Name:	King Rd PLC	Lot ID:	1769021
Address:		Site ID:		Report Number:	3062206
	203-19292 60 Ave.	Field Name:	King Rd SP2 Sub	Report Type:	Final Report
	Surrey, BC., Canada	Acres:		Date Received:	Oct 18, 2024
	V3S 3M2	Legal Location:		Date Reported:	Oct 22, 2024
Agreement:	36394	Previous Crop:	Crop not provided	Event Code:	

Nutrient analysis (ppm)

Depth	N*	P	K	S**	Ca	Mg	Fe	Cu	Zn	B	Mn	Cl	Na
0" - 6"	4			3									
Total lbs/acre	8			5									
Estimated lbs/acre	17			10									

*Nitrate-N **Sulfate-S n/a = not analysed

Soil Quality

pH	EC(dS/m)	OM(%)	Lot Ref #
6.5	0.2		7699

Alkaline	*Extreme*	*High*
Neutral	*Very High*	*Normal*
Acidic	*High*	*Low*
Very Acidic	*Good*	*Very Low*

Texture *Loam* Hand Texture *n/a*

Sand 41.6 % Silt 46.0 % Clay 12.1 %

Ammonium n/a

BS n/a CEC n/a

Ca n/a Mg n/a Na n/a K n/a

TEC n/a

Lime n/a Buffer pH n/a K/Mg Ratio n/a

RECOMMENDATIONS FOR BALANCED CROP NUTRITION

	Crop not provided					Crop not provided				
Macro-nutrients	**Yield**	**N**	**P_2O_5**	**K_2O**	**S**	**Yield**	**N**	**P_2O_5**	**K_2O**	**S**
Growing Condition		To be added (lbs/acre)					To be added (lbs/acre)			
Excellent										
Average										
Your Goal										
Removal Rate (Seed/Total)										
Micro-nutrients	Iron	Copper	Zinc	Boron	Manganese	Iron	Copper	Zinc	Boron	Manganese
To be added (lbs/ac)										

Comments:

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Farm Soil Analysis

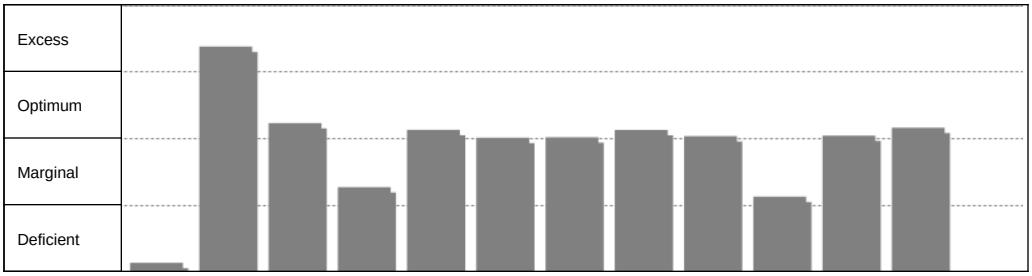
Bill To:	McTavish Resource &	Grower Name:	King Rd PLC	Lot ID:	1769021
Address:		Site ID:		Report Number:	3062207
	203-19292 60 Ave.	Field Name:	King Rd SP4 A	Report Type:	Final Report
	Surrey, BC., Canada	Acres:		Date Received:	Oct 18, 2024
	V3S 3M2	Legal Location:		Date Reported:	Oct 23, 2024
Agreement:	36394	Previous Crop:	Crop not provided	Event Code:	

Nutrient analysis (ppm)

Depth	N*	P	K	S**	Ca	Mg	Fe	Cu	Zn	B	Mn	Cl	Na
0" - 6"	3	130	232	4	306	53	30.4	1.4	2	0.5	4.2	23	<30

Soil Quality

pH	EC(dS/m)	OM(%)	Lot Ref #
6.4	0.22	3.9	7700



Alkaline	*Extreme*	*High*
Neutral	*Very High*	*Normal*
Acidic	*High*	*Low*
Very Acidic	*Good*	*Very Low*

Total lbs/acre	6	265	464	7
Estimated lbs/acre	11	265	464	14

Texture *Sandy Loam* Hand Texture *n/a*

Sand 57.0 % Silt 32.0 % Clay 10.7 %

Ammonium n/a

BS 68 % CEC 3.8 meq/100 g

Ca 41 % Mg 12 % Na <3.5 % K 16 %

TEC 3.8 meq/100 g

Lime n/a Buffer pH n/a K/Mg Ratio n/a

*Nitrate-N **Sulfate-S n/a = not analysed

RECOMMENDATIONS FOR BALANCED CROP NUTRITION

	Crop not provided					Crop not provided				
Macro-nutrients	**Yield**	**N**	**P2O5**	**K2O**	**S**	**Yield**	**N**	**P2O5**	**K2O**	**S**
Growing Condition		To be added (lbs/acre)					To be added (lbs/acre)			
Excellent										
Average										
Your Goal										
Removal Rate (Seed/Total)										
Micro-nutrients	Iron	Copper	Zinc	Boron	Manganese	Iron	Copper	Zinc	Boron	Manganese
To be added (lbs/ac)										

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April 3, 2025

AGRICULTURAL ADVISORY COMMITTEE PRESENTATION

PROPOSED SUBDIVISION AND NON-FARM USE AT 34252 KING ROAD, ABBOTSFORD

CITY OF ABBOTSFORD FILE NUMBER: PRJ25-012

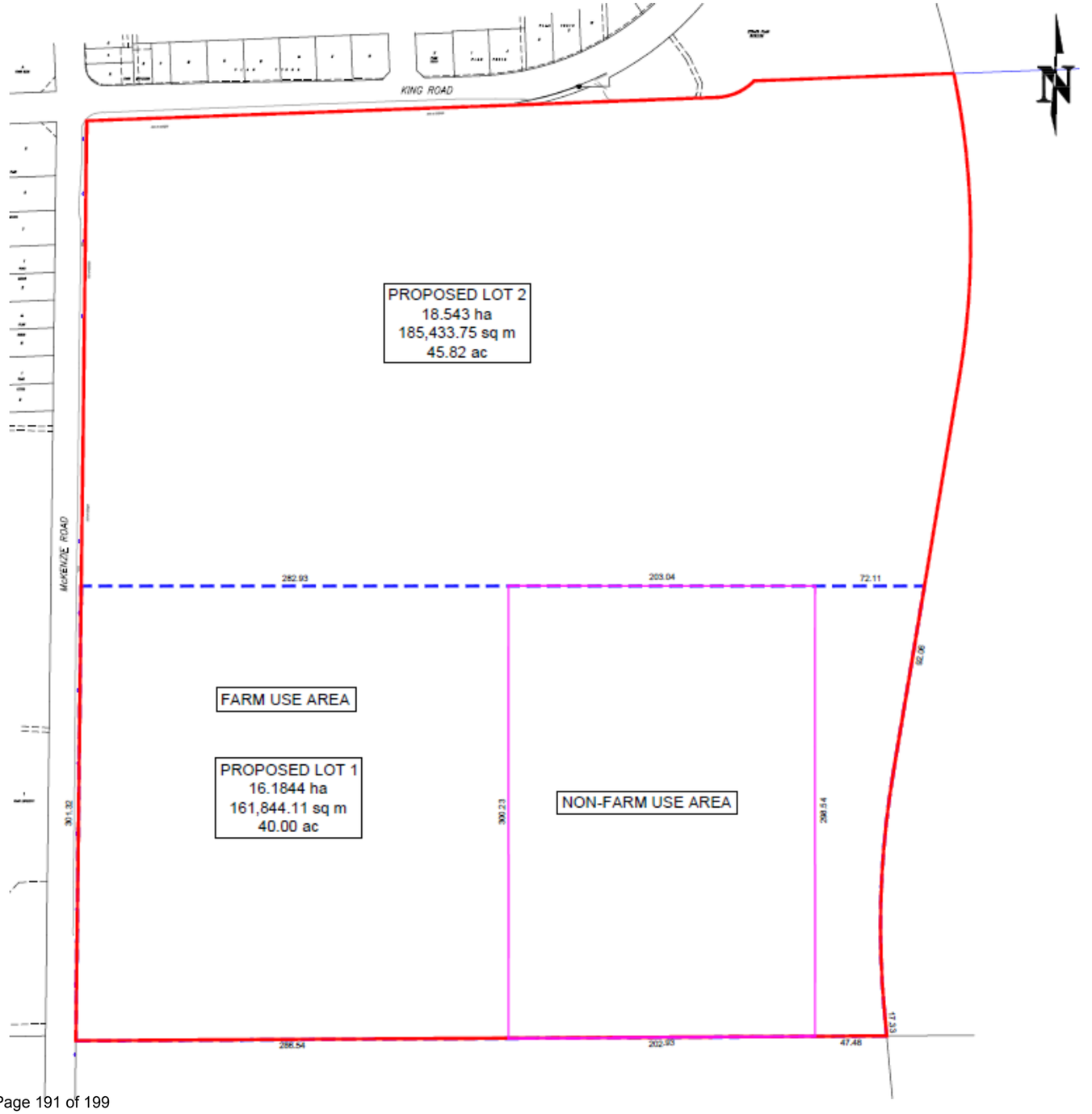
ALC APPLICATION ID: 103253

PREPARED BY: PACIFIC LAND GROUP, ON BEHALF OF THE MINISTRY OF INFRASTRUCTURE AND THE MINISTRY OF CITIZENS' SERVICES

PROPOSAL

1) **Subdivide** the Subject Property into one 40-acre (16.2 hectare) lot ("Proposed Lot 1") and one 45.82-acre (18.5 hectare) lot ("Proposed Lot 2").

2) Proposed 15-acre **non-farm use** area within Proposed Lot 1 to establish a new provincial Plant and Animal Health Centre ("PAHC").



WHY HERE?

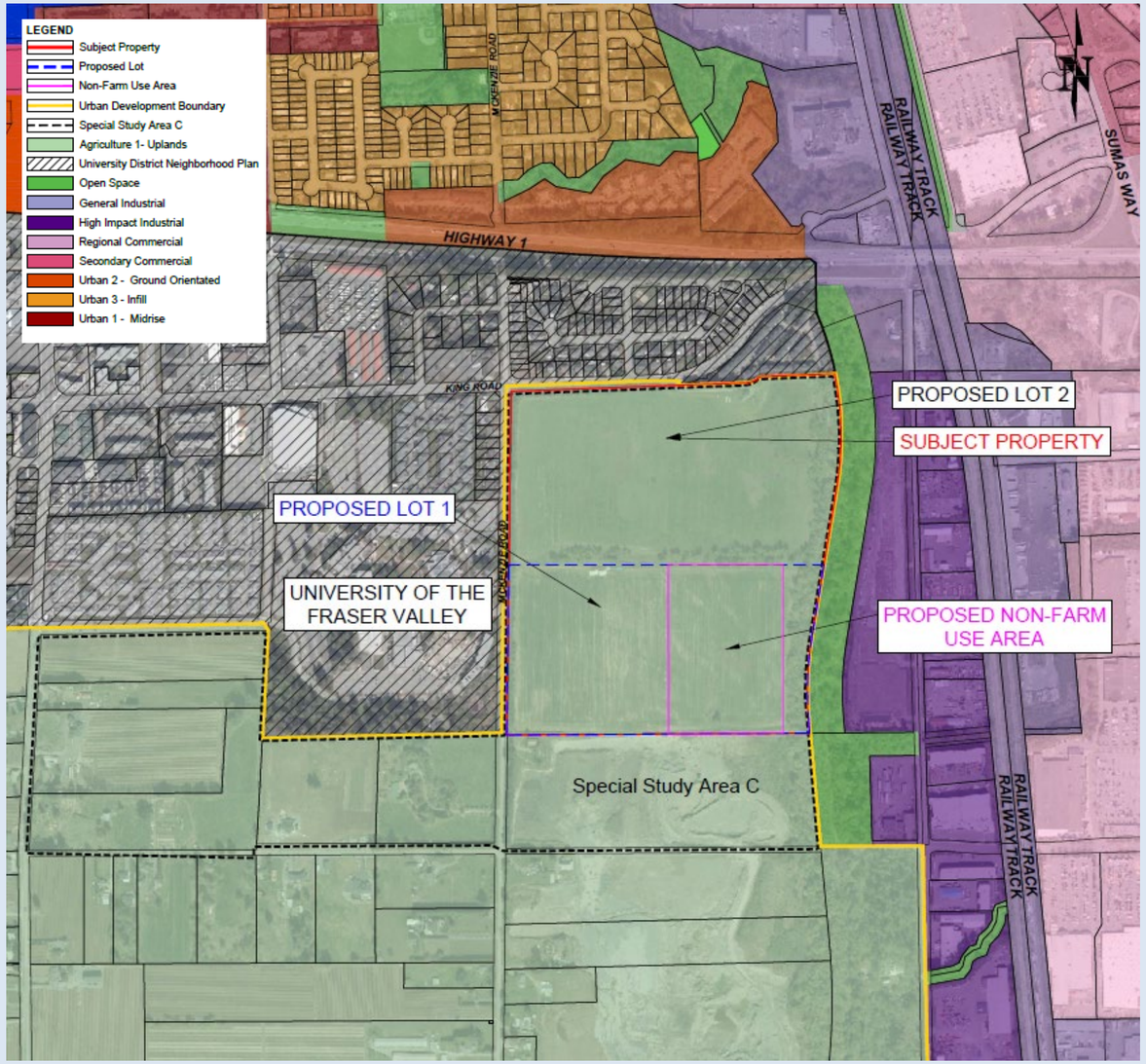
➢ **Special Study Area C**

"this area is also conducive to agricultural programs relating to innovation, research and development, education, and exhibition opportunities."

(Official Community Plan Bylaw No. 2600-2016, Part 2, Page 24)

The Subject Property is an ideal location for a PAHC

- The proposal is consistent with the intent of the Special Study Area C designation
- The proposed non-farm use for a future PAHC ensures the site is used to support agricultural research and development in British Columbia



ABOUT THE PAHC

The PAHC is the only full-service laboratory of its kind with the capability to test for plant and animal diseases in British Columbia. The PAHC will consist of the Animal Health Centre (AHC) and Plant Health Laboratory (PHL) to serve the agricultural community and people in British Columbia.

Mission: To diagnose, monitor, and assist in the prevention and management of plant and animal pests and diseases in British Columbia, ensuring diagnostic excellence.

Vision: A thriving, sustainable agricultural industry free from serious impacts caused by pests and diseases, for the benefit of all citizens of British Columbia.

HOW DOES THE PROPOSAL SUPPORT AGRICULTURE?

The PAHC provides critical diagnostics for managing outbreaks of diseases in plants and animals, enabling rapid containment and preventing their spread on farms and across the province.

- By acting as the province's response facility to threats against food supply and zoonotic diseases (which can threaten human health), the PAHC demonstrates its importance to the agriculture industry and British Columbians.

- Through the PAHC, the Province supports farmers and the agricultural community in the critical work they do to ensure food security for British Columbians by establishing policies to use agricultural land wisely, increase production, and add processing capacity.

THANK YOU

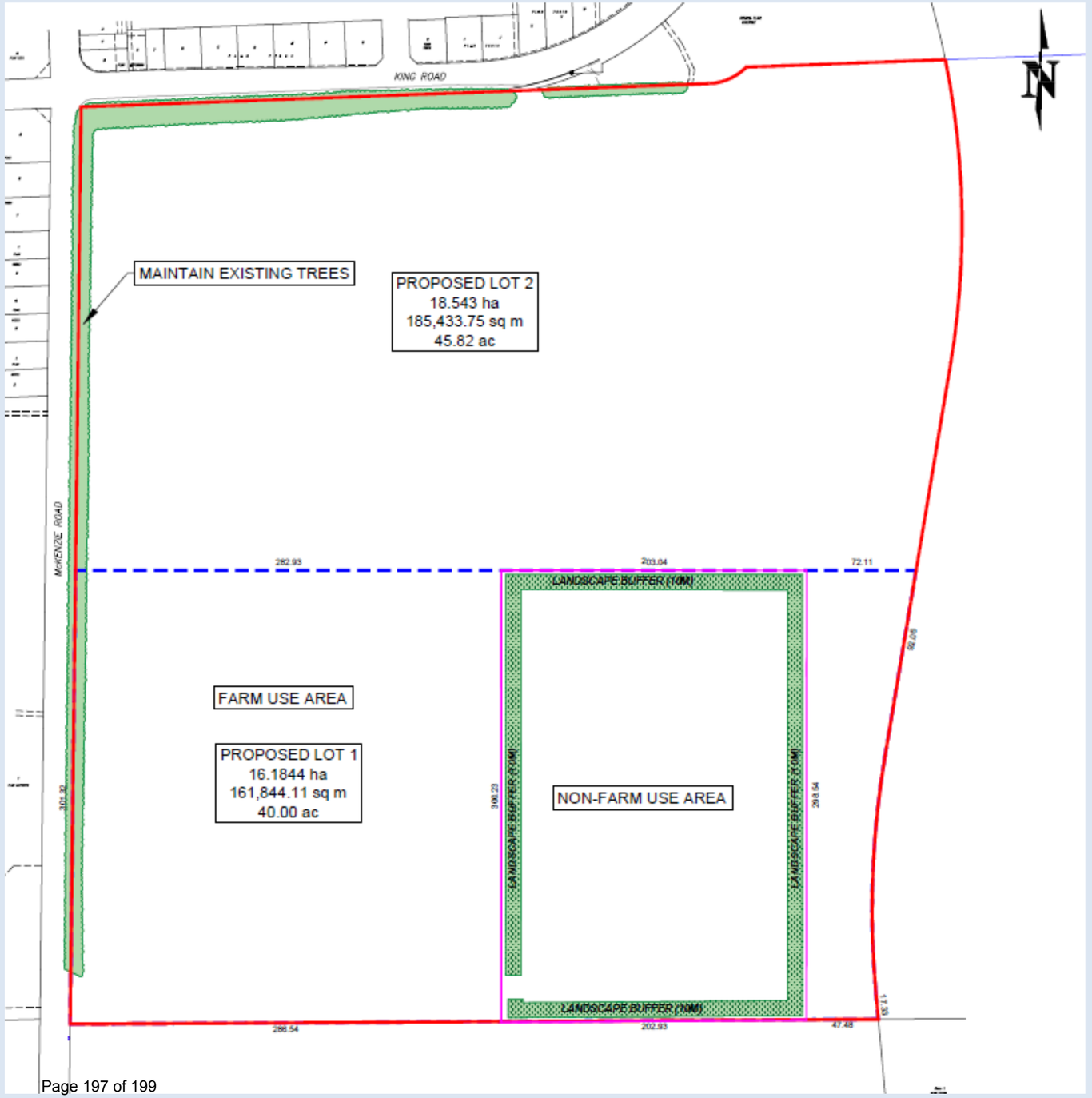
BRITISH COLUMBIA

PACIFIC LAND GROUP
Land Use, Development & Environmental Strategists

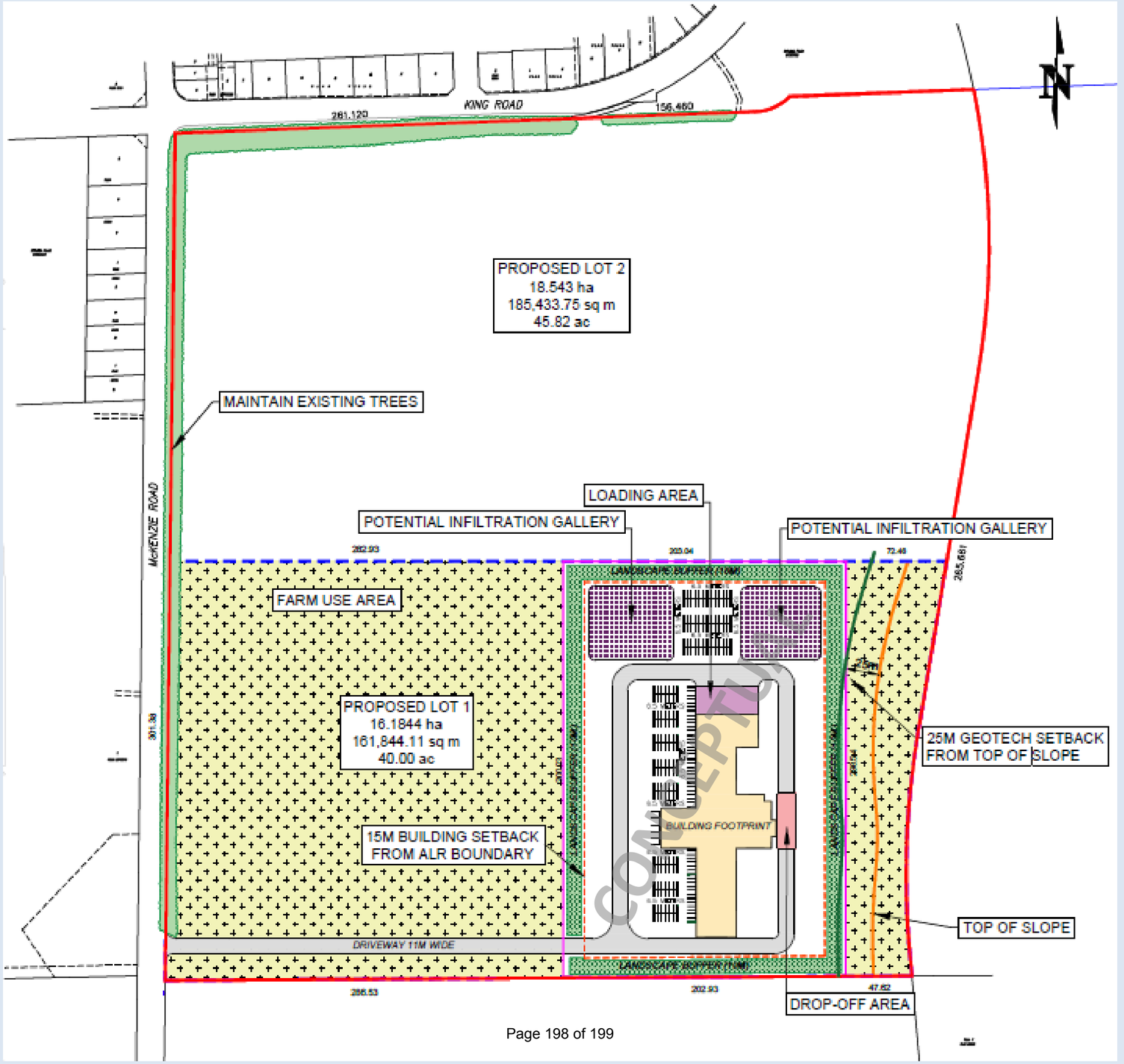
APPENDICES

LANDSCAPING BUFFER PLAN

A 10-metre-wide landscape buffer is proposed along the perimeter of the 15-acre non-farm use area to screen the facility from agricultural uses to the east, south, west, and north.



SITE PLAN


KING ROAD
281.120
156.460
N
PROPOSED LOT 2
18.543 ha
185,433.75 sq m
45.82 ac
MAINTAIN EXISTING TREES
McKENZIE ROAD
LOADING AREA
POTENTIAL INFILTRATION GALLERY
POTENTIAL INFILTRATION GALLERY
282.93
203.04
72.48
285.681
FARM USE AREA
PROPOSED LOT 1
16.1844 ha
161,844.11 sq m
40.00 ac
301.38
15M BUILDING SETBACK
FROM ALR BOUNDARY
BUILDING FOOTPRINT
25M GEOTECH SETBACK
FROM TOP OF SLOPE
TOP OF SLOPE
DRIVEWAY 11M WIDE
286.53
202.93
47.62
DROP-OFF AREA
CONCEPTUAL
LEGEND
Surveyed Subject Property
Proposed Lot
Non-Farm Use Area
15m Building Setback (ALR Setback)
Top of Slope
25m Geotech Setback from Top of Slope
Farm Use Area
10m Landscape Buffer
Potential Infiltration Gallery
Existing Trees to be Maintained
Mapped Contours (1 m Intervals)

CONTEXT PLANS